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Irikla Reservoir Perch and Pikeperch Gillnet Fishery

Announcement Comment Draft Report

Conformity Assessment Body (CAB)	MRAG Americas, Inc.
Assessment team	Amanda Stern-Pirlot and Dmitry Sendek
Fishery client	Followfood GmBH
Assessment type	1st Reassessment
Date	5 January 2021

Document Control Record

Document Draft	Submitted By	Date	Reviewed By	Date
ACDR	ASP, DS	25 Dec 2020	ASP	4 Jan 2021

1 Contents

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2 Executive summary

Draft determination to be completed at Public Comment Draft Report stage

The CAB shall include in the executive summary:

- Date and location of site visit.
- The main strengths and weaknesses of the client's operation.
- From Public Comment Draft Report reporting stage only - the draft determination / determination reached with supporting justification.

Reference(s): FCP v2.2 Section(s) 7.12, 7.18, 7.21

To be competed in the following stages of the assessment.

3 Report details

3.1 Authorship and peer review details

Peer reviewer information to be completed at Public Comment Draft Report stage

Ms. Amanda Stern-Pirlot served as team leader for the assessment. Amanda is an M.Sc graduate of the University of Bremen, Center for Marine Tropical Ecology (ZMT) in marine ecology and fisheries biology. Ms. Stern-Pirlot joined MRAG Americas in mid-June 2014 as MSC Certification Manager (now Director of the Fishery Certification Division) and is currently serving on several different assessment teams as team leader and team member. She has worked together with other scientists, conservationists, fisheries managers and producer groups on international fisheries sustainability issues for over 15 years. With the Institute for Marine Research (IFM-GEOMAR) in Kiel, Germany, she led a work package on simple indicators for sustainable within the EU-funded international cooperation project INCOFISH, followed by five years within the Standards Department at the Marine Stewardship Council (MSC) in London, developing standards, policies and assessment methods informed by best practices in fisheries management around the globe. Most recently she has worked with the Alaska pollock industry as a resources analyst, within the

North Pacific Fisheries Management Council process, focusing on bycatch and ecosystem-based management issues, and managing the day-to-day operations of the offshore pollock cooperative. She has co-authored a dozen publications on fisheries sustainability in the developing world and the functioning of the MSC as an instrument for transforming fisheries to a sustainable basis.

Dr. Dmitry Sendek. Dmitry Sendek is a senior researcher scientist in the State Research Institute on Lake and River Fishery (GosNIORKh), St. Petersburg Russia. Dr. Sendek holds a BS and MS from St. Petersburg University, and a PhD from the GosNIORKh. His research interests include evolution, phylogeny and systematics of coregonids fishes, population biology of freshwater and anadromous fishes, genetic conservation of salmonid fishes, and population dynamics. Dr. Sendek has authored numerous scientific articles, book chapters, and scientific reports.

A discussion between team members regarding conflict of interest and biases was held and none were identified.

3.2 Version details

The CAB shall include in the report a statement on the versions of the fisheries program documents used for this assessment.

Table 1 – Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	**Version 2.2**
MSC Fisheries Standard	**Version 2.01**
MSC General Certification Requirements	**Version 2.4.1**
MSC Reporting Template	**Version 1.2**

4 Unit(s) of Assessment and Unit(s) of Certification and results overview

4.1 Unit(s) of Assessment and Unit(s) of Certification

4.1.1 Unit(s) of Assessment

MRAG Americas has confirmed that this fishery is within scope for MSC fisheries certification through the following determinations (FCP v2.2 7.4):

7.4.2.1 The following taxa are not target species under Principle 1:
- a. Amphibians
- b. Reptiles
- c. Birds
- d. Mammals

7.4.2.2 The fishery does not use poisons or explosives.

7.4.2.3 The fishery is not conducted under a controversial unilateral exemption to an international agreement.

7.4.2.4 No member of the client group has been successfully prosecuted for a forced or child labour violation in the last 2 years.

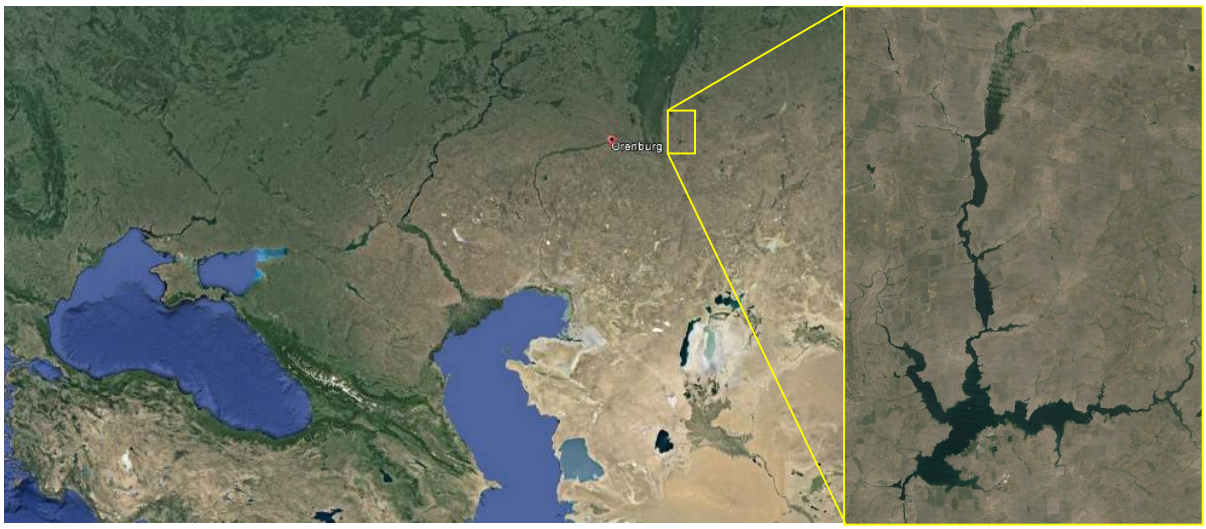
7.4.2.10 The fishery has not been convicted for a shark finning violation in the last 2 years.

7.4.2.11 The fishery has a mechanism for resolving disputes and disputes do not overwhelm the fishery.

7.4.2.12 The fishery is not enhanced.

7.4.2.13 The fishery is not based on introduced species.

Table 2 – Unit(s) of Assessment (UoA)

UoA 1	Description
Species	Common or European perch (*Perca fluviatilis*)
Stock	Irikla Reservoir on Ural River, Orenburg Province, Russian Federation
Fishing gear type(s) and, if relevant, vessel type(s)	Gillnets (30 – 36 mesh size)
Client group	FOLLOWFOOD GMBH, Allmandstrasse 8, 88045, FRIEDRICHSHAFEN, Baden-Württemberg – Tübingen, Germany.
Other eligible fishers	All licensed commercial fishermen nominated by client. To date, there are currently 47 eligible fishermen within the UoC, as shown in Table 1.
Geographical area	Irikla Reservoir on Ural River, Orenburg Province, Russian Federation  **Figure 1. Map showing the location of the Irikla Reservoir, Orenburg Province, Russian Federation [Source: GoogleEarth].**
UoA 2	Description
Species	Pikeperch (*Sander lucioperca*)
Stock	Stock of common perch inhabiting Irikla Reservoir
Fishing gear type(s) and, if relevant, vessel type(s)	Gillnets (50-70mm mm mesh size)
Client group	followfood GMBH, Allmandstrasse 8, 88045, FRIEDRICHSHAFEN, Baden-Württemberg – Tübingen, Germany.

Other eligible fishers	All licensed commercial fishermen nominated by client (see Table 1).
Geographical area	Irikla Reservoir on Ural River, Orenburg Province, Russian Federation (see Figure 1.

Table 1. List of eligible fisherman and associated boats included in units of assessment and current units of certification (correct as of July 2019).

No.	Name	Position	Boat ID	
			Name	Type
	Fish-ka Ltd			
	Sofinsky reach			
1	Turta Oleg Anatolyevich - Турта Олег Анатольевич	Brigadier	Stays in one of brigade's boats	
2	Shchukin Aleksei Mikhailovich - Щукин Алексей Михайлович	Fisherman	Irikla-04	Taktika-490 - Тактика-490
3	Davletberdin Zufar Ishbuldeevich- Давлетбердин Зуфар Ишбулдеевич	Fisherman	Irikla-05	Kazanka-5M2 - Казанка-5М2
4	Mukhamedzhanov Bereg Kakimovich- Мухамеджанов Берег Какимович	Fisherman	Irikla-08	Kazanka-5M2 - Казанка-5М2
5	Щукин Андрей Михайлович - Andrei Mikhailovich Schukin	Fisherman	Irikla-10	Progress-2M - Прогресс-2М
6	Mukhamedzhanov Denis Bulatovich - Мухамеджанов Денис Булатович	Fisherman	-	Rubber boat - Резиновая лодка
	Tanalyksky Bay			
7	Liskovich Andrey Viktorovich Лискович Андрей Викторович	Brigadier	Irikla-07	Kazanka-5M2 - Казанка-5М2
8	Brylev Alexey Vladimirovich- Брылев Алексей Владимирович	Fisherman	-	Rubber boat - Резиновая лодка
9	Naumenko Nikolay Vladimirovich - Науменко Николай Владимирович	Fisherman	-	Rubber boat - Резиновая лодка
10	Demin Vladimir Danilovich - Демин Владимир Данилович	Fisherman	Irikla-06	Progress-2M - Прогресс-2М
	Suunduksky Bay			
11	Yeskov Vladimir Alekseevich Еськов Владимир Алексеевич	Brigadier	Irikla-17	Kazanka-5M2 - Казанка-5М2
12	Turta Alexander Anatolievich- Турта Александр Анатольевич	Fisherman	-	Rubber boat - Резиновая лодка
13	Kishkin Andrey Alexandrovich - Кишкин Андрей Александрович	Fisherman	-	Rubber boat - Резиновая лодка
14	Sabirov Ruslan Raphaelevich- Сабиров Руслан Рафаэлевич	Fisherman	Irikla-37	Kazanka-5M3 - Казанка-5М3
15	Demidenok Konstantin Alexandrovich- Демиденок Константин Александрович	Fisherman	Irikla-14	Progress-2M - Прогресс-2М
16	Korchagin Alexander Vladimirovich- Корчагин Александр Владимирович	Fisherman	-	Rubber boat - Резиновая лодка
17	Yanchistov Vasily Alexandrovich- Янчистов Василий Александрович	Fisherman	Irikla-25	Kazanka-5M3 - Казанка-5М3
	Entire reservoir			
18	Transport boat		Irikla-03	SLK-780 - СЛК-780
19	Transport boat		Irikla-02	SLK-780 - СЛК-780
20	Transport boat		Irikla-01	Saliut-480 - Салют-480
	Volna Ltd			
	Chapaevsky reach			

No.	Name	Position	Boat ID	
			Name	Type
21	Perekhozheva Oksana Alexandrovna - Перехожева Оксана Александровна	Brigadier	-	Stays in one of brigade's boats
22	Shibanov Yury Vladimirovich- Шибанов Юрий Владимирович	Fisherman	-	Rubber boat - Резиновая лодка
23	Baulin Alexander Anatolyevich - Баулин Александр Анатольевич	Fisherman	Irikla-34	Progress-2M - Прогресс-2М
24	Zamolotsky Vitaly Anatolievich- Замолоцких Виталий Анатольевич	Fisherman	Irikla-18	Progress-2M - Прогресс-2М
25	Zvekov Sergey Anatolyevich - Звеков Сергей Анатольевич	Fisherman	-	Rubber boat - Резиновая лодка
26	Tryapkin Alexander Filippovich - Тряпкин Александр Филиппович	Fisherman	Irikla-21	Kazanka-5M2 - Казанка-5М2
27	Perekhozhev Andrey Petrovich - Перехожев Андрей Петрович	Fisherman	Irikla-23	Progress-2M - Прогресс-2М
	Orlovsky reach			
28	Duraev Yuri Borisovich – Дураев Юрий Борисович	Brigadier	Stays in one of brigade's boats	
29	Duraev Maxim Yurievich - Дураев Максим Юрьевич	Fisherman	Irikla-16	Progress-2M - Прогресс-2М
30	Salin Sergey Ivanovich - Салин Сергей Иванович	Fisherman	Irikla-32	Progress-2M - Прогресс-2М
	Tanalyk-Suunduksky reach			
31	Gudina Elena Vladimirovna - Гудина Елена Владимировна	Brigadier	Stays in one of brigade's boats	
32	Ermolov Mikhail Viktorovich - Ермолов Михаил Викторович	Fisherman	-	Rubber boat - Резиновая лодка
33	Kiselev Dmitry Valerievich - Киселев Дмитрий Валерьевич	Fisherman	-	Rubber boat - Резиновая лодка
34	Zorkov Nikolay Aleksandrovich - Зорков Николай Александрович	Fisherman	-	Rubber boat - Резиновая лодка
35	Tsvetkov Ivan Evgenievich - Цветков Иван Евгеньевич	Fisherman	Irikla-22	Kazanka-5M2 - Казанка-5М2
36	Pivtsayev Vitaly Ivanovich - Пивцаев Виталий Иванович	Fisherman	Irikla-19	Kazanka-5M2 - Казанка-5М2
37	Alymov Igor Iurievich - Алымов Игорь Юрьевич	Brigadier	Irikla-27	Progress-2M - Прогресс-2М
38	Chechin Alexey Pavlovich - Чечин Алексей Павлович	Fisherman	Irikla-41	Kazanka-5M3 - Казанка-5М3
39	Yeskin Alexander Vladimirovich (rent) - Еськин Александр Владимирович(аренда)	Fisherman	Irikla-28	Kazanka-5M3 - Казанка-5М3
40	Svyaznin Alexander Mikhailovich - Свяжнин Александр Михайлович	Fisherman	Irikla-20	Progress-2M - Прогресс-2М
41	Dmitriev Yuri Georgievich - Дмитриев Юрий Георгиевич	Fisherman	Irikla-15	Progress-2M - Прогресс-2М
42	Nikishin Anatoly Yuryevich - Никишин Анатолий Юрьевич	Fisherman	-	Rubber boat - Резиновая лодка
43	Akkuratnov Nikolay Viktorovich - Аккуратнов Николай Викторович	Fisherman	Irikla-29	Kazanka-5M2 - Казанка-5М2
44	Krauyalis Vladimir Zdislavovich (rent) - Краулис Владимир Здиславович(аренда)	Fisherman	Irikla-30	Kazanka-5M2 - Казанка-5М2
45	Krauyalis Vladimir Zdislavovich (rent) - Краулис Владимир Здиславович(аренда)	Fisherman	Irikla-31	Progress-2M - Прогресс-2М
46	Borodulin Vyacheslav Borisovich - Бородулин Вячеслав Борисович	Brigadier	Stays in one of brigade's boats	
47	Gorbunov Alexander Vasilyevich - Горбунов Александр Васильевич	Fisherman	Irikla-13	Progress-2M - Прогресс-2М

No.	Name	Position	Boat ID	
			Name	Type
48	Pinyakov Vasily Ivanovich - Пиняков Василий Иванович	Fisherman	Irikla-12	Progress-2M - Прогресс-2М
49	Pudovkin Evgeny Nikolaevich - Пудовкин Евгений Николаевич	Fisherman	Irikla-26	Kazanka-5M3 - Казанка-5М3
50	Kurganov Peter Vasilyevich - Курганов Петр Васильевич	Fisherman	-	Rubber boat - Резиновая лодка
51	Radionov Alexander Valerievich - Радионов Александр Валерьевич	Fisherman	Irikla-36	Kazanka-5M3 - Казанка-5М3

4.1.2 Unit(s) of Certification

If there are changes to the proposed Unit(s) of Certification (UoC), the CAB shall include in the report a justification.

Reference(s): FCP v2.2 Section 7.5

At the time of completing this reassessment ACDR, the proposed Units of Certification are the same as the Units of Assessment listed above.

Table 3 – Unit(s) of Certification (UoC)

UoC 1	Description
Species	Common or European perch (*Perca fluviatilis*)
Stock	Irikla Reservoir on Ural River, Orenburg Province, Russian Federation
Fishing gear type(s) and, if relevant, vessel type(s)	Gillnets (30 – 36 mm mesh size)
Client group	FOLLOWFOOD GMBH, Allmandstrasse 8, 88045, FRIEDRICHSHAFEN, Baden-Württemberg – Tübingen, Germany.
Other eligible fishers	All licensed commercial fishermen nominated by client. To date, there are currently 47 eligible fishermen within the UoC, as shown in Table 1.
Geographical area	Irikla Reservoir on Ural River, Orenburg Province, Russian Federation (see Figure 1).
UoC 2	**Description**
Species	Pikeperch (*Sander lucioperca*)
Stock	Stock of common perch inhabiting Irikla Reservoir
Fishing gear type(s) and, if relevant, vessel type(s)	Gillnets (50-70mm mesh size)
Client group	followfood GMBH, Allmandstrasse 8, 88045, FRIEDRICHSHAFEN, Baden-Württemberg – Tübingen, Germany.
Other eligible fishers	All licensed commercial fishermen nominated by client (see Table 1).
Geographical area	Irikla Reservoir on Ural River, Orenburg Province, Russian Federation (see Figure 1).

4.1.3 Scope of assessment in relation to enhanced or introduced fisheries – delete if not applicable

Not applicable; this is not an enhanced fishery, nor is it based on introduced species.

4.2 Assessment results overview

4.2.1 Determination, formal conclusion and agreement

To be drafted at Public Comment Draft Report stage

The CAB shall include in the report a formal statement as to the certification determination recommendation reached by the assessment team on whether the fishery should be certified.

The CAB shall include in the report a formal statement as to the certification action taken by the CAB's official decision-maker in response to the determination recommendation.

Reference(s): FCP v2.2, 7.20.3.h and Section 7.21

4.2.2 Principle level scores

To be drafted at Client and Peer Review Draft Report stage

The CAB shall include in the report the scores for each of the three MSC principles in the table below.

Reference(s): FCP v2.2 Section 7.17

Table 4 - Principle level scores

Principle	UoA 1	UoA 2
Principle 1 – Target species	**≥80**	**≥80**
Principle 2 – Ecosystem impacts	**≥80**	**≥80**
Principle 3 – Management system	**≥80**	**≥80**

4.2.3 Summary of conditions

To be drafted at Client and Peer Review Draft Report stage

The CAB shall include in the report a table summarising conditions raised in this assessment. Details of the conditions shall be provided in the appendices. If no conditions are required, the CAB shall include in the report a statement confirming this.

Reference(s): FCP v2.2 Section 7.18

4.2.4 Recommendations

To be drafted at Client and Peer Review Draft Report stage

If the CAB or assessment team wishes to include any recommendations to the client or notes for future assessments, these may be included in this section.

5 Traceability and eligibility

5.1 Eligibility date

As this fishery is currently certified, and the reassessment, if successful, will ensure the certificate is renewed before the expiration of the current certificate, product from this fishery is expected to remain continuously eligible.

5.2 Traceability within the fishery

MRAG Americas has evaluated the key elements of traceability within the fishery as required by the by MSC Certification Requirements using the table below.

Table 2. Traceability within the fishery.

Factor	Description
Will the fishery use gears that are not part of the Unit of Certification (UoC)? If Yes, please describe: - If this may occur on the same trip, on the same vessels, or during the same season; - How any risks are mitigated.	*Please state whether this occurs within the fishery (e.g. regularly, rarely, never). If so, please describe how this potential traceability risk is addressed or mitigated.* The highest proportion of pikeperch retained in the catch occurs when the Reservoir is covered in ice and small mesh gillnets are not used. This significantly reduces the risk of potential mixing of certified and non-certified catch. Due to the selectivity of gillnet mesh sizes used in the pikeperch fishery (50-70 mm), it would be obvious whether undersized pikeperch have been retained from small mesh size gillnets used to target perch (30-36 mm). Two companies operate collaboratively within the Irikla Reservoir and temporal changes in retained species composition and size structure of processed fish would be reported.
Will vessels in the UoC also fish outside the UoC geographic area? If Yes, please describe: - If this may occur on the same trip; - How any risks are mitigated.	The UoC includes the entire Irikla Reservoir water body. It is therefore not possible for licensed commercial fishing vessels to operate outside the UoC or in different geographical areas.
Do the fishery client members ever handle certified and non-certified products during any of the activities covered by the fishery certificate? This refers to both at-sea activities and on-land activities. - Transport - Storage - Processing - Landing - Auction If Yes, please describe how any risks are mitigated.	At the point of first capture, fishermen use colour-coded fish boxes on board each vessel to separate and transport certified (blue box) from non-certified fish (yellow box). The risk factor occurs if pikeperch caught from the ineligible 30-36 mm mesh size gillnet is included in the UoC. In these circumstances pikeperch from this gear would be placed in the yellow box rather than the blue 'certified' fish box. In practice, this risk is negligible, as pikeperch retained from small mesh size are mostly undersized (illegal) and therefore cannot be landed. Further to this, there is no market for small pikeperch fish, which would not be bought and processed by the client, and undersized pikeperch are readily identified at landing when transferred to processors. Fish are transported to shore and stored in the same colour coded box in cold storage units at various official points of landing. Fish are then collected by representatives from each fishing company and transported in their original fish boxes to their premises at Energetik, Irikla Reservoir for processing.

Does transhipment occur within the fishery? If Yes, please describe: - If transhipment takes place at-sea, in port, or both; - If the transhipment vessel may handle product from outside the UoC; - How any risks are mitigated.	There is no transhipment of pikeperch within the fishery before the first point of landing. Pikeperch are landed on the day of catch to the specified points of landing, for onward transport by the client within the MSC Chain of Custody.
Are there any other risks of mixing or substitution between certified and non-certified fish? If Yes, please describe how any risks are mitigated.	The risk associated with the substitution of certified fish with non-certified fish has been evaluated and due to the size and scale of the fishery and the gear utilised there is a minimal risk of certified and non-certified fish mixing prior to landing.

5.3 Eligibility to enter further chains of custody

To be drafted at Client and Peer Review Draft Report stage

The CAB shall include in the report a determination of whether the seafood product will be eligible to enter certified chains of custody, and whether the seafood product is eligible to be sold as MSC certified or carry the MSC ecolabel.

The CAB shall include in the report a list of parties, or category of parties, eligible to use the fishery certificate, and sell product as MSC certified.

The CAB shall include in the report the point of intended change of ownership of product, a list of eligible landing points, and the point from which subsequent Chain of Custody certification is required.

If the CAB makes a negative determination under FCP v2.2 Section 7.9, the CAB shall state that fish and fish products from the fishery are not eligible to be sold as MSC certified or carry the MSC ecolabel. If the client group includes other entities such as agents, unloaders, or other parties involved with landing or sale of certified fish, this needs to be clearly stated in the report including the point from which Chain of Custody is required.

Reference(s): FCP v2.2 Section 7.9

MRAG Americas has evaluated the eligibility of perch and pikeperch from this fishery to enter into further chains of custody as required by MSC Certification Requirements at §27.12.2, below.

a. Eligibility to enter further certified chains of custody
Tracking and traceability information for this fishery is considered sufficient for product to be eligible to enter further chains of custody.

b. Parties eligible to use the fishery certificates
The only party eligible to use the fishery certificate is the client (FOLLOWFOOD GMBH) and the vessels nominated (listed in Table 1 of this report).

c. Eligible points of landing
Pikeperch are only landed by the fleet at various official points of landing. Catches are declared and cross-referenced to sales notes. There is therefore a very low risk of MSC and non-MSC product becoming mixed at the point of landing.

d. Point of change of ownership from which Chain of Custody certification is required
The UoC includes all licensed commercial pikeperch fishers in Irikla Reservoir. Where feasible, individual fishers deliver catches directly to the processor (also the client group), or alternatively, the processor collects fish on a routine basis from each fishing parcel, where fish are temporarily stored in cold stores. There are no sub-contractors or transport companies used. The point of change of ownership from which chain of custody certification is required starts at the first of point of sale between fishers and the processor (FOLLOWFOOD GMBH).

5.4 Eligibility of Inseparable or Practicably Inseparable (IPI) stock(s) to enter further chains of custody

There are no IPI stocks in this assessment.

6 History and context of the fishery

6.1.1 Irikla Reservoir

The fishery occurs solely on the Irikla Reservoir, Orenburg Province, Russian Federation. The Irikla Reservoir is the largest and deepest artificial water body in the Trans-Ural region, which extends 73 km in length and has a maximum depth of 36 m (Balabanova, 1971). The average depth across the entire waterbody is approximately 12.5 m. The topography of the Reservoir is typical of a flooded mountain area, which has a rocky bottom with numerous rocky ridges, peaks and deep hollows, which is favourable habitat for perch fish (Kozmin & Matyukhin, 1971).

Unlike the Volga dam, the Irikla Reservoir is not used for navigation purposes (Kozmin & Matyukhin, 1971). The reservoir is surrounded by the Ural Mountains and has poor soil quality, with small rocky outcrops and rock formations. The region is mainly vegetated by fescue feather-grass steppe, which was previously used for agriculture during the Soviet era. Today, the area immediately surrounding the reservoir may still be used for agricultural purposes including cattle farming, which can lead to localised leaching of organic matter around the periphery of the reservoir.

The climate is continental and has an annual rainfall of 303 mm. Average annual temperatures range from -44 °C (January - February) to +38 °C (July - August). Ice starts to cover the shallow edges of the reservoir during early November and completely covers the lake by early December (Balabanova, 1971). By March the following year the thickness of the ice can reach between 80 and 100 cm. Ice melt eventually starts at the beginning of April higher up in the Ural River starts before reaching the reservoir a few weeks later. During this spring flood (April - May) the reservoir is at its highest level.
The reservoir was built between 1949 and 1957 to regulate the spring water run-off from the surrounding catchment area of 36,950 km^2 and therefore provide a guaranteed water supply to the Eastern and Central parts of the Orenburg region (Kilyakova & Lysenko, 2007). Following completion, the reservoir began filling on April 17, 1958 and was completed on May 8, 1966 when the designated high-water mark was reached 245 meters above sea level. Since 1974, the water of the reservoir has been used as a supply of cold water for the power station in Energetik (Isaev & Karpov, 1980).

Fishing has occurred in the Irikla Reservoir since its creation in 1955 and the perch in the reservoir are naturally present being resident in the Ural River from which the reservoir was formed. The initial “commercial” fisheries were carried out as State managed operations, but in the post-Soviet era fishing has been carried out by a number of commercial companies. Since 2000, the organisation and management of the resources has improved with the development of long-term access agreements to fishing companies, which has resulted in limited access to a smaller number of fishing companies. Both the current fishing companies Fish-ka and Volna are part of the fishery under certification.

Ichthyofauna (fish community) of the Irikla Reservoir was being formed due to native species, inhabiting the river Ural and subordinate reservoirs of the flooding zones, and also introduction of some valuable commercial species, that was made since the first years of the existence of the reservoir. At the first stage there was replacement of rheophilic species widely distributed in rivers, at fluviolacustrine complex, used for formation of commercial resources.

Since 1956, a number of commercial fish species has been introduced to the Reservoir to increase production, including wild carp, carp, pikeperch, sterlet, smelt, whitefish, Ladoga Lake cisco, peled, grass carp, silver carp and brown trout. Some species didn’t survive and are not met nowadays (sterlet, smelt, peled and trout). Invasive herbivorous fish is few in number. High commercial effect was seen only because of introduction of coregonids to the Irikla Reservoir. Their total weight in catches in terms of different years reached 90% from the total fish catch at the reservoir (Isaev & Karpova, 1980; Kozmin & Matyukhin, 1964). In terms of 50 years after its formation, the reservoir according to the fish composition in fishery has turned to be bream-pikeperch reservoir (Kozmin & Matyukhin, 1971). In the next years as a result of annual introduction of larvae and bred juvenile of the coregonids from the fish farm, and further and their natural reproduction, coregonids began to take the leading place in trade. During the 1980s and early 90s the proportion of coregonids in total catches reached 80%, with a maximum catch of 893 t occurring in 1988 (Silivrov, 1993). Fishing was carried out by means of gillnets whilst fishing with beach seine (under ice) was prohibited due to catches of juvenile bream. This led to a decrease in the catch of small species of fish (perch, roach and other cyprinids fishes). Since the end of 1990s the proportion of coregonids has shown a decrease and led to the general decrease in level of fishery in the reservoir, and since 2000 catches have been dominated by perch, roach and a silver crucian carp.

The observed decline in abundance of coregonids was caused by several factors: (i) increase of fishing effort; (ii) unfavourable hydrological regime of the reservoir with a fast decreasing of the water level in winter to prepare room for spring flood. It caused high mortality of coregonid eggs laid in autumn in the shallow waters (depth 1.5 - 3 m); (iii)

strong spring flood which carried out larvae to the exit of the reservoir; (iv) termination of hatchery activities; (v) increase of water temperature due to global warming above thermal optimum of coregonids; (vi) usual decrease of abundance of introduced species after initial increase typical for invasive species. In addition to coregonids, abundance of pikeperch also decreased due to intensive commercial and sport fishing and mortality of juveniles by water intake structures of Irikla thermal power station. The decline of these species subsequently reduced the competitive pressure on perch allowing them to become well established within the reservoir.

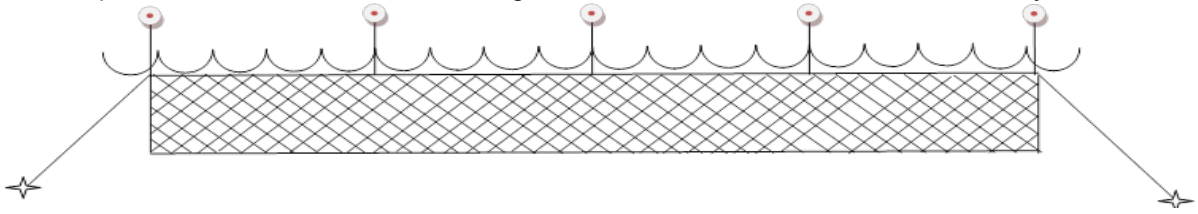
6.1.2 Vessels and fishing gear

There are currently 47 eligible fishermen operating small boats in the Irikla Reservoir within the Unit of Certification, with additional 3 transport boats. Fishing is conducted in a very simple manner with individual fishermen operating from 43 small single engine boats (see Figure 2). The only fishing gear allowed in the fishery, gillnets of 30 – 36 mm and 50 – 70 mm mesh size from knot to knot, are deployed and retrieved from the fishing boats. The large mesh size gillnets are approximately 12-14 m in height and therefore set closer to the bottom than the smaller mesh size gear. Fish-ka collects fish from registered fishermen working in local fishing sites known as “parcels” by small boat, whereas fish caught in parcels further afield are now collected by each company by road and transported to Fish-ka facilities for processing via a new ferry crossing.

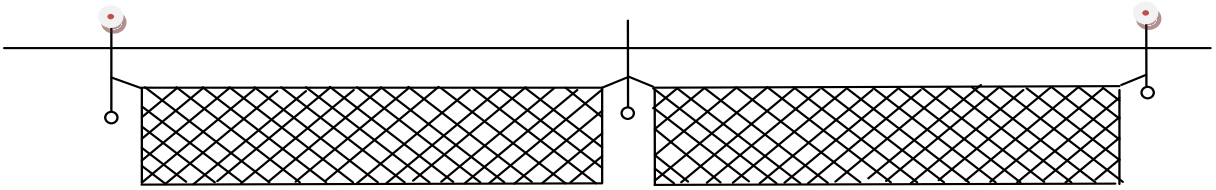
Figure 2. Picture of typical boats, *P11-650Ж* and *P10270Ж* used by fishermen in the unit of certification, based near Energetik.

The licensed (legal) commercial set gillnets have a mesh size ranging between 30 – 36 mm and 50-70 mm. Local fishermen are responsible for obtaining and maintaining their own gear, which must comply with all regulations and is checked by Fisheries Department of Fish-ka.

The total length of each gillnet is not more than 250 m, and the total distance between set nets is 300 m. Gear is set using a surface buoy that includes details of the company name, reach name (geographic location), name and telephone number of licensed fishermen, including their identification number and fishing permit number. Set nets are used as day-and-night (taking out of catch 2 times per day), for a limited period of time (from 3 to 8 hours). During the summer period set nets are fastened to the ground with anchors and are differentiated by floats:



During the winter period when ice covers the reservoir, the gear is set below the ice sheet and checked at least once every 96 hours:



7 Scoring

7.1 Summary of Performance Indicator level scores

Table 3. Preliminary scoring ranges for the Irikla Reservior perch and pikeperch gillnet fishery.

Principle	Component	Performance Indicator (PI)		Perch	Pike-perch
One	Outcome	1.1.1	Stock status	≥80	≥80
		1.1.2	Stock rebuilding	NA	NA
	Management	1.2.1	Harvest strategy	≥80	60-79
		1.2.2	Harvest control rules & tools	≥80	≥80
		1.2.3	Information & monitoring	≥80	≥80
		1.2.4	Assessment of stock status	≥80	≥80
Two	Primary species	2.1.1	Outcome	≥80	≥80
		2.1.2	Management strategy	≥80	≥80
		2.1.3	Information/Monitoring	≥80	≥80
	Secondary species	2.2.1	Outcome	≥80	≥80
		2.2.2	Management strategy	≥80	≥80
		2.2.3	Information/Monitoring	≥80	
	ETP species	2.3.1	Outcome	≥80	≥80
		2.3.2	Management strategy	≥80	≥80
		2.3.3	Information strategy	≥80	≥80
	Habitats	2.4.1	Outcome	≥80	≥80
		2.4.2	Management strategy	≥80	≥80
		2.4.3	Information	≥80	≥80

	Ecosystem	2.5.1	Outcome	≥80	≥80
		2.5.2	Management	≥80	≥80
		2.5.3	Information	≥80	≥80
Three	Governance and policy	3.1.1	Legal &/or customary framework	≥80	≥80
		3.1.2	Consultation, roles & responsibilities	≥80	≥80
		3.1.3	Long term objectives	≥80	≥80
	Fishery specific management system	3.2.1	Fishery specific objectives	≥80	≥80
		3.2.2	Decision making processes	≥80	≥80
		3.2.3	Compliance & enforcement	≥80	≥80
		3.2.4	Monitoring & management performance evaluation	≥80	≥80

The CAB shall include in the report a completed copy of the Fishery Assessment Scoring Worksheet.

Reference(s): FCP v2.2 Section 7.17

7.2 Principle 1

7.2.1 Principle 1 background

The CAB shall include in the report a summary of the fishery based on the topics below, referencing electronic or other documents used:

- An outline of the fishery resources including life histories as appropriate.
- An outline of status of stocks as indicated by stock assessments, including a description of the assessment methods, standards, and stock indicators, biological limits, etc.
- Information on the seasonal operation of the fishery.
- A brief history of fishing and management.

The CAB shall provide any information used as supporting rationale in the scoring tables.

The CAB shall indicate in the report whether the target species is key Low-Trophic Level (LTL). If there are multiple Principle 1 species, the CAB shall indicate in the report which are key LTL.

Reference(s): FCP v2.2 Annex PA, Fisheries Standard v2.01

Life historical characteristics

Common or European perch

The European perch (*Perca fluviatilis*) has wide distribution in Eurasian rivers, lakes, coastal areas of the seas. This species does not appear at Iberian Peninsula, on the north of England, in Ireland, and at the Atlantic coast of Scandinavia, in the mountain area of the Caucasian region, in the Middle Asia, on the south of Mongolia, in the watershed of Amur, at the Far East, Kamchatka and Chukotka. Due to introduction of perch in the water bodies of Australia, New Zealand, South Africa and Azores islands, the habitat of the European perch has enlarged (Berg, 1949; Popova *et al*., 1993).

In Russia, the northern border of distribution of perch is almost at the coast of the Arctic Ocean, from the Pasvic River to the Kolyma River, in the south – and to the Black Sea, Northern Caucasia and the upper streams of Siberian rivers (see below).

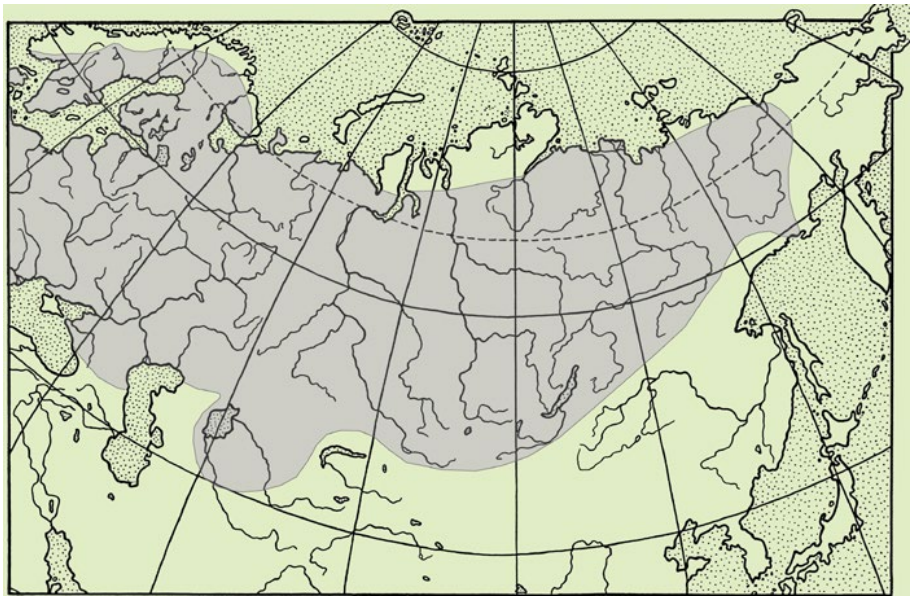


Figure 3. The distribution of European perch within study area.
Source: Reshetnikov (2003)

Coastal perch has slow growth and tend to prey on invertebrates and deep-water forms have higher growth rate, predating mostly on juvenile fish (mainly cyprinids and on smaller perch). Growth rates and maturation times of perch can also therefore vary greatly depending on location and diet. In small and low productivity reservoirs perch often only reach 5 cm body length during the first year, and by the age of 6 it may reach just 20 cm body length. In higher productivity systems such as large lakes and reservoirs and in estuaries of large rivers, 1-year old perch may reach 12 cm and a 5-year-old perch may reach 35 cm. Perch can get mature at different ages having different body length, most commonly at the age of 2-3. Spawn of perch can be early in spring, after melting of ice: in February – March in the south, in May – June in the north when the water temperature is 7-8 °C at depths up to 8 m.

Perch are found throughout the entire reservoir and are a typical lake and river fish, accustomed to live in the coastal vegetation zone of the water body, where it is a generalist feeder, eating zooplankton, benthic organisms and juvenile of different species of fish, which change in size according to the growth and size of the perch. The food sources actually taken at the different life stages can vary depending on the species present between different waterbodies. In large lakes and reservoirs with diverse prey types and an abundance of appropriate biotopes perch tend to form two or three distinct morphologic types that change between habitats, feeding type and have differing rates of growth. They do not undertake reproductive migrations and therefore specific areas do not need protection for spawning.

Pikeperch

The pikeperch, *Sander lucioperca* is widely distributed across Eurasia, occurring in the drainages of the Caspian, Baltic, Black, Aral, North and Aegean Sea basins. Its northern distribution limit is Finland (Figure 4). It has been introduced to Great Britain, southern Europe, and continental Europe west of the Elbe, Ebro, Tagus and Jucar drainages, as well as to Anatolia, North Africa, Siberia, Kyrgyzstan, and Kazakhstan. Several countries report adverse ecological impact after pikeperch introduction (Wheeler, 1978; Reshetnikov, 2003). Until recently, pikeperch lived in Russia only in the European part of the country, from Karelia to Transcaucasia. At present, pikeperch is acclimatized in the reservoirs of Western Siberia (Novosibirsk and Irtysh reservoirs) from where it descended to the lower reaches of the Ob River.

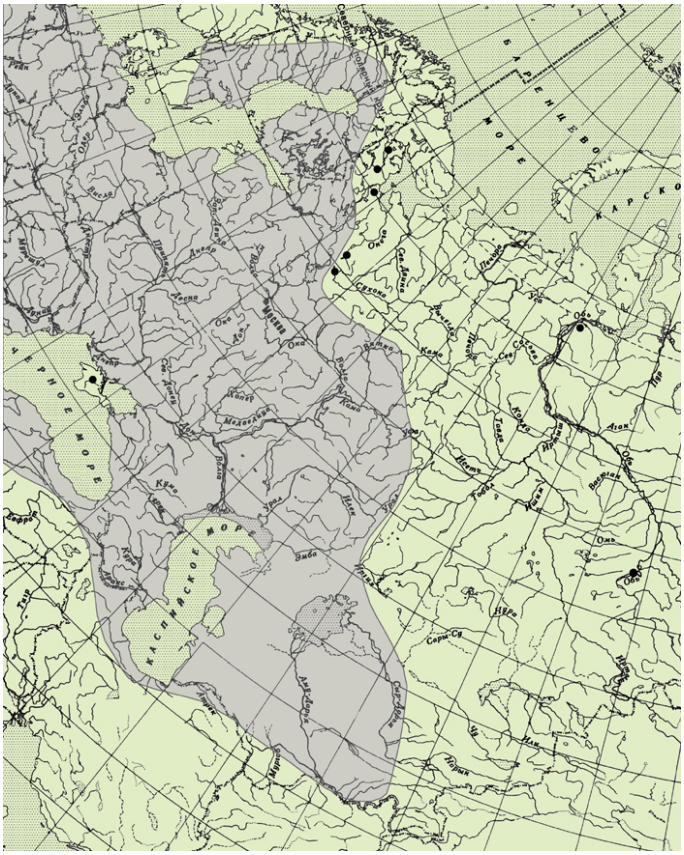


Figure 4. The distribution of pikeperch within study area.

Adult pikeperch inhabit large, turbid rivers and eutrophic lakes, brackish coastal lakes and estuaries.
Pikeperch feed mainly on gregarious, pelagic fishes. They attain first sexual maturity at 3-10 years of age, but usually at age 4. Pikeperch undertake short spawning migrations. Individuals foraging in brackish water move upriver (for up to 250 km) for spawning. Homing is well developed, and even nearby populations may be relatively isolated.
Pikeperch spawn in pairs at dawn or night. The female leaves the nest after all eggs are released. The male defends the nest and fans the eggs with his pectorals. Spawning occurs in April-May, exceptional from late February until July, depending on latitude and altitude when temperatures reach 10-18° C on the spawning grounds.

The success of pikeperch in establishing themselves is owed to a number of factors, one of which is that they are particularly well adapted to life in slow-flowing, sparsely vegetated, rather murky waters. Pikeperch thrive in water with rather low visibility, unlike pike, which often dominate the predatory fish niche in clear water.

The pikeperch is a common and popular game fish in Europe. It is often eaten, and it may reach 20 kg of weight, although typical catches are considerably smaller. The pikeperch is considered one of the most valuable freshwater food fishes native to Europe. It is esteemed for its light, firm but tender meat with few bones and a delicate flavour. Although it is not generally bred for food, its adaptability makes pikeperch fisheries quite sustainable. Pikeperch reach an average length of 40 – 80 cm with a maximum length of 120 cm.

Perch and pikeperch biology in Irikla Reservoir

Common or European perch

Perch spawning in the Irikla Reservoir occurs every year and supports a high abundance of this species. Almost all male and female mature at the age of three. Spawning can occur at shallow water areas of the Irikla Reservoir, but the most favourable conditions for reproduction are in warm shallow waters in Urtazym, Orlovskiy and Suundukskiy bays (cf. Figure 18). Fecundity varies from 12 to 300 thousand eggs. Eggs are laid on the previous year's vegetation in the form of long mesh of eggs. The eggs are large watered, with a diameter of 2.0-2.5 mm. This approach to laying eggs allows for a high survival rate of both eggs and larvae. Spawning occurs once per year with the development phase for the eggs taking about two weeks. At hatching, larvae are 6 mm long and will have almost reabsorbed the entire yolk, so that they start moving actively immediately and predating on planktonic crustaceans.

The juvenile perch eat zooplankton and benthos during the first summer within water depths up to 1.5 m, but in some lakes and reservoirs, when they reach 4 cm in length, they may also start to take larger prey items such as other juvenile fish (Popova 1971, 1979; Reshetnikov, 2003). The juvenile fish then venture into open water feeding on small planktonic animals. As they grow larger perch begin to shoal together close to the edges of rivers and lakes in relatively shallow water. Irikla Reservoir in this respect with its relatively shallow depth and large coastline and areas of shallows would be ideal perch territory. The adult perch tends to live as part of a shoal, often mixing with other species of fish, looking for food and spawning places. In large lakes and reservoirs perch can enter tributaries for spawning, after that returning to the lake or reservoir for feeding. Males mature when they reach the length of 7-8 cm, females when they are 10 cm in length.

Perch can reach a maximum age of 22 years (Beverton and Holt, 1959), at which time they would be approximately 600 mm in length (Kottelat & Freyhof, 2007). Normally in commercial catch, fish would be found up to 30 cm long, with an average of 15-20 cm and 200-300 g (corresponding at this size to an age of about 4-6 years). Growth and weight rates of Irikla Reservoir perch are shown in Figure 5 below. In 2007, the perch caught in the fishery were between 57 and 300 mm long, belonging to age groups 1-10.

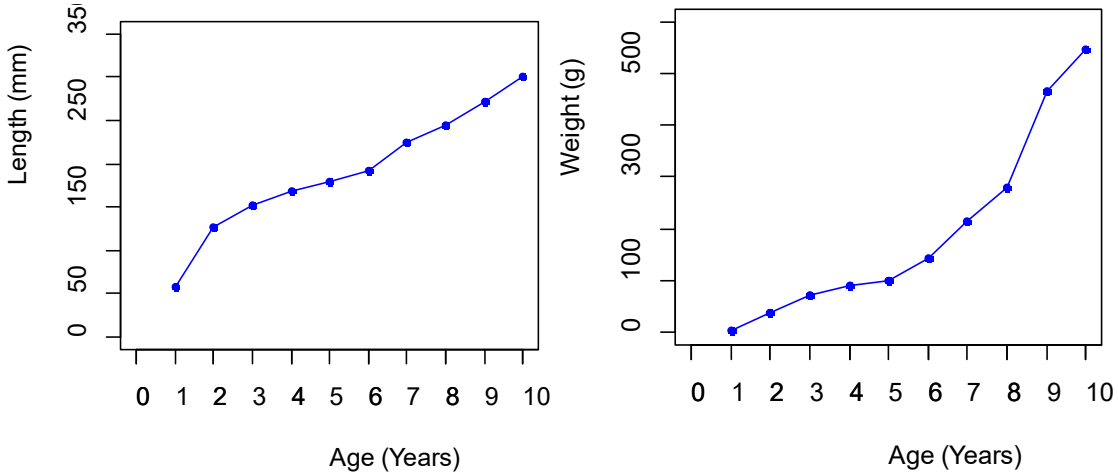


Figure 5. Growth of perch by (a) length mm and (b) weight g in the Irikla Reservoir in 2007. Data Source: Voronin (2008).

Linløkken (2008) summarises that many lake-based populations of perch can be predominately smaller “stunted” individuals due to the increased inter-specific and intra-specific (often with roach) competition this does not seem to be the case for the perch populations of the Irikla Reservoir.

Perch is one of the most common species of fish in the rivers, lakes and reservoirs of Central Russia. Due to the high abundance of perch, it is one of the main or secondary items of fisheries. As the large predators of perch are also often targeted through fishing, the perch populations are able to quickly increase their abundance and recover. Based on the level of primary production and biomass of phytoplankton in the Irikla Reservoir it has been characterised as mesotrophic with a medium level of zooplankton and a high level of benthos (Yermolin, 2014).

The availability of suitable prey in the Irikla Reservoir has positive effects on the survival, abundance of the commercial stock of perch. Perch easily shift between fish and invertebrates (mainly organisms of soft benthos) the abundance in the Irikla Reservoir is extremely high, that favourably affects the growth of perch and prey shifting allows the Intensity of feeding and growth rate of perch to remain at high level (Yermolin, 1984).

Typically perch in Irikla Reservoir shift to predating when approaching 15 cm in length. Perch actively predate for young fish, in particular cannibalistic predation on smaller juvenile perch.

Among other fish species perch is being predated by pikeperch, pike, burbot, wels, and predatory birds as seagull, tern and fish-hawk. In the Irikla Reservoir perch compete for food mostly with coregonids (plankton feeding vendace and benthos feeding whitefish), which previously were very abundant in the reservoir and were supported mainly by artificial farming.

The perch is the most abundant commercial fish of the Irikla Reservoir. In most water bodies in the same river basin, catches of perch will consist of fish of 3 to 10 years old (Voronin, 2007, 2008; Yermolin, 2014). In 2013, perch from 3-7 years old dominated in the population in the Irikla Reservoir (86% in total), of which the same age categories occurred as 97% in 2006 and 79% in 2007 (see Figure 6). The average age of spawning population of perch is 5.5 years old.

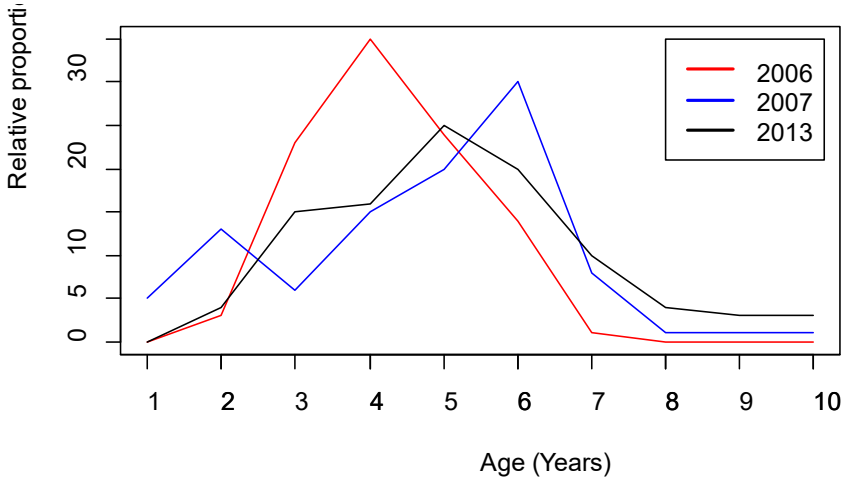


Figure 6. Proportion of different age groups of perch in commercial catches of Irikla Reservoir in different years. Data Sources: Voronin (2007); Voronin (2008); Yermolin (2014).

Irikla Reservoir is relatively small water body without environmental heterogeneous variety of perch at the level of subpopulations therefore the perch stock is managed as a single population (Yermolin & Belyanin, 2015).

Pikeperch

In Irikla Reservoir, pikeperch avoid areas of aquatic vegetation, and live in open water. Depending on the temperature and transparency of the water, dissolved oxygen and spatial-temporal distribution of food, pikeperch can be located at different depths of the lake.

The majority of pikeperch in Irikla Reservoir become sexually mature at the age of four. The minimum sizes of mature males and females are 36 – 44 cm, mean 39 cm (Matyukhin, 1968). Pikeperch spawning in age groups older than five years occurs annually. On the Irikla Reservoir spawning usually takes place in May - early June, when the water temperature reaches 12 – 14°C. But in some parts of the reservoir spawning can occur at a sufficiently low temperature. So in Su-Unduk Bay, the beginning of spawning was observed at 7.4°C, in Tanalyk Bay - at 11.3°C (Matyukhin, 1968). The optimum water temperature at the culmination of spawning is 13 – 15°C.

Pikeperch is not specialized in terms of spawning substrate (Kryzhanovskiy, 1949; Nebolsina, 1980; Shashulovsky, 2006). In the Irikla Reservoir the spawning of pikeperch occurs on grounds with low-solid pebble at a depth of 0.5 to 1.5 m, but sometimes pikeperch spawning is observed on the plant substrate. The spawning grounds are also located in the estuaries of the flowing rivers and the upper reaches of the Irikla Reservoir. The largest spawning grounds of pikeperch are located on the Urtazymsky and Tanalyk - Suunduksky bays of the Irikla Reservoir. It has been established that 16.5% of the total area of the bottom of the reservoir is suitable for the reproduction of pikeperch; therefore, it is considered that pikeperch in Irikla Reservoir is provided with spawning substrate in sufficient volume (Matyukhin, 1968).

Most often pikeperch builds nests (usually males). Females of pikeperch immediately migrate from the spawning grounds after laying the eggs. Males continue to remain in the spawning grounds, waiting for new females and to protect the nests. The plasticity of pikeperch with respect to the substrate and protective behaviour on spawning grounds contributes to successful spawning, and consequently, to a stability in its population reproduction.

Natural reproduction is dependent on the annual state of water level. During the dry year of 2010, the spawning area was limited, and the efficiency of spawning was not high. In 2011-2012, due to higher water level and synchronized melting of the snow, the efficiency of spawning was satisfactory. In 2017-2018, the water level was much lower, thus the reproduction of pikeperch was considered as of average efficiency (Belyanin, 2018).

The average fecundity of four to six-year-old females are 105.8 – 276.2 thousand eggs, the average fecundity of eight-year-old female is 1075.5 thousand (Matyukhin, 1968).

Size-age characteristics of pikeperch in Irikla Reservoir is presented in the following figures. The growth of pikeperch is relatively high during the last several years and no sudden changes in size and weight were observed. Indicators of linear weight growth in 2018 are quite good and slightly higher than the inter-annual average rate. The growth of pikeperch of the same ages does not differ from different parts of the reservoir, which indicates the uniformity of pikeperch in the Irikla Reservoir (Matyukhin, 1968).

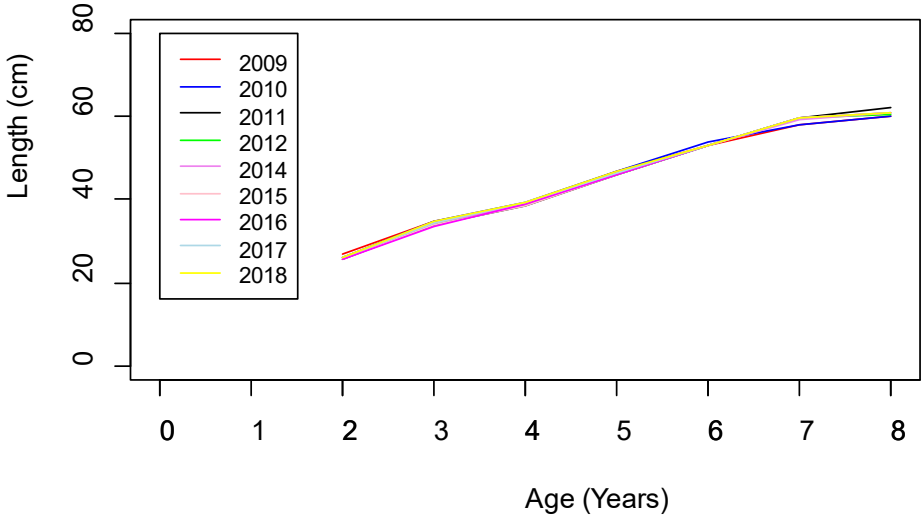


Figure 7. Size characteristics of pikeperch in the Irikla Reservoir for 2009-2018 (2-7 yrs and 8+ yrs).

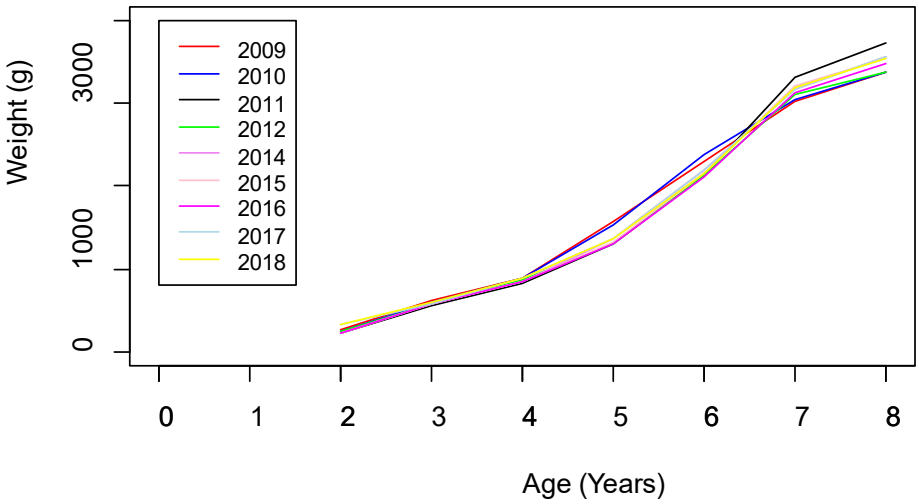


Figure 8. Weight characteristics of pikeperch in the Irikla Reservoir for 2009-2018.

The population of the Irikla Reservoir consists of 8-10 age groups. In population of pikeperch younger age classes has dominated in the control catches during all years of monitoring (Figure 9). During 2010-2014, there was a rejuvenation of the pikeperch population, when more than 85% of the fish of the stock was formed by pikeperch of age 2+-4+. Good recruitment in those years provided some shift in the age range towards the aging of the population in subsequent years, 2015-2017. In 2018, the ratio of ages in the pikeperch population was close to the average figures observed in 2010-2014.

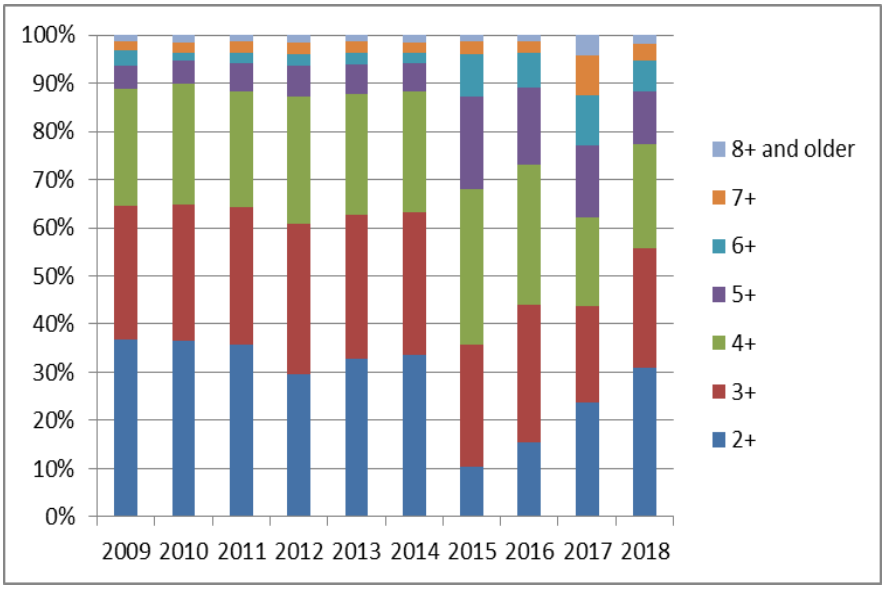


Figure 9. Age composition of pikeperch from the control catches by nets with mesh size 25-120 mm, %

Pikeperch juveniles (age 0+) switch to predatory food upon reaching a body length of 29 mm. Young fish were found in the stomach of 60% of juvenile pikeperch yearlings of 29–81 mm in length. Daphnia (in stomachs of 40% of fish) were the most frequently encountered as other nutritional components (Shilkova, 1965). In the second year of life, pikeperch completely switches to predatory food, eating perch, ruff, roach, ripus and their juveniles, as well as juvenile pikeperch. The availability of suitable prey in the Irikla Reservoir has positive effects on the survival, abundance of the commercial stock of pikeperch.

7.2.2 Catch profiles

Landings

The commercial perch and pikeperch gillnet fishery accounts for the majority of landings from the Irikla Reservoir. The importance of perch and pikeperch within the commercial fishery has changed considerably throughout the existence of Irikla Reservoir. During the first two decades, there was no separate accounting of perch catch, and they were included in a single category named “small tiddler”, which also included roach, silver crucian carp and white bream. Catches of perch in the Reservoir have shown a general increase from less than 10 tonnes in the late 1980s to around 250 tonnes in 2011 (see Figure 10).

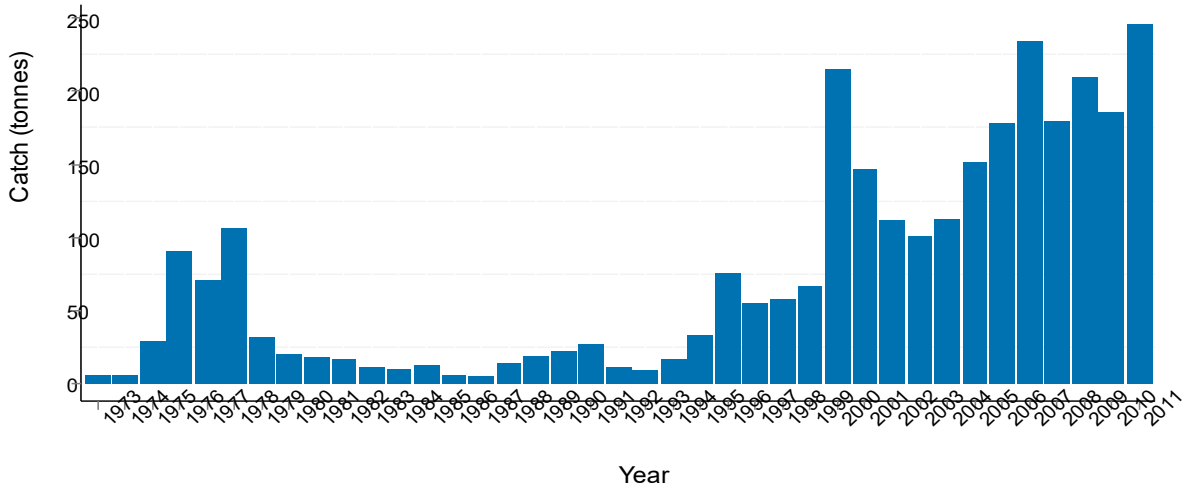


Figure 10. Total annual landings of perch in Irikla Reservoir, 1973-2011. Data source: Saratov Research Institute

Two periods with high pikeperch catches are noted. The first occurred in 1975, with catch of 45 tonnes, followed by a decrease in stock and catch. The second period of stock increase occurred in 1989-1991, with a maximum catch in

1990 of 73 tonnes (Figure 11). Since 1991, there has been a steady decline in catches, with relative stabilization in 2005-2008 and some subsequent increase. The dynamics of pikeperch catches in the Irikla Reservoir resembles the long-term dynamics of pikeperch stocks in the Volgograd Reservoir, when, apart from the causes of waterbody-intrinsic and organizational nature, the connection with natural repeated fluctuations of stocks was found. However, according to scientists from the Saratov Institute, the increase and subsequent sharp decrease in catches at the turn of 1980-1990 is mainly due to overfishing during the collapse of the USSR, which led to a worsening of the economic situation in the country.

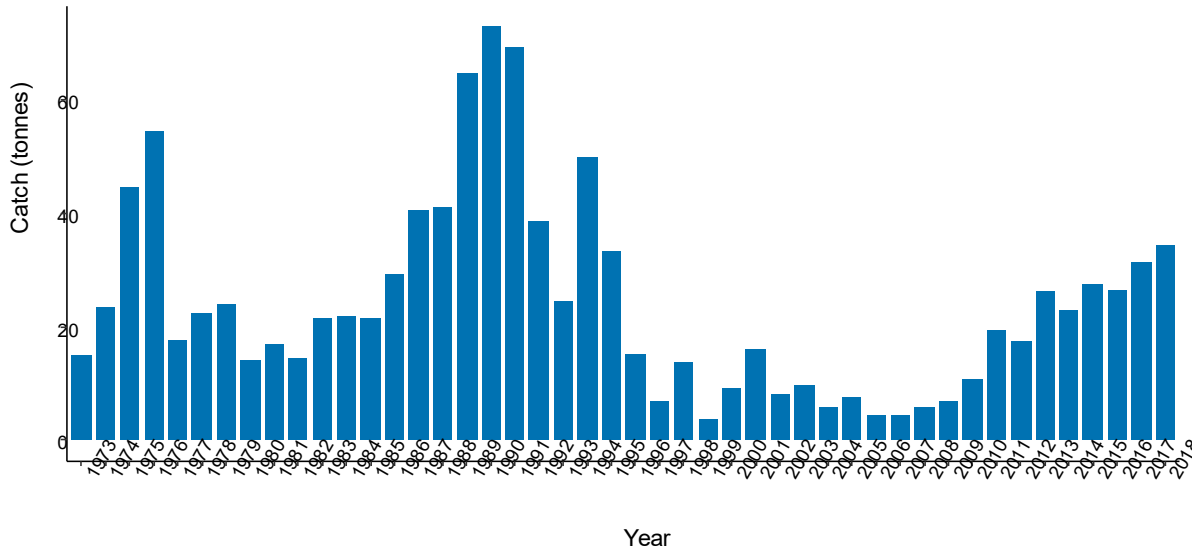


Figure 11. Total annual landings of pikeperch in Irikla Reservoir, 1973-2018.
Data source: Saratov Research Institute

Stock status

Perch

The stock status of the perch population within the Irikla Reservoir is determined on an annual basis by the Saratov Research Institute. A time series of the commercially available stock biomass (tonnes) shows the biomass has continued to increase over the past two decades from approximately 80 tonnes in 1994 to over 900 tonnes in 2011 (Figure 12).

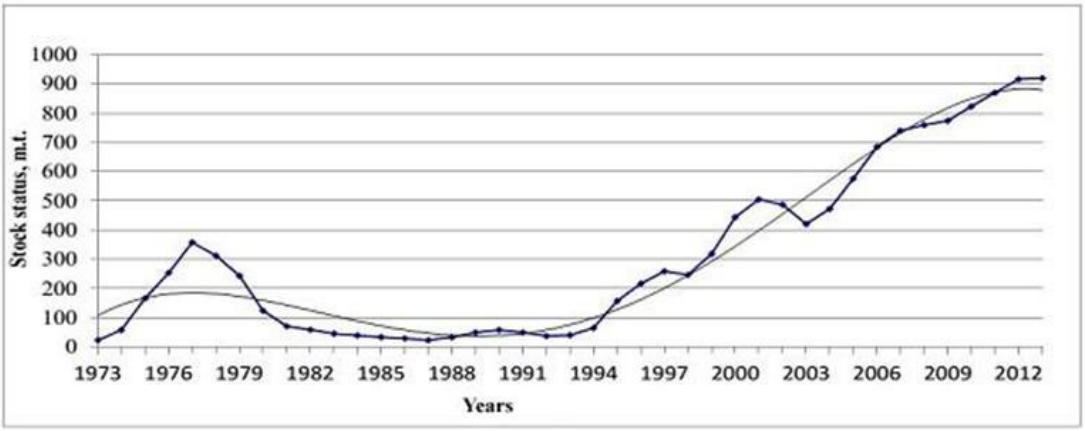


Figure 12: Trends in stock status of perch (tonnes) in Irikla Reservoir between 1973 and 2013.
Data Source: Yemolin (2014).

This observed increase in perch biomass has been attributed to a decline in competition from other commercial species within the waterbody supported mainly by fish farming of vendace and whitefish, and the low level of fishing mortality achieved through the suite of precautionary management measures implemented as part of the harvest strategy.

Pikeperch

Prior to 2008, the stock assessment of pikeperch had been carried out by the State Research – Industrial Centre of Fisheries (located in Yekaterinburg). The pikeperch stock calculation methods applied at that time were not rigorous, so the quality of stock assessment was not high. The dynamics of the stock of pikeperch before 2010 can be judged only by indirect data, in particular, by catches that were characterized by significant fluctuations over the entire observation period. During the period of sharp deterioration of the economic situation in the country in 1980-1990 the pikeperch overfishing occurred, which affected the depletion of its stock and the subsequent decrease in catches. The relative stabilization of the stock and catches of pikeperch occurred only in 2005–2008, after which a gradual increase in the stock began. According to Saratov Research Institute, during the period 2010-2018, pikeperch commercial stock biomass in the Irikla Reservoir has grown more than 5.5 times (from 81.3 to 458.3 tonnes) and continues to increase (Figure 9). .

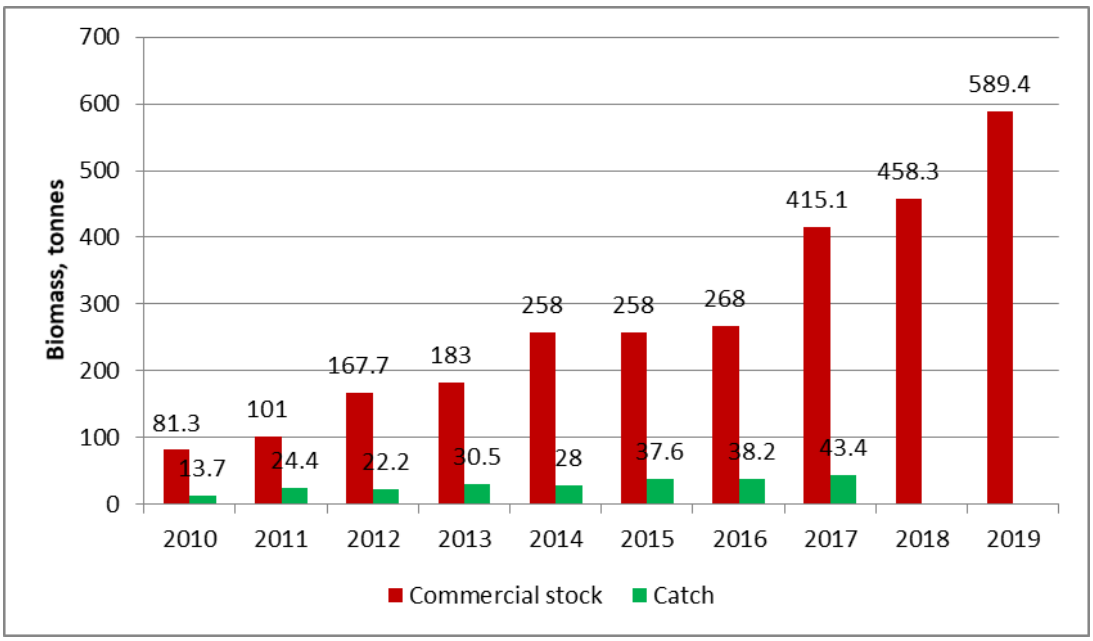


Figure 13. The dynamics of total commercial stock biomass and total catches (commercial plus recreational) of pikeperch in the Irikla Reservoir for 2010-2019

It is obvious that the positive dynamics in the state of the pikeperch stock in recent years is due, among other things, to the low level of fishing mortality achieved through the suite of precautionary management measures implemented as part of the harvest strategy. As a result, over the last five years (2013-2017) there has been a significant positive trend in the total and commercial stock biomass of the pikeperch of the Irikla Reservoir; at the same time, there was a sharp decline in the share of commercial stock biomass harvested (Figure 14).

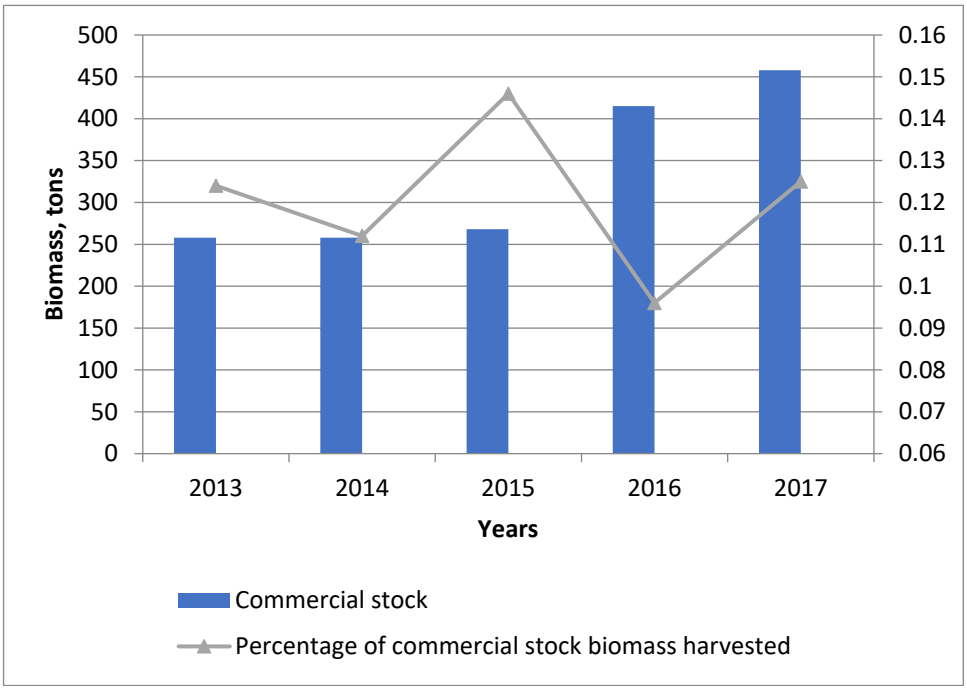


Figure 14. Percentage of commercial stock biomass harvested in the Irikla Reservoir in 2013-2017

Determination of the biological status of commercial stocks within the Irikla Reservoir does not explicitly use biological reference points, such as those used in western fisheries management (e.g. B_{LIM} or B_{MSY}, see section below). However, it is argued that the stock biomass must be above the point where recruitment would be impaired, else the stocks would not show the year-on-year increase in biomass over the past 10 (pikeperch) and 20 (perch) years.

In addition, due to annual fluctuations in water level and other environmental conditions (e.g., ice cover), the ecosystem and fish populations within the reservoir do not reach equilibrium status. The maximum sustainable yield and equivalent target reference point (TRP) for each stock are therefore subject to change. Given that the total allowable catch (TAC) for pikeperch and the recommended allowable catch (RAC) for perch are calculated each year based on maintaining the level of commercially available stock biomass at or above a proxy value consistent with B_{MSY} (which is re-calculated each year) it is argued that the available stock biomass must be at or above a level equivalent to the TRP. Further to this, as the precautionary TAC and RAC has not always been fully utilised by commercial fishery (usually not more than 80% of TAC), this would enable the stocks to continue to increase with the observed trend in biomass.

Reference points

The fishery does not have explicit reference points, such as BLIM or BMSY. Instead, a proxy value for the target reference point (TRP), which is also equivalent to the limit reference point (LRP).

Stock assessments for perch and pikeperch are carried out by the Saratov Research Institute to estimate the total commercially available biomass (Ba) on an annual basis (Voronin 2007, 2008; Yermolin, 2014). Calculation of the commercially available biomass (Ba) is carried out according to the results of scientific fishing of all age classes of the perch and pikeperch populations using specialized ichthyological gill nets with different mesh sizes. The lower 95% CI estimates of Ba is used to calculate 0.2Ba for pikeperch and 0.5Ba for perch, which are equivalent to the target reference points (TRP) as are used with the same intent as BMSY. The TRP based on a portion of Ba rather than a portion of virgin biomass (i.e. B0) is used to establish annual fishing opportunities for perch and pikeperch and this precautionary approach has been demonstrated to effectively keep the stocks well above the point at which recruitment would be impaired. This approach is considered appropriate for the scale and intensity of the fishery.

In addition, there is no explicit limit reference point (LRP) in the Irikla perch and pikeperch fishery, although this is considered to be implicit within the management measures and harvest control rules. For example, the legal mesh size of gillnets used within the perch fishery prevent capture of undersized fish and minimises the risk of recruitment overfishing. According to fishing regulations for the Irikla Reservoir, the minimum size of a pikeperch to be caught by commercial fishery is 40 cm, and this measure is also introduced to protect the immature part of the population from

overfishing. Further to this, a limited number of licenses (47 fishermen) are issued each year to strictly control fishing effort, and permanent spatial and seasonal closures protect a proportion of the stocks.

Harvest Strategy

The Irikla perch and pikeperch fishery is managed through a suite of precautionary management measures and tools as part of a comprehensive harvest strategy appropriate to the scale and intensity of the fishery.

The harvest strategy is responsive to the state of the stocks and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points. The harvest strategy is based on managing the fishery based on a TAC (RAC) quota, which is defined to meet the objectives in the target reference point (single reference point). It is responsive to the status of the stock as it is based on the updated annual estimates of the stock size calculated in the assessment before the season commences.

In Russia, pikeperch is traditionally considered a valuable commercial fish and perch is not ('low valuable' species). In both cases, management quotas for these species are set based on the results of an assessment for total allowable catch (TAC, for pikeperch) and recommended allowable catch (RAC, for perch). The values of TAC (RAC) are estimated annually. The strict division of quotas among separate Irikla Reservoir parcels, without the right of their transfer during a fishing season, provides a regular under-exploitation of the perch and pikeperch stocks by commercial fishermen below the TAC (RAC) quota levels.

The fishery is automatically stopped when the quota (or any part of other species' quotas) is reached. Only a proportion of the overall TAC (RAC) quota is fully utilised as the total quota is divided among all fishing parcels. This makes exceeding the quota in any of part of the reservoir difficult. The reported catches from the commercial fishery demonstrate that the annual catch is lower than the TAC quota: the uptake of quotas by commercial fishermen usually is around 80% of TAC and even less of RAC.

At the Irikla Reservoir, the Rules of Fishery are developed for the Volga-Caspian fishery basin according to the article 43.1 of "Federal law of Fishery" and also form part of the harvest strategy. The Rules of Fishery are the basis of the implementation of fishery and preservation of aquatic bio resources. They are obligatory for execution both by the legal entities and citizens, which are carrying out fishery and other activity connected with use of aquatic bio resources. The Rules of Fishery are established:

1) Types of the allowed fishery;
2) Standards, including norms of product yield of processing of aquatic bio resources, including caviar and also range and terms of the allowed fishery;
3) Restrictions of fishery and other activity connected with use of aquatic bio resources, including:
    - Ban of fishery activities in certain areas and concerning separate types of aquatic bio resources;
    - The minimum size of caught aquatic bio resources;
    - Types of prohibited gear and ways of production (catch) of the aquatic bio resources;
    - Mesh size of fishing gear, size and design of fishing tools of production (catch) of aquatic bio resources;
    - Available catches of some species at implementation of production (catch) of other species of aquatic bio resources;
    - Fishery time ranges in water bodies of commercial fishery;
    - Other restrictions established according to federal laws;
4) Requirements to preservation of aquatic bio resources.

The harvest strategy is plausible with some evidence to show that it is achieving its objectives. According to several last years' data the size - age range of both target species from research catches show that the harvest strategy is sustainable. Although the target age range of the commercial perch and pikeperch fishery consists of fish of 3+-10+ years, the year 3+-6+ fish were the most prevalent in age in the catches of pikeperch and year 3+-7+ fish in the catches of perch (see Figure 14). Perch within the current commercial size range has thus already spawned and ensures a high level of production in the Irikla Reservoir. The fishing rules for the Volga-Caspian fisheries basin has define a minimum fishing pikeperch length for commercial fishery of 40 cm, which ensures the participation of smaller fish in at least one spawning and a high level of production in the Irikla Reservoir. In commercial fishing, juvenile pikeperch by-catch rates are observed (1% of the catch by weight or 49% of the catch by number is allowed). If the percentage of young by-catch is large, the fishermen change the fishing area or stop fishing. Besides, the accepted normal methods of calculation of the TAC (RAC) well-known methods of possible fishing (taking into account commercial, recreational and potential IUU catches) it can be seen that overfishing of perch and pikeperch

populations has not been observed. On the contrary, in the last decade there is a steady increase of biomass of perch and pikeperch in the Irikla Reservoir and proportion of these species in catches comparing to other fish species.

Monitoring exists to record detailed catch information from the commercial fishery. Information is also collected from the recreational fishery and estimates of under-reporting defined to enable the total catch to be raised. Estimates of IUU catch are also included and monitored.

According to appendixes of Fishery Rules, onboard each fishing vessel (including those owned by the fishing companies under assessment “Fish-ka” and “Volna”) the fishing register book, registered in the Territorial Administration of FFA (Federal Fishery Agency) in which the person, responsible for fishing (the foreman / lead man) records the capture of aquatic bio resources (ABR), weight of the caught ABR by ranges (kg), should be left on board the boat. In addition in the register book a registration of catch of ABR by cumulative total by separate species is kept. Twice a month, fisheries present to the local authorities of Russian Federal Fishery Agency a summary of data for the production of aquatic bio resources for each catch area (fishing parcel) as for the 15th day and the last day of the month.

In recent years considerable reduction of the level of illegal catch of fish in the Irikla Reservoir has been noted. There has been a positive effect to the reduction in IUU fishing, through the improvement of activity of the fishery conservation organizations, holding fishery conservation and optimization of fishing activities as a result of which fishermen of “Fish-ka” and “Volna” companies carry out continuous monitoring of observance of rules of fishery at the reservoir. According to fish inspectors and the staff of the Saratov Research Institute, IUU catch volume for the Irikla Reservoir is lower than other major reservoirs (e.g. Saratov and Volgograd). The method for calculating IUU catch for perch and pikeperch is applied as a standard calculation for the entire stock in the Irikla Reservoir.
The harvest strategy is reviewed annually. The harvest strategy includes an optimization of number of fishers working for the company, which increases the level of control of effort within the fishery.

Harvest Control Rules and Tools

The Irikla perch and pikeperch fishery does not have an explicit harvest control rule or limit reference point but a suite of technical management tools and measures are in place that are consistent with ensuring the susceptibility of both target species to removal is ‘no higher than that which would cause the risk to the target species to be above an acceptable risk range’ that is considered relevant to the scale and intensity of the fishery.

The suite of management measures and tools used in the harvest strategy is considered precautionary in nature helps prevent the stock status reaching a point of recruitment impairment (PRI). These include both spatial and temporal closures to provide a refuge for proportion of the stock at any one time, a defined gillnet mesh size range and controls over the number of annual fishing licenses. The highly selective mesh size prevents the capture of both juvenile and large mature fish, thus helping to eliminate recruitment and growth overfishing. If the percentage of young fish in catch is large (the allowed by-catch of undersized fish is 1% of the catch by weight or 49% of the catch by number), the fishermen has to change the fishing area or stop fishing.

Typical of most Russian inland fisheries, fishing opportunities are calculated on an annual basis to take into account inter-annual variability in estimated stock size (i.e. annual changes in *Ba*) and ensures that the exploitation rate is reduced as stock size declines. As such, annual changes in fishing opportunities are not triggered by a single limit reference point, but rather a proportion of *Ba* such that the exploitation rate decreases as a function of stock size. A schematic diagram to illustrate this concept in comparison to the total biomass (Btotal) is provided in Figure 15.

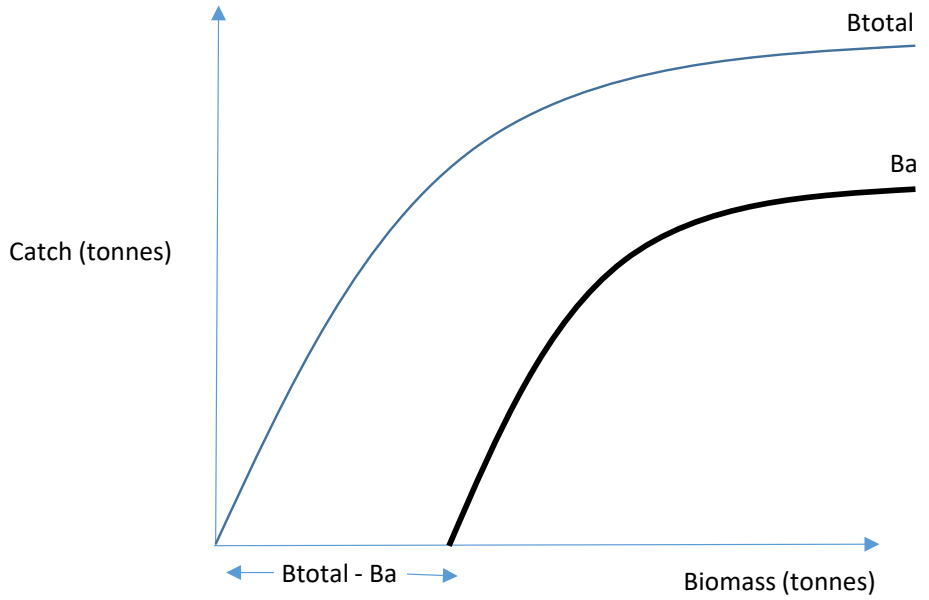


Figure 15. Schematic illustration of the implicit harvest control rule used for Irikla perch and pikeperch. Annual catch quotas based on estimates of annual commercially available biomass (*Ba*) rather than total biomass.

It has been noted that as the annual TAC (RAC) is calculated on the commercially available biomass (*Ba*), not total stock biomass (*Btotal;* Figure 15). The precautionary harvest strategy will thus always protect a proportion of the juvenile and more productive fish within the population (i.e. larger mature fish), allowing the stock to rebuild, if needed. Furthermore, given that the annual calculation of the TAC (RAC) is based on the lower 95% CI limit of *Ba*, the level of uncertainty is expected to increase with sampling lower levels of biomass within the reservoir and therefore act to decrease the annual quota at a faster rate at lower stock sizes. However, in practice, a greater reduction of fishing opportunities at lower stock sizes is highly likely to reduce fleet capacity through poor economic performance before a severe reduction of the stock occurs.

In addition, annual fishing opportunities are reviewed on an annual basis by the expert review panel and a declining abundance and catch series would be expected to trigger further management action such as a decreasing of TAC (RAC) value as proportion of *Ba* or a total ban on the fishery. To date, there is no record of a fishery ban occurring in the fishery.

Information and Monitoring

A comprehensive suite of information is collected on a routine basis to support the harvest strategy, stock assessment and control tools. This relates specifically to the distribution and age structure of the stock, biological information on the stock productivity, fleet composition and gear used, stock abundance, level of fishery removals and other environmental and ecological information.

Specific legal requirements for monitoring are detailed within chapter 5 "Management in the fishery and preservation of aquatic bio resources" the Federal law form 20.12.2004 N 166-FZ (edition from 28.06.2014) "About fishery and preservation of aquatic biological resources" describes contents of the Article 42 "State Monitoring of Aquatic Bio resources". In particular:

"1. State monitoring of aquatic bio resources represents system of regular supervision (monitoring) for:

i) Distribution, abundance, quality, reproduction of aquatic bio resources, and also their habitat;

ii) Fishery and preservation of aquatic bio resources.

2. The state monitoring of aquatic bio resources is a part of the state environmental monitoring (the state monitoring of the environment).

3. Data of the state monitoring of aquatic bio resources are applied for the organization of rational use and preservation of aquatic bio resources …"

The Saratov Research Institute organises research surveys to collect the information necessary for the stock assessment. These surveys take place at the Irikla Reservoir three times a year during the spring, summer and autumn (during winter the reservoir is frozen) and are conducted throughout the whole reservoir, including the areas that are closed to commercial fishing and include known spawning areas. The surveys are conducted with researchers from KamUralRybVod – Kama-Ural Fishery Enhancement Agency (belonging to a state wide network of agencies with main function is to increase the fishery productivity of water bodies). The co-operation of the Saratov Research Institute and KamUralRybVod at the Irikla water body is conducted according to an approved programme of joint monitoring surveys. Every season, researchers of both organisations visit the reservoir for 10 days surveying. During the survey, they will conduct fishing at set stations using 12 different mesh size nets along with minnow seine and beach seine nets.

During the surveys data related to the species composition of catch, lengths and weights, age, sex, fecundity, maturity, food supply, heavy metal content in fish muscles, quality of environment etc. are collected and analysed.

The Saratov Research Institute also conducts ecological, hydro-biological, hydrochemical research on the reservoir. KamUralRybvod across the whole year investigates the structure of the catch of recreational fishermen, their catching method and location of fishing and on the basis of the reporting of the recreational fishers the recreational catch is analysed. Calculation of number of recreational fishermen at a reservoir is carried out by the staff of the Saratov Research Institute and Territorial Administration of Federal Fishery Agency (FFA).

The organisation for the management and production of the Irikla Reservoir carries out systematic monitoring of 32 (including pH, O_2) hydrological and hydro-chemical indicators of water quality. For this purpose, 9 sampling gauge stations have been put in place. In June 2013, on one of site visits to the reservoir there was a mass juvenile fish mortality reported and hydro-chemical analyses showed that no excess of any maximum permissible concentration (MPC) was observed. Subsequently, the range of information and data collected indicated that the mortality event was highly likely to be connected with the overproduction of juveniles for which food of a suitable size was limited.

In addition, a range of other biological indexes are monitored according to the standard Russian state methodology (Karagoishev, 1983). The methodology used for stock assessment has been used in Russian lakes, rivers and reservoirs since 1982 and the specific methodology for fish abundance assessment in fresh water reservoirs since 1990 (Sechin, 1998). Within the wide range standard set of tests conducted are those to identify seasonal migration of fish species and tests for the presence of heavy metals in the tissues of fish. As a result of this research, pikeperch are known to occur at approximately 75% of the water body and there are location-specific spawning sites covering about 16.5% of the total area of reservoir's bottom, whereas perch occur throughout the entire water body and there are no location-specific spawning sites.
The same organisations carry out monitoring of the catch of professional fishermen. Specific vessel details for all active boats and gear are reported on a regular basis (monthly) in addition to the number and location of licensed fishermen (see above section).

The person, responsible for fishing records in the logbook the name of each operation connected with production of ABR (with the indication of time of each operation), and also keeps records of the catch weight of each ABR by species (kg) including those retained on board or released. The level of completeness and correctness of maintaining the fishing logbook and filling out of required documentation is regularly checked by the organisations controlling fishing.

Detailed information on removals from the commercial fleet is collected on a daily basis through the vessel logbooks and collected by "Fish-Ka" and "Volna" fishing companies. These data are also made available to national authorities for stock assessment purposes and to monitor the level of removals against annual fishing opportunities.

In recent years a considerable reduction of the level of illegal catch on the Irikla Reservoir has been noted. This is in part due to improvement of activity of the organisations holding fishery conservation events, and optimization of fishing activities and professional fishermen of "Fish-ka" and "Volna" that provide constant monitoring and surveillance over the reservoir, including self-policing effect of licensed fishers.

Saratov Research Institute collects information on the removals taken by the recreational fisheries sector all year round. There is a specific methodology "Count of unorganised amateur fishers and their catches" that is approved by KamUralRybvod for this purpose. For the recreational fisheries researchers of KamUralRybvod record through an interview process with the recreational fishers, species composition and weight of fish caught, fishing method, place and duration of fishing, square of fishing area, number of fishermen etc. Based on the collected data, they make an "amateur fisher card". During a year of fishing about 60-70 such cards will be completed for the Irikla Reservoir under

tasking by the Federal Fishing Agency. The collected data are used for estimation of the level of amateur fishing extrapolating the daily catch per species per fisher group (based on the collected data) and the number of amateur fishers per square unit of water basin within different periods of time within one month. This process gives an estimate for the catch of each harvested species per month. These data along with commercial catch data are used in the calculations of TAC for pikeperch and RAC for perch in the Irikla Reservoir.

According to official statistics (Table 3) commercial fishing for perch accounted for 90.7% of the total catch between 2007 and 2012, whereas the recreational represents only 9.3% and research catches negligible (0.07%).

Table 3: Catch of perch (tonnes) in the Irikla Reservoir for commercial, recreational and research purposes and total quota for period 2007-2014

Year	Commercial catch (t)	Recreational catch (t)	Research catch (t)	Total catch (t)	Total quota (t)
2007	234.52	30.0	0.058	264.578	423.0
2008	192.18		0.0125	192.1915	257.0
2009	221.60	35.3	0	256.901	279.75
2010	185.69	17.0	0.343	203.033	195.61
2011	246.63	28.0	0.316	274.946	379.28
2012	227.39	30.5	0.235	258.125	311.52
2013	222.70	22.2	n.a.	246.900	354.85
2014	230.45	26.6	n.a.	257.100	320.00

Data source: Fish-ka (July 2015); Yermolin (2014).

In general, the quota is usually not taken completely (average total catch for the same period is 81.3% of the total quota). This occurs because the quota is subdivided among individual fishing parcels without opportunity to transfer it, and fishing must be terminated when the quota on individual fishing parcel is taken. Considering that the fishing situation in different parts of the reservoir differs, it is not always possible to take whole quota in each fishing individual parcel.

The total annual catch of pikeperch has exceeded the quota in recent years by approximately 6-10% (Table 4). It should be noted that the quotas established for commercial fishing in 2013 and 2015-2017) were previously agreed with the State Agency. Actual catches from the commercial sector were less than their allocated quotas although subsequent levels of recreational catches, combined with commercial and research catches, exceeded the quotas in those years. Unlike the commercial fishery, catches from the recreational fishery are not monitored in-season against the quota.

Table 4. Catch of pikeperch (tonnes) in the Irikla Reservoir for commercial, recreational and research purposes and total quota for period 2012-2017

Year	Commercial catch (t)	Recreational catch (t)	Research catch (t)	Total catch (t)	Total quota (t)
2012	17.5			22.200	23.0
2013	26.2			30.500	28.0
2014	22.98	5.0	0.020	28.000	29.0
2015	27.8	9.8	n.a.	37.600	35.0
2016	27.5	10.7	0.107	38.307	35.0
2017	31.5	11.9	0.090	43.490	41.0

Data source: Belyanin (2017; 2019)

The new regulations have been introduced to restrict the volume of recreational catches of pikeperch to 5 kg per person per day (see Table 15). It is anticipated that these new measures will prevent future overruns from the recreational sector.

Stock assessment

The stock assessment of all commercially fished species in the Irikla Reservoir is led by the Saratov branch of the Russian Federal "Research Institute on Fisheries and Oceanography" (VNIRO) (situated in Saratov). Prior to 2008 the assessment was carried out by the State Research – Industrial Centre of Fisheries (located in Yekaterinburg).
The Saratov Research Institute uses both fisheries-independent survey data and fisheries-dependent data from commercial catches to estimate stock status. These data are collected regularly (approximately once a week) by a researcher from KamUralRybvod based locally to the reservoir. Samples are taken in the fished areas throughout the fishing season. In total, combining the annual research conducted by the Saratov Research Institute and KamUralRybvod, biological analysis of about 3,000 individual fish of different species will be conducted each year. From these data, further analysis of the species specific sex and length-weight relationships will be developed and more than half of specimens are used for ageing through scale and otolith analysis (reading). As for the target species of the fishery under certification, the total number of perch and pikeperch analysed each year exceeds 700 for both species with age determination conducted in about 300 individuals of perch and about 400 of pikeperch.

Calculation of the total available stock biomass[1] of the main commercial fish, including perch and pikeperch, in the Irikla Reservoir is performed through two alternative methods. The first method, related to biostatistical methods, is based on the analysis of the commercial fisheries data (from logbook and landings data and the intensity of fishing effort i.e. commercial CPUE data). The second method used belongs to the so-called family of direct statistical methods, when the stock status of fish is assessed by control catches. This group includes methods for assessing the number of producers according to offspring productivity, hydrobiological indicators, according to fish tagging results, by determining fish feed resources, according to aerial visual or sonar reconnaissance, by special fishing with standard fishing gear, etc. In particular, the second method used by the Saratov Institute is based on the CPUE series recorded from the fishery survey (Poddubniy & Gordeev (1966); Yermolin (1980); Yermolin (2004)). This approach of using two independent methods is employed due to the perceived necessity of assessing an accurate stock status, which allows cross-verification and is then used as the basis of the calculation of the annual fishing opportunities.
The first stock assessment method uses commercial data in conjunction with the Baranov equation (Baranov, 1971), where the fish stock is directly-proportional to the catch and inverse to the intensity of fishing. The catch parameter in this case refers not only the volume of commercial catch reported in the fisheries statistics, but the amounts of recreational fishing and unreported fishing are also taken into account as part of the total catch. The volume of recreational fishery removals is assessed on the basis of findings by KamUralRybvod. Pressure of IUU fishery is considered as a constant coefficient, thus elevating the total catch from commercial fishery. According to data from long-term investigations, provided at the territory level covering all of the reservoirs of Volga, the actual catch is 1.2 to 1.4 times higher in comparison to the quantity reported by statistics (Shashulovskiy & Mosiyash, 2003; Shashulovskiy et al., 2014). This additional catch due to IUU fishing also adds a level of precaution into the assessment process.

Perch

The intensity of fishing refers the portion of the total available stock biomass, which is caught annually from the reservoir. According to the catch statistics from the commercial fishery, the perch catch in 2013 was 222.7 t. In addition to the commercial catch, 22.2 t of perch was estimated to be caught by the recreational fishery and the total from both commercial, recreational fisheries and the catch for research purposes was 246.9 t (c.f. Table 4).

Taking into account the additional proportion mentioned above, there were between 296 t (i.e. 246.9 t x 1.2 IUU factor) and 346 t (i.e. 246.9 t x 1.4 IUU factor), with a mean value of 321 t of perch taken in 2013. The proportion of the reservoir available to be fished was estimated at 0.28 (28%) in 2013. Consequently, the mean total commercial stock biomass of perch in the entire reservoir was estimated at 1,146 t (i.e. 321 t/0.28 ha = 1,146 t). The mean error when determining the abundance of perch varies from 15 to 25 % (average 20%), (Yermolin, 2014). The total available stock biomass would therefore be estimated to be 1,146 ± 226 t. As a further precautionary measure for stock management the lower 95% CI limit of the estimate is taken for the stock size (i.e. 920 t in 2013). The data on the guaranteed commercial stock defined by lower limit of the confidence interval is used to set the maximum quota allocation for fish species at Irikla Reservoir for the following year. In the case of perch, a maximum recommended quota would be 460 t (i.e. 50% of 920 t) in 2014. In practice, this was set much lower at 320 t, equivalent to 35% of the total available stock biomass.

The second stock assessment method uses fisheries independent research data from gillnet catches in autumn as part of an empirical assessment conducted by the Saratov Research Institute (Karagoyshev & Romanenko, 1981). According to the equation, the stock of fish is directly proportional to the product of the average catch from one net with a certain mesh size and the area of water bodies used for feeding by species and inversely proportional to the product of the average area, fished by one net and fishing efficiency coefficient of net. The analysis on the Irikla

[1] This is the total biomass associated with the commercially exploited part of the stock.

Reservoir uses the perch catch made by one standard gillnet (mesh size = 28-32 mm, 75 m long and a catch area equivalent to 0.28 ha) per day to extrapolate based on the size of the Irikla Reservoir. In 2013, the catch rate reported was 7.5 ± 1.5 kg with total gear efficiency of 0.35, based on selectivity of the gear and total fishing effort (see Yermolin 2015). The area of the Irikla Reservoir available for perch is 15,000 ha.

The perch total available stock biomass therefore in the Irikla Reservoir calculated for the autumn of 2013 was estimated at 1,148 ± 229 t (i.e. 7.5 kg x 15,000 ha/0.28 x 0.35 = 1,148 t). Again, using the precautionary approach, the lower 95% confidence interval of the estimated range is taken as the estimate of stock size and therefore the commercial stock is estimated at 919 t.

Following the stock assessment process, Saratov Research Institute sets standards of the Total Available Catch (TAC) for six high value commercial species (bream, pikeperch, wels, carp, pike and crawfish). TACs are determined based on a principle of optimal removals suggested by Tiurin (1967) and Nebolsina (1980) (see also Alverson and Pereira (1969), Gulland (1971)), according to which the appropriate level of commercial fish mortality should not exceed the natural mortality coefficient. Considering that usually the coefficient of natural mortality for fish targeted by commercial fishing is approximately 30%, the TAC in consequence is set at approximately the same value. This principle of stock management for freshwater fish species has been used for a number of years for Russian freshwater fisheries and has shown to be very effective in maintaining populations.

For perch as well as for a range of other lower value commercial species of fish of the Irikla Reservoir (e.g. white bream, roach, crucian carp and redeye) a Recommended Available Catch (RAC) is calculated. This RAC is developed in a very similar manner to the TAC and a defined proportion of the total stock is removed as the RAC. The annual fishing opportunities for perch are aimed at providing the highest level of exploitation whilst ensuring the remainder of the stock would be able to sustain the structure and function of the ecosystem within the reservoir (Nebolsina, 1980; Nebolsina *et al*., 1986).

When setting the TAC or RAC for any fish species in the Irikla Reservoir, the catch limits for each stock is defined by the lower limit of the confidence interval of the lower of the two estimates. Existing data about total stock biomass of perch in the reservoir and total catch show that in 2013 the ratio of total catch to the total stock biomass was 27 % (i.e. 246.9 t/ 919 t).

The commercial fishing quota takes into account applications for commercial fishing. Since perch is not a commercially valuable species in Russia, the commercial quota is usually underutilised. For example, according to the Agency of Fisheries decree the RAC for perch in the Irikla Reservoir in 2014 is set to 450 t. Research and control catch make up 0.5 t of that amount, with remaining 449.5 t are assigned to other types of fishing (commercial and sport fishing). Territorial authorities of Federal Fishing Agency (Rosrybolovstvo) have been locally distributing this share according to the submitted applications. However, the quota of commercial catch in the Irikla Reservoir according to the issued catch permissions amounted to 320 t, which is 71% of the possible catch (Yermolin & Belyanin, 2015).

Pikeperch

According to the catch statistics from the commercial fishery, the pikeperch catch in 2017 was 31.5 t. In addition to the commercial catch, 11.9 t of pikeperch was estimated to be caught by the recreational fishery and the total from both commercial, recreational fisheries and the catch for research purposes was 43.4 t (c.f. Table 4).

Taking into account the additional proportion mentioned above, there were between 52.1 t (i.e. 43.4 t x 1.2 IUU factor) and 60.8 t (i.e. 43.4 t x 1.4 IUU factor), with a mean value of 56.5 t of pikeperch taken in 2017. The intensity of fishing is determined by the number of nets used, the number of days and the area of daily fishing (Karagoishiev, 1978). The average annual number of standard fixed nets (75 m in length) for catching pikeperch on the Irikla Reservoir is 135 pieces. The use of these nets for catching pikeperch in 2017 amounted to 85 working days. The area of fishing by one net is 0.283 ha (Karagoishiev, Romanenko, 1981). Accepting the indicated values, the catch area (S_{catch}) for pikeperch in 2017 was 3,247 ha. The ratio of the area of fishing (S_{catch}) to the total area of the reservoir (S_{total} = 26,000 ha) gives the intensity of use of fishing gear (J=0.12). The actual coefficient of the intensity of fishing (exploitation coefficient u) in the forecast year is related exponentially to the product of two coefficients: the coefficient of intensity of the use of fishing gear (J) and the coefficient of gear efficiency (K). The last coefficient is an experimentally established value and is contained in the manuals on commercial ichthyology (e.g. Karagoishiev, 1978, Treschev, 1983). Assuming that the coefficient of gear efficiency for the fixed nets K = 0.7 (Karagoishiev, 1978), the intensity of fishing was estimated at 0.08 (8%) in 2017. Consequently, the mean total commercial stock biomass of pikeperch in the entire reservoir was estimated at 706 t (i.e. 56.5 t/0.08 - = 706 t). The mean error when determining the abundance of perch varies from 15 to 25 % (average 20%), (Yermolin, 2014). The total available stock biomass would therefore be estimated to be

706 ± 141 t. As a further precautionary measure for stock management the lower 95% CI limit of the estimate is taken for the stock size (i.e. 565 t in 2017).

The second stock assessment method uses fisheries independent research data from gillnet catches in autumn as part of an empirical assessment conducted by the Saratov Research Institute (Karagoyshev & Romanenko, 1981). According to the equation, the stock of fish is directly proportional to the product of the average catch from one net with a certain mesh size and the area of water bodies used for feeding by species and inversely proportional to the product of the average area, fished by one net and fishing efficiency coefficient of net. The analysis on the Irikla Reservoir uses the pikeperch catch made by one standard gillnet (mesh size = 45-110 mm, 75 m long and a catch area equivalent to 0.283 ha) per day to extrapolate based on the size of the Irikla Reservoir. In 2017, the catch rate reported was 6.01 ± 1.35 kg with total gear efficiency of 0.7, based on selectivity of the gear (experimentally established value contained in special literature on commercial ichthyology, for example, Karagoyshiyev, 1978, Treschev, 1983). The area of the Irikla Reservoir available for pikeperch is 75% of the total area of the Irikla Reservoir, namely 19,500 ha.

The pikeperch total available stock biomass therefore in the Irikla Reservoir calculated for the autumn of 2017 was estimated at 591.6 ± 133.3 t (i.e. 6.01 kg x 19,500 ha/0.283 x 0.7 = 591.6 t). Again, using the precautionary approach, the lower 95% confidence interval of the estimated range is taken as the estimate of stock size and therefore the commercial stock is estimated at 458,3 t. From the values obtained by the two calculation methods, the smaller one was chosen as the guaranteed value of the stock of pikeperch in 2017.

Following the stock assessment process, Saratov Research Institute sets standards of the Total Available Catch (TAC) for six high value commercial species (pikeperch, bream, wels, carp, pike and crawfish). TACs are determined based on a principle of optimal removals suggested by Tiurin (1967) and Nebolsina (1980) (see also Alverson and Pereira (1969), Gulland (1971)), according to which the appropriate level of commercial fish mortality should not exceed the natural mortality coefficient. Considering that usually the coefficient of natural mortality for fish targeted by commercial fishing is approximately 30%, the TAC in consequence is set at this or a lower level. This principle of stock management for freshwater fish species has been used for a number of years for Russian freshwater fisheries and has shown to be very effective in maintaining populations.

The data on the guaranteed commercial stock defined by lower limit of the confidence interval is used to set the maximum quota allocation for fish species at Irikla Reservoir for the following year. In the case of pikeperch, the calculation of the TAC is made with the determination of fishing mortality for each fishery age depending on its abundance and biomass in the reservoir. Since the stock of pikeperch in the Irikla Reservoir in the past showed significant fluctuations, for all ages precautionary fishing mortality rates were set significantly lower than those recommended by Tiurin (1967). As the result, a maximum recommended quota for 2018 was set at 51 t (i.e. 11.1% of 458.3 t). The results of the advance forecasting show that in 2019, together with a further increase in the stock of pikeperch, the TAC can be set at 70 tons (i.e. 11.9% of 589.4 t).

The results of the stock assessment and advice on fishing opportunities are then reviewed by the State Ecological Expertise within the Ministry of Agriculture in Moscow.

7.2.3 Total Allowable Catch (TAC) and catch data

The CAB shall include in the report a Total Allowable Catch (TAC) and catch data table using the table below. If possible, a separate table should be provided for each species or gear.

These tables will be updated following the reassessment site visit.

Table X – Total Allowable Catch (TAC) and catch data Perch

TAC	Year	**YYYY**	Amount	**n, unit**
UoA share of TAC	Year	**YYYY**	Amount	**n, unit**
UoA share of total TAC	Year	**YYYY**	Amount	**n, unit**

Total green weight catch by UoC	Year (most recent)	**YYYY**	Amount	**n, unit**
Total green weight catch by UoC	Year (second most recent)	**2018**	Amount	**280.4 tonnes (perch)**

Table X – Total Allowable Catch (TAC) and catch data-Pikeperch

TAC	Year	**YYYY**	Amount	**n, unit**
UoA share of TAC	Year	**YYYY**	Amount	**n, unit**
UoA share of total TAC	Year	**YYYY**	Amount	**n, unit**
Total green weight catch by UoC	Year (most recent)	**YYYY**	Amount	**n, unit**
Total green weight catch by UoC	Year (second most recent)	**2018**	Amount	**280.4 tonnes (perch)**

7.2.4 Principle 1 Performance Indicator scores and rationales

PI 1.1.1 – Stock status

PI 1.1.1		**The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing**		
Scoring Issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guide post	It is **likely** that the stock is above the point where recruitment would be impaired (PRI).	It is **highly likely** that the stock is above the PRI.	There is a **high degree of certainty** that the stock is above the PRI.
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch No**
Rationale				

Perch

The status of the Irikla Reservoir perch stock is assessed on an annual basis by the Saratov Research Institute (Voronin 2007, 2008; Yermolin, 2014). Trends in the level of stock biomass for perch are available since 1973, and show a continuous increase in biomass from around 80 tonnes in 1994 to over 900 tonnes in 2013 (cf. Figure 12).

The harvest strategy does not use explicit biological reference points, such a limit reference point (LRP) to determine stock status. However, the magnitude of the increase demonstrates that the stock is highly likely to be above the point of recruitment impairment. A precautionary suite of management measures and tools ensures that fishing effort is low so the stock remains at productive levels that are appropriate to the scale and intensity of the fishery (see P1 1.2.1 and PI 1.2.2). Spawning of perch takes place annually and is very effective in many sites of the reservoir that allows the high abundance of this species. The high reproductive capacity of the perch stock is also supported by the high number of younger year-class spawning fish that are not targeted by commercial or recreational fisheries.

The observed rapid increase in abundance clearly demonstrates that fishing pressure has not adversely affected productivity, supporting a conclusion that the stock is substantially above the PRI. In the absence of the set PRI values for the Irikla Reservoir fishery, proxy indicators can be used to determine the state of the stock in relation to the recruitment impairment. The stock of perch in fact performed well at least two generation times (according to www.fishbase.se, the generation time of perch is 5.7 years) as evidenced by the increase of stock and recommended

catch during the last years (see Figure 12). Taking into account that the perch biomass has continued to increase over the past two decades from approximately 80 tonnes in 1994 to over 900 tonnes in 2011, there is considered to be a high degree of certainty that the stock of perch is above the point where recruitment would be impaired; SG60, SG80 and SG100 are met.

Pikeperch

The status of the Irikla Reservoir pikeperch stock is assessed on an annual basis by the Saratov Research Institute since 2008 (Voronin 2007, 2008; Yermolin, 2014). Trends in the level of stock biomass for pikeperch are available since 2010, and show a continuous increase in the commercial stock biomass from around 80 tonnes in 2010 to over 450 tonnes in 2018 (cf. Figure 8).

The harvest strategy does not use explicit biological reference points, such a limit reference point (LRP) to determine stock status. However, the magnitude of the increase demonstrates that the stock is highly likely to be above the point of recruitment impairment. A precautionary suite of management measures and tools ensures that fishing effort is low so the stock remains at productive levels that are appropriate to the scale and intensity of the fishery (see P1 1.2.1 and PI 1.2.2). Spawning of pikeperch takes place annually and is quite effective in many sites of the reservoir that allows the high abundance of this species. Pikeperch growth rates in terms of size and weight indicators have been fairly stable over the past ten years.

The observed rapid increase in abundance clearly demonstrates that fishing pressure has not adversely affected productivity, supporting a conclusion that the stock is substantially above the PRI.

This qualitative assessment is deemed sufficient evidence to meet the highly likely requirements at SG80. Despite a noticeable increase in the stock of pike-perch in recent years, there were multidirectional trends in the dynamics of the stock of this species during two generation time (according to www.fishbase.se, the generation time of pike-perch is 10.2 years). Thus, current data does not provide evidence to confirm with a high degree of certainty that the stock of pike-perch is above the PRI to meet SG100.

	Stock status in relation to achievement of Maximum Sustainable Yield (MSY)			
b	Guide post		The stock is at or fluctuating around a level consistent with MSY.	There is **a high degree of certainty** that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?		**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**
Rationale				

Perch

The harvest strategy does not use explicit biological reference points, such a target reference point (TRP) to determine stock status.

As changes in the reservoir ecosystem continue, including annual fluctuations in water level and ice cover, it is difficult to establish a B_{MSY}-related reference point. Relative to the conditions in first several decades following filling of the reservoir, the current conditions have led to a substantial increase in perch abundance. The current biomass is several times above the abundance in the early days of the reservoir and is not considered a main commercial species within the reservoir. The perch abundance is high largely because of food availability released by reductions in competitor fish.

The lower 95% CI estimate of the total available biomass (*Ba*) is used to calculate 0.5*Ba*, which is equivalent to the target reference point (TRP) as is used with the same intent as BMSY. The TRP based on 50%*Ba* rather than virgin biomass (i.e. 50%B_0) is used to establish annual fishing opportunities for perch (RAC) and this precautionary approach has been demonstrated to effectively keep the stock well above the point at which recruitment would be impaired.

Given that the total annual catch frequently does not reach the available annual quota allocation set to maintain the stock at levels consistent with B_{MSY}, and that the stock has shown a continuous increase in biomass, provides a strong qualitative rationale that the stock biomass is at or fluctuating around the proxy value for B_{MSY}, meeting both the SG60 and SG80. Indeed, it could be argued this lightly fished stock now far exceeds this value.

However, uncertainty in the definition of MSY, and uncertainty whether future shifts in the reservoir may alter conditions such that the abundance of perch may decrease back toward former conditions or whether practical, prevent the fishery from reaching the SG100.

Pikeperch

The harvest strategy does not use explicit reference points, such a target reference point (TRP) to determine stock status.

As changes in the reservoir ecosystem continue, including annual fluctuations in water level and ice cover, it is difficult to establish a B_{MSY}-related reference point. Relative to the conditions in first several decades following filling of the reservoir, the current conditions have led to a substantial increase in pikeperch abundance. The current biomass is several times above the abundance just a few years ago when there were significant fluctuations in the water level in the reservoir. The pikeperch abundance is high mainly due to the abundance of fish prey. . The lower 95% CI estimate of the total available biomass (*Ba*) is used to calculate TAC at the level of 0.3*Ba*, which is equivalent to the target reference point (TRP) as is used with the same intent as BMSY. The TRP based on 30%*Ba* rather than virgin biomass (i.e. 30%B_0) is used to establish annual fishing opportunities for TAC regulated species in the Irikla Reservoir. In the case of pikeperch, even softer fishing control measures are applied, so that TAC never actually exceeds 20%B_0. This precautionary approach has been demonstrated to effectively keep the stock well above the point at which recruitment would be impaired.

Given that the total annual catch frequently does not reach the available annual quota allocation set to maintain the stock at levels consistent with B_{MSY}, and that the stock has shown a continuous increase in biomass, provides a strong qualitative rationale that the stock biomass is at or fluctuating around the proxy value for B_{MSY}, meeting both the SG60 and SG80.

However, uncertainty in the definition of MSY , uncertainty in accounting for the volumes of amateur fishermen, and uncertainty whether future shifts in the reservoir may alter conditions such that the abundance of pikeperch may decrease back toward former conditions or whether practical, prevent the fishery from reaching the SG100

References

Voronin (2007); Voronin (2008); Yermolin (2014); Kilyakova & Lysenko (2007); Belyanin (2018).

Stock status relative to reference points

	Type of reference point	Value of reference point	Current stock status relative to reference point
Reference point used in scoring stock relative to PRI (SIa)	No limit reference point is in place for perch and pike-perch in the Irikla Reservoir. Proxy value is used.	Generation time	Perch: Abundance demonstrably higher than at any time in the past, and at record levels; increasing in stock biomass during at least two generation time. Pikeperch: Abundance demonstrably higher than just a few years ago with persisting increasing trend of biomass during one generation time.
Reference point used in scoring stock relative to MSY (SIb)	Biomass	F_{rec} x *Ba* (F_{rec} (%) of total commercially available biomass)	Perch: F ≤ 50% x *Ba* Pikeperch: F ≤ 30% x *Ba* (recommended) F ≤ 20% x *Ba* (in practice)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**Perch ≥80** **Pikeperch ≥80**
Information gap indicator	**More information (updated) sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.1.2 – Stock rebuilding Not relevant. All UoAs.

PI 1.1.2		Where the stock is reduced, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	Rebuilding timeframes			
	Guide post	A rebuilding timeframe is specified for the stock that is the **shorter of 20 years or 2 times its generation time**. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years.		The shortest practicable rebuilding timeframe is specified which does not exceed **one generation time** for the stock.
	Met?	**Perch NA** **Pikeperch NA**		**Perch NA** **Pikeperch NA**
Rationale				

The Irikla Reservoir perch and pike-perch stocks do not require rebuilding and so this PI is not relevant to any UoA.

b	Rebuilding evaluation			
	Guide post	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within the specified timeframe.	There is **evidence** that the rebuilding strategies are rebuilding stocks, **or it is likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the **specified timeframe**.	There is **strong evidence** that the rebuilding strategies are rebuilding stocks, **or it is highly likely** based on simulation modelling, exploitation rates or previous performance that they will be able to rebuild the stock within the **specified timeframe**.
	Met?	**Perch NA** **Pikeperch NA**	**Perch NA** **Pikeperch NA**	**Perch NA** **Pikeperch NA**
Rationale				

The Irikla Reservoir perch and pike-perch stocks do not require rebuilding and so this PI is not relevant to any UoA.

References

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**NA**
Information gap indicator	**NA**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	**NA**
Condition number (if relevant)	**NA**

PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Harvest strategy design			
	Guide post	The harvest strategy is **expected** to achieve stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy **work together** towards achieving stock management objectives reflected in PI 1.1.1 SG80.	The harvest strategy is responsive to the state of the stock and is **designed** to achieve stock management objectives reflected in PI 1.1.1 SG80.
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**
Rationale				

Perch
Perch is not considered a valuable commercial fish and as a result, management quotas for this species are not set based on the results of an assessment for total allowable catch (TAC) species, but rather a recommended allowable catch (RAC) applied to 'low value' species. Low profitability of the perch commercial fishery and the strict spatial division of quotas among separate Irikla Reservoir parcels, without the right of their transfer during a fishing season, provide a regular under-exploitation of the perch stock below the RAC quota levels.

The harvest strategy is based on managing the fishery based on an annual RAC quota, which is defined to meet the objectives in the target reference point. It is deemed responsive to the state of the stock as annual quotas are based on updated estimates of available stock biomass (Ba) and proxy TRP (50%Ba), which are calculated by the Saratov Research Institute before each fishing season commences.

The fishery is automatically stopped when the quota (or any part of other species' quotas) is reached. Only a proportion of the overall perch RAC quota is fully utilised as the total quota is divided among all fishing parcels. This makes exceeding the quota in any of part of the reservoir difficult. The reported catches from the commercial perch fishery demonstrate that the annual catch is considerably lower than the RAC quota.

In addition to catch quotas, the harvest strategy has a suite of management measures that aim to support the objectives of each reference point. These include limited number of commercial fishing licenses, prohibited gear types, gillnet mesh size, permanent closed areas and seaonal closure of the fishery (article 43.1, Federal law of Fishery).

The use of catch quotas and management measures have been shown to be responsive to the state of the stock and work together effectively to maintain the stock at productive levels. This is sufficient to meet the requirements at both SG60 and SG80. There is no evidence to demonstrate the harvest strategy has been 'designed' to meet SG100.

Pikeperch
Pikeperch is considered a valuable commercial fish, and as a result, management quotas for this species are set based on the results of an assessment for total allowable catch (TAC) species. Currently, strict spatial division of quotas among separate Irikla Reservoir parcels, without the right of their transfer during a fishing season, provide a regular under-exploitation of the pikeperch stock below the TAC quota levels by commercial fishermen.

The harvest strategy is based on managing the fishery based on an annual TAC quota, which is defined to meet the objectives in the target reference point. It is deemed responsive to the state of the stock as annual quotas are based on updated estimates of available stock biomass (*Ba*) and proxy TRP (about 20%*Ba*), which are calculated by the Saratov Research Institute before each fishing season commences.

The fishery is automatically stopped when the quota (or any part of other species' quotas) is reached. Only a proportion of the overall commercial pikeperch TAC quota is fully utilised as the total quota is divided among all fishing parcels. This makes exceeding the quota in any of part of the reservoir difficult. The reported catches from the commercial pikeperch fishery demonstrate that the annual catch is lower than the TAC quota.

In addition to catch quotas, the harvest strategy has a suite of management measures that aim to support the objectives of each reference point. These include minimal fishery size for pikeperch, maximal daily harvest for recreational fishermen (5 kg), limited number of commercial fishing licenses, prohibited gear types, gillnet mesh size, permanent closed areas and seasonal closure of the fishery (article 43.1, Federal law of Fishery).

The use of catch quotas and management measures have been shown to be responsive to the state of the stock and work together effectively to maintain the stock at productive levels. This is sufficient to meet the requirements at both SG60 and SG80. There is no evidence to demonstrate the harvest strategy has been 'designed' to meet SG100.

b	Harvest strategy evaluation			
	Guide post	The harvest strategy is **likely** to work based on prior experience or plausible argument.	The harvest strategy may not have been fully **tested** but evidence exists that it is achieving its objectives.	The performance of the harvest strategy has been **fully evaluated** and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**
Rationale				

Perch
There is a range of evidence to demonstrate the harvest strategy has been successful in achieving its objectives.

Data analyzed by the Saratov Research Institute show the most prevalent age of fish retained in the perch fishery range between 3 and 7 years old, and thus protect both juvenile and older mature fish from exploitation (Yermolin, 2014).

RAC quotas are calculated based on the current status of the stock, which takes into account all sources of removal including commercial, recreational and IUU fishing. Official fishery statistics show the total annual catch of perch is frequently below the RAC quota (cf. Table 9). Further to this, the level of infringements are infrequent and relatively minor, implying the harvest strategy is effective.

Quantitative information on the level of stock biomass is available from stock assessments dating back to 1973 and demonstrates biomass has been maintained at productive levels, with a steady increase observed over the last decades (Figure 12). In addition, an increased proportion of perch is reported in catches compared to other fish species.

This evidence is sufficient to meet the requirements at both SG60 and SG80 but cannot meet SG100 level as there is no evidence that the harvest strategy has been fully tested.

Pikeperch
There is a range of evidence to demonstrate the harvest strategy has been successful in achieving its objectives. Data analyzed by the Saratov Research Institute show the most prevalent age of fish retained in the pikeperch fishery range between 3 and 6 years old, and thus protect both juvenile and older mature fish from exploitation (Yermolin, 2014).

TAC quotas are calculated based on the current status of the stock, which takes into account all sources of removal including commercial, recreational and IUU fishing. Official fishery statistics show the total annual catch of pikeperch by commercial fishermen is below the TAC quota (cf. Table 8). Further to this, the level of infringements is infrequent and relatively minor, implying the harvest strategy is effective.

Quantitative information on the level of stock biomass is available from stock assessments dating back to 2010 and demonstrates a steady increase of biomass observed over the last decade (Figure 13). At the same time, the growth rate of pikeperch remains stable in all age groups.

This evidence is sufficient to meet the requirements at both SG60 and SG80 but cannot meet SG100 level as there is no evidence that the harvest strategy has been fully tested.

	Harvest strategy monitoring			
C	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	**Perch Yes** **Pikeperch Yes**		
Rationale				

Perch
Monitoring exists to record detailed catch information from the commercial fishery. Besides, during research surveys, which are carried out by research from Saratov Research Institute and KamUralRybVod three times a year and conducted throughout the whole reservoir, data related to the species composition of catch, lengths and weights, age, sex, fertility, maturity, food supply, heavy metal content in fish muscles, quality of environment etc. are collected and analyzed.

Information is also collected from the recreational fishery and estimates of under-reporting defined to enable the total catch to be raised. Estimates of IUU catch are also included and monitored.

According to appendixes of Fishery Rules, on board each fishing vessel (including those owned by the fishing companies under assessment “Fish-ka” and “Volna”) the fishing register book, registered in the Territorial Administration of FFA (Federal Fishery Agency) in which the person, responsible for fishing (the foreman / lead man) records the capture of aquatic bio resources (ABR), weight of the caught ABR by ranges (kg), should be left on board the boat. In addition, in the register book a registration of catch of ABR by cumulative total by separate species is kept. Twice a month, fisheries present to the local authorities of Russian Federal Fishery Agency a summary of data for the production of aquatic bio resources for each catch area (fishing parcel) as for the 15th day and the last day of the month.

In recent years considerable reduction of the level of illegal catch of fish in the Irikla Reservoir has been noted. There has been a positive effect to the reduction in IUU fishing, through the improvement of activity of the fishery conservation organizations, holding fishery conservation and optimization of fishing activities as a result of which fishermen of “Fish-ka” and “Volna” companies carry out continuous monitoring of observance of rules of fishery at the reservoir. According to fish inspectors and the staff of the Saratov Research Institute, IUU catch volume for the Irikla Reservoir is lower than other major reservoirs (e.g. Saratov and Volgograd). The method for calculating IUU catch for perch is applied as a standard calculation for the entire stock in the Irikla Reservoir.

Throughout the year, monitoring of the recreational fishery is carried out at the reservoir. This includes an analysis of the total catch of all species caught by recreational fishers (i.e. survey by KamUralRybvod), and fishing effort by recording the number of recreational fishermen (i.e. survey by Saratov GosNIORKH) is conducted. These data are used to calculate the total annual catch from the recreational sector for different species of fish and used in the assessment of TAC (or RAC) quotas for different species.

Available evidence on the level of monitoring of the harvest strategy is sufficient to meet SG60.

Pikeperch
Monitoring exists to record detailed catch information from the commercial fishery. Besides, during research surveys, which are carried out by research from Saratov Research Institute and KamUralRybVod three times a year and conducted throughout the whole reservoir, data related to the species composition of catch, lengths and weights, age, sex, fecundity, maturity, food supply, heavy metal content in fish muscles, quality of environment etc. are collected and analyzed.

Information is also collected from the recreational fishery and estimates of under-reporting defined to enable the total catch to be raised. Estimates of IUU catch are also included and monitored.

According to appendixes of Fishery Rules, on board each fishing vessel (including those owned by the fishing companies under assessment “Fish-ka” and “Volna”) the fishing register book, registered in the Territorial Administration of FFA (Federal Fishery Agency) in which the person, responsible for fishing (the foreman / lead man) records the capture of aquatic bio resources (ABR), weight of the caught ABR by ranges (kg), should be left on board the boat in the register book. In addition, a registration of catch of ABR by cumulative total by separate species is kept. Twice a month, fisheries present to the local authorities of Russian Federal Fishery Agency a summary of data for the

production of aquatic bio resources for each catch area (fishing parcel) as for the 15th day and the last day of the month.

In recent years considerable reduction of the level of illegal catch of fish in the Irikla Reservoir has been noted. There has been a positive effect to the reduction in IUU fishing, through the improvement of activity of the fishery conservation organizations, holding fishery conservation and optimization of fishing activities as a result of which fishermen of “Fish-ka” and “Volna” companies carry out continuous monitoring of observance of rules of fishery at the reservoir. According to fish inspectors and the staff of the Saratov Research Institute, IUU catch volume for the Irikla Reservoir is lower than other major reservoirs (e.g. Saratov and Volgograd). The method for calculating IUU catch for pikeperch is applied as a standard calculation for the entire stock in the Irikla Reservoir.

Throughout the year, monitoring of the recreational fishery is carried out at the reservoir. This includes an analysis of the total catch of all species caught by recreational fishers (i.e. survey by KamUralRybvod), and fishing effort by recording the number of recreational fishermen (i.e. survey by Saratov VNIRO) is conducted. These data are used to calculate the total annual catch from the recreational sector for different species of fish and used in the assessment of TAC (or RAC) quotas for different species.

Available evidence on the level of monitoring of the harvest strategy is sufficient to meet SG60.

d	Harvest strategy review			
	Guide post			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			**Perch Yes** **Pikeperch Yes** (NB – is not relevant as SIf does not meet SG80)
Rationale				

Perch
The harvest strategy is reviewed annually. The harvest strategy includes an optimization of number of fishers working for the company, which increases the level of control of effort within the fishery.

The commercial strategy used at the moment shows consistency as there were no signs of overexploitation of the population of perch within the last decade. Nevertheless, the fishing companies are interested in sustainable fishing and full development of commercial stock in the reservoir, as according to the available data on average for 2011-2013 fisheries and recreational fishers used only 23.9% of the available commercial stock on the Irikla Reservoir.

The implementation of the harvest controls and any possible reorganization of fishery are carried out at the scientific justification of Saratov GosNIORKH and more recently by “Fish-ka” and “Volna” companies. The optimization (reduction) of number of fishermen within the perch fishery decreased from 90 to 31 people to increase the fishing opportunities for each fisherman. Fishery sites were transferred to fishermen for a long-term use (10 years). These actions allowed to increase productivity of one fisherman (on average 9.8 t. in 2011) to increase internal control in the fishing companies, and also to improve observance of law at the reservoir through operational cooperation of fishers with the authorities, controlling the fishing order. As a result, the level of IUU on the Irikla Reservoir decreased to negligible numbers: fishermen of two companies who regularly before the beginning of the season together with a Rybnadzor - Fishery supervision - carry out clearing of fishing parcels, currently report an almost total absence of lost illegal gillnets. Eight years ago, 4 boats of illegal gillnets were pulled out from water but this has now been reduced to zero. In 2018, the position of freed foremen who carry out the paperwork and control the fishing within the companies was introduced in the fishing companies. Thus, the measures undertaken in reorganization of fishery have helped to increase the level of compliance within the fishery and minimize uncertainties in the results of the stock assessment.Fishing parcels are re-allocated to users (fishing companies) on a regular basis. The license to permit the allocation of TAC/RAC quotas is valid for 10 years. Both distributions of quota and fishing parcels are based on complex assessment of effectiveness of companies and their credit history. In some cases, not all fishing parcels are allocated simultaneously. For instance, one fishing parcel in the Irikla Reservoir (Suunduk Bay) is not allocated to any fishing company till now, but is planned to be allocated in the near future. The process of such allocation is done based on competition among fisheries and thus includes their assessment by the management system. Since May 2018, a daily catch rate of 5 kg has been introduced for amateurs at the Irikla Reservoir. Since November 2018 the fine for illegally fished pikeperch was up to 3 305 rubles per fish (earlier the fine was 250 rubles per fish).

The systems described above provide a range of evidence to demonstrate that the harvest strategy is reviewed regularly and that improvements have been made, leading to reduced IUU fishing and increased level of perch biomass, sufficient to meet the requirements at SG100.

Pikeperch
The harvest strategy is reviewed annually. The harvest strategy includes an optimization of number of fishers working for the company, which increases the level of control of effort within the fishery.
The commercial strategy used at the moment shows consistency as there were no signs of overexploitation of the population of pikeperch by commercial fishermen within the last decade. Nevertheless, the fishing companies are interested in sustainable fishing and full development of commercial stock in the reservoir, as according to Saratov VNIRO optimum harvest of pikeperch for Irikla Reservoir could be 70 tons, which is considerably lower than catch of 43.4 tons registered in 2017.

The implementation of the harvest controls and any possible reorganization of fishery are carried out at the scientific justification of Saratov VNIRO and more recently by “Fish-ka” and “Volna” companies. The optimization (reduction) of number of fishermen within the pikeperch and pikeperch fishery decreased from 90 to 41 people to increase the fishing opportunities for each fisherman. Fishery sites were transferred to fishermen for a long-term use (10 years).

These actions allowed to increase productivity of one fisherman (on average 9.8 t. in 2011) to increase internal control in the fishing companies, and also to improve observance of law at the reservoir through operational cooperation of fishers with the authorities, controlling the fishing order. As a result, the level of IUU on the Irikla Reservoir decreased to negligible numbers: fishermen of two companies who regularly before the beginning of the season together with a Rybnadzor - Fishery supervision - carry out clearing of fishing parcels, currently report an almost total absence of lost illegal gillnets. Seven years ago, 4 boats of illegal gillnets were pulled out from water but this has now been reduced to zero. In 2018, the position of freed foremen who carry out the paperwork and control the fishing within the companies was introduced in the fishing companies. Thus, the measures undertaken in reorganization of fishery have helped to increase the level of compliance within the fishery and minimize uncertainties in the results of the stock assessment.

Fishing parcels are re-allocated to users (fishing companies) on a regular basis. The license to permit the allocation of TAC/RAC quotas is valid for 10 years. Both distributions of quota and fishing parcels are based on complex assessment of effectiveness of companies and their credit history. In some cases, not all fishing parcels are allocated simultaneously. For instance, one fishing parcel in the Irikla Reservoir (Suunduk Bay) is not allocated to any fishing company until now, but is planned to be allocated in the near future. . The process of such allocation is done based on competition among fisheries and thus includes their assessment by the management system. Since May 2018, a daily catch rate of 5 kg has been introduced for amateurs at the Irikla Reservoir. Since November 2018 the fine for illegally fished pikeperch was up to 3 305 rubles per fish (earlier the fine was 250 rubles per fish).

The systems described above provide a range of evidence to demonstrate that the harvest strategy is reviewed regularly and that improvements have been made, leading to reduced IUU fishing and increased level of pikeperch biomass sufficient to meet the requirements at SG100.

e	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**
Rationale				

Perch and pikeperch are not shark species.

f	Review of alternative measures

	Guide post	There has been a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of the target stock, and they are implemented, as appropriate.
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch No**	**Perch Yes** **Pikeperch No**

Rationale

The CAB shall insert sufficient rationale to support the team's conclusion for each Scoring Guidepost (SG). Scoring Issue need not be scored if sharks are not a target species.

Fishing was carried out by means of gillnets whilst fishing with beach seine (under ice) was prohibited due to catches of juvenile bream. This led to a decrease in the catch of small species of fish (perch, roach and other cyprinids fishes).

Perch
According to the “Fisheries Rules for the Volga-Caspian Basin”, the minimum commercial size has not been established for perch of the Irikla Reservoir (paragraph 30.27). Thus, for perch the minimum fishing size is not provided. Paragraph 25.1.2. of the Fisheries Rules indicate that it is forbidden to use the fishing gears with the mesh size of less than 30 mm in the gillnets for fishing single category of fish named "small tiddler" (including perch, roach, crucian carp etc.). It is considered, that all fish of non-commercial size could escape through the mesh of fishing gear, the remaining fish is considered commercial and may be used for consumption.
The fishers of the Fish-ka use gillnet sizes of of 30 – 36 mm and 50 – 70 mm. It is known, that in the Irikla Reservoir perch males mature when they reach the length of 7-8 cm, females when they are 10 cm in length. Thus, all immature perch pass through the nets of minimal allowed mesh size and avoid entanglement in them. Besides juvenile fish, there is no unwanted catch of other fish species because fishers take all the harvest.
Since there is no UoA-related mortality of unwanted catch of the target stock of perch in the Irikla Reservoir, it is sufficient to meet the requirements at SG100.

Pike-perch

According to the “Fisheries Rules for the Volga-Caspian Basin”, for the Irikla Reservoir the minimum commercial size of pikeperch has been established of 30 cm (paragraph 30.27). Thus, for pikeperch the minimum fishing size of 30 cm is provided. Paragraph 25.1.2. of the Fisheries Rules indicate that it is forbidden to use the fishing gears with the mesh size of less than 30 mm in the gillnets for fishing single category of fish named "small tiddler" (including perch, roach, crucian carp etc.) and the mesh size less than 50 mm in the gillnets for fishing other category of fish named "large tiddler" (including pikeperch, pike, wild carp etc.). It is considered, that all fish of non-commercial size could escape through the mesh of fishing gear, the remaining fish is considered commercial and may be used for consumption.

The fishers of the Fish-ka use gillnet sizes of 30 – 36 mm and 50 – 70 mm. It is known, that all immature perch pass through the nets of minimal allowed mesh size and avoid entanglement in them. However, pikeperch matures later and grows faster than perch, so gillnets of small mesh size could potentially take considerable amounts of juvenile pikeperch. According to the Fishing Rules (paragraph 27.2), when fishing with gillnets, the by-catch of juveniles is not allowed more than 20% of the total number of all fish species in one fishing operation. If the catch of immature fish is exceeded, the captain (foreman) must record the catch in the fishing log and change the fishing place. At present, the assessment team does not have sufficient information about the age composition and harvest volumes of pike-perch taken by commercial fishermen with different fishing gear.

While there are a number of possible measures to minimize UoA-related mortality of unwanted catch, there is no evidence of a regular review of the potential effectiveness and practicality of alternative measures to minimize mortality of unwanted catch of the pikeperch stock. For this reason, the fishery fails to meet SG80 requirements, but meets them at SG60.

References

Shashulovsky *et al*., (2014); Yermolin (2014); Belyanin (2018).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**Perch ≥80** **Pikeperch 60-79**
Information gap indicator	**More information (updated) sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.2 – Harvest control rules and tools

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	**Generally understood** HCRs are in place **or available** that are **expected** to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	**Well defined** HCRs are **in place** that **ensure** that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock **fluctuating around** a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock **fluctuating at or above** a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, **most** of the time.
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**
Rationale				

Perch
The Irikla perch fishery does not have an explicit harvest control rule or limit reference point but a suite of well-defined management tools and measures are in place that are consistent with ensuring the susceptibility of perch to removal is 'no higher than that which would cause the risk to the target species to be above an acceptable risk range' GSA2.5.2-2.5.5, MSC version 2.01, 2018) that is considered relevant to the scale and intensity of the fishery.

Typical of most Russian inland fisheries, fishing opportunities are calculated on an annual basis to take into account inter-annual variability in estimated stock size (i.e. annual changes in available biomass, *Ba*) and ensures that the exploitation rate is reduced at a higher rate than the rate of stock size declines. In consequence, annual changes in fishing opportunities are not triggered by a single limit reference point, but rather a proportion of *Ba* such that the exploitation rate decreases as a function of stock size (cf. Figure 15). Furthermore, the RAC quotas are calculated on the available biomass (*Ba*), i.e., 50% of the lower 95% confidence interval of stock abundance. Were the Ba to be fished out (mainly fish aged 3-7) no further catches would be permitted, and a proportion of the productive stock (i.e. juvenile and older mature fish; *Btotal* - *Ba*) would remain to facilitate rebuilding and thus reduces the risk of impairing recruitment capacity.

Annual fishing opportunities are reviewed on an annual basis by the expert review panel within the Ministry of Agriculture and a declining abundance and catch series would be expected to trigger early management action such as a total ban on the fishery before *Ba* is significantly reduced. To date, there is no record of this management action being required in the fishery.

In addition, the harvest control rules and tools are supported by a suite of precautionary management measures and tools as part of the harvest strategy that help prevent the stock status reaching a point of recruitment impairment (PRI). These include both spatial and temporal closures to provide a refuge for proportion of the stock at any one time (all age classes), a defined gillnet mesh size range that selects size/age of fish and control over the total number of annual fishing licenses. The highly selective mesh size prevents the capture of both juvenile and large mature fish, thus helping to eliminate recruitment and growth overfishing.

These relatively simple harvest control rules and tools are appropriate for the scale and intensity of the fishery, ensure that the exploitation rate is reduced as the PRI is approached, and expected to keep the stock fluctuating around a target level consistent with MSY so both SG60 and SG80 levels are meet. However, there are no evidences that HCRs are taking into account the ecological role of the perch stock most of the time, so SG100 is not meet.

Pikeperch
The Irikla pikeperch fishery does not have an explicit harvest control rule or limit reference point but a suite of well-defined management tools and measures are in place that are consistent with ensuring the susceptibility of pikeperch to removal is 'no higher than that which would cause the risk to the target species to be above an acceptable risk range' GSA2.5.2-2.5.5, MSC version 2.01, 2018) that is considered relevant to the scale and intensity of the fishery.

Typical of most Russian inland fisheries, fishing opportunities are calculated on an annual basis to take into account inter-annual variability in estimated stock size (i.e. annual changes in available biomass, *Ba*) and ensures that the exploitation rate is reduced at a higher rate than the rate of stock size declines. In consequence, annual changes in fishing opportunities are not triggered by a single limit reference point, but rather a proportion of *Ba* such that the exploitation rate decreases as a function of stock size (cf. Figure 15). Furthermore, the TAC quotas for pikeperch are calculated on the available biomass (*Ba*), i.e., approximately 20% of the lower 95% confidence interval of stock abundance. Were the Ba to be fished out (mainly fish aged 3-6) no further catches would be permitted, and a proportion of the productive stock (i.e. juvenile and older mature fish; *Btotal* - *Ba*) would remain to facilitate rebuilding and thus reduces the risk of impairing recruitment capacity.

Annual fishing opportunities are reviewed on an annual basis by the expert review panel within the Ministry of Agriculture and a declining abundance and catch series would be expected to trigger early management action such as a total ban on the fishery before *Ba* is significantly reduced. To date, there is no record of this management action being required in the fishery.

In addition, the harvest control rules and tools are supported by a suite of precautionary management measures and tools as part of the harvest strategy that help prevent the stock status reaching a point of recruitment impairment (PRI). These include minimal fishery size for pikeperch, juvenile permissible volume of by-catch (49% by number), both spatial and temporal closures to provide a refuge for proportion of the stock at any one time (all age classes), a defined gillnet mesh size range that selects size/age of fish and control over the total number of annual fishing licenses.

These relatively simple harvest control rules and tools are appropriate for the scale and intensity of the fishery, , ensure that the exploitation rate is reduced as the PRI is approached, and expected to keep the stock fluctuating around a target level consistent with MSY so both SG60 and SG80 levels. However, there is no evidence that HCRs are taking into account the ecological role of the pikeperch stock most of the time, so SG100 is not meet.

	HCRs robustness to uncertainty			
b	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a **wide** range of uncertainties including the ecological role of the stock, and there is **evidence** that the HCRs are robust to the main uncertainties.
	Met?		**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**
Rationale				

Perch

Uncertainties are clearly taken into consideration by taking the lower estimates of the 95% confidence interval limit of the available biomass to establish annual quotas (see stock assessment, PI1.2.4). Sources of mortality external to the fishery from recreational fisheries are included in the stock assessment process (allocation of RAC quota) but there remains some uncertainty over the actual levels of recreational fishery catch reported. The low amount of available effort allows for substantial fluctuation in abundance without a need for more explicit management actions.

Illegal catch is also considered in the calculation of annual quotas; however there remains some uncertainty in the methods used and how appropriate they are to the Irikla Reservoir (see PI 1.2.4 for more details).

There is sufficient evidence that the main uncertainties are taken into account in the selection of harvest control rules (HCRs) to meet the requirements at the SG80 level. It is not clear that the HCRs have been specifically designed for the Irikla Reservoir to take into account a wide range of uncertainties to meet the SG100 level.

Pikeperch

Uncertainties are clearly taken into consideration by taking the lower estimates of the 95% confidence interval limit of the available biomass to establish annual quotas (see stock assessment, PI1.2.4). Sources of mortality external to the fishery from recreational fisheries are included in the stock assessment process (allocation of TAC quota) but there remains some uncertainty over the actual levels of recreational fishery catch reported.

Illegal catch is also considered in the calculation of annual quotas; however there remains some uncertainty in the methods used and how appropriate they are to the Irikla Reservoir (see PI 1.2.4 for more details).

There is sufficient evidence that the main uncertainties are taken into account in the selection of harvest control rules (HCRs) to meet the requirements at the SG80 level. It is not clear that the HCRs have been specifically designed for the Irikla Reservoir to take into account a wide range of uncertainties to meet the SG100 level.

	HCRs evaluation			
c	Guide post	There is **some evidence** that tools used **or available** to implement HCRs are appropriate and effective in controlling exploitation.	**Available evidence indicates** that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	**Evidence clearly shows** that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**

Rationale

Perch

There is evidence from the total reported commercial landings of perch, which are consistently below the allocated RAC quota, that the tools are appropriate and effective in achieving exploitation levels under the HCRs. It is noted that total perch catches (commercial and recreational) were reported to overshoot the RAC in 2010 due to limited in-season monitoring of the recreational fisheries sector.

Results of annual stock assessments conducted by the Saratov Research Institute show stock biomass levels have been maintained at productive levels, and have significantly increased over the past decade.

Under these circumstances, there is sufficient evidence to meet the requirements at both SG60 and SG80 levels but not considered comprehensive to meet SG100.

Pikeperch

There is evidence from the total reported commercial landings of pikeperch, which are consistently below the allocated TAC quota, that the tools are appropriate and effective in achieving exploitation levels under the HCRs. It is noted that total pikeperch catches (commercial and recreational) were reported to overshoot the TAC in 2013 and 2015-2017 due to limited in-season monitoring of the recreational fisheries sector.

Results of annual stock assessments conducted by the Saratov Research Institute show stock biomass levels have been maintained at productive levels, and have significantly increased over the past decade.
Under these circumstances, there is sufficient evidence to meet the requirements at both SG60 and SG80 levels but not considered comprehensive to meet SG100.

References

Shashulovsky *et al*., (2014); Yermolin (2014); Belyanin (2018).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**Perch ≥80** **Pikeperch ≥80**
Information gap indicator	**More information (updated) sought** *If more information is sought, include a description of what the information gap is and what is information is sought*

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	**Some** relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.	**Sufficient** relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	A **comprehensive range** of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**
Rationale				

Perch

A comprehensive range of information relevant to support the harvest strategy exists. This relates to the distribution and age structure of the stock, biological information on the stock productivity, fleet composition and gear used, stock abundance, level of fishery removals and other environmental and ecological information.

The fishing companies on Irikla Reservoir keep records of all licensed commercial fishermen, boats and gear employed (cf. Table 1). They also maintain daily catch records that are monitored on a routine basis to determine the cumulative catch against the allocated quota. This enables strict control over the catch to prevent the quota being exceeded.

Routine environmental monitoring of the fishery by the government is required under chapter 5 of Federal law (article 42; 20.12.2004 N 166-FZ), which specifically highlights the distribution, abundance, quality and reproduction of aquatic bio resources and habitats, the fishery and preservation of aquatic bio resources. According to this law, the organisations of different agencies carry out a variety of monitoring at the Irikla Reservoir.

The Saratov branch of VNIRO (Russian Federal “Research Institute of Fisheries and Oceanography”) together with KamUralRybvod carries out ichthyological data collection (spring, summer and autumn sampling with 12 different sized gillnets and beach seines). The co-operation of the Saratov Research Institute and KamUralRybvod at the Irikla water body is conducted according to the approved Program of joint monitoring surveys. Sampling is conducted over the whole reservoir including randomised sampling of times and locations. During the surveys data related to the species composition of catch, lengths and weights, age, sex, fertility, maturity, food supply, heavy metal content in fish muscles, quality of environment etc. are collected and analysed to better understand the stock distribution and structure. The same organisations carry out monitoring of the catch of professional fishermen.

The Saratov Research Institute conducts ecological, hydro-biological, hydrochemical research on the reservoir. In addition, KamUralRybvod monitors the commercial catch volume throughout the year and investigates the structure of the catch of recreational fishermen, their catching method and location of fishing. Calculation of number of recreational fishermen at a reservoir is carried out by the staff of the Saratov Research Institute and Territorial Administration of Federal Fishery Agency (FFA).

The organisation for the management and production of the Irikla Reservoir carries out systematic monitoring of 32 (including pH, O_2) hydrological and hydro-chemical indicators of water quality. For this purpose, 9 sampling gauge stations have been put in place. In June 2013, on one of site visits to the reservoir there was a mass juvenile fish mortality reported and hydro-chemical analyses showed that no excess of any maximum permissible concentration (MPC) was observed. Subsequently, the range of information and data collected indicated that the mortality event was highly likely to be connected with the overproduction of juveniles for which food of a suitable size was limited.

Given the scale and intensity of the fishery, there is sufficient evidence to suggest that a comprehensive range of information is available to support the harvest strategy, including other environmental information in addition to other

hydrographic information to help better understand the context of the fishery. Given the scale and intensity of the fishery, this level of information and monitoring meets the requirements at SG60, SG80 and SG100 levels.

Pikeperch
A comprehensive range of information relevant to support the harvest strategy exists. This relates to the distribution and age structure of the stock, biological information on the stock productivity, fleet composition and gear used, stock abundance, level of fishery removals and other environmental and ecological information.

The fishing companies on Irikla Reservoir keep records of all licensed commercial fishermen, boats and gear employed (cf. Table 1). They also maintain daily catch records that are monitored on a routine basis to determine the cumulative catch against the allocated quota. This enables strict control over the catch to prevent the quota being exceeded.
Routine environmental monitoring of the fishery by the government is required under chapter 5 of Federal law (article 42; 20.12.2004 N 166-FZ), which specifically highlights the distribution, abundance, quality and reproduction of aquatic bio resources and habitats, the fishery and preservation of aquatic bio resources. According to this law, the organisations of different agencies carry out a variety of monitoring at the Irikla Reservoir.

The Saratov branch of VNIRO (Russian Federal “Research Institute of Fisheries and Oceanography”) together with KamUralRybvod carries out ichthyological data collection (spring, summer and autumn sampling with 12 different sized gillnets and beach seines). The co-operation of the Saratov Research Institute and KamUralRybvod at the Irikla water body is conducted according to the approved Program of joint monitoring surveys. Sampling is conducted over the whole reservoir including randomised sampling of times and locations. During the surveys data related to the species composition of catch, lengths and weights, age, sex, fecundity, maturity, food supply, heavy metal content in fish muscles, quality of environment etc. are collected and analysed to better understand the stock distribution and structure. The same organisations carry out monitoring of the catch of professional fishermen.

The Saratov Research Institute conducts ecological, hydro-biological, hydrochemical research on the reservoir. In addition, KamUralRybvod monitors the commercial catch volume throughout the year and investigates the structure of the catch of recreational fishermen, their catching method and location of fishing. Calculation of number of recreational fishermen at a reservoir is carried out by the staff of the Saratov Research Institute and Territorial Administration of Federal Fishery Agency (FFA).

The organisation for the management and production of the Irikla Reservoir carries out systematic monitoring of 32 (including pH, O_2) hydrological and hydro-chemical indicators of water quality. For this purpose, 9 sampling gauge stations have been put in place. In June 2013, on one of site visits to the reservoir there was a mass juvenile fish mortality reported and hydro-chemical analyses showed that no excess of any maximum permissible concentration (MPC) was observed. Subsequently, the range of information and data collected indicated that the mortality event was highly likely to be connected with the overproduction of juveniles for which food of a suitable size was limited.

Given the scale and intensity of the fishery, there is sufficient evidence to suggest that a comprehensive range of information is available to support the harvest strategy, including other environmental information in addition to other hydrographic information to help better understand the context of the fishery. Given the scale and intensity of the fishery, this level of information and monitoring meets the requirements at SG60, SG80 and SG100 levels.

	Monitoring			
b	Guide post	Stock abundance and UoA removals are monitored and **at least one indicator** is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are **regularly monitored at a level of accuracy and coverage consistent with the harvest control rule**, and **one or more indicators** are available and monitored with sufficient frequency to support the harvest control rule.	**All information** required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent **uncertainties** in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**
Rationale				

Perch
The harvest control rule is managed on an annual frequency which is appropriate for the management of the stock.

Whilst carrying out commercial fishing on the Irikla Reservoir, the Volna and Fish-ka companies fully meet the requirements of chapter II "About preservation of aquatic bio resources" relating to the Rules of Fishery for the Volga-Caspian Basin (section 3.3.5). According to regulations of the Rules of Fishery, on board of each fishing vessel of the “Fish-ka” and “Volna” companies is a fishing logbook, registered with the Territorial Administration of Federal Fishery Agency (FFA) which details the organisation conducting the fishery, the person responsible for fishing (the foreman, lead men), licence number of the permission for production of aquatic bio resources (ABR), location of fishing activity, details of fishing gear (e.g. mesh size), physical location (coordinates) of unloading of catch of ABR, type and number of acceptance documents is specified.

The person, responsible for fishing records in the logbook the name of each operation connected with production of ABR (with the indication of time of each operation), and also keeps records of the catch weight of each ABR by species (kg) including those retained on board or released. A cumulative catch of ABR by species is also maintained. The level of completeness and correctness of maintaining the fishing logbook and filling out of required documentation is regularly checked by the organisations controlling fishing.

In addition to commercial catches, an annual stock assessment is conducted before the start of the fishing season by the Saratov Research Institute to monitor available stock biomass (*Ba*) to the fishery. The Saratov Research Institute uses gillnets with a gear selectivity similar to that of the commercial fishery to estimate biomass.

Given the scale and intensity of the fishery, there is sufficient evidence to monitor stock abundance and fishery removals at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule. This is sufficient to meet both SG60 and SG80 levels.

There is no evidence to demonstrate that there is a good understanding of inherent uncertainties in the information and the robustness of assessment and management to this uncertainty to meet the SG100 level.

Pikeperch
The harvest control rule is managed on an annual frequency which is appropriate for the management of the stock.

Whilst carrying out an commercial fishing on the Irikla Reservoir, the Volna and Fish-ka companies fully meet the requirements of chapter II "About preservation of aquatic bio resources" relating to the Rules of Fishery for the Volga-Caspian Basin (section 3.3.5). According to regulations of the Rules of Fishery, on board of each fishing vessel of the “Fish-ka” and “Volna” companies is a fishing logbook, registered with the Territorial Administration of Federal Fishery Agency (FFA) which details the organisation conducting the fishery, the person responsible for fishing (the foreman, lead men), license number of the permission for production of aquatic bio resources (ABR), location of fishing activity, details of fishing gear (e.g. mesh size), physical location (coordinates) of unloading of catch of ABR, type and number of acceptance documents is specified.

The person, responsible for fishing records in the logbook the name of each operation connected with production of ABR (with the indication of time of each operation), and also keeps records of the catch weight of each ABR by species (kg) including those retained on board or released. A cumulative catch of ABR by species is also maintained. The level of completeness and correctness of maintaining the fishing logbook and filling out of required documentation is regularly checked by the organisations controlling fishing.

In addition to commercial catches, an annual stock assessment is conducted before the start of the fishing season by the Saratov Research Institute to monitor available stock biomass (Ba) to the fishery. The Saratov Research Institute uses gillnets with a gear selectivity similar to that of the commercial fishery to estimate biomass.

Given the scale and intensity of the fishery, there is sufficient evidence to monitor stock abundance and fishery removals at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule. This is sufficient to meet both SG60 and SG80 levels.

There is no evidence to demonstrate that there is a good understanding of inherent uncertainties in the information and the robustness of assessment and management to this uncertainty to meet the SG100 level.

c Comprehensiveness of information

	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		**Perch Yes** **Pikeperch Yes**	

Rationale

Perch
In recent years a considerable reduction of the level of illegal catch on the Irikla Reservoir has been noted. This is in part due to improvement of activity of the organisations holding fishery conservation events, and optimization of fishing activities and professional fishermen of “Fish-ka” and “Volna” that provide constant monitoring and surveillance over the reservoir, including self-policing effect of licensed fishers. Perch is not regarded as a high value species for poachers and generally not targeted. Gillnets with large mesh size, the preferred illegal gear of poachers, target mainly bream and pikeperch.

Estimation of the level of recreational fishing provides an understanding of the uncertainties related to the catches of perch from the recreational fishery and is based on the number of questionnaires from recreational fishers, (KamUralRybvod 60-70 per year) with additional survey information from the Fisheries Research Institute. There remains some uncertainty over the level of recreational catch.

Overall, estimates of all catches are considered to be reported and recorded effectively to support the harvest strategy. Given the scale and intensity of the fishery, there is good information on all other fishery removals to meet the requirements at SG80 level.

Pikeperch
Pikeperch is regarded as a high value species and generally targeted not only by commercial fishermen, but by poachers as well. However, in recent years a considerable reduction of the level of illegal catch on the Irikla Reservoir has been noted. This is in part due to improvement of activity of the organisations holding fishery conservation events, and optimization of fishing activities and professional fishermen of “Fish-ka” and “Volna” that provide constant monitoring and surveillance over the reservoir, including self-policing effect of licensed fishers.

Estimation of the level of recreational fishing provides an understanding of the uncertainties related to the catches of pikeperch from the recreational fishery and is based on the number of questionnaires from recreational fishers, (KamUralRybvod 60-70 per year) with additional survey information from the Fisheries Research Institute. There remains some uncertainty over the level of recreational catch although new regulations currently restrict daily catches of pikeperch to 5 kg per day.

Overall, estimates of all catches are considered to be reported and recorded effectively to support the harvest strategy. Given the scale and intensity of the fishery, there is good information on all other fishery removals to meet the requirements at SG80 level.

References

Poddubniy & Gordeev (1966); Yermolin (1980); Yermolin (2004); Karagoishev, (1983); Yermolin (2014); Belyanin (2018); Federal law 20.12.2004 N 166-FZ

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**Perch ≥80** **Pikeperch ≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**
Rationale				

Perch

The assessment methods are used to estimate biological reference points to manage the fishery under an annual quota system. The assessment of the stock is appropriate both for the stock and for the implemented harvest control rules. Two methods of stock assessment are conducted. Estimation of the level of recreational fishing provides an understanding of the uncertainties related to the catches of perch from the recreational fishery and is based on the number of questionnaires from recreational fishers, (KamUralRybvod 60-70 per year) with additional survey information from the Fisheries Research Institute. This is sufficient to meet the requirements at SG80.

We recommend that additional information in the stock assessment may be required for SG100 (e.g. increased analysis of length at maturity, length at first capture, sex differences). The biological features of the perch population of Irikla Reservoir are regularly studied by the staff of the Saratov Research Institute. During the monitoring works that are carried out by the Institute, and based on data from the catch of the commercial fishery such indicators as the size, weight, sex, age, food supply and some other characteristics are analysed. However, the techniques of calculations of the stock status of perch applied now don't consider use of biological characteristics as mathematical parameters. Earlier biological features of fishes were used in calculations of stocks, however, with transition of the Irikla Reservoir under jurisdiction of the Saratov Research Institute (till 2009 the reservoir was supervised by the institute of Yekaterinburg), the alternative options of calculations were applied based on: 1. data of fishing statistics and intensity of catch and 2. According to the catch on fishing effort by set nets. The second method refers to direct statistical methods (the so-called "area method" is used by scientists) when the stock status is estimated on the base on the CPUE series recorded from the fishery survey with one standard set net. Taking into account the catch coefficient of the fishing gear (experimentally established value), the obtained data is then converted to the entire area occupied by the species. The application of two methods is caused by necessity of obtaining reasonable (correct) values of stock, as basis of formation of volume of RAC.

Pikeperch

The assessment methods are used to estimate biological reference points to manage the fishery under an annual quota system. The assessment of the stock is appropriate both for the stock and for the implemented harvest control rules. Two methods of stock assessment are conducted (see section 3.3.6 above). Estimation of the level of recreational fishing provides an understanding of the uncertainties related to the catches of pikeperch from the recreational fishery and is based on the number of questionnaires from recreational fishers, (KamUralRybvod 60-70 per year) with additional survey information from the Fisheries Research Institute. This is sufficient to meet the requirements at SG80.

We recommend that additional information in the stock assessment may be required for SG100 (e.g. increased analysis of length at maturity, length at first capture, sex differences). The biological features of the pikeperch population of Irikla Reservoir are regularly studied by the staff of the Saratov Research Institute. During the monitoring works that are carried out by the Institute, and based on data from the catch of the commercial fishery such indicators as the size, weight, sex, age, food supply and some other characteristics are analysed. However, the techniques of calculations of the stock status of pikeperch applied now don't consider use of biological characteristics as mathematical parameters. Earlier biological features of fishes were used in calculations of stocks, however, with transition of the Irikla Reservoir under jurisdiction of the Saratov Research Institute (till 2009 the reservoir was supervised by the institute of Yekaterinburg), the alternative options of calculations were applied based on: 1. data of fishing statistics and intensity of catch (biostatistical method that allows to characterize the state of fish stocks indirectly) and 2. According to the catch on fishing effort by set nets. The second method refers to direct statistical methods (the so-called "area method" is used by scientists) when the stock status is estimated on the base on the

CPUE series recorded from the fishery survey with one standard set net. Taking into account the catch coefficient of the fishing gear (experimentally established value), the obtained data is then converted to the entire area occupied by the species. The application of two methods is caused by necessity of obtaining reasonable (correct) values of stock, as basis of formation of volume of TAC.

b	Assessment approach			
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**	
Rationale				

Perch
The current stock assessment methodology defines a single reference point for both target and limit on an annual basis (implemented through RAC quota allocations). Both limit and target reference points for perch are defined as 50% of the stock biomass.This TRP (which is also equivalent to the limit reference point LRP) is used to establish annual fishing opportunities (in other words determined fishing mortality, which actually considered as $F_{0.5} \leq M$, is used with the same intent as F_{MSY}). This fishing intensity is based on observations of the dynamics of the abundance and change in the mass of perch in the reservoirs of Volga River basins. It is caused by the need to constrain the number of perch and to release food resources for fast-growing productive fish species (Nebolsina, 1980). This approach has been demonstrated to effectively keep the stock well above the point at which recruitment would be impaired. This approach is considered appropriate for the scale and intensity of the fishery and as a result the team assigns a score of 80 to this SI (SG60 and SG80 are met).

Pikeperch
The current stock assessment methodology defines a single reference point for both target and limit on an annual basis (implemented through TAC quota allocations). Both limit and target reference points for pikeperch are defined as approximately 20% of the stock biomass. This TRP (which is also equivalent to the limit reference point LRP) is used to establish annual fishing opportunities (in other words determined fishing mortality, which actually considered as $F_{0.2} \leq M$, is used with the same intent as F_{MSY}). The stock assessment methodology is based on a principle of optimal removals suggested by Tjurin (1967), according to which the appropriate level of commercially valuable fish mortality should not exceed the natural mortality coefficient (approximately 30%). This precautionary approach has been demonstrated to effectively keep the stock well above the point at which recruitment would be impaired. This approach is considered appropriate for the scale and intensity of the fishery and as a result the team assigns a score of 80 to this SI (SG60 and SG80 are met).

c	Uncertainty in the assessment			
	Guide post	The assessment **identifies major sources** of uncertainty.	The assessment **takes uncertainty into account**.	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a **probabilistic** way.
	Met?	**Perch Yes** **Pikeperch Yes**	**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**
Rationale				

Perch
The assessment takes uncertainty into account, including estimates on the level of the recreational catch and illegal fishing.

The level of illegal catch is estimated from applying a correction factor (1.2 - 1.4) to the official catch statistics and used for both the Saratov and Volgograd reservoirs. This method is thought to over-estimate the level of IUU catches for perch in the Irikla Reservoir as monitoring of resources in the Orenburg Region (Middle Volga Directorate for Fishery of Federal Agency for Fishery), show that illegal fishing target larger species of higher value, such as

pikeperch, bream, wild carp, ide, catfish, and whitefish. Illegal fishers are more likely to use a large mesh size (50 – 100 mm) rather than the gear used to select the smaller perch.

In addition, information on the level of illegal fishing using other 'minor' gear types such as fishing rod, triangle and square traps are thought to contain less than 0.1% of the total catch. Thus, the currently applied correction factor to estimate illegal perch catches should be checked and adjusted accordingly.
Estimates of recreational catch are obtained directly from recreational fishers in addition to a questionnaire. Volumes of fish caught by recreational fishers are defined based on estimates of the number of fishermen on a reservoir during the winter and summer periods, intensity of fishing, intensity of fishing of particular species of fish (targeting behaviour), average time spent fishing during the winter and summer periods.

Given the scale an intensity of the fishery, the level of information obtained to account for various sources of uncertainty in the fishery is deemed sufficient to meet the requirements at both SG60 and SG80 levels. This uncertainty however, is not described in a probabilistic manner and no bootstrapping (or equivalent) is used in the assessment necessary to meet the requirements at SG100.

Pikeperch
The assessment takes uncertainty into account, including estimates on the level of the recreational catch and illegal fishing.

The level of illegal catch is estimated from applying a correction factor (1.2 - 1.4) to the official catch statistics and used for both the Saratov and Volgograd reservoirs. This method is thought to over-estimate the level of IUU catches for pikeperch in the Irikla Reservoir as monitoring of resources in the Orenburg Region (Middle Volga Directorate for Fishery of Federal Agency for Fishery) and accounting for catches from poaching, show that in recent years pikeperch has made up 10% of their catch. Thus, the currently applied correction factor to estimate illegal pikeperch catches should be checked and adjusted accordingly.

Estimates of recreational catch are obtained directly from recreational fishers in addition to a questionnaire. Volumes of fish caught by recreational fishers are defined based on estimates of the number of fishermen on a reservoir during the winter and summer periods, intensity of fishing, intensity of fishing of particular species of fish (targeting behaviour), average time spent fishing during the winter and summer periods.

Given the scale an intensity of the fishery, the level of information obtained to account for various sources of uncertainty in the fishery is deemed sufficient to meet the requirements at both SG60 and SG80 levels. This uncertainty however, is not described in a probabilistic manner and no bootstrapping (or equivalent) is used in the assessment necessary to meet the requirements at SG100.

	Evaluation of assessment			
d	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			**Perch No** **Pikeperch No**
Rationale				

Perch
While two alterative assessment methods have been used and been shown to give similar results, there is no evidence to indicate the methods have been tested and explored and that alternative hypotheses have been rigorously explored to meet the requirements at the SG100 level.

Pikeperch
Currently, the Saratov Institute uses two alternative methods (direct statistical and biostatistical) in assessing the stock status of pikeperch. The methods used do not always give similar forecast estimates (see the example of calculations for 2017), and the practice of managing the stock is based on choosing the smaller of the two values obtained by different methods for the subsequent calculation of fishery reference points. Despite the precautionary nature of the approach used, it cannot be concluded that alternative hypotheses have been rigorously explored to meet the requirements at the SG100 level.

e	Peer review of assessment

	Guide post		The assessment of stock status is subject to peer review.	The assessment has been **internally and externally** peer reviewed.
	Met?		**Perch Yes** **Pikeperch Yes**	**Perch No** **Pikeperch No**

Rationale

Perch
Results from the stock assessment and the effectiveness of management actions are evaluated on an annual basis by management agencies, including the Middle-Volga territorial branch of FAR and represents an internal review process.

The TAC allocations of six commercially important species of the Irikla Reservoir are reviewed and approved by the State Ecological Expertise in Moscow. Although perch is not included in the list of species under the TAC regulations, the method of allocation of recommended catch for this species and field data which the TAC/RAC are based on are basically the same, and therefore approval of TAC is also implicitly approving the recommended catch quota. Because State Ecological Expertise is independent of the fishery management system, this procedure represents external evaluation of the management system. The external evaluation system also includes (along with consultations) yearly public hearings in the city of Orenburg organized before the fishing season devoted to discussion TAC/RAC allocation, and meetings of the Public council under the Ministry of Forestry and Hunting of Orenburg region.

The peer review of stock status and associated TAC and RAC by the State Ecological Expertise in Moscow is sufficient evidence to meet the requirements at SG80, but although the results of the assessment (and quota allocations) are deemed to be externally reviewed, there is no evidence that the assessment methods are externally peer reviewed to meet SG100 level.

Pikeperch
Results from the stock assessment and the effectiveness of management actions are evaluated on an annual basis by management agencies, including the Middle-Volga territorial branch of FAR and represents an internal review process.

The TAC allocations of six commercially important species of the Irikla Reservoir including pikeperch are reviewed and approved by the State Ecological Expertise in Moscow. Because State Ecological Expertise is independent of the fishery management system, this procedure represents external evaluation of the management system. The external evaluation system also includes (along with consultations) yearly public hearings in the city of Orenburg organized before the fishing season devoted to discussion TAC allocation, and meetings of the Public council under the Ministry of Forestry and Hunting of Orenburg region.

The peer review of stock status and associated TAC by the State Ecological Expertise in Moscow is sufficient evidence to meet the requirements at SG80, but although the results of the assessment (and quota allocations) are deemed to be externally reviewed, there is no evidence that the assessment methods are externally peer reviewed to meet SG100 level.

References

Poddubniy & Gordeev (1966); Yermolin (1980); Nebolsina, (1980); Yermolin (2004); Karagoyshiyev (1978); Karagoishev, Romanenko (1981); Treschev (1983); Shashulovsky & Mosiyash (2003); Shashulovsky et al (2014); Tjurin (1967), Yermolin (2014); Belyanin (2018).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**Perch ≥80** **Pikeperch ≥80**
Information gap indicator	**More information (updated) sought**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

7.3 Principle 2

7.3.1 Principle 2 background

The CAB shall include in the report a summary of the Unit(s) of Assessment (UoA) based on the topics below, referencing electronic or other documents used:

- The aquatic ecosystem, its status and any particularly sensitive areas, habitats or ecosystem features influencing or affected by the UoA.
- The Primary, Secondary and Endangered, Threatened or Protected (ETP) species including their status and relevant management history.
- Specific constraints, e.g. details of any unwanted catch of species, their conservation status and measures taken to minimise this as appropriate.
- If cumulative impacts need consideration for any Principle 2 Performance Indicators, the report shall contain a summary of how this has been addressed, i.e. which other MSC UoAs/fisheries and how the cumulative impacts were considered.

The CAB shall provide any information used as supporting rationale in the scoring tables.

The CAB shall include in the background the information justifying how scoring elements were assigned to components within Principle 2 of the MSC Fisheries Standard (Fisheries Standard v2.01 Section SA3.1, SA3.4.2-SA3.4.5, SA3.7.1). The team may amend the table below to present this information. The CAB shall include in the report the catch and UoA related mortality of all main Primary, main Secondary and ETP species together with a description of the adequacy of information, identification of data sources used and whether they are qualitative or quantitative.

Reference(s): Fisheries Standard v2.01

7.3.2 Principle 2 definitions

Species categorization in P2:

Primary species in Principle 2 are those that meet the following criteria:

- Species in the catch that are not covered under P1 because they are not included in the UoA;
- Species that are within scope of the MSC program as defined in FCR 7.4.1.1; and
- Species where management tools and measures are in place, intended to achieve stock management objectives reflected in either limit or target reference points.

Secondary species are classified as follows:

- They are not considered ‘primary’ as defined in SA 3.1.3; or
- They are out of scope for MSC certification (i.e., birds, reptiles or mammals) but are not ETP species.

The assessment team used species information presented in AFMA (2019) to separate Primary from Secondary species, based on the establishment of target and or limit reference points for the species presented. As the Australian harvest strategy calls for target and limit reference points, species listed in AFMA (2019) were generally Primary, while unlisted species were considered Secondary. The team determined that catches averaging below 100kg per year (approximately 0.1% of total catch) would have little impact on the status of incidental species, considered smaller catches as *de minimis,* and did not further consider them.

We designate “main” primary and secondary species as those which comprise at least 5% of the total catch, or at least 2% of the total catch for “more vulnerable/less resilient” species, whose life history characteristics may make them more prone to overexploitation. All “out of scope” secondary species must be classified as “main.”

The definition of ETP species includes those protected by national or international legislation, and names a number of international lists/agreements where, if a species is listed, it must be considered as ETP regardless of other national protection. The list of agreements is as follows:

- Annex 1 of the Convention on International Trade in Endangered Species (CITES) unless it can be shown that the particular stock of the CITES listed species impacted by the UoA is not endangered;
- Annex 1 of the Agreement on Conservation of Albatross and Petrals (ACAP);
- Table 1 Column A of the African-Eurasian Migratory Waterbird Agreement (AEWA);
- Agreement on the Conservation of Small Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS);

- Wadden Sea Seals Agreement; and
- Any other binding agreements that list relevant ETP species concluded under the Convention on Migratory Species (CMS).
- Out of scope species that are listed as either critically endangered, endangered, or threatened on the IUCN red list.

Habitats categorization in P2:

MSC requires that if a fishery interacts with benthic habitats, they shall be categorized according to the characteristics "substratum, geomorphology, and biota," and requires that encountered habitats are classified as "commonly encountered, VME, or minor/other" according to the following definitions:

- "A commonly encountered habitat shall be defined as a habitat that regularly comes into contact with a gear used by the UoA, considering the spatial (geographical) overlap of fishing effort with the habitat's range within the management area(s) covered by the governance body(s) relevant to the UoA; and
- A VME shall be defined as is done in paragraph 42 subparagraphs (i)-(v) of the FAO Guidelines7 (definition provided in GSA3.13.3.22) [as having one or more of the following characteristics: uniqueness or rarity, functional significance, fragility, Life-history traits of component species that make recovery difficult, and/or structural complexity]. This definition shall be applied both inside and outside EEZs and irrespective of depth."

MSC further interprets their definition of VME on the MSC "interpretations log" as follows:

The CAB shall consider those VMEs and potential VMEs (as defined by the FAO Guidelines; see GSA3.13.3.2) that have been accepted, defined or identified as such by a local, regional, national, or international management authority/governance body. In many cases, the management authority/governance body may have accepted classification designations made by regional, national, or international non-government organisations, such as OSPAR and IUCN. The FAO VME database (see hyperlink) may be a useful tool but should not be considered exhaustive and does not cover areas under national jurisdiction. Identification of VMEs by the UoA or by NGOs may be used if accepted by the management authority/governance body. It should be noted that within the management PI, the UoA is expected to be precautionary and recognise potential VMEs; within the outcome PI, only accepted, defined or identified VMEs should be considered.

This definition of VME habitat as being "accepted, defined, or identified as such by a local, regional, national, or international management authority/governance body", while somewhat helpful, is also subject to interpretation, as many jurisdictions (including Australia) do have a process for identifying and defining vulnerable habitats, but have different terms for their designation as such (i.e. they do not use the term VME within their jurisdictions). Moreover, the process of identifying VME-type vulnerable habitats, and managing impacts to them (fisheries and others) are often one-and-the-same process, particularly in areas where management of impact relies heavily on spatial fisheries closures.

Both commonly encountered and VME habitats are considered 'main' habitats for scoring purposes.

7.3.3 Primary and secondary species

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Primary species

The historical record of landings of commercial species within the Irikla Reservoir has been updated from the 2016 perch assessment to include information from 1962 through to 2018 (Figure 11).

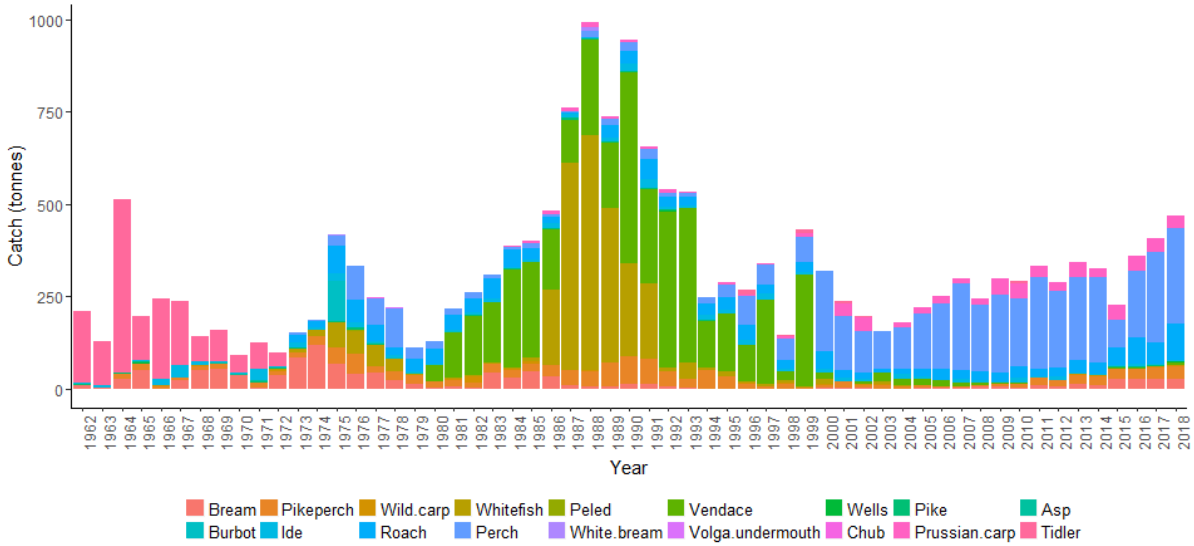

Figure 11: Commercial landings (tonnes) of main commercial fish species in the Irikla Reservoir, updated from MRAG 2016.

Data source: Yermolin (2014); Fish-ka (2019).

The commercial landings of main commercial species have followed a similar trend over the past decade or more, with the highest volume of commercial landings reported for perch and roach. A sharp decline in the total annual catch of perch was reported in 2015, which coincided with original perch assessment.

The selectivity of the large mesh size (50 – 70 mm) gillnet used to target pikeperch retains a number of other commercially important species including bream, ide, Prussian carp and pike. Information on the capture of retained finfish species is not separated by gear mesh size in fisheries statistics. The total landed catch weight (tonnes) of each commercial fish species using both small mesh and large mesh gillnets on a monthly basis between 2012 and 2018 is shown in Figure 12. This shows the proportion of other retained species is highest during December through to April. This trend reflects the sole utilisation of the larger 50 – 70 mm gillnet mesh size during this period.

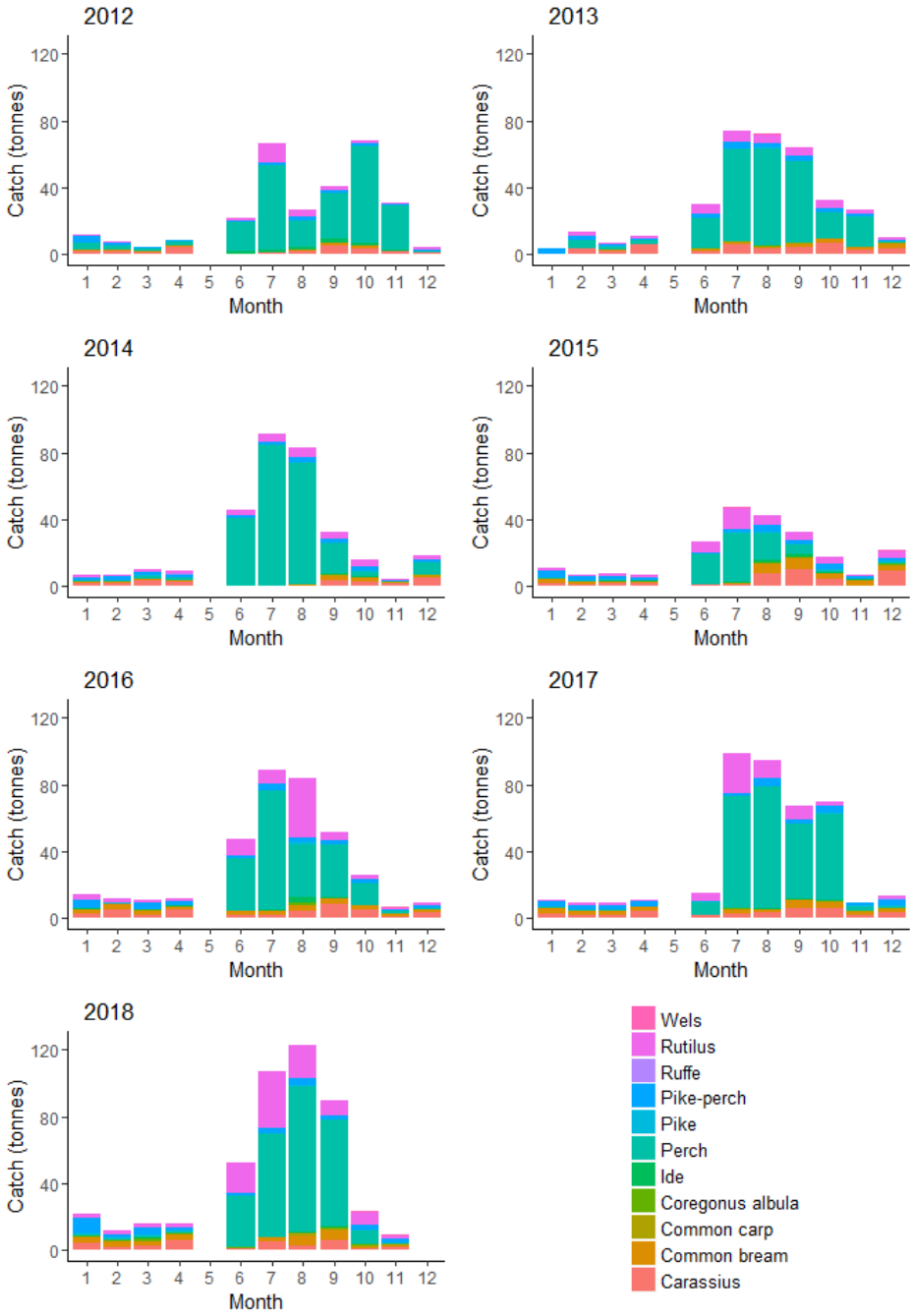

Figure 12. Monthly total weight (tonnes) of fish species captured by small mesh (30 – 36 mm) and large mesh (50 – 70 mm) gillnets between January 2012 and November 2018.

Data source: Fish-ka (2019).

The proportion of the total catch reported for commercially retained species between 2012 and 2018 is shown in Table 4. Because existing catch reporting does not distinguish between small mesh and large mesh gillnets, these data represent both gillnet sizes. The results show that three species; roach, Prussian carp, and bream have been retained at levels of 5% or higher of the total catch weight at some point between 2012 and 2018.

On average, roach made up nearly 15% of the total catch between 2012 and 2018 but increased to 20% in 2018. Both Prussian carp and bream have both remained important constituents of the large mesh gillnet fishery, with an average of 10.4% and 6% of the total landed catch between 2012 and 2018.

Table 4: Proportion of non pike or pike-perch catch (%) of species within the gillnet fishery (30-36 mm and 50-70 mm mesh size) between 2012 and 2018. Those shaded in green are considered main species.

Name	Species Name	2012	2013	2014	2015	2016	2017	2018
Roach	*Rutilus rutilus*	8.3	10.3	9.7	20.0	19.9	13.8	21.0
Prussian carp	*Carassius gibelio*	8.4	11.7	7.0	18.4	11.3	8.9	7.3
Bream	*Abramis brama*	2.5	3.7	3.8	12.1	7.4	6.7	6.0
Vendace	*Coregonus albula*	0.0	0.2	0.2	0.7	0.7	0.3	1.4
Wild carp	*Cyprinus carpio*	0.0	0.7	0.4	0.5	0.5	0.4	0.7
Ide	*Leuciscus idus*	3.2	0.1	0.7	2.7	1.5	1.0	0.7
Pike	*Esox lucius*	0.1	0.3	0.2	0.6	0.9	0.5	0.4
Wells	*Silurus glanis*	0.0	0.0	0.0	0.4	0.1	0.2	0.3

Data source: Saratov Research Institute, 2019.

To better understand the selectivity between each gillnet mesh size, MRAG (2016) reported a preliminary examination of the proportion of the retained species during two sampling periods for both gear types: March 2014 and September 2014. The results showed that ide, bream and Prussian carp form the majority of the large mesh gillnet fishery (Table 5).

Table 5: Preliminary estimates of proportion (%) of primary finfish species taken using small (30-36 mm) and large (50-70 mm) gillnet mesh sizes, updated from MRAG 2016. According to this table, splitting the perch and pike-perch UoAs, there is a fourth main species for the pike-perch fishery, Ide, which is a minor species when the two UoAs are taken together.

Common Name	Species Name	30-36 mm	50-70 mm
Ide	*Leuciscus idus*	0.6	20.1
Bream	*Abramis brama*	0.2	17.9
Prussian Carp	*Carassius gibelio*	0	16.7
Perch	*Perca fluviatilis*	55.8	1.6
Roach	*Rutilus rutilus*	35.4	0.4
Vendace	*Coregonus albula*	0.4	0.2
Pike	*Esox lucius*	0	0

Source: unpublished data from Fish-ka.

Further detailed information is now available to show the species composition of other commercially retained fish (excluding perch and pikeperch) for gillnets of mesh size 50, 60 and 70 mm (Table 6). This shows that more species are retained using a mesh size of 50 mm than a larger mesh size of 70 mm, which mainly targets bream. Overall, bream, Prussian carp and ide are in excess of 5% of the total catch (excluding perch and pikeperch), which is also consistent with the results from previous research in 2014.

Both perch and pikeperch are assessed under Principle 1. Based on the latest catch information for large mesh size (50-70 mm), three species are classified as main species, whereas in MRAG 2016 they were considered minor. This was because the original UoA for perch included a small gillnet mesh size only (30-36 mm). The three main species for the pikeperch fishery include ide (*Leuciscus idus*), bream (*Abramis brama*) and Prussian carp (*Carassius gibelio*). Therefore, PI 2.1.1 requires rescoring on the basis of a different mix of main scoring elements.

Table 6. Primary Principle 2 species in Irikla Reservoir by large (50-70 mm) gillnet mesh sizes fishery.

Species	Species Name	RBF	Less resilient	Avg. % of UoA	MSC Classification
Ide	*Leuciscus idus*	No	No	20.1	Primary - main
Bream	*Abramis brama*	No	No	17.9	Primary – main
Prussian Carp	*Carassius gibelio*	No	No	16.7	Primary – main
Roach	*Rutilus rutilus*	No	No	0.4	Primary – minor
Vendace	*Coregonus albula*	No	No	0.2	Primary – minor

Status of main primary species

Of the three main primary species of the pikeperch fishery, bream is subject to a total allocated catch (TAC) regulation, whereas ide and Prussian carp are managed through a recommended allocated catch (RAC) quota system[2].

As reported in MRAG 2016, all TAC regulated species are managed on a precautionary basis and annual catch limits are calculated at the start of each fishing season based on the calculated lower 95% confidence limit of 30 per cent of the total available biomass (i.e. $0.3B_a$). Similarly, RAC species are managed based on the lower 95% confidence limit of 50 per cent of the total available biomass (i.e. $0.5B_a$). The precautionary approach to assessing TAC / RAC species in Russia is described in Babayan (2000).

Since 2009, the Saratov branch of VNIRO (earlier the Saratov branch of the State Research Institute of Lake and River Fisheries) regularly surveys the commercial catches and also undertakes their own research across the entire reservoir water body using pre-defined survey methods.

A summary of the results of a stock assessment between 2013 and 2017 for the three main primary species in the Irikla Reservoir pikeperch gillnet fishery (bream, ide and Prussian carp) is shown in the table below.

Table 7. Summary of stock assessment for bream, ide and Prussian carp between 2013 and 2017.

Year	Commercially available stock biomass (tonnes)		
	Bream	Ide	Prussian carp
2013	108	40	165
2014	110	33	170
2015	121	40	240
2016	167	40	300
2017	182	45	290

The results show that the pikeperch fishery has not had a significant impact on the status of bream, ide or Prussian carp, with bream and Prussian carp both increasing in the level of commercially available biomass between 2013 and 2017. In addition, the results show that the commercial abundance of ide has been relatively stable around 40 tonnes over the same period.

Historical quotas for bream (TAC species) and ide and Prussian carp (RAC species) and reported landings for the three main retained species in the Irikla Reservoir pikeperch fishery are shown in Table 9 and Table 10. The results demonstrate that all reported catches have been effectively controlled and have been below TAC and RAC levels for

[2] See MRAG (2016) and Babayan (2000) for further details of recommended allocated catch (RAC) and how quotas for these lesser commercially important species are calculated.

all species. Given that both TAC and RAC values are already considered precautionary, in addition to the fact that these quotas were not met strongly and biomass levels are increasing for two species, indicates that the status of these stocks are likely to be above the point of recruitment impairment.

Table 8. Total allowable catch (TAC, tonnes) and actual reported catch (tonnes) for Bream, 2009-2017 (all gears).

Common Name	Species Name		2009	2010	2011	2012	2013	2014	2015	2016	2017
Bream	*Abramis brama*	Total allowable catch	10.430	4.818	17.894	19.600	22.398	12.282	n.a.	35.0	38.0
		Actual catch	n.a.	2.338	11.534	7.077	13.040	8.906	29.4	29.86	29.74
		Utilization rate (%)	-	48.5	64.5	36.1	58.2	72.5	-	85.3	78.3

Data source: Fish-ka 2014; Saratov Research Institute, 2015; 2019.

Table 9. Recommended allocated catch (RAC, tonnes) and actual reported catch (tonnes) for Ide and Prussian Carp, 2009-2017 (all gears).

Common Name	Species Name		2009	2010	2011	2012	2013	2014	2015	2016	2017
Ide	*Leuciscus idus*	Recommended catch	4.460	18.911	9.702	12.690	12.570	10.800	n.a.	12.0	16.0
		Actual catch	n.a.	13.788	3.007	9.093	0.199	1.384	9.3	7.172	8.07
		Utilization rate (%)	-	72.9	31.0	71.7	1.6	12.8	-	59.8	50.5
Prussian carp	*Carassius gibelio*	Recommended catch	20.400	39.163	57.622	51.780	56.440	51.840	n.a.	72.0	96.0
		Actual catch	n.a.	38.836	32.644	24.370	40.312	14.636	59.2	61.10	56.42
		Utilization rate (%)	-	99.2	56.7	47.1	71.4	28.2	-	84.9	58.8

Data source: Fish-ka (2014); Saratov Research Institute; 2015; 2019.

Secondary species

MRAG (2016) has previously described the monitoring and evaluation of secondary (bycatch) species within the fishery. However, due to the larger mesh sizes used to target pikeperch (50-70 mm), the gear is set in deep water. Here it catches other large fish, which generally does not attract birds. In addition, the large mesh is set throughout the winter period when permanent ice cover occurs on the Reservoir, preventing any possibility of interactions with birds. When the ice starts to melt in the spring, fishermen tend to use small-mesh gillnets to target perch.

Large mesh gillnets defined in the Irikla Reservoir pikeperch fishery UoA are highly selective and are not reported to have captured other fish species that are discarded either dead or alive. In addition, as gillnets are set in mid-water (and therefore do not touch the benthic layer), little or no interactions with amphibians occur. This is further supported by fisheries research conducted using a range of gillnet mesh sizes, including that similar to the commercial fleet, used by the Saratov Research Institute.

During the stakeholder consultation in October 2018, fishermen confirmed they continue to monitor and report interactions with waterfowl and other species of concern using a logbook system. This confirmed the number of interactions with birds and other secondary species is negligible or non-existent (Davygora pers. comm., 2018).

However, as any non-endangered out-of-scope species must be classified as secondary main, there are a number of non-endangered bird species that fall into this category, which may interact with the fishery; population trends and fishery interactions are summarized in Table 10 and the following section.

Table 10. Non-ETP bird species with the potential to interact with the Irikla perch and pikeperch fishery.

Common Name	Scientific Name	IUCN listing	Population Size	Population Trend	Interaction with fishing gear
Dalmatian pelican	*Pelecanus crispus*	Near Threatened	12,000-16,000 individuals	Decreasing	Low (close to zero)
Eurasian spoonbill	*Platalea leucorodia*	Least Concern	63,000-65,000 individuals	Unknown; some populations are decreasing while others are increasing or stable	Low (close to zero)
Black stork	*Ciconia nigra*	Least Concern	24,000-44,000 individuals	Unknown; some populations are decreasing while others are increasing or stable	Low
Red-breasted goose	*Branta ruficollis*	Vulnerable	56,000 individuals	Declining	Low
Lesser white-fronted goose	*Anser erythropus*	Vulnerable	22,000-27,000 individuals	Declining	Low
Tundra swan	*Cygnus columbianus*	Least Concern	317,000-336,000 individuals	Unknown; some populations are decreasing while others are increasing or stable	Low
White-tailed eagle	*Haliaeetus albicilla*	Least Concern	17,900-24,500 individuals in Europe	Increasing	Low

Pallas's gull	*Ichthvaetus ichthyaetus*	Least Concern	125,000-1,100,000 individuals	Overall population is increasing, though some have unknown trends.	Low

The majority of the bird species listed in Table 10 are transient species that are present in the region only for a short period during their migration. The potential interaction with the fishery would only apply to their autumnal migration as the spring migration occurs at the same time as the fish spawning season when there is a ban on commercial fishing activities. As these autumnal migrating birds are likely to be present during short periods, are not resident on the lake and do not feed whilst they are present, the risk of interaction with fishing gear is highly limited or negligible. Of the species that are resident and in the Red Book there is only a small possibility of interaction e.g. black-throated loon (*Gavia arctica*), Eurasian spoonbill (*Platalea leucorodia*) and the black stork (*Ciconia nigra*). No mortalities of these species have been recorded. During the scope extension site visit, it was noted that the black-throated loons do not feed during their migration, therefore reducing the possible interactions with the fishery.

Of the species present on the lake throughout the year only **Pallas's gull** *(Ichthyaetus ichthyaetus)* may have a potential interaction with the fishery. A colony of Pallas's gulls exists on one of the islands in Suunduksky Bay, in the south-eastern part of the reservoir which is closed to commercial fishing. The colony was first reported in 2010, during which time 600 nestlings were counted (Barbazyuk, 2010). Because this species has an extremely large range, the global population is increasing with an estimated 125,000-1,100,000 individuals it is listed as "least concern" on the IUCN red list.

The population trends for the **Eurasian spoonbill** *(Platalea leucorodia)*, **black stork** *(Ciconia nigra)* and **tundra swan** *(Cygnus columbianus)* are unknown. In all three species some populations are decreasing, while others are increasing or stable. The global population size for each species is 63,000-65,000, 24,000-44,000 and 317,000-336,000 respectively and all are listed as "least concern" on the IUCN red list. The **white-tailed eagle** *(Haliaeetus albicilla)* has an extremely large range and a global population of 24,200-49,000 mature individuals. The white-tailed eagle global population appears to be increasing largely due to conservation measures such as protecting eyries, providing safe (non-poisoned) food and re-introductions to areas such as Bavaria and therefore is listed as "least concern" on the IUCN red list.

The population trends for the red-breasted goose *(Branta ruficollis)* and lesser white-fronted goose *(Anser erythropus)* are declining. The **red-breasted goose** has an estimated global population of 56,000 individuals that has declined over a short period of time. The reason for the decline is unknown because trend calculations are complicated by interannual variation in survey coverage and reporting across its range (BirdLife International 2020). The "vulnerable" listing on the IUCN red list for this species is a precautionary measure and it could be downlisted if it is found that recent increases are genuine and not a result of improved monitoring efforts. The **lesser white-fronted goose** has a global population of 22,000-27,000 and is listed as "vulnerable" on the IUCN red list. The "vulnerable" listing for this species is a result of the rapid population decline in its key breeding populations in Russia and these declines are predicted to continue. In addition to the fragmentation of their breeding range, this reduction has been attributed to high levels of hunting on the staging and wintering grounds and habitat deterioration from land cultivation. Modeling indicates that 28% of the habitat for this species could be lost by 2070 (Zöckler and Lysenko 2000).

The **Dalmatian pelican** *(Pelecanus crispus)* is listed as "near threatened" on the IUCN red list. The estimated global population is 12,000-16,000 individuals and the overall trend is decreasing. Declines are primarily a result of wetland drainage, shooting and persecution by fishers, disturbance from tourists and fishers, water pollution, collision with overhead power-lines and over-exploitation of fish stocks. This species has been downlisted from "vulnerable" due to conservation measures that have resulted in a population increase in Europe. The species remains listed as "near threatened" because it is suspected that the population could undergo a moderately rapid decline in the next three generations.

Recommendations have been made to decrease fishing activities, remove fishing from with 5 km of the colony or set nets deeper (>10 m) to mitigate against any interaction between palla's gull and the fisheries, but as these parcels are not open to the fishery these measures have not been required and no confirmed mortalities exist. To date, no permanent monitoring on the number of nests occur on a regular basis, although local ornithologists are known to visit the area regularly. The last survey conducted in 2013 counted 340-350 nesting birds, but was conducted remotely in

order not to disturb the birds and the results are not directly comparable with previous estimates (Morozov & Kornev, 2013).

The fishery records all mortalities of bird species that occur within gillnets, with the mortalities being linked to an individual effort record and the date, time and location being recorded for each event. To date, of the 6 recorded interactions (5 dead, 1 released alive) no birds have been listed as ETP.

Where protection does not currently occur and was identified for a species that is found on the reservoir this can be implemented through the Red Book of the Orenburg region. Through this mechanism protected areas can be established to ensure the species is protected. For example, Pallas's gull in the Suunduksky region of the Irikla Reservoir is not officially protected by name, but is listed in the Red Book of the Orenburg region, which offers protection of adults, nests and nestlings through regional environmental legislation. Furthermore, the gull is protected by a hunting law of the Orenburg region[3]. To help provide adequate protection for Pallas's gull, a 5 km exclusion zone for fishing has been put in place around the colony.

Endangered, Threatened and Protected species

There are a number of fish, mammals, amphibians and birds associated with water bodies listed in the Red Book of the Orenburg Province (2014)[4] that may potentially interact with the perch gillnet fishery (see Table 8). Of the fish species listed, Volga pikeperch (*Sander volgensis*), sterlet (*Acipenser ruthenus*) and the brown trout (*Salmo trutta*) were reported to occur in the Ural River during the early 20th Century (Berg, 1916). Volga pikeperch is currently listed as 'least concern' on the IUCN Redlist[5] whereas no fish species occurring in the region are listed in Appendix 1 of CITES.

Both starlet and brown trout are rheophilic species[6] but the formation of the reservoir has created a limnophilic ecosystem. As such both species are now highly unlikely to inhabit this water body. Furthermore, it has been confirmed that the distribution of Volga pikeperch is not found in the reservoir, but further south in the Ural River (Davygora, pers. comm., 2014).

One bird, the white-headed duck *(Oxyura leucocephala)*, qualifies as ETP because it is IUCN listed as endangered. Globally there are four populations of the white-headed duck; two of which are declining, one stable and one increasing. The North African population (400-600 birds) is stable and the Spanish population (2,500 birds) is increasing. The two decreasing populations include Central Asia (5,000-10,000 birds) and the Pakistan wintering population which is on the verge of extinction. Although there is uncertainty about the movement of birds between wintering sites, mid-winter counts indicate that the population of this species has undergone a very rapid decline qualifying the species as "endangered" on the IUCN red list. Declines are caused by habitat loss, over-hunting, unsustainable use of water resources, and competition and introgressive hybridization with the non-native North American Ruddy Duck *(Oxyura jamaicensis)*. It is thought that the total population is appreciably higher than the total recorded during the mid-winter counts casting doubt on the accuracy of the global trend estimates. Until there is better data from more comprehensive counts the species is retained as "endangered" on the IUCN list.

Two amphibians, the great crested newt (*Triturus cristatus*) and the common frog (*Rana temporaria*), have ranges that border on the reservoir. Given the known geographical distribution of the great crested newt and the lack of crossover of habitats and feeding with perch, the likelihood of contact with fishing gear has been estimated as zero (Bannikov *et al.*, 1977 cited in Davygora, 2014). Similarly, the distribution of the common frog in the reservoir is only utilised for breeding in surface waters (Bannikov *et al*., 1977 cited in Davygora 2015), which means that there is little risk of interaction with the gillnet fishery.

Three mammal species are identified; the Russian desman (*Desmana moschata*), the otter (*Lutra lutra*) and the European or Russian mink (*Mustela lutreola).* All three mammal species are identified as being present in the upper reaches of the Ural River but not to any great degree within the reservoir. No incidences of mammal interaction with the fishing gear of the fishery under assessment had been reported.

Changes in the regional lists of rare species, such as the introduction of new species and exclusion of those which are already listed are made after a proposal put forward by experts on the basis of a reasoned opinion. When it is

[3] Further details of the hunting law in the Orenburg region can be viewed at: http://orenburg.news-city.info/docs/sistemsy/dok_oeyivb.htm
[4] Red Book of the Orenburg region (2nd Ed.) http://docs.cntd.ru/document/952014811
[5] http://www.iucnredlist.org/details/20862/0 [accessed 13th January 2015].
[6] Preference for fast moving riverine systems

necessary to review new proposals, the Orenburg region Red Book Commission holds a meeting. The Commission works under the Ministry of Natural Resources, Ecology and Property Relations of the Orenburg region. The Commission consists of experts from various academic institutions of Orenburg and representatives of interested natural resources users, in particular, from the Ministry of Forestry and Hunting of the Orenburg region and from federal SPNRs (see section below). Decision-making is based on open voting by a simple majority.

Currently, special monitoring of populations of rare species of animals, plants and fungi in the Orenburg region is carried out only in the federal and regional Specially Protected Natural Reservations (see section 3.4.4). Information on rare species outside these protected areas is collected by the scientists specializing in major groups of living organisms during the process of conducting field researches on various scientific problems.

Table 11: List of ETP species associated with Irikla Reservoir with indication of possible impact by perch fishery.

Species Name	Latin Name	Feed on perch (yes/no)	Possibility of interaction with fishing gear (low, medium, high)
Mammals			
Russian desman	*Desmana moschata*	Yes	Low (close to zero)
Otter	*Lutra lutra*	Yes	Low (close to zero)
Rest mink	*Mustela lutreola*	Yes	Low (close to zero)
Birds			
White-headed duck	*Oxyura leucoephaia*	No	Low (close to zero)
Amphibians			
Great crested Newt	*Triturus cristatus*	No	Zero
Common frog	*Rana temporaria*	No	Low, almost zero
Fish			
Sturgeon	*Acipenser ruthenus*	No	Low
Brown trout	*Salmo trutta*	Yes	Average (not known to interact)
Volga pikeperch	*Sander volgensis*	Yes	Almost zero

Source: Red Book of the Orenburg Province and Davygora, 2014

Habitats

Development of the Irikla Reservoir has led to substantial changes in the local habitat in the region. The riverbed of Ural River was originally rocky and sandy, with steep rocky shores[7]. Following development of the reservoir, the shore remains relatively steep and rocky, with similar riverine characteristics further upstream. In the middle part of the reservoir, the benthic substrate consists of gravel-pebble and sand sediments. Overall sedimentation of the reservoir follows known processes, with a stable accumulation of muddy deposits over time (Kozmin & Matyukhin, 1971). These characteristics of the reservoir will not revert back to those of the riverine system.
To date, approximately 5-7% of the reservoir is occupied by emergent water vegetation. This level of vegetation is expected to increase with ongoing sediment disposition in shallow waters, and its role within the ecosystem will become more important over time.

The expansion of vegetation in reservoirs depends on water transparency. Its depth is limited by the penetration of light that is enough for the photosynthetic activity of plants, providing their growth into deeper water. For example, the water transparency in the reservoirs of the Volga River has increased during the last 25 years up to 68 m and the depth of the emergent water vegetation has increased from 1.5 m in the last century up to currently 6 m. The same process is being observed in the Irikla Reservoir, with vegetation currently extending to depths of 4-5 m (Yermolin, 2014).

The stability of plant communities depends on the stability of water level. During the initial stages of the dam operation between 1955 and 1960, the level of water showed a large fluctuation of around 19 m (Balabanova, 1971), whereas in the following years this had been significantly reduced to between 3-5 m (Isaev & Karpov, 1980) (Figure 15). On

[7] General information on habitat distribution has been prepared by Yermolin and Belyanin from the Saratov Research Institute (pers. comm. 2015)

average, the long-term dynamics of the reservoir have shown a significant negative trend of around 9 cm per annum (Anon., 2013).

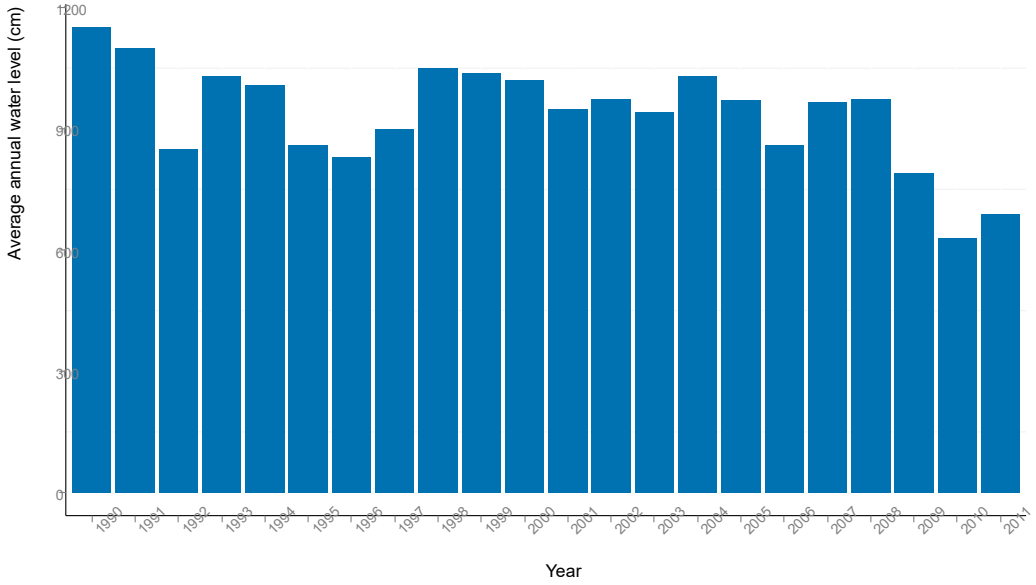

Figure 13: Average yearly water level (cm) of Irikla Reservoir (where 0 m is equivalent to 233 m above sea level).

Data source: Saratov Research Institute, 2014

Due to fluctuations of the dynamic water level, a part of the emergent water vegetation regularly dies. Although recovery of the vegetation is relatively quick (5-6 years), the constant fluctuation in water level and level of ice cover is helping to shape nearshore habitats and the formation of a new ecosystem.

The water level in the reservoir is regulated by the Irikla dam, which is drawn down in early spring (March – April) to allow for the influx of water as a result of the ice and snow melt. Following the ice melt, the water level in the reservoir is gradually reduced, occurring more rapidly during the autumn prior to winter ice coverage.

To date, approximately 40% of the shoreline of the reservoir is protected from anthropogenic activities, including agricultural and fishing activities. Within the waterbody itself, a number of protected areas exist. These have been established (Shvetsov, pers. comm., 2014[8]):

i. To protect the spawning aggregations of spring spawning commercial fish species (not perch)
ii. To protect essential fish habitats (e.g. feeding areas for juveniles)
iii. To delimit sport and/or recreational fishing areas
iv. For other political reasons (e.g. areas close to the dam)

Specially Protected Natural Reservations (SPNR)
Currently, special monitoring of populations of rare species of animals, plants and fungi occurs within the Orenburg region.

There are a number of federal and regional Specially Protected Natural Reservations (SPNR) within the Orenburg region: State Nature Reserve ‘Orenburgsky’, State Natural Reserve ‘Shaitantau’, in the National Park ‘Buzuluksky Bor’, in the biological reserve of regional significance ‘Svetlinsky’. They are designed to protect wildlife, including populations of rare species of animals, plants and fungi (see also section 3.4.3 on ETP species).
The establishment of SPNRs is taken in accordance with the existing procedure, as specified in the Federal Law ‘Concerning Specially Protected Natural Areas’ (Yermolin, 2014). Proposals for the creation of new protected areas (SPNR) are reviewed at the meeting of the Commission for the specially protected natural areas of the Orenburg region, which work under the Ministry of Natural Resources, Ecology and Property Relations of the Orenburg region. A decision is taken by open voting by a simple majority.

Gear loss and habitat restoration

Following the ice melt in the reservoir at the beginning of May, representatives of Federal Agency for Fisheries Rosrybolovstvo together with Department for Fisheries and Fish Supervision Agency Rybnadzor undertake joint

[8]Arkady Shvetsov (Managing Director) Federal State Institution "Administration of the Irikla Reservoir", 22nd October 2014.

missions on the territories of fishing parcels in order to remove lost, abandoned or damaged gillnets from the recreational fisheries sector that might otherwise impact the local habitat. This gear is different to the more expensive gear used by commercial fishermen, who are very careful to retrieve any lost or damaged gear. These activities are shown in Figure 16 below.

a. b.

Figure 14: Photos of damaged and lost recreational gillnets collected from fishing parcels within (a) Tanalyksky broad and (b) Orel and Chapaevskiy broads of the Irikla Reservoir during 2014. Source: Fish-ka (2015).

Where old and abandoned gear is found, it is equipped with floats and removed directly from the water. Where illegal activities are thought to occur, the Fish Supervision Agency prepares photo evidence and removes nets that shall later be recycled as required under law. Further details of illegal fishing activities are provided in the Principle 3 background section. There is no information to determine how long the fishing gear might continue to 'ghost fish' if the lost gear remains in the reservoir. This strategy however, minimises the risk of 'ghost fishing' and habitat degradation within the reservoir.

In addition to the retrieval of old nets, areas adjacent to the fishing parcels are also cleaned according to established schedules. Rubbish is collected and deposited in landfills at nearby settlements.

Ecosystems

In addition to fisheries research, the Saratov Research Institute is also responsible for the monitoring of the hydro-chemical, hydro-biological and ecological indexes of the reservoir. A wide range of environmental data are collected from the Irikla Reservoir on a routine basis by the Saratov Research Institute to provide an understanding of the ecosystem dynamics in addition to monitoring changes in the reservoir over time[9]. Samples of water are taken from the reservoir at 9 intake points according to the approved 'Lower Volga BVU' scheme (Shvetsov, pers. comm., 2015)[10]:

- Uralskoye settlement (on the border between Orenburg Region and Republic of Bashkortostan
- Settlements Urtansym, Pokrovka, Mirny, Gorny Erik (Kvarkensky District)
- Settlements Novosepvastopol, Zamorskoje, Energetik (Novoorsky District)
- Irikla settlement (Gaysky District)

A select group of more than 50 environmental indicators including 32 hydro-chemical, plankton (phytoplankton and zooplankton), invertebrates (including zoobenthos), fish and birds are used to determine the health of the ecosystem. The level of primary production through analysis of the distribution and abundance of more than 100 phytoplankton species classifies the reservoir as mesotrophic (Voronin, 2007). Since 2009, research based on the methods described by Pidgaiko *et al*., (1968) shows that there are currently 27 species of zooplankton in the reservoir (7 copepods, 8 cladocera and 12 rotatoria). The average biomass of zooplankton is 0.76 g/m^3 that indicates the reservoir is a medium-productivity water body (Yermolin, 2014).

During the 1960s and 1970s, a number of zoobenthos species were introduced into the Irikla Reservoir with the aim of enhancing the food base for fish populations (Zadoenko, 1995; cited in Barbashova, 2012). Of these, the Baikal *Gmelinoides fasciatus* was introduced in 1973 until 1976. Recent studies carried out since 2009 show that both *G. fasciatus* and *Micruropus possolskii* have become naturalised and make up approximately 20% of the level of biomass (Filinova, 2012; Yermolin, 2014).

[9] Water monitoring is undertaken during six specified time periods: during winter runoff, before snow melt flood, at the peak of snow melt flood, at the end of snow melt flood, during summer runoff and within the ice-covered period.

[10] AV Shvetsov, (Director) Federal Agency of water resources (Rosvodresusy), Directorate for Management of Irikla Reservoir, FGU UEIV, 17th March 2015.

A range of benthic macro-invertebrate fauna is reported within the reservoir typical for this climate zone, including chironomides, oligochaetes, molluscs, helidae and amphipodae. The average biomass of benthic fauna between 2001 and 2007 was 1,793 ind/m^3 or 13.4g/m^3 and was similar in terms of dominant species to previous time periods (Filinova, 2012; Yermolin, 2014).

The high abundance of benthic invertebrates has a positive effect on the status of perch populations, which are able to consume a range of food items. Throughout the various growth stages of perch, they are able to predate on a wide range of benthic invertebrates (Yermolin, 1984).
Prior to the development of the Irikla Reservoir, the Ural River contained up to 24 native fish species of which chub (*Squalius cephalus*) and Volga undermouth (*Chondrostoma variabile*) were the most abundant, while bream (*Abramis brama*) roach (*Rutilis rutilis*) and pike (*Esox lucius*) were also common. Perch (*Perca fluviatilis*) was already present in the Ural River before the reservoir and is typical species found within a boreal plain complex (Nicholas, 1953; 1974). The species composition within the reservoir is based on the naturally occurring species composition of the Ural River with additional stocking of a number of fish species over the years since creation.
Following the early stages of the reservoir, the number of rheophilic fish species started to decline and starting in 1956 a number of commercially important limnophilic species were introduced to the water body, including sterlet (*Acipenser ruthenus*), grass carp (*Ctenopharyngodon idella*) and silver carp (*Hypophthalmichthys molitrix*), brown trout (*Salmo trutta*), smelt (*Osmerus eperlanus*), and several species of Coregonids: whitefish (*C. laveretus*), vendance (*C. albula*) and peled (*C. peled*) (Isaev & Karpov, 1980; Matyukhin, 1967). Since their introductions, starlet, smelt and peled have all failed to become established and grass carp (*Ctenopharyngodon idella*), silver carp (*Hypophthalmichthys molitrix*) and brown trout are now also becoming rare.

To date, fish fauna within the Irikla Reservoir includes about thirty species of fish. Of these, there are currently only 3 major species retained as commercial value using both small mesh and large mesh gillnets. Between 2009 and 2013 more than 90% of total catch were perch, roach (*Rutilus rutilus*) and crucian carp (*Carassius carassius*), although perch made up about 70% of the total catch (Figure 11). In addition to the three main commercial species, relatively minor catches of wild carp (*Cyprinus carpio*), pike (*Esox lucius*), burbot (*Lota lota*) have been reported for large mesh gillnets.

Table 12: Fishes of Irikla Reservoir

Common name	Species Name	Native†	Management‡	Present in catch
Bleak	*Alburnus alburnus*	n		
Bream	*Abramis brama*	n	TAC	Juveniles
Brown trout	*Salmo trutta*	i	RL	
Burbot	*Lota lota*	n	PC	
Chinese sleeper	*Perccottus glenii*	i	PC	
Chub	*Squalius (Leuciscus) cephalus*	n	M	
Common carp	*Cyprinus carpio*	i	TAC	
Crusian carp	*Carassius carassius*		PC	
Grass carp	*Ctenopharyngodon idella*	i		
Gudgeon	*Gobio gobio*	n	PC	
Ide	*Leuciscus idus*	n	RAC	
Peled	*Coregonus peled*		M	
Perch	*Perca fluviatilis*	n	RAC	
Pike	*Esox lucius*		RAC	
Pikeperch	*Sander lucioperca*	n	TAC	Juveniles
Prussian carp	*Carassius gibelio*		RAC	
Roach	*Rutilus rutilus*	n	RAC	Yes
Round goby	*Neogobius melanostomus*	n	M	

Common name	Species Name	Native†	Management‡	Present in catch
Rudd	*Scardinius erythrophthalmus*	n	PC	
Ruffe	*Gymnocephalus cernuus*	n	PC	Yes
Sichel	*Pelecus cultratus*	n	PC	
Silver carp	*Hypophthalmichthys molitrix*	i		
Smelt	*Osmerus eperlanus*	i		
Spined loach	*Cobitis taenia*			
Sterlet	*Acipenser ruthenus*	i	RL, AR	
Tench	*Tinca tinca*	n	PC	
Three-spined stickleback	*Gasterosteus aculeatus*	n		
Vendace	*Coregonus albula*			
Volga pikeperch	*Sander volgensis*	n	RL	
Volga undermouth	*Chondrostoma variabile*		PC	
Weatherfish	*Misgurnus fossilis*	n		
Wels catfish	*Silurus glanis*	n	TAC	
White bream	*Blicca bjoerkna*	n	PC	
White-eye bream	*Ballerus (Abramis) sapa*	n	PC	
Whitefish	*Coregonus laveretus*		TAC	

† Native to Ural River (n) or introduced to Irikla Reservoir (i); ‡ Species managed subject to a total allowable catch (TAC) or recommended allowable catch (RAC) regulations; species that can be potentially caught (PC) by gillnets (mainly large mesh gill-nets); mentioned in official catch statistics (M); red book of the Orenburg region (RL); artificially reproduced for conservation reasons (AR).

7.3.4 Fish kills in Irikla Reservoir

In June 2013, a mass fish mortality event occurred in the Irikla Reservoir, stretching 120 m by 1 m wide in the coastal margin of the Orlovsky broad[11]. Of the estimated 5,000 fish killed, about 95% were perch, pikeperch and ruffe of age group 0+ (fingerlings).

As part of the environmental investigation, samples of water were sent for laboratory testing at the Orenburg TsGMS (a branch of FGBU Volga UGMS, Directorate for Rospotrebnadzor in Orenburg region. In addition, samples of the dead fish were taken by representatives of the Saratov Research Institute for testing cause of death.
The results of the qualitative indicators of the water samples from different laboratories show that the hydrochemical indicators are well within limits of the past few years and do not exceed stated norms for this fisheries water basin. These analyses were conducted using standard, approved monitoring programme.

The Saratov Research Institute concluded that the reported mass fish mortality event in the Irikla Reservoir was caused by a natural event, such as stormy weather or a severe thunderstorm, in addition to the fact that the high density of perch age group 0+ (fingerlings) were also in shallow water (less than 0.5 m). These factors coupled with the direction of the tide flow that prevented them swimming into deeper water resulted in their mass mortality so near to the coastline.

[11] Information presented in this section provided by V.S. Kiljakov, Director FGU "KamUralrybvod" (Orenburg regional branch). 30th March, 2015.

Table 13. Scoring elements

Component	Scoring elements	Designation	Data-deficient
e.g. P1, Primary, Secondary, ETP, Habitats, Ecosystems	e.g. species or stock (SA 3.1.1.1)	Main or Minor	
P1	European perch	N/A	No
P1	Pike-perch	N/A	No
Primary	Roach	Main	No
Primary	Prussian carp	Main	No
Primary	Bream	Main	No
Primary	Vendace	Minor	Not assessed
Primary	Wild carp	Minor	Not assessed
Primary	Ide	Main	No
Primary	Pike	Minor	Not assessed
Primary	Wells	Minor	Not assessed
ETP	Russian desman	NA	No
ETP	Otter	NA	No
ETP	Rest mink	NA	No
ETP	Breeding loon	NA	No
Secondary	Dalmatian pelican	Main	No
Secondary	Eurasian spoonbill	Main	No
Secondary	Black Stork	Main	No
Secondary	Red-breasted goose	Main	No
Secondary	Lesser white-fronted goose	Main	No
Secondary	Tundra swan	Main	No
Secondary	White-headed duck	Main	No

Secondary	White-tailed eagle	Main	No
Secondary	Pallas's gull	Main	No
Habitat	Irikla Reservior	Only	No
Ecosystem	Irikla Reservoir	Only	No

7.3.5 Principle 2 Performance Indicator scores and rationales

PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI		
Scoring Issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	Main primary species are **likely** to be above the PRI. OR If the species is below the PRI, the UoA has measures in place that are **expected** to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are **highly likely** to be above the PRI. OR If the species is below the PRI, there is either **evidence of recovery** or a demonstrably effective strategy in place **between all MSC UoAs which categorise this species as main**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main primary species are above the PRI **and are** fluctuating around a level consistent with MSY.
	Met?	**All main species-Yes**	**All main species-Yes**	**All main species-Yes**
Rationale				

Of the four main primary species of the perch and pikeperch fishery, bream is subject to a total allocated catch (TAC) regulation, whereas ide and Prussian carp are managed through a recommended allocated catch (RAC) quota system[12].

All TAC regulated species are managed on a precautionary basis and annual catch limits are calculated at the start of each fishing season based on the calculated lower 95% confidence limit of 30 per cent of the total available biomass (i.e. $0.3B_a$). Similarly, RAC species are managed based on the lower 95% confidence limit of 50 per cent of the total available biomass (i.e. $0.5B_a$). The precautionary approach to assessing TAC / RAC species in Russia is described in Babayan (2000).

Since 2009, the Saratov branch of VNIRO (earlier the Saratov branch of the State Research Institute of Lake and River Fisheries) regularly surveys the commercial catches and also undertakes their own research across the entire reservoir water body using pre-defined survey methods.

A summary of the results of a stock assessment between 2013 and 2017 for the main primary species in the Irikla Reservoir pikeperch gillnet fishery (bream, ide and Prussian carp) is shown in Tables 8 and 9. There is a high degree of certainty that these species are above PRI and fluctuating around an MSY-consistent level. The SG100 is met.

b	Minor primary species stock status			
	Guide post			Minor primary species are highly likely to be above the PRI. OR If below the PRI, there is evidence that the UoA does

[12] See MRAG (2016) and Babayan (2000) for further details of recommended allocated catch (RAC) and how quotas for these lesser commercially important species are calculated.

				not hinder the recovery and rebuilding of minor primary species.
	Met?			**No**

Rationale

As of the publication of the ACDR, the status of minor primary species has not been evaluated.

References

The CAB shall list any references here, including hyperlinks to publicly-available documents.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**More information sought** re status of minor primary species.

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a **partial strategy** in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a **strategy** in place for the UoA for managing main and minor primary species.
	Met?	**All main species-Yes**	**All main species-Yes**	**All main species-Yes** **All minor species-No**
Rationale				

All TAC regulated species are managed on a precautionary basis and annual catch limits are calculated at the start of each fishing season based on the calculated lower 95% confidence limit of 30 per cent of the total available biomass (i.e. 0.3B_a). Similarly, RAC species are managed based on the lower 95% confidence limit of 50 per cent of the total available biomass (i.e. 0.5B_a). The precautionary approach to assessing TAC / RAC species in Russia is described in Babayan (2000).

Since 2009, the Saratov branch of VNIRO (earlier the Saratov branch of the State Research Institute of Lake and River Fisheries) regularly surveys the commercial catches and also undertakes their own research across the entire reservoir water body using pre-defined survey methods.

This constitutes a full strategy for managing at least main primary species, hence the SG80 is met. At the time of ACDR publication, the minor primary species had not been evaluated, hence the SG100 is not met.

b	Management strategy evaluation			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	Met?	**All main species-Yes**	**All main species-Yes**	**All main species-Yes** **All minor species-No**
Rationale				

A summary of the results of a stock assessment between 2013 and 2017 for the main primary species in the Irikla Reservoir pikeperch gillnet fishery (bream, ide and Prussian carp) is shown in Tables 8 and 9. These assessments show that the available biomass for harvest for these species has either increased or remained stable over the past several years. This provides at least some objective basis for confidence that the strategy is working based on information directly about the fishery and species involved. The SG80 is met. Because minor primary species have not been evaluated as of ACDR publication, the SG100 is not met.

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is**

				achieving its overall objective as set out in scoring issue (a).
	Met?		**All species-Yes**	**Main species-Yes** **Minor species-No**
Rationale				

As stated in scoring issue B, the commercially fishable biomass for all main primary species is increasing or remaining stable, and catches do not exceed their respective TACs or RACs. Thus, this provides clear evidence that the strategy is being successfully implemented. The SG80 is met. Since minor species have not been evaluated in detail, the SG100 is not met.

d	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**
Rationale				

No sharks live in the Irikla reservoir.

e	Review of alternative measures			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**
Rationale				

There are no unwanted catches of primary species

References

The CAB shall list any references here, including hyperlinks to publicly-available documents.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**More information sought pertaining to minor primary species.**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is **adequate to assess** the impact of the UoA on the main primary species with respect to status. **OR** **If RBF is used to score PI 2.1.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is **adequate to assess with a high degree of certainty** the impact of the UoA on main primary species with respect to status.
	Met?	**All main species-Yes**	**All main species-Yes**	**All main species-Yes**
Rationale				

Of the four main primary species of the perch and pikeperch fishery, bream is subject to a total allocated catch (TAC) regulation, whereas ide and Prussian carp are managed through a recommended allocated catch (RAC) quota system[13].

All TAC regulated species are managed on a precautionary basis and annual catch limits are calculated at the start of each fishing season based on the calculated lower 95% confidence limit of 30 per cent of the total available biomass (i.e. 0.3B_a). Similarly, RAC species are managed based on the lower 95% confidence limit of 50 per cent of the total available biomass (i.e. 0.5B_a). The precautionary approach to assessing TAC / RAC species in Russia is described in Babayan (2000).

Since 2009, the Saratov branch of VNIRO (earlier the Saratov branch of the State Research Institute of Lake and River Fisheries) regularly surveys the commercial catches and also undertakes their own research across the entire reservoir water body using pre-defined survey methods.

This is sufficient to satisfy the SG100 for this scoring issue.

b	Information adequacy for assessment of impact on minor primary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			**No**
Rationale				

As of the publication of the ACDR, minor primary species had not been investigated in detail. Thus the SG100 is not met.

[13] See MRAG (2016) and Babayan (2000) for further details of recommended allocated catch (RAC) and how quotas for these lesser commercially important species are calculated.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** primary species.	Information is adequate to support a **partial strategy** to manage **main** primary species.	Information is adequate to support a **strategy** to manage **all** primary species, and evaluate with a **high degree of certainty** whether the strategy is achieving its objective.
	Met?	**Main species-Yes**	**Main species-Yes**	**Main species-Yes** **Minor species-No**

Rationale

All TAC regulated species are managed on a precautionary basis and annual catch limits are calculated at the start of each fishing season based on the calculated lower 95% confidence limit of 30 per cent of the total available biomass (i.e. 0.3B_a). Similarly, RAC species are managed based on the lower 95% confidence limit of 50 per cent of the total available biomass (i.e. 0.5B_a). The precautionary approach to assessing TAC / RAC species in Russia is described in Babayan (2000).

Since 2009, the Saratov branch of VNIRO (earlier the Saratov branch of the State Research Institute of Lake and River Fisheries) regularly surveys the commercial catches and also undertakes their own research across the entire reservoir water body using pre-defined survey methods.

This is sufficient to meet the SG80 guidepost but because minor species have not been investigated in detail, the SG100 is not met.

References

MRAG Americas (2016).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**More information sought on minor primary species**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Scoring Issue		SG 60	SG 80	SG 100
	Main secondary species stock status			
a	Guide post	Main secondary species are **likely** to be above biologically based limits. OR If below biologically based limits, there are **measures** in place expected to ensure that the UoA does not hinder recovery and rebuilding.	Main secondary species are **highly likely** to be above biologically based limits. OR If below biologically based limits, there is either **evidence of recovery** or a **demonstrably effective partial strategy** in place such that the UoA does not hinder recovery and rebuilding. AND Where catches of a main secondary species outside of biological limits are **considerable**, there is either **evidence of recovery** or a, **demonstrably effective strategy in place between those MSC UoAs that have considerable catches of the species**, to ensure that they collectively do not hinder recovery and rebuilding.	There is a **high degree of certainty** that main secondary species are above biologically based limits.
	Met?	**Yes**	**Yes**	**No**
Rationale				

There are a number of non-endangered bird species must be classified as main secondary species, which may interact with the fishery; population trends and fishery interactions are summarized in Table 10.

The majority of the bird species listed in Table 10 are transient species that are present in the region only for a short period during their migration. The potential interaction with the fishery would only apply to their autumnal migration as the spring migration occurs at the same time as the fish spawning season when there is a ban on commercial fishing activities. As these autumnal migrating birds are likely to be present during short periods, are not resident on the lake and do not feed whilst they are present, the risk of interaction with fishing gear is highly limited or negligible. Of the species that are resident and in the Red Book there is only a small possibility of interaction e.g. black-throated loon (*Gavia arctica*), Eurasian spoonbill (*Platalea leucorodia*) and the black stork (*Ciconia nigra*). No mortalities of these species have been recorded. During the scope extension site visit, it was noted that the black-throated loons do not feed during their migration, therefore reducing the possible interactions with the fishery.

Of the species present on the lake throughout the year only **Pallas's gull** *(Ichthyaetus ichthyaetus)* may have a potential interaction with the fishery. A colony of Pallas's gulls exists on one of the islands in Suunduksky Bay, in the south-eastern part of the reservoir which is closed to commercial fishing. The colony was first reported in 2010, during which time 600 nestlings were counted (Barbazyuk, 2010). Because this species has an extremely large range, the global population is increasing with an estimated 125,000-1,100,000 individuals it is listed as "least concern" on the IUCN red list.

The population trends for the **Eurasian spoonbill** *(Platalea leucorodia)*, **black stork** *(Ciconia nigra)* and **tundra swan** *(Cygnus columbianus)* are unknown. In all three species some populations are decreasing, while others are increasing

or stable. The global population size for each species is 63,000-65,000, 24,000-44,000 and 317,000-336,000 respectively and all are listed as “least concern” on the IUCN red list. The **white-tailed eagle** *(Haliaeetus albicilla)* has an extremely large range and a global population of 24,200-49,000 mature individuals. The white-tailed eagle global population appears to be increasing largely due to conservation measures such as protecting eyries, providing safe (non-poisoned) food and re-introductions to areas such as Bavaria and therefore is listed as “least concern” on the IUCN red list.

The population trends for the red-breasted goose *(Branta ruficollis)* and lesser white-fronted goose *(Anser erythropus)* are declining. The **red-breasted goose** has an estimated global population of 56,000 individuals that has declined over a short period of time. The reason for the decline is unknown because trend calculations are complicated by interannual variation in survey coverage and reporting across its range (BirdLife International 2020). The “vulnerable” listing on the IUCN red list for this species is a precautionary measure and it could be downlisted if it is found that recent increases are genuine and not a result of improved monitoring efforts. The **lesser white-fronted goose** has a global population of 22,000-27,000 and is listed as “vulnerable” on the IUCN red list. The “vulnerable” listing for this species is a result of the rapid population decline in its key breeding populations in Russia and these declines are predicted to continue. In addition to the fragmentation of their breeding range, this reduction has been attributed to high levels of hunting on the staging and wintering grounds and habitat deterioration from land cultivation. Modeling indicates that 28% of the habitat for this species could be lost by 2070 (Zöckler and Lysenko 2000).

The **Dalmatian pelican** *(Pelecanus crispus)* is listed as “near threatened” on the IUCN red list. The estimated global population is 12,000-16,000 individuals and the overall trend is decreasing. Declines are primarily a result of wetland drainage, shooting and persecution by fishers, disturbance from tourists and fishers, water pollution, collision with overhead power-lines and over-exploitation of fish stocks. This species has been downlisted from “vulnerable” due to conservation measures that have resulted in a population increase in Europe. The species remains listed as “near threatened” because it is suspected that the population could undergo a moderately rapid decline in the next three generations.

The fishery records all mortalities of bird species that occur within gillnets, with the mortalities being linked to an individual effort record and the date, time and location being recorded for each event. To date there have been 6 recorded interactions (5 dead, 1 released alive).

So, although some of the bird species above may be outside of, or approaching, Biologically-based limits, there is extremely limited opportunity for interaction with the fishery under assessment, which is borne out by the lack of recorded interactions over the years. This is sufficient to meet the SG80 requirement that, if the population is outside of biologically based limits, the UoA is demonstrably not hindering any recovery that may be occurring. The SG80 is met. There is not a high degree of certainty that all main secondary birds are above BBLs, hence the SG100 is not met, though this will be re-examined in more detail during the site visit.

	Minor secondary species stock status			
b	Guide post			Minor secondary species are highly likely to be above biologically based limits. OR If below biologically based limits’, there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
	Met?			**Yes**
Rationale				

There are no minor secondary species in this fishery.

References

BirdLife International (2020) IUCN Red List for birds. Downloaded from http://www.birdlife.org on 23/12/2020.

http://datazone.birdlife.org/species/factsheet/dalmatian-pelican-pelecanus-crispus
http://datazone.birdlife.org/species/factsheet/eurasian-spoonbill-platalea-leucorodia
http://datazone.birdlife.org/species/factsheet/black-stork-ciconia-nigra
http://datazone.birdlife.org/species/factsheet/red-breasted-goose-branta-ruficollis
http://datazone.birdlife.org/species/factsheet/lesser-white-fronted-goose-anser-erythropus
http://datazone.birdlife.org/species/factsheet/tundra-swan-cygnus-columbianus
http://datazone.birdlife.org/species/factsheet/white-headed-duck-oxyura-leucocephala
http://datazone.birdlife.org/species/factsheet/white-tailed-sea-eagle-haliaeetus-albicilla
http://datazone.birdlife.org/species/factsheet/pallass-gull-larus-ichthyaetus

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**More information sought on population status of seabirds.**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **partial strategy** in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a **strategy** in place for the UoA for managing main and minor secondary species.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Of the species present on the lake throughout the year only **Pallas's gull** *(Ichthyaetus ichthyaetus)* may have a potential interaction with the fishery. A colony of Pallas's gulls exists on one of the islands in Suunduksky Bay, in the south-eastern part of the reservoir which is closed to commercial fishing. The colony was first reported in 2010, during which time 600 nestlings were counted (Barbazyuk, 2010). Because this species has an extremely large range, the global population is increasing with an estimated 125,000-1,100,000 individuals it is listed as "least concern" on the IUCN red list. Recommendations have been made to decrease fishing activities, remove fishing from with 5 km of the colony or set nets deeper (>10 m) to mitigate against any interaction with the fisheries, but as these parcels are not open to the fishery these measures have not been required and no confirmed mortalities exist. To date, no permanent monitoring on the number of nests occur on a regular basis, although local ornithologists are known to visit the area regularly. The last survey conducted in 2013 counted 340-350 nesting birds, but was conducted remotely in order not to disturb the birds and the results are not directly comparable with previous estimates (Morozov & Kornev, 2013).

This is sufficient to qualify as a strategy to manage impacts to main secondary species. This scoring issue is not applicable to the transient main secondary seabirds as they have not been shown to interact with the fishery.

b	Management strategy evaluation			
	Guide post	The measures are considered **likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is **some objective basis for confidence** that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The near-zero interactions between this fishery and main secondary bird species provides some objective basis for confidence that the strategy for avoidance, including the protected breeding site for Palla's gull, are working. As there are no fishing parcels open near the nesting site, there has been no direct testing of this aspect of the strategy, hence the SG100 is not met.

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy	There is **clear evidence** that the partial strategy/strategy is being **implemented**

			is being **implemented successfully**.	**successfully and is achieving its objective as set out in scoring issue (a).**
	Met?		**Yes**	**Yes**
Rationale				

The near zero interactions between this fishery and main primary seabirds, including Palla's gulls, provides clear evidence that this strategy is working to achieve it's objectives. The SG100 is met.

d	Shark finning			
	Guide post	It is **likely** that shark finning is not taking place.	It is **highly likely** that shark finning is not taking place.	There is a **high degree of certainty** that shark finning is not taking place.
	Met?	**NA**	**NA**	**NA**
Rationale				

Irikla reservoir is not home to any sharks (or dogs).

e	Review of alternative measures to minimise mortality of unwanted catch			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of main secondary species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of **unwanted** catch of all secondary species, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**
Rationale				

There is virtually no interaction between this fishery and any secondary species, even secondary main seabirds. There is no need for a review of the effectiveness of the management strategy since it is working perfectly already.

References

BirdLife International (2020) IUCN Red List for birds. Downloaded from http://www.birdlife.org on 23/12/2020.
http://datazone.birdlife.org/species/factsheet/dalmatian-pelican-pelecanus-crispus
http://datazone.birdlife.org/species/factsheet/eurasian-spoonbill-platalea-leucorodia
http://datazone.birdlife.org/species/factsheet/black-stork-ciconia-nigra
http://datazone.birdlife.org/species/factsheet/red-breasted-goose-branta-ruficollis
http://datazone.birdlife.org/species/factsheet/lesser-white-fronted-goose-anser-erythropus
http://datazone.birdlife.org/species/factsheet/tundra-swan-cygnus-columbianus
http://datazone.birdlife.org/species/factsheet/white-headed-duck-oxyura-leucocephala
http://datazone.birdlife.org/species/factsheet/white-tailed-sea-eagle-haliaeetus-albicilla
http://datazone.birdlife.org/species/factsheet/pallass-gull-larus-ichthyaetus

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is **adequate to estimate** the impact of the UoA on the main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and **adequate to assess** the impact of the UoA on main secondary species with respect to status. OR **If RBF is used to score PI 2.2.1 for the UoA:** Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and **adequate to assess with a high degree of certainty** the impact of the UoA on main secondary species with respect to status.
	Met?	**All main secondary birds- Yes**	**All main secondary birds- Yes**	**All main secondary birds- No**
Rationale				

A full description of the population status of the main secondary bird species is given in PI 2.2.1. Described in earlier PIs and in the background section is the management strategy in place regarding Palla's gull, and the near-zero interactions between this fishery and any bird species. This constitutes at least some quantitative information to assess the impact of the fishery on main secondary species. The SG100 may also be met but more detailed investigation is needed for this.

b	Information adequacy for assessment of impacts on minor secondary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			**Yes**
Rationale				

No minor secondary species have been identified.

c	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage **main** secondary species.	Information is adequate to support a **partial strategy** to manage **main** secondary species.	Information is adequate to support a **strategy** to manage **all** secondary species, and **evaluate** with a **high degree of certainty** whether the strategy is **achieving its objective**.
	Met?	**Yes**	**Yes**	**No**

Rationale

The fishery has a strategy to manage impacts to the single bird species, Palla's gull, with the possibility of interacting with the fishery during its operation and information is adequate to support this strategy (see details in the background section and previous PIs). However, because some main secondary bird populations are in decline across this region of Russia, we cannot say with a high degree of certainty that information is adequate to ensure this fishery does or could meet the ultimate objective of not hindering recovery. The SG80 but not SG100 is met.

References

BirdLife International (2020) IUCN Red List for birds. Downloaded from http://www.birdlife.org on 23/12/2020.
http://datazone.birdlife.org/species/factsheet/dalmatian-pelican-pelecanus-crispus
http://datazone.birdlife.org/species/factsheet/eurasian-spoonbill-platalea-leucorodia
http://datazone.birdlife.org/species/factsheet/black-stork-ciconia-nigra
http://datazone.birdlife.org/species/factsheet/red-breasted-goose-branta-ruficollis
http://datazone.birdlife.org/species/factsheet/lesser-white-fronted-goose-anser-erythropus
http://datazone.birdlife.org/species/factsheet/tundra-swan-cygnus-columbianus
http://datazone.birdlife.org/species/factsheet/white-headed-duck-oxyura-leucocephala
http://datazone.birdlife.org/species/factsheet/white-tailed-sea-eagle-haliaeetus-albicilla
http://datazone.birdlife.org/species/factsheet/pallass-gull-larus-ichthyaetus

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the **effects of the UoA** on the population/ stock are known and **likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, the **combined effects of the MSC UoAs** on the population /stock are known and **highly likely** to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a **high degree of certainty** that the **combined effects of the MSC UoAs** are within these limits.
	Met?	**NA**	**NA**	**NA**
Rationale				

No national or international limits apply to any ETP species in this assessment.

b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not **hinder recovery** of ETP species.	Direct effects of the UoA are **highly likely** to not **hinder recovery** of ETP species.	There is a **high degree of confidence** that there are no **significant detrimental direct effects** of the UoA on ETP species.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Three fish species (brown trout, sterlet and Volga pikeperch) are identified in national legislation (represented in the Orenburg Red Book) but are not found in the reservoir and are therefore not impacted by the fishery.

One bird, the white-headed duck *(Oxyura leucocephala)*, qualifies as ETP because it is IUCN listed as endangered. Globally there are four populations of the white-headed duck; two of which are declining, one stable and one increasing. The North African population (400-600 birds) is stable and the Spanish population (2,500 birds) is increasing. The two decreasing populations include Central Asia (5,000-10,000 birds) and the Pakistan wintering population which is on the verge of extinction. Although there is uncertainty about the movement of birds between wintering sites, mid-winter counts indicate that the population of this species has undergone a very rapid decline qualifying the species as “endangered” on the IUCN red list. Declines are caused by habitat loss, over-hunting, unsustainable use of water resources, and competition and introgressive hybridization with the non-native North American Ruddy Duck *(Oxyura jamaicensis)*. It is thought that the total population is appreciably higher than the total recorded during the mid-winter counts casting doubt on the accuracy of the global trend estimates. Until there is better data from more comprehensive counts the species is retained as “endangered” on the IUCN list.

Two amphibians, the great crested newt (*Triturus cristatus*) and the common frog (*Rana temporaria*), have ranges that border on the reservoir. Given the known geographical distribution of the great crested newt and the lack of crossover of habitats and feeding with perch, the likelihood of contact with fishing gear has been estimated as zero (Bannikov *et al.*, 1977 cited in Davygora, 2014). Similarly, the distribution of the common frog in the reservoir is only utilised for breeding in surface waters (Bannikov *et al.*, 1977 cited in Davygora 2015), which means that there is little risk of interaction with the gillnet fishery.

Three mammal species are identified; the Russian desman (*Desmana moschata*), the otter (*Lutra lutra*) and the European or Russian mink (*Mustela lutreola).* All three mammal species are identified as being present in the upper reaches of the Ural River but not to any great degree within the reservoir. No incidences of mammal interaction with the fishing gear of the fishery under assessment had been reported.

There are no specific measures established to protect ETP species because of the known lack of interactions. The fishery therefore meets the requirements at SG60, SG80 and SG100.

c	Indirect effects			
	Guide post		Indirect effects have been considered for the UoA and are thought to be **highly likely** to not create unacceptable impacts.	There is a **high degree of confidence** that there are no **significant detrimental indirect effects** of the UoA on ETP species.
	Met?		**Yes**	**No**

Rationale

While the indirect effects of the fishery on ETP species have been considered, no evidence is available to demonstrate clearly with a high degree of confidence that there are no significant detrimental indirect effects to meet SG100. The fishery therefore meets SG80 only.

References

Bannikov *et al.*, (1977); Davygora, (2014); Davygora, (2015); Red book of the Orenburg Province; Appendix 1, CITEs;

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.3.2 – ETP species management strategy

PI 2.3.2		The UoA has in place precautionary management strategies designed to: - meet national and international requirements; - ensure the UoA does not hinder recovery of ETP species. Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place (national and international requirements)			
	Guide post	There are **measures** in place that minimise the UoA-related mortality of ETP species, and are expected to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be **highly likely to achieve** national and international requirements for the protection of ETP species.	There is a **comprehensive strategy** in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to **achieve above** national and international requirements for the protection of ETP species.
	Met?	**NA**	**NA**	**NA**
Rationale				

National or international limits to not apply to any ETP species in this list.

b	Management strategy in place (alternative)			
	Guide post	There are **measures** in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **strategy** in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a **comprehensive strategy** in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.
	Met?	**Yes**	**Yes**	**No**
Rationale				

A number of management measures are available to both the management authority and the fishing companies to minimise mortality of ETP species, including closed seasons, closed areas and gear modification as may be required.

Quantitative data from bycatch forms also record ETP bird interactions and form part of a strategy to ensure the current suite of management measures are effective at minimising the impact of the fishery on ETP species. Bycatch forms are considered sufficiently accurate for monitoring purposes because the two fishing companies stress the importance of accurate reporting to fishermen and minimize the incentive to misreport. Monitoring is ongoing to ensure that if any interactions are observed then additional measures can be taken.

This is deemed sufficient to meet the requirements at SG60 and SG80. Given the scale and intensity of the fishery, and lack of interactions between the fishery and ETP species, a comprehensive strategy is not deemed necessary, although this prevents the fishery from meeting SG100.

c	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on **plausible argument** (e.g. general experience, theory or comparison with similar fisheries/species).	There is an **objective basis for confidence** that the measures/strategy will work, based on **information** directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a **quantitative analysis** supports **high**

				confidence that the strategy will work.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The lack of recorded interactions between this fishery and any ETP species in the area is sufficient for an objective basis for confidence that a strategy to mitigate impacts of the fishery on ETP species is working.

This is sufficient to meet SG60 and SG80.

There is no evidence of a quantitative analysis to demonstrate the strategy supports a high confidence that it will work to meet SG100.

	Management strategy implementation			
d	Guide post		There is some **evidence** that the measures/strategy is being implemented successfully.	There is **clear evidence** that the strategy/comprehensive strategy is being implemented successfully and **is achieving its objective as set out in scoring issue (a) or (b).**
	Met?		**Yes**	**Yes**
Rationale				

Quantitative data collected from the fishery (bird bycatch forms) provide clear evidence that the current management strategy to avoid interactions with ETP species is working. This is sufficient to meet the requirements at both SG 80 and SG100.

	Review of alternative measures to minimise mortality of ETP species			
e	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a **regular** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.	There is a **biennial** review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality ETP species, and they are implemented, as appropriate.
	Met?	**NA**	**NA**	**NA**
Rationale				

As this fishery is not known to interact with any ETP species, a review of alternative measures is not necessary.

References

Davygora, (2014); Davygora, (2015)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	

Condition number (if relevant)	

PI 2.3.3 – ETP species information

PI 2.3.3		Relevant information is collected to support the management of UoA impacts on ETP species, including: - Information for the development of the management strategy; - Information to assess the effectiveness of the management strategy; and - Information to determine the outcome status of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts			
	Guide post	Qualitative information is **adequate to estimate** the UoA related mortality on ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Qualitative information is **adequate to estimate productivity and susceptibility** attributes for ETP species.	Some quantitative information is **adequate to assess** the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. **OR** **If RBF is used to score PI 2.3.1 for the UoA:** Some quantitative information is **adequate to assess productivity and susceptibility attributes** for ETP species.	Quantitative information is available to assess with a high degree of certainty the **magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status** of ETP species.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Information is sufficient to quantitatively estimate outcome status of ETP species with a high degree of certainty. Were instances of mortality to exist for ETP species, these would be recorded in bycatch forms that provide details of all incidents of bycatch mortality with date, time and position of mortality allowing direct fishery related mortality to be quantitatively estimated for all bycatch species, including ETP. This is sufficient to meet both SG60 and SG80.

While the system in place to report interactions with bird ETP species is deemed sufficient to meet SG100, a lack of fisheries independent data to provide evidence that other ETP species are not at risk (e.g. amphibians) prevents the fishery reaching SG100. It is noted that Fish-ka has initiated reporting of all new fish species encountered, including bycatch, to ensure potential fish ETP risks can be evaluated.

b	Information adequacy for management strategy			
	Guide post	Information is adequate to support **measures** to manage the impacts on ETP species.	Information is adequate to measure trends and support a **strategy** to manage impacts on ETP species.	Information is adequate to support a **comprehensive strategy** to manage impacts, minimise mortality and injury of ETP species, and evaluate with a **high degree of certainty** whether a strategy is achieving its objectives.
	Met?	**Yes**	**Yes**	**No**
Rationale				

While a full strategy has not yet been fully developed for the fishery (see SIa above), the detailed information collected through the bird bycatch form, including details of released alive/dead (see MRAG, 2016) can be used measure trends and support a comprehensive strategy to manage impacts of the fishery on all potential bird ETP species. This is sufficient to meet the requirements at both SG60 and SG80. It does not meet SG100 as there is no evidence to demonstrate that interactions with other potential ETP species (e.g. amphibians) are adequately reported at this time.

It is recommended to conduct more routine assessments of Pallas's gull to help provide a comprehensive strategy for this species.

References

Davygora, (2014); Davygora, (2015); MRAG (2016);

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring Issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The licensed fishery operates pelagic gillnets set approximately 1 m below the surface of the water-body to target adult pikeperch and perch. The gear is set in deeper mid-water areas where the target species are more abundant, and away from benthic substrates and nearshore areas.

The pelagic gear is set above the benthic layer of the reservoir to avoid becoming entangled. All commercial fishers use the same gear type (50-70 mm mesh size) and monitored throughout the season by enforcement officers. Due to the high selectivity of the gear, fish processors can determine different fish size or species composition from fishermen using different gear.

Evidence from fish processors and the reported number and type of fisheries infringements help to demonstrate that the gear will not be modified or changed (e.g. smaller mesh size or shift to bottom-tending) and it is therefore highly unlikely that the fishery will reduce the benthic habitat structure and function to a point where there would be serious or irreversible harm. This is sufficient to meet SG100.

b	VME habitat status			
	Guide post	The UoA is **unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is **highly unlikely** to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	Met?	**NA**	**NA**	**NA**
Rationale				

This fishery does not interact with VMEs

c	Minor habitat status			
	Guide post			There is **evidence** that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
	Met?			**Yes**

Rationale

There is no known interaction between this gear and any habitat type—no minor habitats have been identified. The SG100 is met.

References

Balabanova, (1971); Kozmin & Matyukhin, (1971); Isaev & Karpov, (1980); Anon., (2013); Yermolin, (2014); Belyanin (2018).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.4.2 – Habitats management strategy

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a **partial strategy** in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a **strategy** in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

A suite of measures is in place to help protect freshwater habitats within the reservoir. These include spatial and temporal controls on fishing effort, restrictions on the type of gear employed and formation of a number of federal and regional Specially Protected Natural Reservations (SPNRs) within the Orenburg region to monitor and protect rare species of animals, plants and fungi.

In addition to various management measures, a strategy is in place to limit the impact of 'ghost fishing' through gear loss and also to facilitate habitat restoration. Representatives of Federal Agency for Fisheries Rosrybolovstvo together with Department for Fisheries and Fish Supervision Agency Rybnadzor undertake joint missions on the territories of fishing parcels in order to remove abandoned, damaged or illegal gillnets that might otherwise impact the local habitat.

In addition to the retrieval of old, damaged or illegal gillnets, there is a strategy to clean areas adjacent to the fishing parcels according to established schedules. Rubbish is collected and deposited in landfills at nearby settlements. Furthermore, approximately 40% of the shoreline of the reservoir is protected from anthropogenic activities, including agricultural and fishing activities.

Strategies to minimize impacts of gear loss and habitat restoration are deemed sufficient to meet the requirements at SG100.

b	Management strategy evaluation			
	Guide post	The measures are **considered likely** to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some **objective basis for confidence** that the measures/partial strategy will work, based on **information directly about the UoA and/or habitats** involved.	**Testing** supports **high confidence** that the partial strategy/strategy will work, based on **information directly about the UoA and/or habitats** involved.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The potential impact of set gillnets used in the commercial pikeperch fishery on the benthic habitats is generally well known. Pikeperch is not a demersal species, and therefore gillnets set in the water column (approx. 1 m below the surface) to target adult fish are highly unlikely to come into contact with benthic habitats. Fishing is also highly likely to occur away from nearshore areas to minimize the risk of gear becoming entangled with submerged rocks and flora. During winter months, ice cover is likely to have a far greater impact to shallow nearshore areas than fishing activities.

Further to this, specific targeted actions are taken to improve the quality of the local habitat through actions to retrieve any lost or damaged gear (including illegal gear) and improve the quality of the surrounding area by disposing of discarded rubbish.

Controls placed on the type and spatial-temporal distribution of fishing gear ensure that the gear cannot pose a threat to the benthic habitat and thus helps to eliminate the risk of serious or irreversible harm.

Information is available directly about the fishery to provide sufficient evidence to meet the requirements at SG60 and SG80.

To date, no evidence of testing has been shown to demonstrate clearly the strategy will work with a high level of confidence to meet SG100.

	Management strategy implementation			
c	Guide post		There is **some quantitative evidence** that the measures/partial strategy is being implemented successfully.	There is **clear quantitative evidence** that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
	Met?		**Yes**	**Yes**
Rationale				

Statutory controls are enforced and results from ongoing monitoring and enforcement provides clear evidence that the strategy is being implemented successfully. Documented evidence from the type of gear employed and species retained demonstrate the gear does not interact with benthic species, indicating the gear is highly unlikely to impact the habitat. This is sufficient to meet SG100.

	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			
d	Guide post	There is **qualitative evidence** that the UoA complies with its management requirements to protect VMEs.	There is **some quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is **clear quantitative evidence** that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	Met?	**NA**	**NA**	**NA**
Rationale				

No VMEs are present.

References

Shvetsov, pers. comm., (2014); Yermolin, (2014); Belyanin (2018);

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	The types and distribution of the main habitats are **broadly understood**. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and **vulnerability** of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. **OR** **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	Met?	**Yes**	**Yes**	**No**
Rationale				

There is a basic understanding of the types and distribution of main habitats within the Irikla Reservoir. In addition to a basic understanding of main habitat types, the average yearly water level of the Irikla Reservoir is monitored on a routine basis. This has important implications both from a management and environmental perspective, with respect to changes in nearshore habitats. Given the relatively shallow depth (~12 m), and opportunity for continuous research and monitoring of the reservoir by the Saratov Research Institute, good information on the nature, distribution and vulnerability of all main habitats has been described at the level of detail relevant to the scale and intensity of the fishery. This information is sufficient to meet the requirements at both SG60 and SG80.

The lack of information on the distribution of all known habitats prevents the fishery from meeting SG100.

b	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR **If CSA is used to score PI 2.4.1 for the UoA:** Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.
	Met?	**Yes**	**Yes**	**No**

Rationale

Data on the temporal and spatial location, number and type of gillnets within the reservoir are well documented sufficient to allow the nature of the impacts of the fishery on known habitat types to be identified. This evidence is sufficient to meet the requirements at SG60 and SG80.

No evidence of a quantitative evaluation is available to show the physical impacts of the gear to meet SG100.

	Monitoring			
c	Guide post		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in all habitat distributions over time are measured.
	Met?		**Yes**	**No**

Rationale

The impact of the licensed commercial fishery on habitats is well known. Due to the nature of the gear used, any increase of the risk to habitats would only occur if the gear was changed or modified.

To date, ongoing information on the number and size of gillnets used in the fishery is collected by Fish-ka at the start of each season as part of their control to regulate the fishery. In addition to these fisheries-dependent controls, fisheries inspectors monitor the gear in-season to regulate the fishery. This evidence is sufficient to meet the requirements at SG80.

There is no evidence to demonstrate that changes in habitat distributions are monitored over time to meet SG100.

References

Yermolin, (2014); Belyanin (2018);

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.1 – Ecosystem outcome

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements of ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Ecosystem status			
	Guide post	The UoA is **unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The UoA is **highly unlikely** to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is **evidence** that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.
	Met?	**Yes**	**Yes**	**No**

Rationale

Biotic and abiotic environmental monitoring of the Irikla Reservoir is undertaken on a routine basis by the Saratov Research Institute. This provides a detailed understanding of the underlying structure and function of the ecosystem since development of the reservoir, which includes species-specific information on the levels of phytoplankton, zooplankton and benthic macro-invertebrates and ichthyofauna, for example.

The exploitation of pikeperch is considered to be relatively low in comparison to the productivity of the stock. Due to the highly selective gear type set above the benthic layer, little or no bycatch is taken in the fishery, although a negligible number of birds are sometimes caught. Control exercised over the number and size of gear used by Fish-ka helps to regulate the potential impact of the gear on the structure and function of the ecosystem. Control of the spatial-temporal distribution of the fishery and knowledge on the distribution and abundance of the only known reported ETP species within the reservoir (Pallas's gull) has demonstrated the risk of interaction with the fishery is minimal. Key habitats are protected under a number of federal and regional specially protected natural reservations (SPNR) within the Orenburg region.

The nature and control exercised over the fishing gear used (surface gillnet), coupled with a broad understanding of the main habitat types associated within the reservoir and quantitative evidence from the number of lost and damaged gear, demonstrates the fishery is highly unlikely to impact habitat types. The ecosystem within the Irikla Reservoir is subject to other non-fishery related impacts, including seasonal changes in water level as a result of draw-down of water and the occurrence of ice coverage during the winter. Combined, these impacts are considered to be far greater to the ecosystem than that of the fishery. Information available on the level of catches (target and non-target), bycatch, and risk of interaction with ETP species and main habitat types provides sufficient evidence that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. This is sufficient to meet all requirements at SG60 and SG80. The requirements at SG100 are not met as a specific ecosystem wide analysis has not been conducted.

References

Matyukhin, (1967); Isaev & Karpov, (1980); Yermolin, (2014); Belyanin (2018)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are **measures** in place, if necessary which take into account the **potential impacts** of the UoA on key elements of the ecosystem.	There is a **partial strategy** in place, if necessary, which takes into account **available information and is expected to restrain impacts** of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a **strategy** that consists of a **plan**, in place which contains measures to **address all main impacts of the UoA** on the ecosystem, and at least some of these measures are in place.
	Met?	**Yes**	**Yes**	**No**
Rationale				

A series of management measures are place under each Component (e.g. target fishery, retained and bycatch species, ETP species and habitat), that form at least a partial strategy for the overall ecosystem. Combined, these take into account a wide range of information that ensures that management measures restrain impacts on the Irikla Reservoir. This is sufficient to meet the requirements at both SG60 and SG80.

A number of agreements and practices are in place within the fishery that might represent a strategy, and contain mechanisms that are expected to modify fishing practices in the light of the identification of unacceptable impacts. However, this 'strategy' does not contain a specific ecosystem plan, and thus prevents the fishery from meeting SG100.

b	Management strategy evaluation			
	Guide post	The **measures** are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar UoAs/ ecosystems).	There is **some objective basis for confidence** that the measures/ partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved.	**Testing** supports **high confidence** that the partial strategy/ strategy will work, based on information directly about the UoA and/or ecosystem involved.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The partial strategy is considered likely to work based on evidence from a range of ongoing monitoring and research of both biotic and abiotic factors since the development of the Irikla Reservoir in the early 1960s.

Whilst there have been a number of reported changes in the ecosystem structure and function during the development of the reservoir, these have been due to natural and other man-made changes within the environment (e.g. annual changes in water-level, ice coverage). Against these other significant and widespread impacts on the environment, it is argued that the partial strategy to limit the impact of the pikeperch fishery on the ecosystem fishery is expected to be comparatively minimal and sufficient to meet SG60 and SG80. Given that there is no ecosystem-specific measure in place, the fishery does not meet SG100.

c	Management strategy implementation			
	Guide post		There is **some evidence** that the measures/partial strategy is being **implemented successfully**.	There is **clear evidence** that the partial strategy/strategy is being **implemented successfully and is**

				achieving its objective as set out in scoring issue (a).
	Met?		**Yes**	**No**

Rationale

A range of evidence exists to demonstrate that the measures comprising the partial strategy are being implemented successfully. These include:
The total number of reported government inspections and low number of infringements detected each year;
Trends in stock status of TAC and RAC species do not show significant decline in abundance;
Low incidence of bird bycatch reported by commercial fishermen;
Government monitoring and research of biotic and abiotic factors within the reservoir have reported no adverse changes;
Low incidence of reports from commercial fishermen on fishing violations.
This evidence is sufficient to meet the requirements at SG80. Insufficient evidence is available to demonstrate that all measures are being implemented successfully to meet SG100.

References

Yermolin, (2014); Yermolin & Belyanin, (2015); Zobkov, (2015); Belyanin (2018)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to **identify** the key elements of the ecosystem.	Information is adequate to **broadly understand** the key elements of the ecosystem.	
	Met?	**Yes**	**Yes**	
Rationale				

Prior to the construction of the Irikla Reservoir, the Ural River had been monitored to provide an understanding of the underlying riverine system and surrounding ecosystem. More recently, the Saratov Research Institute conducts routine monitoring and evaluation of various biotic and abiotic components of the Irikla Reservoir (e.g. water pH, temperature, level of primary production, fish abundance and biodiversity) that provides sufficient information to broadly understand the key elements of the ecosystem. This meets the requirements at SG80.

b	Investigation of UoA impacts			
	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but **have not been investigated** in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and **some have been investigated in detail**.	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and **have been investigated in detail**.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The level of fish removals (both RAC and TAC species) are routinely monitored and evaluated by the Saratov Research Institute. Quotas are set to subject to precautionary management levels (lower 95% CI) to prevent over-exploitation of all main commercial species and monitored by fish processors and the research institute. Changes in the status of stock biomass can be monitored through time to understand the main impacts of the fishery on fish abundance. In addition to commercial fish species, information is collected on the main bycatch and ETP species. Some of the impacts, such as loss of illegal fishing gear have been investigated in detail. This is sufficient to meet both SG60 and SG80.

Limited or no information is available to demonstrate that the 'main interactions' between the fishery and the ecosystem elements have been investigated in detail such that the fishery is capable of adaptive management to environmental changes as well as managing the effect of the fishery on the ecosystem. The fishery does not meet the requirements to score SG100.

c	Understanding of component functions			
	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are **known**.	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are **understood**.
	Met?		**Yes**	**No**
Rationale				

A broad level of information and knowledge is available on the main functions of the Components of the ecosystem. This includes the trophic level of each commercial finfish species and the vulnerability of main bycatch and ETP

species. Knowledge is available on the distribution of main habitat types and the location of finfish spawning areas and essential habitat for ETP species (birds). The impacts of the fishery on some Components are also known, although this is not comprehensive. This is deemed sufficient to meet the requirements at SG80. Limited information was available on the definition and function of all known ETP species within the region to demonstrate sufficient evidence to meet SG100.

	Information relevance			
d	Guide post		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components **and elements** to allow the main consequences for the ecosystem to be inferred.
	Met?		**Yes**	**No**
Rationale				

Historical monitoring and research of the Irikla Reservoir has been undertaken since its formation in 1960s. More recently, detailed information has been collected on the extent of bird bycatch and ETP species impacted by the fishery. In addition to monitoring the main Components of the reservoir, a range of bio-chemical and other related analyses are regularly evaluated to determine changes in the health of the ecosystem, including water clarity, pH levels, temperature and level of primary production, for example.

There is sufficient information available to meet the requirements at SG80 but not to demonstrate the impacts of the fishery on both the main Components and elements of the fishery to meet SG100.

	Monitoring			
e	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	Met?		**Yes**	**No**
Rationale				

Data continue to be collected on the outcome indicator for the Components of the ecosystem described for each monitoring and information PI (described above) is deemed sufficient to detect any increase in risk level to the ecosystem.

Routine monitoring and research by the Saratov Research Institute is ongoing and data continue to be collected on the reservoir suitable to support the development of strategies to manage ecosystem impacts. This includes for example, information on the distribution and abundance of Pallas's gull that has enabled spatial closures in the reservoir to protect vulnerable species.

The comprehensive range of bio-chemical analyses has helped to identify the likely cause of fish kills reported in one area of the Irikla Reservoir during 2012. The level of ongoing information and data collected is deemed sufficient to meet the requirements at SG80.

Without evidence of information and ongoing monitoring on the distribution of habitat types over their range, with particular attention to the occurrence of vulnerable habitat types, the fishery does meet SG100.

References

Isaev & Karpov, (1980); Voronin, (2007); Yermolin, (2014); Shvetsov, pers. comm., (2015); Belyanin (2018)

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**

Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

7.4 Principle 3

7.4.1 Principle 3 background

The CAB shall include in the report a summary of the UoA and the fishery-specific management system based on the topics below, referencing electronic or other documents used including:

- Area of operation of the UoA and under which jurisdiction it falls (see also point 2 below).
- Particulars of the recognised groups with interests in the UoA.
- Details of consultations leading to the formulation of the management plan.
- Arrangements for on-going consultations with interest groups.
- Details of other non-MSC fishery users or activities, which could affect the UoA, and arrangements for liaison and co-ordination.
- Details of the decision-making process or processes, including the recognised participants.
- Objectives for the fishery (referring to any or all of the following if relevant):
    - Resource
    - Environmental
    - Biodiversity and ecological
    - Technological
    - Social
    - Economic
- An outline of the fleet types or fishing categories participating in the fishery.
- Details of those individuals or groups granted rights of access to the fishery and particulars of the nature of those rights.
- Description of the measures agreed upon for the regulation of fishing in order to meet the objectives within a specified period. These may include general and specific measures, precautionary measures, contingency plans, mechanisms for emergency decisions, etc.
- Particulars of arrangements and responsibilities for monitoring, control and surveillance and enforcement.
- Details of any planned education and training for interest groups.
- Date of the next review and audit of the management plan.

Some of the above may be of a generic nature and hence be dealt with in the general rules of fishing (e.g. a national fishery legislation), in which case these can be referred to in the plan, without repeating all the details. However, specific points or detail may be required for specific fisheries.

The CAB shall indicate in the report which combination of jurisdictional categories apply to the management system of the UoA, including consideration of formal, informal and/or traditional management systems when assessing performance of UoAs under Principle 3, including:

- Single jurisdiction
- Single jurisdiction with indigenous component
- Shared stocks
- Straddling stocks
- Stocks of highly migratory species (HMS)
- Stocks of discrete high seas non-HMS

The CAB shall provide any information used as supporting rationale in the scoring tables.

Reference(s): Fisheries Standard v2.01

7.4.2 Particulars of the recognised groups with interests in the fishery

All freshwater fisheries within the Russian Federation fall under the management of the Federal Agency for Fishery (Rosrybolovstvo / Росрыболовство)[14] an Agency of the Ministry of Agriculture of the Russian Federation[15]. The Federal Agency for Fishery is a federal executive body created by Decree of the President of the Russian Federation of 12.05.2008 № 724 by converting a pre-existing Russian State Committee for Fisheries, Resolution of the Government of the Russian Federation of 11.06.2008 № 444 approved the Regulations on the Federal Agency for Fisheries, in accordance with claim 12 of the Decree of the President of the Russian Federation of 21.05.2012, № 636 "On the structure of federal executive bodies" Federal Fisheries Agency under the Ministry of Agriculture of the Russian Federation.

[14] http://government.ru/en/department/243/
[15] http://www.mcx.ru

The Federal Fisheries Agency (Rosrybolovstvo) is a federal executive authority responsible for:

- The federal state control (supervision) in the field of fisheries and conservation of aquatic biological resources in the inland waters of the Russian Federation, with the exception of internal sea waters of the Russian Federation, as well as the Caspian and Azov seas to determine their status, state supervision of merchant shipping in terms of safety swimming fishing vessels in the fishing areas in the implementation of fisheries;
- Public service, management of state property in the area of fisheries management, conservation and sustainable use, study, conservation and reproduction of aquatic biological resources and their habitats, as well as fish farming (aquaculture), commercial fish farming, production of fish and other products from aquatic biological resources to ensure safe navigation of fishing vessels and rescue operations in the fishing areas in the implementation of fisheries, as well as in industrial activity in the courts of the fishing fleet and sea ports for marine terminals designed for complex service of fishing vessels.

Federal Fisheries Agency has exercised the authority established by the legislation of the Russian Federation cases in the Russian Federation, in the exclusive economic zone and continental shelf of the Russian Federation, as well as in cases stipulated by international treaties of the Russian Federation in foreign countries and in the open ocean.

Additionally, at a regional level, individual Russian States (e.g. Orenburg) may adopt additional laws subservient to the federal laws and regional or state research bodies may conduct additional research. Subordinate organisations of the Federal Agency for Fishery of relevance to the Irikla Reservoir fishery include the FGBU, Territorial Administration "Kama-Ural Basin Directorate for Fisheries and Conservation of Aquatic Biological Resources" (“KamUralRybvod”) and the Saratov branch of FGBNU "-VNIRO", Russian Federal “Research State Scientific Institute on of Fisheries and Oceanography" (earlier Saratov branch of FGBNU "GosNIORKh", Federal State Scientific Institution "State Research Institute of Lake and River Fisheries").

The legal framework for fishing on the reservoir is implemented through the Federal Law and District Regulations issued for each catchment area. The applicable rules for the Irikla Reservoir are the “Rules for fisheries of the Volga-Caspian basin” (2009) of November 18, 2014 (with amendments and additions of May 26, 2015; January 12 and April 19, 2016; July 27, 2017; April 18 and November 6, 2018). The rules are well defined and are summarised below:

1. Russian legal entities, individual entrepreneurs and citizens engaged in fishing in the Caspian Sea and inland waters, the fisheries.
2. Foreign legal entities and citizens engaged in fishing activities in accordance with the laws of the Russian Federation and international treaties of the Russian Federation.
3. The Volga-Caspian fisheries basin is subdivided into the Northern and Southern fisheries regions, separated by a conventional line running along the dam of the Volga Hydroelectric Power Plant (Volgograd city).
4. Rules governing fisheries production (catch) in order to implement the commercial fisheries in coastal fisheries, fisheries research and control purposes, fisheries training and cultural and educational purposes, fishing to fish farming, reproduction of aquatic biological resources and acclimatization, amateur and sport fishing.
5. Types of permitted fisheries, including caviar production, as well as the parameters and terms of permitted fisheries, restrictions on fishing and other activities related to the use of living aquatic resources, related to fisheries, including the prohibition of fishing in certain areas and for certain species of living aquatic resources; the minimum size of produced (harvested) of living aquatic resources, the mesh size of fishing gear, valid bycatch of some species, periods of fishing established in accordance with federal laws, restrictions, requirements for the conservation of living aquatic resources assigned to objects in the fisheries, including the responsibilities of users implementing extraction (catching) of aquatic biological resources, the list of documents required for users to implement the fisheries requirements users engaged in extraction (catching) of living aquatic resources, daily rate of extraction (catching) of aquatic biological resources (by number, by weight) of a certain species, allowed to a citizen for extraction (catching) in the implementation of recreational fishing.
6. The implementation of fisheries research and monitoring, training purposes and for fish farming, reproduction of water bio-resources and acclimatization, catch of aquatic biological resources mining areas (catch), time (periods of) production (catch), the instruments and means of production (catch), species, sex and size composition of catches of fishery. Tools and methods of fishing areas and time production (catch) water bio-resources, species, sex and size composition of catches for these objectives are established scientific programmes, plans of work in production (catch) of water bio-resources for training purposes, as well as the programmes of work on artificial reproduction and acclimatization of aquatic biological resources.
7. If the international treaties of the Russian Federation in the field of Fisheries and the conservation of living aquatic resources, establish regulations other than the fishing rules, these rules shall apply to international treaties.
8. In order to maintain those species listed in the Red data book of the Russian Federation and/or the Red Book of the Russian Federation the extraction (catch) of endangered species is prohibited. In exceptional cases,

extraction (catching) of rare and almost endangered species of aquatic biological resources is allowed under permissions for extraction (catching) of aquatic biological resources in order established by the Government of the Russian Federation (Federal law from December 20, 2004 No. 166-FZ "on fisheries and the conservation of water biological resources ", art. 27 (collection of laws of the Russian Federation, 2004, no. 52 (part 1), art. 5270; 2006, N 1, art. 10. N 23, art. 2380; No. 52 (part 1), art. 5498; 2007, N 1 (part 1), art. 23; N 17, art. 1933; N 50, art. 6246; 2008, no. 49, St. 5748)). II. Requirements for the conservation of living aquatic resources assigned to the fisheries.

9. The right to production (catch) on aquatic resources is conferred on the basis of agreements and decisions established by the Federal law of 20 December 2004 N 166-FZ "on fisheries and the conservation of aquatic biological resources "(Federal law of December 20, 2004 No. 166-FZ "on fisheries and the conservation of aquatic biological resources", HL. 3.1)).
10. The types of fishing referred to in paragraph 3 of the fishing regulations (with the exception of the amateur and sport fisheries), members may carry out fishing in amounts not exceeding the amounts specified for individual types of water bio-resources and mining areas (catches) and/or fishing sites in the permits to mine(yield) of living aquatic resources; provide a separate accounting of catch, specifying the weight (size) of the balance of species in the catch, fishing gear and catch (district, sub-district, fishing area, square) in the fishing log and other records; lead documentation reflecting the daily extraction activities (catching) of water bio-resources: logbook, and in implementing the processing of water bio-resources-log verification products (history of technology. The territorial authorities are of Rosrybolovstva with information about the production (capture) of aquatic biological resources of production (catch) provided not later than the 18th and 3rd day of each month as of the 15th and the last day of the month - when fishing is carried out on ships submitting ship daily reports monthly with documentation reflecting the daily catch.
11. The implementation of the amateur and sport fishery: the holding of sports events in the field of fisheries is subject to the rules of the fishery; at fishing sites and an organization not) amateur sports fisheries-citizens must obtain the consent of the user in the fisheries sector; where provided for the Organization of recreational and sport fisheries-citizens must contract for service someone with a contract regarding the provision of fishing the plot for this type of fishing (hereinafter permit production (catch) of aquatic biological resources). Again, the territorial authorities of Rosrybolovstvo the information about the production (capture) of aquatic biological resources of production (catch) should be provided monthly with documentation reflecting the daily catch. In organizing recreational and sport fishing under the agreement granting fishing site for extraction (yield) of living aquatic resources users: produce the issuance of mining permits to citizens (capture) of water life within fixed quotas for the specified the fishing area; provide a separate accounting for the types, volumes and production sites (catches) of aquatic biological resources in fisheries journal. Again, the territorial authorities of Rosrybolovstvo the information about the production (capture) of aquatic biological resources of production (catch) should be provided monthly with documentation reflecting the daily catch.
12. The citizens of the amateur and sport fishing provided for this purpose fishing sites must have the permit for extraction (catching) of living aquatic resources; Passport or another identification document.
13. Water users do not have the right to (1) carry out extraction (catching) of water bio-resources without the permission of the production (catch) of water bio-resources and without selected production (catch) quotas of water bio-resources, unless otherwise provided for by the legislation of the Russian Federation; in excess of the quota allocated to them production (catch) on areas of production (catch), types and volumes of water bio-resources the permitted bycatch; from ships and other vessels not registered in the established order and do not have clearly printed on the Board standard markings; using piercing gear, except for the amateur and sport fishing by using special pistols and shotguns (the Fisher boy);with the use of firearms (except production (catch) seals), pneumatic weapons, as well as explosive, toxic, drugs, electric shocks and other gear types prohibited by the legislation of the Russian Federation of fishing gear; stopping the oxygen in the water body; reducing the value of the fishery through the destruction of its water sources, and blocking the movement of water and reduction of the fishery value (catch) through dams, bridges, locks and other hydraulic structures less than 0.5 miles from waste collectors and less than 0.5 km of the intakes and ducts of power stations (with the exception of mining (catches) of aquatic biological resources in research and monitoring purposes); at no time and in no-production (catch) areas without the consent of users of fishery areas in the implementation of the amateur and sport fishery on the hatcheries, their shops and cages for growing points and fish-keeping at a distance of less than 0.5 km from ponds and waterways spawning-outgrown farms. Apart from fishing to fish farming, reproduction and acclimatization of living aquatic resources during periods of release of fish fry fish factories and for a period for 15 days in waterbodies fisheries values less than 0.5 km in all directions from the release, except for catching prey and invaluable species to prevent this valuable fish species of juvenile fish; to carry out underwater hunting during the spawning period, the mass and organized recreation of citizens, as well as apply means of spearfishing from shore or from floating equipment; the underwater hunt with aqualung and other self-contained breathing apparatus; to set fishing gear that would overlap more than 2/3 the width of the bed of the watercourse, and the reservoir, with a loose part should consist of the most the deep part of the river, set gear

in chessboard order; to use fishing gear from the water objects of the fisheries value, if gear if found to contain parasitic and/or infectious diseases that would threaten the water bio-resources and other resources of high value without first disinfecting the gear; set (anchor) and drift (gradual) gear, not to indicate their status by means of buoys or marking standard form; to discard extracted (recovered) catches, with the exception of the amateur and sport fishery, through the principle of "catch and release", as well as fish caught for fish breeding and reproduction.

14. No production (catch) of all types of aquatic biological resources are allowed throughout the year) near the lower pond at a distance of 1 km of the Iriklinskaya Hydroelectric Power Station.
15. No production (catch) of specific water bio-resources allowed as below:

    from 15 April to 15 June - all species of living aquatic resources;
    from 25 October to 25 November - for whitefish and vendace in Irikla Reservoir;
    from 15 December to 30 January - burbot; all water bodies of Orenburg; and
    from 1 December to 14 July and from 16 August to 14 September - crayfish.
16. The types of enforcement tools and methods of production (catch). In production (catch) of aquatic biological resources are applied to standard gear, manufactured in conformity with the technical documentation. Other tools and methods for fishing not provided for in should not be used.

Minimum retention sizes (cm) for species have been set as in Table 11.

Table 14. Minimum retention sizes (cm) by species and location in commercial fishery.

Species	Location [16]	Minimum retention size (cm)
Sterlet		42
Asp		40
Pike		32
Pikeperch		40
Bream		25
	Volgograd Reservoir	30
	(Orenburg region), except for Irikla Reservoir	28
	Iriklinskoye (Irikla) Reservoir	32
	Ivan′kovskoye Reservoir	10
	Galichskoye Lake	10
	Gorky Reservoir	30
	Cheboksary Reservoir	30
Carp		40
Silver carp		55
Whitefish	Irikla Reservoir	40
Vendace	Irikla Reservoir	24
Crayfish		10

When harvesting (catching) with large-scale mesh gears (depth trawls, flooding seines, fixed and flowing nets, traps), catch of aquatic biological resources less than the fishing size listed in Table 10 is not allowed in the following amounts: more than 40% of the total catch by number of fish species for which the fishing size has been established, in a single fishing operation (catch) - when fishing (catching) in all water bodies, excluding the Volgograd reservoir. When harvesting (catching) of aquatic resources with small-scale fishing gear, catch of aquatic biological resources less than the fishing size (by-catch of juvenile fish or individuals of less commercial size) is not allowed in the following amounts: more than 20% of the total catch of all fish species for one fishing operation (catch) - when fishing (catching) fish with seines, fixed and floating nets, traps and other allowed small-scale fishing gear. All by-catch of juvenile fish in excess of the permitted amount should be immediately released into their natural habitat with the least damage, with the appropriate entries in the logbook. At the same time, legal entities and entrepreneurs are obliged to: i) stop

[16] Entire Orenburg Province if not specified elsewhere.

(remove or put into a state that does not allow fishing, fishing gears targeted for extraction (catching) of aquatic biological resources in a given area or on a given fishing site; ii) send information about the actions taken to the territorial bodies of the Federal Agency for Fishery.

When recreational fishing is carried out in water bodies of the Orenburg region (including the Irikla reservoir), it is prohibited to catch fish less than the fishing size indicated in Table 12. The daily rate of catch (harvest) of aquatic biological resources for each citizen in recreational fishing is shown in Table 13.

Table 15. Minimum retention sizes (cm) by species and location in recreational fishery.

Species	Location[17]	Minimum retention size (cm)
Asp		30
Pike		32
Pikeperch		35
Bream	(Orenburg region), except for Irikla Reservoir	25
	Iriklinskoye (Irikla) Reservoir	32
Carp		30
Silver carp		55
Whitefish	Irikla Reservoir	40
Vendace	Irikla Reservoir	24
Crayfish		10

Table 16. The daily rate of catch (harvest) of aquatic biological resources for each citizen in the implementation of recreational fishing.

Name of aquatic resources	Daily catch rate
Bream	5 kg
Pike-perch	5 kg
Pike	5 kg
Catfish	1 individual
Carp	5 kg
Crayfish	50 individuals

The management system in place in Russia does not have an explicit environmental policy that refers directly to fisheries. In place of a specific policy a number of Federal laws and regulations are in place to protect the environment. The law “On Protection of the Environment” (2001) is very generalist set of principles that define protection of the wide range of environments and habitats found in the Russian Federation.
The law defines the quality of the environment as “the environment, which is characterized by physical, chemical, biological and other indicators and (or) their population:

- a good environment is the environment, a quality that ensures the sustainability of the natural ecological systems, natural and man-made objects;
- negative impact on the environment-the impact of economic and other activities, which lead to negative changes in the quality of the environment;
- natural resources-environmental components, natural objects and man-made objects that are used or could be used in the implementation of economic and other activity as a source of energy, food production and consumer items and have the customer value; and
- the use of natural resources, the exploitation of natural resources, integrate them into the economic turnover, including all kinds of effects on them in the process of economic and other activities”.

[17] Entire Orenburg Province if not specified elsewhere.

State environmental monitoring is carried out by the State authorities of the Russian Federation and the State bodies of the constituent entities of the Russian Federation. Relevant articles (to fishing in freshwater systems and the environment) are highlighted below.

Article 2: Legislation in the field of environmental protection

This defines how the environmental legislation is based on the Constitution of the Russian Federation and consists of this federal law, other federal laws, as well as the measures taken in accordance with other regulations of the Russian Federation, laws and other normative legal acts of the constituent entities of the Russian Federation. The federal law applies throughout the territory of the Russian Federation. Where cross-over occurs with the protection and rational use of natural resources, their preservation and restoration are governed by the international treaties of the Russian Federation, land, water, forest legislation, the law on mineral resources, fauna, other legislation in the field of environmental protection and natural resources management.

Article 3: The basic principles of environmental protection

Economic and other activity of bodies of State power of the Russian Federation, bodies of State power of the constituent entities of the Russian Federation, bodies of local self-government, legal and natural persons, which impact on the environment should be carried out on the basis of the following principles:

- science-based combination of environmental, economic and social interests of a person, society and the State in order to ensure sustainable development and a healthy environment;
- the protection, reproduction and rational use of natural resources as necessary conditions for ensuring an enabling environment and environmental safety;
- the presumption of the environmental hazard of the proposed economic or other activity;
- priority of preservation of natural ecological systems, natural landscapes and natural systems;
- to reduce the negative impact of economic and other activities on the environment in accordance with the regulations in the field of environmental protection, which can be achieved through the use of best available technology, taking into account economic and social factors; and
- conservation of biological diversity.

Under Article 5 “The powers of State authorities of the Russian Federation in the sphere of relations connected with the protection of the environment”, the law establishes the procedure for State monitoring of environment (State environmental monitoring), the formation of a State system for environmental monitoring and maintaining the system and the organization and conduct of the State ecological expertise and allows for the economic assessment of the impact of economic and other activity on the environment (i.e. fishing). Article 6 confers powers on the State organisations to implement federal laws and enact their own State legislation in the field of environmental protection and establishing standards (higher than the Federal level) where required as well as the economic evaluation defined in Article 5.
Article 11 allows for the creation of public associations, foundations and other non-profit organizations engaged in activities in the field of environmental protection by citizens. At the time of preparation of this report no associations, foundations or NGOs related specifically to the environment around the reservoir were known to exist.
Article 15 defines how federal programmes in the area of environmental development and environmental protection can be implemented. These should be based on the proposals of citizens and public associations. Legal entities and individual entrepreneurs engaged in economic activity (e.g. fishing) and other activities, with negative effects on the environment are required to plan, develop and implement environmental protection measures in accordance with the legislation. At this time there are no negative environmental impacts from the fishing conducted in the fishery under certification.
Articles 19, 20 and 21 define the standardization in the field of environmental protection that is employed throughout the Russian Federation and ensure that this is carried out in accordance with the procedure established by the Government of the Russian Federation to the required environmental quality standards. Article 22 defines the required standards for environmental impact assessments.
Article 26 defines the exceptions to standards of environment components which are established in accordance with the limitations of their retirement in order to preserve the natural and man-made objects, ensure the sustainability of natural ecological systems and prevent their degradation. These are determined by the law on mineral resources, land, water, forest legislation, the law on the animal world and other legislation in the field of environmental protection, natural resources management and in accordance with the requirements of environmental protection and reproduction of natural resources.
Article 60 provides for the protection of rare and endangered plants, animals and other organisms. In order to protect and account for rare and endangered species of plants, animals and other organisms the Russian Federation has established the “Red Book of the Russian Federation”. Species listed in the Red Books everywhere subject to seizure

of economic use. In order to preserve rare and endangered plants, animals and other organisms, activities are prohibited that would lead to a reduction in the size of these plants, animals and other organisms and degrading their habitat. The Orenburg State Red Book details a number of species of interest and these are detailed in 3.4.3 (page **Error! Bookmark not defined.**).
The organization and implementing legislation for the establishment of State environmental monitoring services is put forward in Article 60. State environmental monitoring is carried out in accordance with the legislation of the Russian Federation and laws of constituent entities of the Russian Federation in order to observe the State of the environment, including the State of the environment. The procedure for the organization and implementation of State environmental monitoring (State environmental monitoring) is established by the Government of the Russian Federation. Procedures for providing information on the State of the environment are regulated by law.
Article 70 of the law, provides for scientific research in the area of environmental protection that should be carried out by relevant research organisations in accordance with the Federal law on the science and State scientific and technical policy and article 73 for the training of managers and specialists in the field of environmental protection and ecological security ensuring that people in responsible positions such as the Executive Heads of the organizations and professionals responsible for decision-making in the implementation of economic and other activities which have or are likely to have a negative impact on the environment, should be trained in the field of environmental protection and ecological security. Managers and specialists in the field of environmental protection and ecological security decision makers in implementing economic and other activities which have or are likely to have a negative impact on the environment, also should be trained in accordance with the legislation.

7.4.3 Particulars of the recognised groups with interests in the fishery

Three recognised groups with interests in the fishery have been identified:

- The local fishing companies “Fish-ka” and “Volna”, their employees (47 fishers in July 2019 and approximately 70 employees of the fish processing plant) (Fish-ka, 17th October, 2018) and the local inhabitants of Energetik (population 7,600) where the fishing companies combined form the second largest single employer in the area.
- Recreational fishermen from Orenburg and adjacent provinces who fish around the reservoir. Recreational fishermen retain their catch and important food source for many of the fishers around the reservoir.
- Sport fishermen, purely “recreational” fishermen from the Orenburg Sport Fishing Club who compete in fishing competitions on the reservoir. NB: The sport fishermen in contrast to the recreational fishermen do not retain their catch but must release it alive and unharmed after it has been weighed and counted by the competition referees.

7.4.4 Details of consultations leading for the formulation of the management plan

Russian fisheries do not have formal fisheries management plans in the same way as many European or US fisheries would. The Federal Agency for Fisheries is the federally mandated organisation that is responsible for the control and management of fisheries and conservation of Russia’s inland waters, government services and state property management in fishing, the protection, sustainable use, study, preservation and reproduction of biological resources and their habitats, as well as fish farming (aquaculture), commercial fisheries, the production of fish and other products from biological resources.
Regulations issued by the Federal Agency for Fishery are published via the Agency website in a transparent manner available to all members of the public.[18]
There are also yearly public hearings in Orenburg before the fishing season commences that discuss the TAC / RAC allocations along with meetings of the Public Council under the Ministry of Forestry and Hunting of the Orenburg Region (Yermolin & Belyanin, 2015). There is therefore a review process that is both external and independent to the Federal Agency for Fisheries.

7.4.5 Arrangements for ongoing consultation with interest groups

Only the two commercial fishing companies undergoing MSC certification scope extension are licensed to operate commercially on the reservoir. There is a close cooperation between these companies and the Federal Agency for Fishery and the Saratov Research Institute to enable fast, transparent and efficient provision of commercial and scientific data to enable stock assessment to be conducted in the most efficient manner.

There is a close relationship between the fishing companies “Fish-ka” and “Volna” and the local government officials. The Head of the Local Administration, interviewed during the site visit in October, 2014, indicated the fishing companies were the second and third biggest employers in Energetik and the long-term sustainability and cooperation

[18] http://www.fish.gov.ru/lawbase/Pages/default.aspx

to manage the fishery was important. It was also noted that the local administration has a good relationship with the recreational and sports fishers that they also see as important sources of revenue and food to the region.

Local businesses have been setup within the recreational fisheries sector with fishing rights. These companies as part of their access rights have responsibilities to take care of the shoreline and that visiting fishers remove their waste and do not cause additional environmental damage.

Meetings with fisheries stakeholders are conducted with the Ministry of Forestry and Hunting of the Orenburg Province four times each year. Reports of these meetings are transparent and are published on the Ministry website. Following on from these meetings a local fisheries council has been created. All documents from the Fishery Council will be published to allow transparent discussion of all the issues.

The fisheries council membership will include:

- Local branch of the Federal Agency for Fishery;
- Commercial fishing industry (Fish-ka Ltd and Volna Ltd);
- Fish processing industry (Fish-ka);
- Saratov Research Institute; and
- Orenburg Sport Fishing Club.

It has been proposed by the commercial fishing industry that the recreational fishery should be represented to ensure effective conflict resolution and the Ministry has been positive in this respect.

Ongoing consultations relating to disputes between fishers and other groups are negligible. Access to the reservoir is organised for recreational and sports fishers and conflicts are now not as common as in the previous situations where an open situation existed. Now all fishers should be licensed and have to rent a fixed parcel of shoreline. This has removed most of the conflict from the fishery. In extreme cases of conflict where official written complaints have been received then the Ministry may respond directly and where required face-to-face discussions or formal hearings may be held with representatives of the Ministry present as mediators where opportunity for discussion and interaction between parties is possible. The last serious conflict dated 2013 between fishers related to the assigning of fishing parcels to the commercial companies who are the only licence holders allowed to use nets with recreational and sports fishers restricted to rod and line only. Some recreational fishers had been noted illegally using nets and a complaint was raised by the commercial sector. A meeting was called to discuss the issue and was attended by 120 recreational fishers. The legal situation and entitlements of each sector were clearly outlined to the recreational sector.

7.4.6 Details of non-fishery users or activities, which could affect the fishery, and arrangements for liaison and co-ordination

The primary use of the reservoir is for water management, providing water for downstream settlements and control of flow, avoiding flooding through effective control and not for fisheries. This has been recognised, although the variation in water management is such that it has been shown not to adversely affect the reproductive potential of the pikeperch fishery as the water level is maintained at a level where the breeding and feeding areas for pikeperch are not impacted greatly as they can inhabit the depth range of the entire reservoir. Some shallow areas that may create pools in periods when water has been drained, trapping fish and exposing them to higher temperatures and potential anoxic conditions, are targeted by the management authorities and the sand bars blocking off the pools from the main body of the reservoir are removed (Alexander Zobkov, pers. comm. during stakeholder interview in October 2014).

Planning for the water management of reservoir is conducted by the Federal Enterprise for the Exploitation of the Irikla Reservoir. The Enterprise's Council conduct planning for the water basin from Orenburg and management is conducted primarily through the control of output. The main aim is to manage water level control of the reservoir to provide water in a controlled flow for downstream settlements. This usually results in an increased level of discharge during the summer months with a filling of the reservoir during the other months of the year. Water is released from the bottom of the reservoir first in spring. Flooding is avoided through hydrodynamic forecasting in the spring, with an 85% forecasting success rate. There is also a target level of water required in the reservoir in spring before water starts to be released at a higher rate to ensure levels are maintained during the summer months. (See Figure 15). In recent years, significant discharges of water level in the spring period is not observed, which causes a smoothed water regime in the reservoir. The Saratov Research Institute considers stability of stock status for main commercial species has been due mainly to improved management of water levels within the reservoir in addition to regulation of catches through TAC/RAC (Ilia Belyanin, 15th May, 2018; 18th October, 2018).

There is currently a plan in place to increase the overall depth of the Irikla Reservoir by 1m to increase the flow of downstream water to Kazakhstan based on discussions between the Russian Federation and Kazakhstan. The draw-down of water has been shown to have no effect on the spawning of pikeperch during the periods of reducing water levels, although it may affect other species in the reservoir. Pikeperch in particular spawn in deeper water and are not

affected. There is no navigation of large vessels on the reservoir or Ural River making easier control of the waterbody and reduce any effects on the fishery through disturbance.

The decision-making process or processes include the recognised participants. Key information is collected but the different organisations involved in data collected work together so as to avoid duplication. Results are collected and forwarded to the relevant body for analysis regardless of which organisation collects the data. The police can get involved in the legal process when necessary. There is clear cooperation between management and research agencies with both industry, recreational and sports fisheries on data collection, for the fishery (P1) and environmental aspects (P2). The sports fishers are utilised by the management authorities as surveillance assets reporting on illegal fishing on the reservoir (Alexander Zobkov, pers. comm. during stakeholder interview in October 2014).

It should be noted that for political and security reasons areas around the dam and outlet of the Irikla Reservoir are protected and are not open for fisheries (Rules for fisheries of the Volga-Caspian basin, 2014). Figure 16 notes that parcels 1, 7, 8 and 9 are also closed “not to prevent reproduction”. Biologically these areas are important for coregonids which use these areas as refuges during hot periods because the depth is at a maximum in the reservoir and temperatures are minimal.

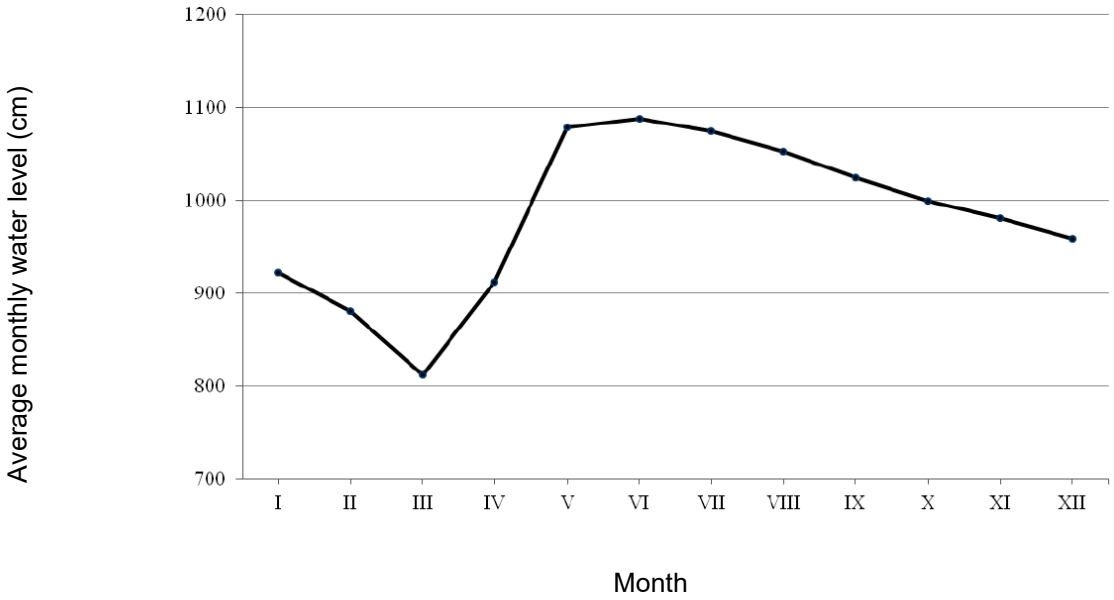

Figure 15. Average monthly water levels (cm) - Irikla Reservoir (1961 - 2010).

Source: Saratov Research Institute.

7.4.7 Objectives for the fishery

Fishing is conducted in a very simple manner with individual fishermen operating from small single engine boats (see Figure 6 for an example of the type of boat used). The fishing gear is restricted to specific gillnets of mesh size 50-70 mm and are deployed and retrieved from the fishing boats associated with both Fish-ka and Volna. Fish-ka collect fish from registered fishermen working in local fishing sites known as “parcels” by small boat, whereas fish caught in parcels further afield are now collected by each company by road and transported to Volna facilities via a new ferry crossing. The new ferry crossing has reduced access time to each parcel and also increased the fish quality. The collected fish are sorted into (i) MSC certified perch and pikeperch, (ii) non-MSC certified large perch and all other species, which are distributed to Fish-ka and Volna processing facilities respectively.

The fishery operates under a single jurisdiction with no indigenous component although rights for local recreational fishers are recognised. There are no shared, straddling or highly migratory stocks.

Commercial fishing rights have been granted to a limited number of companies (Fish-ka and Volna), which in turn grant rights to individual fishermen. These fishing rights are issued on a ten-year basis, and current agreements are in place for twenty years. This generates a clear incentive for licence holders to practice sustainable fishing practices. An application was made in May 2018 to extend the current system of fishing opportunities for quota species (i.e. TAC species) for Fish-ka and Volna until 2030. Fish-ka explained this can then be extended for an additional 15 years (up to 2045) (Fish-ka, 15th May, 2018). The fishermen are not company employees but are contracted to fish and supply their catch to the company for processing.
At the time of scope extension report preparation only six of the nine parcels have been allocated to the companies (Parcels 2, 3, 4, 5, 6 and 7) (see Figure 16 for details), with parcels 1 (northern most), , 8 and 9 (southern-most near

the dam) not open to commercial fishing. Of these six parcels, three have been allocated to Volna and three to Fish-ka. This includes Suunduk Bay fishing parcel (No. 7) that has recently been allocated to Fish-ka. While since 1 January 2019 there is a Federal Law to introduce a single fishing parcel in the waterbody, this requires subordinate laws at a regional level that have not yet been approved. This includes re-structuring the current system of six individual parcels with individual quotas into a single parcel for the entire reservoir. Commercial fishing will then have access to all areas, with the likely exception of the narrow area immediately adjacent to the Irikla dam. Given that some individual parcel quotas for several species are fully utilised in each season while other quotas in more remote parcels are not, the existing management system acts to constrain the volume of caught and prevents the TAC or RAC from being taken. By giving access to fishermen across the entire reservoir it is expected that total catches will increase and enable more of the quotas to be taken (Fish-ka, 15th May, 2018).

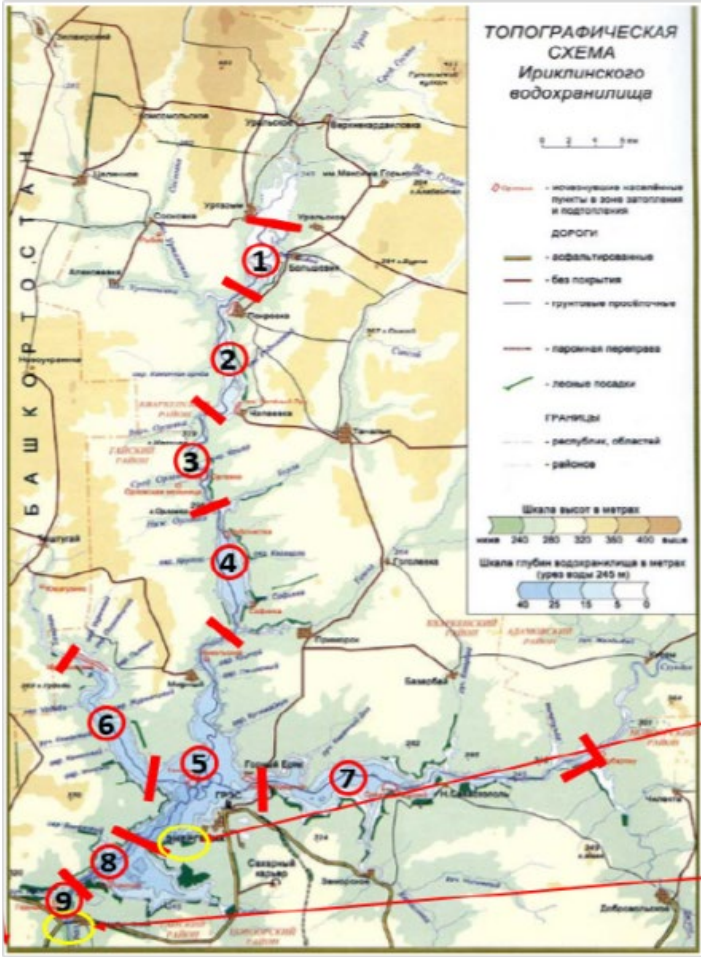

Figure 16. Irikla Reservoir showing the 9 fishing parcels.

Source: Anon. (2014)

7.4.8 Description of measures agreed for the regulation of fishing

The management of the commercial pike-perch fishery includes a wide variety of technical measures available within Russian fisheries management systems to ensure the objectives of the fishery can be met. These include gear restrictions, closed seasons, closed areas and quotas (both catch and effort limiting). The bulk of commercially sized pike-perch harvest is caught using large-mesh nets (50-70 mm). The simplest operational rules imposed by the fishing companies themselves, not by any management body is the limit on gear size limiting the small-mesh gillnets to between 30 and 36 mm to ensure the minimisation of bycatch of species other than perch (including pike-perch) and nets are set several metres deep to reduce incidental mortality. A closed season exists in the fishery between 15/04 and 15/06 annually to protect spring-spawning fish and another closed season between 25/10 and 25/11 annually to protect spawning coregonids. Since 2014 certain rules have changed to permit use of motor boats for recreational purposes during the main spawning period (15th April – 15th June). These boats, however, must not be used for fishing (commercial or recreational), but for tourist-related activities only. To date there have been no reported incidents of non-compliance (Alexander Zobkov, 15th May, 2018). Closed areas are also used as a management tool, in addition to the four fishing parcels not allocated for commercial fishing, but also for the protection of ETP species. For example, a 5 km exclusion zone for fishing has been put in place around the colony of Pallas's gull (*Larus ichthyaetus*)

in the south-eastern part of the reservoir (see section 3.4.3 for details).

Quotas are also set in terms of effort due to the limited number of licences and fishermen contracted by the fishing companies and by catch as the MSC-certified pikeperch fishery in the Irikla Reservoir is subject to a Total Allocated Catch (TAC) and pike-perch is subject to a Total Allowable Catch calculated annually. Fishermen use different coloured fish boxes for MSC (blue) and non-MSC fish (yellow). This system continues to work well and fishermen carry both boxes at all times.

Fishing rules determine the minimum fishing size for a number of fish species (including perch and pikeperch). For the amateur fishermen, the rate of catch per person per day has been introduced since 2018 (for example, a pikeperch can catch no more than 5 kg).

In season regulation of the fishery does not in general require mechanisms for emergency decisions. The fishery relative to other assessed fisheries is small in size, number of actors and the management process is relatively much simpler and therefore quicker to react. With the only companies operating in the commercial fishery being part of the unit under assessment changes to or cessation of fishing can be implemented within a day.

7.4.9 Particulars of arrangements and responsibilities for monitoring, control and surveillance and enforcement

Fishing in the reservoir is allowed through the Federal Law and District Regulations issued for each catchment area. These regulations define the gear types that are allowed to be used within each region, including mesh sizes, hook sizes etc. There may also be bans put in place on a regional basis to enforce species, spatial or temporal restrictions on fishing, e.g. there is a ban in the Irikla Reservoir on whitefish and vendace fishing between 15th October and 15th November annually to protect spawning.

It was noted during discussions with the local inspectors of the Territorial Branch of the FFA, who are responsible for fisheries inspections in Russia, that the commercial, recreational and sports fisheries were strictly monitored and regulated with very low levels of IUU. Illegal fishing was recorded at higher levels in the fishery before 2009. In this period, over sixty commercial licences were issued leading to greater conflict and competition between licence holders. Now only the two MSC-certified companies are licensed with clear allocation of fishing parcels to individual fishers within the company. Illegal operations are therefore much easier to detect. According to the Head of the Department of state control, supervision and protection of aquatic biological resources of the Orenburg province, only six illegal gillnets have been confiscated from the reservoir in 2018 (Alexander Zobkov, 15th May, 2018). However, by re-structuring the current system of 7 individual parcels with individual quotas into a single parcel for the entire reservoir and by giving access to fishermen across the entire reservoir it is expected that internal control of companies over the situation in the reservoir may get worse. Currently there are three inspectors allocated to monitor the activities on the reservoir, (Zobkov, 2015; 2018) with the inspectors being active every day during the fishing season (with a further 5 in the wider administrative region), this is much lower than the number of inspectors before the breakup of the USSR when 35 inspectors would present in the region. It was indicated that an additional inspector was in the process of being recruited for the reservoir to bring the total to four (and 10 within the region)[19]. The enforcement capacity however is extended during critical phases e.g. spawning periods when the inspectors cooperate with the local police enabling them to double or treble the number of people enforcing the closed periods.

Two types of infringements / violations are recorded, minor and major. Minor infringements make up the majority by number with about 40% of these being environmental related infringements by fishers i.e. not directly related to their fishing activity (e.g. littering and shoreline damage). About 500 cases of violations per year are recorded through the mediation of voluntary assistants or through information coming from the Internet (Alexander Zobkov, 17th October, 2018). Major incidents are nearly all related to illegal fishing with gillnets. Currently the highest incidence of IUU fishing events on the reservoir is the absence of fishing permits for recreational fishers. Recreational fishers do not require a permit for hook and line fishing and this refers to recreational fishers targeting larger species with gillnets which is not permitted. Discussions with the inspectors who police the reservoir indicate that the commercial fishers are risk averse and actively work with the inspectors to help them identify and remove IUU fishing gear found in the reservoir. Specific violations associated with recreational fishermen - use of waders in shallow water during the main spawning period. Recreational fishermen are restricted to the bank of the reservoir, which under Russian law is defined as land only. Catching undersized fish by amateurs is another fairly common violation (Alexander Zobkov, 15th May, 2018; 17th October, 2018). A summary of the number of infringements and rates of fine and damages recovered are shown in Figure 17.

During interview, the responses and roles of inspectors and management were described[20]. There is a responsive management strategy to risks observed in the fishery. Each inspector is currently responsible to fixed zones within the reservoir. Plans are developed weekly for the areas they will inspect, including areas without commercial fishing

[19] Andrey Yermolaev, Orenburg Region, Federal Agency for Fisheries. Personal communication, 21st October, 2014.
[20] Alexander Zobkov (Head - Department of state control, supervision and protection of aquatic biological resources) Thursday 23rd October, 2014; Wednesday 17th October, 2018).

(as illegal fishing may occur outside these areas) but the inspectors remain flexible to react to information received. In addition, since 2015 there is a joint agreement between Fish-ka/Volna and Federal Agency for Fisheries (FAR) to conduct joint fisheries patrols. Under this agreement the fishing companies provide transport and fuel and the government provides fisheries inspectors. Members of Fish-ka/Volna do not have enforcement capabilities, but can assist FAR fisheries inspectors where necessary. The joint inspection patrols enable representatives from both fishing companies to join government inspection patrols across the Irikla Reservoir. In 2017 there were between 10 and 20 fisheries inspectors during the spawning period, including some representatives of the police, Ministry of Emergency Situations, Ministry of Forestry, National Guard, Cossacks and volunteers on board up to 16 patrol vessels. Since the beginning of 2018 there have been around 8-10 joint patrols over the whole reservoir. Reports from each patrol continue to be produced and can be used to show the level of compliance using the number of inspections and infringements detected (Alexander Zobkov, 15th May, 2018).

Given the scale and composition of fishing activities and the current levels of inspectors and flexibility in the system to use external agencies it is thought that the enforcement capacity should be more than sufficient to provide both an effective enforcement and deterrent capability. This is also shown in the gradual decrease over the last decade in the number of infringements detected (with constant enforcement levels) (see Figure 17). Further to this, of the total reported infringements between 2009 and 2017, less than 0.2% were detected from the commercial fisheries sector. The level of IUU fishing is now expected to have reduced. Previously the gear had not been confiscated by fisheries inspectors from fishermen that allowed them to continue their illegal activities. However, all illegal gear is now removed and with the decline in violations, more time is available to record the number of illegal activities (including minor violations). As a result, the data do not reflect an increase in the number of violations but simply that they are now being properly recorded. Furthermore, more attention is now being given to report less serious violations such as using multiple hooks etc.

The rate of detection of lost nets was previously very common, indicating a higher degree of illegal activity. Now all company employees are checked to ensure they do not conduct IUU fishing and all company nets are marked and registered. The number of detected lost nets has decreased. Since 2014, Fish-ka no longer purchase and distribute gillnets to fishermen. Instead, local fishermen are now responsible for obtaining and maintaining their own gear, which must comply with all regulations and is checked by a company's new Fisheries Department. Before the fishing season starts a search for lost nets in the water is now conducted before the annual survey fishing takes place and nets are now rarely found (Fish-ka, 2015; Alexander Zobkov, 15th May, 2018)

Sanctions are in place for offences in the form of fines and are considered appropriate for the level of offence committed. It was noted that the level of fines had increased recently. If earlier the penalty for one individual of illegally caught pike-perch and perch was 250 rubles and 17 rubles, respectively, then, in accordance with the decree of the Government of the Russian Federation dated November 3, 2018 No. 1321, the rate for one pike-perch was increased to 3305 rubles, and for perch - up to 250 rubles (regardless of size). Currently, according to the law, along with the confiscation of illegal fishing gear, it is also possible to confiscate other possessions such as their boat or car. This measure is also thought to contribute to the positive results at Irikla Reservoir. Reported violations in the Irikla Reservoir are now less serious, and are more related to administrative issues related to fishing permits etc. Inspectors can now also use video evidence and do not need to be there in person to satisfy the evidential requirements.

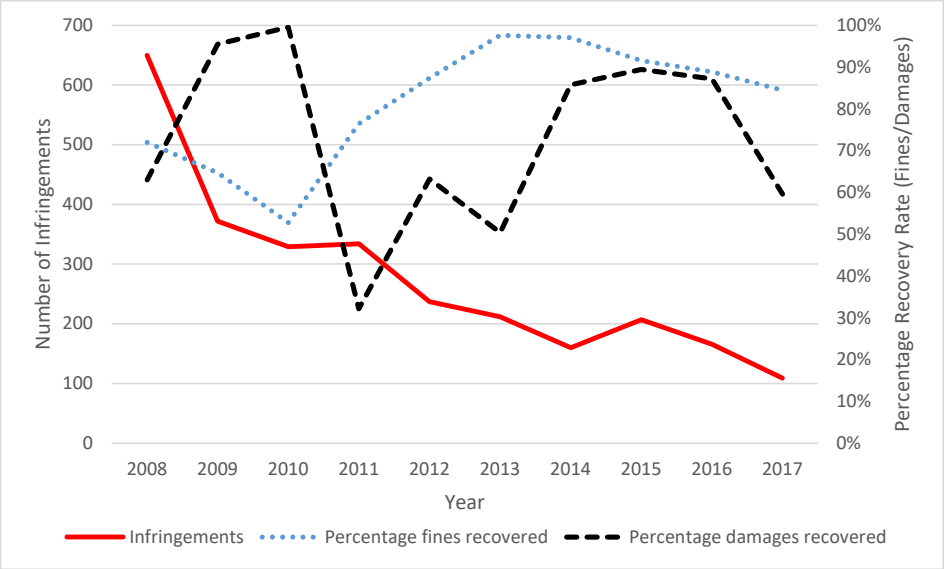

Figure 17. Reported infringements and rates of recovery of fines and damages, Irikla Reservoir (2008-2013).

NB: 2008 figures based on estimate from August – December only.

Source: Росрыболовство, (2015)

The media have been used to increase the deterrence affect and reduce poaching. Visits by the media to the sites of IUU fishing have been made showing the detention of illegal fishers which should increase the deterrent effect.

In terms of specific inspection evidence for incidental mortality or interaction with ETP species, approximately 10 birds annually have been identified in gillnets (Alexander Zobkov, 15th May, 2018). These have been identified as grebes which are not an ETP species but the recording and inspection results show that if there was any large-scale incidence of ETP species being caught that this would be detected given the level of inspection on the reservoir.

7.4.10 Details of any planned education and training for interest groups

No planned education and training for interest groups were highlighted during the MSC scope extension site visit. Due to the size and number of fishers and interested parties it is unlikely that formal programmes would be developed. In last year the interaction of the fish inspection with amateur fishermen has improved: according to Alexander Zobkov (Head of Department of state control, supervision and protection of aquatic biological resources in Orenburg province), he spoke three times at the online forum of recreational fishermen in 2018 explaining the rules of fishing and highlighting the inspection activities, which had a great response from the fishing community (Alexander Zobkov, 17th October, 2018). It was noted in that the companies with long-term rights in the fishery have invested in the education of their workers. This is not common practice in Russia and may be seen as being very progressive.

7.4.11 Date of next review and audit of the management plan

At the time of writing there is no formal management plan in place and therefore no plans for any audits of this plan.

7.4.12 Research plan

There is no single research plan, as typified in Europe and the US for the fishery, as is normal for Russian fisheries. KamUralRybvod's goal within the management of the reservoir is to increase fisheries productivity over the long-term in the reservoir.
KamUralRybvod implement a long-term data collection and monitoring programme on the reservoir, with annual data collection on the fish species, water composition, plankton populations and benthic condition of the lake in conjunction with the Saratov Research Institute. They collect the data jointly with the Saratov Research Institute, who are responsible for the analysis and publishing of the results. Although the data are not published on a regular basis in scientific journals, the scale of the fishery and the well-defined roles within the management system ensures that all interested parties are aware of the data available and that data can be obtained from the Saratov Research Institute.
The current immediate goal is linked to analysing the planktonic component of the reservoir ecosystem as the level of plankton is currently under-utilised and not fully exploited by commercial fish species in the reservoir. It has been proposed to increase the populations of existing species through artificial enhancement possibly through the addition of juveniles from an external source. It is thought that the introduced species will not breed due to lack of suitable conditions in the reservoir but would be able to grow and utilise the resources within the reservoir effectively. It is proposed that this introduction would also lead to the reduction in bacteria and anoxic sediment in the reservoir that could otherwise prove detrimental to other fish species.
A programme of activities exists with individual research projects within the programme being submitted to the higher-level Federal Agency for Fishery for approval, one year ahead of the planned implementation. In addition, a framework State programme covering the period up to 2020 also exists.
The IUU and recreational fishing remains a key source of uncertainty in the total catches of fish from the reservoir. It is expected that recreational fishing will increase in future. At the time of writing the report, two key information gaps have been identified as part of Condition 1 in MSC certification of perch fishery at Irikla Reservoir: improved non-commercial (recreational and IUU) catch statistics and continue to reduce poaching within the Irikla Reservoir. A research plan to meet specific requirements identified in the fishery has been developed. A report describing early implementation of the research plan (survey of recreational fishermen) was presented including further surveys planned for the remaining part of 2018.

7.4.13 Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and/or customary framework

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: - Is capable of delivering sustainability in the UoA(s); - Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and - Incorporates an appropriate dispute resolution framework		
Scoring Issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	Guide post	There is an effective national legal system **and a framework for cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2	There is an effective national legal system and **organised and effective cooperation** with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and **binding procedures governing cooperation with other parties** which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

An effective national legal system exists in Russia consistent with MSC Principles 1 and 2. There is a coordinated approach where management efforts are not duplicated. The Normative Framework of the Federal Agency for Fisheries outlines the framework and regulations. A framework for binding cooperation has been established for the different organisations involved in the management of the reservoir each with their own roles defined in the legislation. Where overlaps occur, e.g. in data collection, the organisations work together so as to avoid duplication (KamUralRyvbod and Saratov Research Institute / Inspectorate and Police). Results are collected and forwarded to the relevant body for analysis regardless of which organisation collects the data.

The police can and do become involved in the legal process when necessary. There is clear cooperation between management and research agencies with both industry, recreational and sports fisheries on data collection, for the fishery (P1) and environmental aspects (P2).

The recent State Fisheries Programme of the Russian Federation (2014) has as one of its stated objectives - “Ensuring the effective operation of the organs of State power in the fisheries complex and improved regulatory framework”.

The requirements at SG60, SG80 and SG100 are all met.

b	Resolution of disputes			
	Guide post	The management system incorporates or is subject by law to a **mechanism** for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes which is **considered to be effective** in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a **transparent mechanism** for the resolution of legal disputes that is appropriate to the context of the fishery and has been **tested and proven to be effective**.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective. A dispute resolution mechanism is built into the management system at two levels. The Russian Federal Agency for Fisheries

allows simple appeals to be made by all Russian citizens via their website and as a final resort disputes may end up in the Russian court system. See http://www.fish.gov.ru/obrashcheniya-grazhdan/napisat-obrashchenie

At a more local level when written complaints are submitted to the State Ministry, the Ministry may respond directly and where required face-to-face discussions or formal hearings may be held with representatives of the Ministry present as mediators where opportunity for discussion and interaction between parties is possible. This is appropriate to the context of the fishery but the mechanism in place has the result that disputes rarely reach this stage as they are successfully dealt with beforehand. Conflict has been rare in the fishery but when it has occurred there is clear evidence that positive outcomes can be achieved such as the setting of the fixed parcels for commercial fishing and meetings with recreational fisheries to discuss and explain the legal basis for the fisheries and how they would operate.

Therefore, the SG60, SG80 and SG100 guideposts are all met.

	Respect for rights			
c	Guide post	The management system has a mechanism to **generally respect** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **observe** the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to **formally commit** to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing. There are no indigenous people dependent upon fishing for pike-perch in the Irikla Reservoir for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. Rights for recreational fishing have been established for the local population. Any amateur fisherman is allowed to catch up to 5 kg of pikeperch every day.

The SG60, SG80 and SG100 guideposts are therefore all met.

References

Russian Federal Law on Fisheries and Protection of Aquatic Resources of 2004 (with Amendments – 6th Edition, March 2019).

Russian Federal Law on Protection of Environment (2001).

State Programme of the Russian Federation on the Development of Fisheries (2014).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.1.2 – Consultation, roles and responsibilities

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring Issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **generally understood**.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for key areas** of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are **explicitly defined and well understood for all areas** of responsibility and interaction.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Organisations and individuals involved in the management process have been clearly identified. The functions, roles and responsibilities of each organization are explicitly defined and well understood for all areas of responsibility and interaction with a clear annual cycle of data collection, analysis, well-defined decision-making processes and feedback to the fishers and related parties. All Russian fisheries management is organized through a single common coordinating authority the Federal Agency for Fisheries. Where overlaps could exist in the functions performed or requirements, e.g. data collection one organization will conduct the data collection but the results will be transparently shared amongst other parties to allow effective management.

As the organisations and individuals involved in the management process have all been clearly identified, their functions, roles and responsibilities are explicitly defined and are well understood for all areas of responsibility and interaction the SG60, SG80 and SG100 guideposts can all be considered as having been met.

b	Consultation processes			
	Guide post	The management system includes consultation processes that **obtain relevant information** from the main affected parties, including local knowledge, to inform the management system.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that **regularly seek and accept** relevant information, including local knowledge. The management system demonstrates consideration of the information and **explains how it is used or not used**.
	Met?	**Yes**	**Yes**	**Yes**
Rationale				

Organisations and individuals involved in the management process have been clearly identified. The functions, roles and responsibilities of each organization are explicitly defined and well understood for all areas of responsibility and interaction with a clear annual cycle of data collection, analysis, well-defined decision-making processes and feedback to the fishers and related parties. All Russian fisheries management is organized through a single common coordinating authority the Federal Agency for Fisheries. Where overlaps could exist in the functions performed or requirements, e.g. data collection one organization will conduct the data collection but the results will be transparently shared amongst other parties to allow effective management.

As the organisations and individuals involved in the management process have all been clearly identified, their functions, roles and responsibilities are explicitly defined and are well understood for all areas of responsibility and interaction the SG60, SG80 and SG100 guideposts can all be considered as having been met.

	Participation			
c	Guide post		The consultation process **provides opportunity** for all interested and affected parties to be involved.	The consultation process provides **opportunity and encouragement** for all interested and affected parties to be involved, and **facilitates** their effective engagement.
	Met?		**Yes**	**No**

Rationale

The consultation process provides opportunity for all affected parties to be represented through the Fisheries Council or through the local administration. The fisheries council is a recent introduction to the management system, meeting 4 times per year with transparent reporting through the Ministry and online. Therefore, there is a process for all parties to be involved (and meet SG80) but at the current time it cannot be shown that all interested and affected parties have been involved and it cannot be shown that this process has facilitated their effective engagement so the SG100 cannot be justified at this time.

References

Russian Federal Law on Fisheries and Protection of Aquatic Resources 2004 (with Amendments - Edition 6th March 2019).

Russian Federal Law on Protection of Environment (2001).

State Programme of the Russian Federation on the Development of Fisheries (2014).
Undocumented evidence of the establishment of the Fisheries Council.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Fisheries Standard, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are **implicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach are **explicit** within management policy.	**Clear** long-term objectives that guide decision-making, consistent with MSC Fisheries Standard and the precautionary approach, are **explicit** within **and required by** management policy.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The management policy has clear long-term objectives established in the legal and regulatory framework that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach are explicit within management policy. Although the precautionary approach is not incorporated formally into Russian fisheries legislation the implemented management strategy, quota allocation and harvest control rules set do incorporate a precautionary element. The Federal Fishing Law (2004) defines a number of key principles consistent with the MSC Principles and Criteria (conservation of biological resources for human use and maintenance of ecosystems). It was noted that the fishery is assessed and a Total Available Catch is defined annually with the required data collection and analysis for management implemented.

Evidence of long-term objectives in the management for long-term sustainability of the pike-perch and other reservoir species is therefore demonstrated and explicit within management policy and therefore the SG60 and SG80 guideposts have been met. This is further emphasized in the long-term allocation of fishing parcels to a small number of fishing companies who have demonstrated their long-term sustainable view of the fishery.

These objectives however are not required by management policy and therefore the SG100 guidepost has not been met.

References

Russian Federal Law on Fisheries and Protection of Aquatic Resources 2004 (with Amendments - Edition 6th March 2019).

Russian Federal Law on Protection of Environment (2001).

State Programme of the Russian Federation on the Development of Fisheries (2014).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.1 – Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2		
Scoring Issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	**Objectives**, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **implicit** within the fishery-specific management system.	**Short and long-term objectives**, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.	**Well defined and measurable short and long-term objectives**, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are **explicit** within the fishery-specific management system.
	Met?	**Yes**	**Yes**	**No**

Rationale

Long-term objectives consistent with the MSC's Principles 1 and 2 exist clearly within the management system. The introduction of long-term licences for the commercial fishery within the management system demonstrate a commitment to ensuring long term sustainability and planning. The reduction in the number of companies with an active interest in the commercial pikeperch fishery to the current two companies with MSC perch fishery certificate under scope extension process provides an indication of a longer-term view for a simplified management system. The current system for allocating these long-term licences is through a commercial bidding process, which ensures commitment to the fishery with indicators for contract approval requiring the companies to have processing facilities and staff on the reservoir and a clear financial payment schedule.
Short-term objectives within the management system are based around the annual quota management process established for target (pikeperch TACs) and other species (TAC and RAC managed). Quotas are reviewed annually based on surveys and clearly show an adaptive management system to current stock levels.

Therefore, the SG60 and SG80 guideposts can be shown to have been met. However, these cannot be defined as well defined (as they would be in a clear fisheries management plan) and therefore the SG100 guidepost has not been met.

References

Russian Federal Law on Fisheries and Protection of Aquatic Resources 2004 (with Amendments - Edition 6th March 2019).

Russian Federal Law on Protection of Environment (2001).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide post	There are **some** decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are **established** decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	**Yes**	**Yes**	
Rationale				

There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. These include the long-term allocation of resources to the commercial fishing companies, the small number of companies to which allocation of resources are issued allows companies to invest long-term in the fishery and engenders a culture of long-term sustainable use in the fishery.

The quota setting and allocation process involves an annual review of the quotas for the target and all other species (either TAC or RAC) caught in the fishery. This quota process includes uncertainty to reduce risk. These quotas are set to generate a level of removals that will maximize the catch from the fishery without a level of risk that would reduce the biomass.

There are in addition environmental decision making processes where fishery specific objectives can be modified such as the closed parcels to protect breeding grounds or closed areas to protect the areas around breeding colonies (e.g. Pallas' gull in Suunduksky Bay) that are based more on environmental restrictions rather than fisheries requirements that can be put in place and therefore the SG60 and SG80 guideposts have both been met.

b	Responsiveness of decision-making processes			
	Guide post	Decision-making processes respond to **serious issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to **serious and other important issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to **all issues** identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The fisheries surveys conducted at the start of each year on the fishery evaluate the size and composition of the target species in the reservoir. This information is then evaluated independently by a number of stock assessment scientists who calculate their estimates for the quota. The minimum level from these estimates is then used to define the short-term one-year quotas for each species that is allocated a total allowable catch (i.e. pikeperch) or a recommended allowable catch.

Environmental monitoring data are collected at a relatively high frequency and for a large number of parameters with year-round monitoring of the environment. This allows a timely response to any adverse factors when conditions require. Responses include actions such as the closure of parcels based on environmental issues, e.g. the closure of the parcel around the Pallas's gull colony to the southeast of the reservoir.

Consultation occurs with stakeholders through the fisheries council (4 times a year) in a transparent and timely manner. The small size and relatively simple complexity of the fishery means there is a high degree of cooperation between industry, science and management throughout the annual fishery cycle. The non-commercial sector (the sports and recreational fishers) have been invited to attend the Fisheries Council meetings. NGOs and public associations beyond those representing the sports and recreational fishers are not active in the Orenburg region. Although they would be allowed to be present at the Fisheries Council meetings, as far as can be determined none have shown an interest in attending.

The decision-making processes relating to the fishery respond to most issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner. The fishery therefore meets both the SG60 and SG80 guideposts. It is difficult to provide evidence for all the issues (for example, taking into account the volume of catch of amateur fishermen during the fishing season) and to take into account the wider implications of these decisions for all stakeholders, though there are very minor implications of these decisions outside of the immediate fishery. The fishery therefore would not score 100 for this element.

	Use of precautionary approach			
c	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		**Yes**	
Rationale				

Although it is not formally enshrined there is a precautionary approach applied to the quota allocation process. Best available information is used throughout the decision-making process. The amount of data available for the scale of the fishery is very good.

The fishery therefore would meet the requirements at SG80.

	Accountability and transparency of management system and decision-making process			
d	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	**Information on the fishery's performance and management action is available on request**, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders **provides comprehensive information on the fishery's performance and management actions** and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Information on fishery performance and management action is available on request (shown by the number of requests and responded to within initial MSC certification and this process). No lack of action has been observed.

As such we would recommend that the SG60 and SG80 have been met. However, as there is no formal reporting process to stakeholders beyond the fisheries council it cannot be shown that the SG100 guidepost has been met.

	Approach to disputes			
e	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating	The management system or fishery is attempting to comply in a timely fashion	The management system or fishery acts proactively to avoid legal disputes or rapidly

		a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	with judicial decisions arising from any legal challenges.	implements judicial decisions arising from legal challenges.
	Met?	**Yes**	**Yes**	**Yes**

Rationale

The management system or fishery has no current legal challenges against it. The management system also appears to proactively avoid legal disputes through a system of face to face discussions with stakeholders where necessary (e.g. with recreational fishers on allocation of fishing rights to commercial fishers). As there have been no judicial decisions necessary due to the lack of legal challenges it is unknown how quickly these would be dealt with by the Russian court system and therefore the SG60, SG80 and SG100 guideposts are all met and a score of 100 has been given.

References

See sections 3.5.2 and 3.5.4

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the management measures in the fishery are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	MCS implementation			
	Guide post	Monitoring, control and surveillance **mechanisms** exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance **system** has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A **comprehensive** monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	**Yes**	**Yes**	**No**
Rationale				

A monitoring, control and surveillance system appropriate to the size, scale and complexity of the commercial fishery has been implemented in the Irikla Reservoir, but this may be limited for the recreational fishery that has a larger number of fishers. The system, has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules. Therefore, the SG60 and SG80 guideposts have been met, but the comprehensive system is lacking in the monitoring of the recreational fishery during the fishing season, which may cause an excess of the TAC value of pikeperch at the end of the season. Therefore, at this time the SG100 guidepost cannot be shown to be met.

b	Sanctions			
	Guide post	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, **are consistently applied** and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and **demonstrably** provide effective deterrence.
	Met?	**Yes**	**Yes**	**No**
Rationale				

Sanctions to deal with non-compliance in the fishery exist. Fines have been recently increased more than 10 times (for example, the penalty for one illegally caught pikeperch increased from 250 to 3305 rubles). Sanctions also exist in the confiscations of fishing gear, boat, car and catch and provisions have also been introduced to allow the use of video evidence to allow the confiscation of fishing gear and not just first-person evidence from an inspector. These sanctions are sufficient for the size and scale of the fishery and are consistently applied. There has been a significant drop in the total number of recreational and commercial fishermen infringements, from 372 violations in 2009 to 109 in 2017. During this period, a total of 2,126 infringements have been reported, of which only 3 relate to commercial fishing activities in 2010 (2) and 2012 (1). It is reasonable to assume that these sanctions provide an effective deterrence.[21] The activities of fishery enforcement patrols have not declined, which supports the conclusion for decreasing infringements. Therefore, the SG60 and SG80 guideposts can be shown to be met. Some illegal activity is still continuing through the recreational fishery but there is some evidence that this is related to non-fisheries and more environmental aspects of the enforcement regime. It is not possible to demonstrably prove fully effective deterrence as a number of offences still occur within the fishery and therefore the SG100 guidepost has not been shown to be met.

c	Compliance

[21] Head of Department of State Control, supervision and protection of aquatic biological resources, Orenburg region of the Middle Territorial Administration of the Federal Agency for Fisheries. Interview date: 23rd October 2014
[20] Head of Department of State Control, supervision and protection of aquatic biological resources, Orenburg region of the Middle Territorial Administration of the Federal Agency for Fisheries. Interview date: 17th October 2018

	Guide post	Fishers are **generally thought** to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	**Some evidence exists** to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a **high degree of confidence** that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	**Yes**	**Yes**	**No**
Rationale				

There is clear evidence to demonstrate that the majority of fishers (primarily the industrial and sports fishers) comply with the regulations and laws setup to manage the fisheries of the Irikla Reservoir. There is clear evidence of the level of cooperation between the industrial fishery and the monitoring of the fishery. Good catch and biological data are provided from the two companies being assessed to allow the management of the fishery (e.g. catch composition, catch (vs. quota) and environmental data (e.g. 100% reporting of the incidental mortality of birds)). The sports fishery is managed on a catch and release basis and therefore catch data are not reported as such. The recreational fishery is by its nature prone to a lower reporting rate of catch and other data. Although the catch of the target species (pikeperch) is lower in the recreational fishery the estimates based on the limited data collection from this fishery mean that it cannot be determined that a high degree of confidence exists that all fishers comply within the management system. There is sufficient evidence to meet the requirements at SG60 and 80 level but not SG100 as some evidence of illegal nets still exists in the fishery.

	Systematic non-compliance			
d	Guide post		There is no evidence of systematic non-compliance.	
	Met?		**Yes**	
Rationale				

There was no evidence found of systematic non-compliance within the two companies licensed in the fishery. The amount of fish by-catch smaller than the fishing size is governed by the fishing regulations, the measures taken (transfer of fishing gear to other areas, use of a larger mesh in the gill nets, description of young by-catch in fishing logbooks) are observed by the fishermen of both companies. The pikeperch catch rate for amateur fishermen (5 kg per person per day) is fixed at the level of the state law and is regularly checked on the reservoir by fishing inspectors. The level of IUU fishing for pikeperch in this fishery is estimated to be at a negligible level and commercial fishermen assisting in the identification and removal of “ghost” and illegal fishing gear in conjunction with the enforcement officers. This is sufficient to meet the requirements at SG80.

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**≥80**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

PI 3.2.4 – Monitoring and management performance evaluation

PI 3.2.4		There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives There is effective and timely review of the fishery-specific management system		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guide post	There are mechanisms in place to evaluate **some** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **key** parts of the fishery-specific management system.	There are mechanisms in place to evaluate **all** parts of the fishery-specific management system.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The fishery has in place mechanisms to evaluate key parts of the management system. Key elements such as the quota monitoring process and the stock assessment that determine the level of commercial catches occur during the annual fishing season and at the end to ensure the possibility of quota over-run are minimised. There are mechanisms in place to adjust quotas or the allocation of quotas between and companies and these will be evaluated annually.

b	Internal and/or external review			
	Guide post	The fishery-specific management system is subject to **occasional internal** review.	The fishery-specific management system is subject to **regular internal** and **occasional external** review.	The fishery-specific management system is subject to **regular internal and external** review.
	Met?	**Yes**	**Yes**	**No**
Rationale				

The Irikla pikeperch fishery is managed locally by the Saratov branch of all-Russian Scientific Research Institute of Fisheries and Oceanography" (VNIRO) located in Moscow. The effectiveness of the management system is reviewed by the Federal Fishery Agency in Moscow (mostly by central VNIRO). Specifically, the central VNIRO “develops biological justifications for the volumes of total allocated catches (TAC) and recommended allocated catch (RAC) of aquatic biological resources of the seas and fresh waters of Russia”. In addition, scientific research organizations subordinate to the Federal Fishery Agency (in this case Saratov Research Institute) should be sent to the main scientific institution (VNIRO, Moscow): for the review and assessment of the quality of materials that justify the total allocated catches (TACs) of aquatic biological resources, the possible volumes of catch (harvest) of aquatic biological resources which total allocated catch is not established (recommended catch = RAC), adjustments to the approved TACs and recommended catches in inland waters of the Russian Federation. As such, VNIRO provides an external review of the information and materials of the justification of the TAC and is sufficient to meet SG80.

References

Decree of the President of the Russian Federation of 12.05.2008 № 724.

“Rules for fisheries of the Volga-Caspian basin” of November 18, 2014 (with amendments and additions of May 26, 2015; January 12 and April 19, 2016; July 27, 2017; April 18 and November 6, 2018)

“On Protection of the Environment” (2001); (Yermolin & Belyanin, 2015); Belyanin (2018).

Draft scoring range and information gap indicator added at Announcement Comment Draft Report stage

Draft scoring range	**60-79**
Information gap indicator	**Information sufficient to score PI**

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	
Condition number (if relevant)	

8 References

Alverson, D.L. and Pereyra, W.T. (1969). Demersal fish exploitation in the Northeastern Pacific Ocean. An evaluation of exploratory fishing methods and analytical approaches to stock sizes and yield forecasts. J. Fish. Res. Board Can., 26: 1985-2001.

Anon., (2014). To assess the status of stocks of aquatic biological resources, develop recommendations on management, develop material justifying the volumes and materials substantiating the possible production (catch) of water bio-resources, TACS are set to 2014, the internal waters, including inland marine waters within the area of responsibility of FGNU «GosNIORH. A rationale for the year 2014 by main fisheries waters which the region, fishing etc. objects 3. The Orenburskoj ponds: a report on the subject. Funds of the Saratov branch of FGBNU «GosNIORH ¬, Saratov: 2013. Manager ± Mosiâš s.s., 124 pp. [Оценить состояние запасов водных биологических ресурсов, разработать рекомендации по их рациональному использованию, разработать материалы, обосновывающие объемы ОДУ и материалы, обосновывающие возможные объемы добычи (вылова) водных биоресурсов, ОДУ которых не устанавливается на 2014 г. во внутренних водах, включая внутренние морские воды в зоне ответственности ФГНУ «ГосНИОРХ. Биологическое обоснование прогноза на 2014 год по основным рыбохозяйственным водоемам подведомственного региона, объектам промысла Т.3. Водоемы Оренбурской области: Отчет по теме. Фонды Саратовского отделения ФГБНУ «ГосНИОРХ», Саратов: 2013. Руководитель – Мосияш С.С., 124 с].

Argillier, C., M. Barral, and P. Irz. 2012. Growth and diet of the Pikeperch *Sander lucioperca* (L.) in two French reservoirs. Page 191 Archives of Polish Fisheries.

Babayan V.K. (2000). The precautionary approach to assessing the total allowable catch (TAC), Moscow: VNIRO, pp 190.

Balabanova, Z.M. (1971). Hydrochemical characteristics of the Irikla reservoir. Proc. UralSibNIIRH. T. 8. 1971. p. 27-41 (Балабанова З.М. Гидрохимическая характеристика Ириклинского водохранилища. / Труды УралСибНИИРХ. Т. 8. 1971. С. 27-41)

Baranov, F.I. (1971) Study of intensity of fishery. Selected papers. Vol. III. Theory of fishery. M.: Pischevaya promyshlennost, P: 233-239. [Баранов Ф.И. (1971) Изучение интенсивности рыболовства. Избранные труды. Том III. Теория рыболовства. М.: Пищевая промышленность, С. 233-239]

Barbashova MA (2012). *Micruropus Possolskii* Sowinsky, 1915, a New Crustacean Invader In Lake Ladoga. [In] The IV International Symposium Invasion Of Alien Species In Holarctic: Programme & Book Of Abstracts / I.D. Papanin Institute for Biology of Inland Waters Russian Academy of Sciences, A.N. Severtsov Institute of Ecology and Evolution Russian Academy of Sciences; Ed. Yu. Yu. Dgebuadze [*et al*.]. – Publisher's bureau “Filigran”, Yaroslavl, 2013. 204 p. http://www.ibiw.ru/upload/conf/312368.pdf

Barbazyuk E.V. (2010). About some rare birds of the Orenburg region // Materials about the birds in the Urals, in the Cisurals and Western Siberia.Yekaterinburg. 2010, pp. 13-17.

Belyanin I.A. (2018). Providing information necessary for the preparation of the report and assessment of pikeperch fishery of the LLC ’fish-ka’ in the Irikla Reservoir, Orenburg region according to Marine Stewardship Council (MSC) Standards. Scientific report by the Saratov branch of FGBNU GosNIORKh, advisor Belyanin I.A. to Saratov, 33 pp.

Berg, L.S. (1949). Freshwater Fishes of the USSR and the Contiguous Land. – 3: Acad. Nauk SSSR, Zool. Inst., Moscow, USSR, P: 929-1370. [Берг Л.С. (1949) Пресноводные рыбы СССР и сопредельных стран. – 3 Академия Наук СССР, Зоол. Инст, Москва, СССР, С. 929-1370].

Beverton, R.J.H. and S.J. Holt, (1959). A review of the lifespans and mortality rates of fish in nature, and their relation to growth and other physiological characteristics. p. 142-180. In G.E.W. Wolstenholme and M. O'Connor (eds.) CIBA Foundation colloquia on ageing: the lifespan of animals. Volume 5. J & A Churchill Ltd, London.

BirdLife International (2019) Species factsheet: *Podiceps cristatus*. Downloaded from http://www.birdlife.org on 24/05/2019.

Davygora, A.V. (2015). Information requested by the certifying company. Letter dated 29.03.2015.

Filinova Ye.I. (2012) Some Biological Characteristics of Population *Gmelinoides fasciatus* (Stebbing 1899) in the Irikla Reservoir [In] The IV International Symposium Invasion Of Alien Species In Holarctic: Programme & Book Of Abstracts / I.D. Papanin Institute for Biology of Inland Waters Russian Academy of Sciences, A.N. Severtsov Institute of Ecology and Evolution Russian Academy of Sciences; Ed. Yu. Yu. Dgebuadze [*et al*.]. – Publisher's bureau “Filigran”, Yaroslavl, 2013. 204 p. http://www.ibiw.ru/upload/conf/312368.pdf

Fish-ka (2015). Responses from the Client. Fish-ka Ltd. Communication dated 02/05/2015.

Gröger, J. P., H. Winkler, and R. A. Rountree. (2007). Population dynamics of Pikeperch (*Sander lucioperca*) and its linkage to fishery driven and climatic influences in a southern Baltic lagoon of the Darss-Zingst Bodden Chain. *Fisheries Research* 84:189-201.

Gulland, J.A. (1971). The fish resources of the ocean. Fishing news (Books), West Byfleet, 255 pp.

Isaev, E.I. and Karpova A.I. (1980). Fish industry reservoirs. M: IZD-vo “Food Industry”. 304 p. (Исаев А.И., Карпова Е.И. Рыбное хозяйство водохранилищ. – М:. Изд-во «Пищевая промышленность», 1980. – 304 с.)

Karagoishev, K.K. (1978). On the effects of the net on fish. Sbornik nauchnykh trudov GosNIORKh, Vol. 131: 64-68. [Карагойшиев К.К., (1978) К вопросу воздействия сети на рыб. Известия ГосНИОРХ. т. 131. стр. 64-68].

Karagoyshev, K.K. (1983). Optimal complex of fishing gear as unified principle of regulation of fishing in reservoirs. In: Karagoishev K.K., ed. Sborniknauchnykh trudov GosNIORKh, Vol. 198: 162-168. [Карагойшиев К.К. (1983). Оптимальный комплекс орудий лова как единый принцип регулирования рыбного промысла в водоемах. В: Карагойшев К.К., об. Сборник научных трудов ГОСНИОРХ, вып. 198, стр. 162-168.]

Karagoyshev, K.K. and Romanenko, V.I. (1981). Assessment of intensity of fishing in the Volgograd Reservoir. Sbornik nauchnykh trudov GosNIORKh, Vol. 168: 18-27. [Карагойшиев К.К., Романенко В.И. (1981). Оценка интенсивности промысла в Волгоградском водохранилище. Сборник научных трудов ГОСНИОРХ, вып. 198, стр. 18-27].

Karpova I.E. (1980). Fish industry in reservoirs. IZD. Food industry. 304pp.

Kilyakova, Y.V. and Lysenko A.A. (2007). Ecological Condition of Iriklinsky Water Storage Basin. Assessment of Fish Catch for the Last Decade. Scientific Journal KubGAU, No. 33(9): 1-11. [Килякова Ю. В., Лысенко А. А. (2007) Экологическое состояние Ириклинского водохранилища. Оценка вылова рыбы за последнее десятилетие. Научный журнал КубГАУ, №33(9), С: 1-11.]. Available at: http://ej.kubagro.ru/2007/09/pdf/07.pdf

Kottelat, M. and J. Freyhof, (2007). Handbook of European freshwater fishes. Publications Kottelat, Cornol, Switzerland. 646 p

Kozmin Yu. A. and Matyukhin V.P (1964). Of Iriklinskogo reservoir and ihtiofaune the prospects of fishing. -Tr. The Ural branch of the GosNIORH, vol. 6. (Козьмин Ю.А., Матюхин В.П. Об ихтиофауне Ириклинского водохранилища и перспективы её использования промыслом. – Тр. Уральского отделения ГосНИОРХ, т. 6, 1964.)

Kozmin Yu. A. and Matyukhin V.P (1971). Iriklinskogo reservoir Ichthyofauna and prospects the use of fishing. Tr. UralSibNIIRH, T. 8. C. 3-26. (Козьмин Ю.А., Матюхин В.П. Ихтиофауна Ириклинского водохранилища и перспективы ее использования промыслом. Тр. УралСибНИИРХ, 1971. Т. 8. С.3-26.)

Leningrad. (1979). Guidelines on the study of impact of recreational fishing on fish stocks of inland waters. 19 pp. [Методические указания по изучению влияния любительского рыболовства на состояние рыбных запасов внутренних водоемов. (1979). Ленинград. 19 с.]

Linløkken, A.N. (2008) Population ecology of perch (*Perca fluviatilis*) in boreal lakes. Dissertation, Karlstad University. pp 38. Karkstand Univcersity Studies.Matyukhin V.P. (1968). Ichthyofauna Iriklinskogo reservoir and its basic features formation: Kategе. Dis. Cand. Biol. Sciences/Matyukhin; The Ural branch of the Academy of Sciences Sverdlovsk, USSR. 23pp. (Матюхин В.П. Ихтиофауна Ириклинского водохранилища и основные черты ее формирования: Автореф. Дис. канд. биол. наук / Матюхин; Уральский филиал академии наук СССР – Свердловск, 1968. – 23 с.)

Matyukhin V.P. (1967). Ichthyofauna Iriklinskogo reservoir and its basic features formation: Kategе. Dis. Cand. Biol. Sciences/Matyukhin; The Ural branch of the Academy of Sciences Sverdlovsk, USSR. 23pp. (Матюхин В.П. Ихтиофауна Ириклинского водохранилища и основные черты ее формирования: Автореф. Дис. канд. биол. наук / Матюхин; Уральский филиал академии наук СССР – Свердловск, 1967. – 23 с.)

Morozov V.V. and Kornev S.V. (2013). About the bird fauna of the South Urals basing on the 2013 expedition results. //Russian ornithological magazine. 2013, Express Issue 922: pp. 2603-2614.

Mosiyash, S.S. (1984) Biological basis for rational management of amateur fishing on commercial and non-commercial water bodies of central regions of RSFSR: Dissertatsia na soiskanie uchenoi stepeni kandidata biologicheskikh nauk. Konakovo. 217 pp. [Мосияш С.С. (1984) Биологические основы рациональной организации любительского рыболовства на промысловых и непромысловых водоемах центральных

областей РСФСР. Диссертация на соискание ученой степени кандидата биологических наук. Конаково. 217 с.]

Mosiyash, S.S. and Nikanorov, Yu. I. (1978) Application of air-accounting for study recreational fishery. Fisheries, Vol.4: 30-34. [Мосияш С.С., Никаноров Ю.И. (1978) Применение авиаучета для изучения любительского рыболовства. Рыбное хозяйство, № 4, С. 30-34.]

MRAG Americas (2016). MSC Public Certification Report for Irikla Reservoir Perch Gillnet Fishery. MRAG Americas, St Petersburg, Florida, USA 189 pp.

Nebolsina, T.K. (1980). Ecosystem of the Volgograd Reservoir and ways of creating rational fishery. Dissertatsia na soiskanie uchenoi stepeni doctora biologicheskikh nauk. GosNIORKh Saratovskoe otdelenie. 367 pp. [Небольсина Т.К. (1980). Экосистема Волгоградского водохранилища и пути создания рационального рыбного хозяйства. Диссертация на соискание ученой степени доктора биологических наук. Саратовское отделение ГосНИОРХ. 367 с.]

Nebolsina, T.K., Abramova, L.P., Yermolin V.P. and Smirnova L.K. (1986). Methodology of stock status assessment and catch forecast in Volgogradskoye Reservoir. Sbornik nauchnykh trudov GosNIORKh, Vol. 244: 70-79. [Небольсина Т.К., Абрамова, Л.П., Ермолин В.П., Смирнова Л.К. (1986). Методика учета рыбных запасов и прогноза вылова в Волгоградском водохранилище. Сборник научных трудов ГОСНИОРХ, вып. 244, стр. 70-79]

Nicholas G. (1974). Ecology of fish. vysshaya Shkola. 367pp.

Nicholas G. V. (1953). Biological specificity of faunistic complexes and value analysis to zoogeography//essays on general issues of Ichthyology. Moscow: USSR ACADEMY of SCIENCES, 1953. 65pp.

Persson, A., and C. Brönmark. (2008). Pikeperch *Sander lucioperca* trapped between niches: foraging performance and prey selection in a piscivore on a planktivore diet. Journal of Fish Biology 73:793-808.

Pidgaiko, M., Alexandrov, B.M., Joffe, T.S. *et al*. (1968). Brief bio-production characteristics of reservoirs of the North-West of the USSR/Pidgaiko M.I. Wpi. GosNIORH. 205-241.

Poddubniy, A.G. and Gordeev, N.A. (1966). Results of fishing operations in open stretches with circular net. Tr. IBVV Academy of Science of USSR. Borok. Vol. 10 (13): 229-241. [Поддубный А.Г., Гордеев Н.А. (1966). Результаты облова открытых плесов кольцевой сетью. Тр. ИБВВ Академии Наук СССР. Борок. Вып. 10 (13), С.229-241.]

Popova, O.A. (1978). The role of predacious fish in ecosystems. Pages 215-249. in Gerking, S.D. (ed.). Ecology of Freshwater Fish Production. Blackwell, Oxford.

Popova, O.A. (1979). Feeding and food relationships of pikeperch, perch and ruff in water bodies of different latitudes. Fish variability in freshwater ecosystems. M.:Nauka, P.93-112. [Попова О.А. (1979). Питание и пищевые взаимодействия судака, окуня и ерша в водоемах разных широт. Изменчивость рыб пресноводных экосистем. М.: Наука, С.93-112.]

Reshetnikov. Yu. S. (2003) Atlas of Russian freshwater fishes (2003): Vol. 2. Ed. by, Reshetnikov. Yu. S., 253 pp. [Атлас пресноводных рыб России (2003): в 2 т. Т. 2. Под ред. Ю.С. Решетникова. М.: Наука, 253 с.]

Sechin, Yu. T. (1998) Stock assessment based on sampling by gillnets. Collection of research articles. Izdatelstvo VNIRO. 115 pp. [Сечин Ю.Т. (1998). Оценка численности рыб по уловам ставных сетей. Сборник научных трудов. Издательство ВНИРО. 115 с.]

Shashulovskiy, V.A. and Mosiyash, S.S. (2003). The experience of assessment of unaccounted commercial fishery (on the example of Volgogradskoye Reservoir). Fisheries, Vol.4: 44-46. [Шашуловский В.А., Мосияш С.С. (2003). Опыт оценки неучтенного промыслового вылова рыбы (на примере Волгоградского водохранилища). Рыбное хозяйство. №4, С.44-46.]

Shashulovskiy, V.A., Yermolin, V.P., Mosiyash, S.S. *et al*., (2014). Fisheries resources of the Volgograd, Saratov and Iriklinsky reservoirs and their usage. Proceedings of international conference “Fisheries resources of Russian water bodies”. St.Petersburg, GosNIORKh: 798-806.[Шашуловский В.А., Ермолин В.П., Мосияш С.С. и др. (2014). Рыбохозяйственный ресурс Волгоградского, Саратовского и Ириклинского водохранилищ и его использование. Материалы международной конференции «Рыбохозяйственные водоемы России». Санкт-Пертербург, ГосНИОРХ, С.798-806.]

Silivrov S.P. (1993). The evaluation of the biological productivity of Iriklinskogoye (Irikla) reservoir and the development of the scheme of rational fisheries exploitation. Research report//UralGosNIORH. [Оценка биологической продуктивности Ириклинского водохранилища и разработка схемы рациональной

рыбохозяйственной эксплуатации. Отчет о НИР // Фонды УралГосНИОРХ. Рук. Силивров С.П. – Екатеринбург, 1993].

Tiurin, P.V. (1967). Biological justification of optimal coefficient of fishing mortality and acceptable by-catch of valuable fish. Trydy VNIRO. I 62 XII: 33-50. [Тюрин П.В. (1967). Биологические обоснования оптимального коэффициента вылова и допустимого предела прилова молоди ценных рыб. Труды ВНИРО. I 62 XII, С. 33-50.]

Treschev, A.I. (1983). The intensity of fishing. Moscow: Legkaya i pishchevaya promyshlennost'. 236 pp. [Трещев А.И. (1983). Интенсивность рыболовства. М.: Легкая и пищевая промышленность. 236 с.]

Voronin V.P. (2007). Stock assessment, of aquatic biological resources; elaboration a TAC forecast for year 2008 for freshwater water bodies in the area of responsibility of FGUP “Gosrybcenter”; development of recommendations on the organization, methodical and technical support of commodity research for 2008-2009. Biological basis to forecast of total available catches of fish in the Iriklinskoye water body in year 2008. Scientific report. Ural research institute on aquatic bio-resources and aquaculture, advisor Voronin V.P. Yekaterinburg. 82 pp. [Оценка состояния запасов водных биологических ресурсов, разработать прогноз ОДУ на 2008 г. в пресноводных водоемах зоны ответственности ФГУП «Госрыбцентр», разработка рекомендаций по организации, методическому и техническому обеспечению сырьевых исследований на 2008-2009 гг. Биологическое обоснование к прогнозу общих допустимых уловов рыбы на Ириклинском водохранилище в 2008 г. (2007). Отчет о НИР Уральскиого научно-исследовательского института водных биоресурсов и аквакультуры, рук. Воронин В.П. Екатеринбург. 82 с.]

Voronin V.P. (2008). Stock assessment of aquatic biological resources; to elaborate a TAC forecast for year 2009 for freshwater water bodies in the area of responsibility of FGUP “Gosrybcenter” Biological basis to forecast of total available catches of fish in the Iriklinskoye water body in year 2009. Scientific report. Ural research institute on aquatic bio-resources and aquaculture, advisor Voronin V.P. Yekaterinburg. 56 pp. [Оценка состояния запасов водных биологических ресурсов, разработать прогноз ОДУ на 2009 г. в пресноводных водоемах зоны ответственности ФГУП «Госрыбцентр». Биологическое обоснование к прогнозу общих допустимых уловов рыбы на Ириклинском водохранилище в 2009 г. (2008). Отчет о НИР Уральского научно-исследовательского института водных биоресурсов и аквакультуры, рук. Воронин В.П. Екатеринбург. 56 с.]

Yermolin V.P. (1980). Estimation of fishery possibilities in Klepikovskiye Lakes. Scientific report by Saratov branch of GosNIORKh, advisor Saratov, 73 pp. [Определение возможности рыбохозяйственного использования Клепиковских озер: Отчет о НИР. Саратовское отделение ГосНИОРХ, рук. Ермолин В.П. Саратов. 73 с.]

Yermolin, V.P. (1984) Ecology of fish feeding and the measures for fish production increasing in the Saratovskoje Reservoir: Dissertatsia na soiskanie uchenoi stepeni kandidata biologicheskikh nauk. GosNIORKh Saratovskoe otdelenie. 342 pp. [Ермолин В.И. (1984) Экология питания рыб и пути повышения рыбопродуктивности Саратовского водохранилища. Диссертация на соискание ученой степени кандидата биологических наук. Саратовское отделение ГосНИОРХ. 342 с]

Yermolin V.P. (2004) Develop a rational TAC for fishery objects in the Pokrovskaya Staritsa Lake in Kinelsky district of Samarskaya region in year 2004. Scientific report by Saratov branch of GosNIORKh, advisor Yermolin V.P. Saratov, 29 pp. [Разработать обоснование ОДУ объектов рыболовства в озере Покровская старица Кинельского района Самарской области в 2004 году. Отчет о НИР Саратовского отделения ФГНУ ГосНИОРХ, рук. Ермолин В.П. Саратов. 29 с.]

Yermolin V.P. (2014). Scientific support of the certification process of the perch fishery in Irikla Reservoir according to Marine Stewardship Council (MSC) Standards. Scientific report by the Saratov branch of FGBNU GosNIORKh, advisor Yermolin V.P, Saratov, 66 pp. [Научное сопровождение процесса сертификации по стандартам Морского Попечительского Совета (MSC) промысла окуня Ириклинского водохранилища. (2014). Научный отчет Саратовского отделения ФГБНУ ГосНИОРХ, рук. Ермолин В.П. Саратов, 66 с.]

Yermolin V.P., Belyanin I.A. (2015). Scientific support of the certification process of the perch fishery in Irikla Reservoir according to Marine Stewardship Council (MSC) Standards. Scientific report by the Saratov branch of FGBNU GosNIORKh, advisor Yermolin V.P., Belyanin I.A. to Saratov, 7 pp.

Zobkov, A.S. (2015) Letter from Head of Middle Volga Driectorate for Fishery, Federal Agency for Fishery to Mrs Ermolova, Director of Fish-ka. Dated 17/03/2015.

Legislation

Decree of the President of the Russian Federation of 12.05.2008 № 724 by converting a pre-existing Russian State Committee for Fisheries, Resolution of the Government of the Russian Federation of 11.06.2008 № 444.

Decree of the President of the Russian Federation of 21.05.2012, № 636 "On the structure of federal executive bodies" Federal Fisheries Agency under the Ministry of Agriculture of the Russian Federation.

Federal law of 20 December 2004 N 166-FZ "on fisheries and the conservation of aquatic biological resources "(Federal law of December 20, 2004 No. 166-FZ "on fisheries and the conservation of aquatic biological resources", HL. 3.1)).

Government of the Russian Federation (Federal law from December 20, 2004 No. 166-FZ "on fisheries and the conservation of water biological resources ", art. 27 (collection of laws of the Russian Federation, 2004, no. 52 (part 1), art. 5270; 2006, N 1, art. 10. N 23, art. 2380; No. 52 (part 1), art. 5498; 2007, N 1 (part 1), art. 23; N 17, art. 1933; N 50, art. 6246; 2008, no. 49, St. 5748)). II. Requirements for the conservation of living aquatic resources assigned to the fisheries.

Rules for fisheries of the Volga-Caspian basin (2009).

Russian Federal Law “On Protection of the Environment” (2001).

9 Appendices

9.1 Assessment information

9.1.1 Previous assessments – delete if not applicable

This fishery was first certified for perch only in 2016 by MRAG Americas using version 1.3 of the Fishery Certification Requirements including default assessment tree. In 2019, pikeperch was added to the certificate via scope extension, assessed also against version 1.3. There was one condition placed on the fishery which applied both to the perch and pikeperch UoAs, and this was to do with having an adequate research plan that addresses the information needs of management (former PI 3.2.4).

The CAB shall include in the report:

- A brief summary of any previous full assessments of the client operations, noting that these are available on the MSC website.

Reference(s): FCP v2.2

Table X – Summary of previous assessment conditions

Condition	PI(s)	Year closed	Justification
Insert condition number and summary	Insert PI	State year of closure, if applicable.	
Condition 1: A research plan should be prepared and implemented for the Irikla Reservoir pikeperch fishery that is designed to provide the management system with a strategic approach to research and **reliable and timely information** sufficient to	Erstwhile 3.2.4	Open	Although a comprehensive set of research topics is conducted on the fisheries and other related environmental aspects of the reservoir to achieve the objectives consistent with MSC’s Principles 1 and 2 there is no single research plan for this particular fishery. As common with other fisheries in the Russian Federation, there is a coherent plan for research handled by the relevant responsible bodies within the Russian Federation that covers a wider basis than just

achieve the objectives consistent with MSC's Principles 1 and 2.			the pikeperch fisheries and covers the entire reservoir and all fisheries within it but not one for this specific fishery. This system, although not in a single management plan, provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. Therefore the SG60 guidepost is met but as no specific written plan exists the SG80 and SG100 guideposts cannot be shown to be met.

9.1.2 Small-scale fisheries

To help identify small-scale fisheries in the MSC program, the CAB should complete the table below for each Unit of Assessment (UoA). For situations where it is difficult to determine exact percentages, the CAB may use approximations, e.g. to the nearest 10%.

Table X – Small-scale fisheries

Unit of Assessment (UoA)	Percentage of vessels with length <15m	Percentage of fishing activity completed within 12 nautical miles of shore
Perch	100%	100%
Pikeperch	100%	100%

9.2 Evaluation processes and techniques

9.2.1 Site visits

The CAB shall include in the report:

- An itinerary of site visit activities with dates.
- A description of site visit activities, including any locations that were inspected.
- Names of individuals contacted.

Reference(s): FCP v2.2 Section 7.16

9.2.2 Stakeholder participation

The CAB shall include in the report:

- Details of people interviewed: local residents, representatives of stakeholder organisations including contacts with any regional MSC representatives.
- A description of stakeholder engagement strategy and opportunities available.

Reference(s): FCP v2.2 Section 7.16

9.2.3 Evaluation techniques

At Announcement Comment Draft report stage, if the use of the RBF is triggered for this assessment, the CAB shall include in the report:

- The plan for RBF activities that the team will undertake at the site visit.
- The justification for using the RBF, which can be copied from previous RBF announcements, and stakeholder comments on its use.
- The RBF stakeholder consultation strategy to ensure effective participation from a range of stakeholders including any participatory tools used.
- The full list of activities and components to be discussed or evaluated in the assessment.

At Client Draft Report stage, if the RBF was used for this assessment, the CAB shall include in the report:

- A summary of the information obtained from the stakeholder meetings including the range of opinions.
- The full list of activities and components that have been discussed or evaluated in the assessment, regardless of the final risk-based outcome.

The stakeholder input should be reported in the stakeholder input appendix and incorporated in the rationales directly in the scoring tables.

Reference(s): FCP v2.2 Section 7.16, FCP v2.2 Annex PF Section PF2.1

9.3 Peer Review reports

To be drafted at Public Comment Draft Report stage

The CAB shall include in the report unattributed reports of the Peer Reviewers in full using the relevant templates. The CAB shall include in the report explicit responses of the team that include:

- Identification of specifically what (if any) changes to scoring, rationales, or conditions have been made; and,
- A substantiated justification for not making changes where Peer Reviewers suggest changes, but the team disagrees.

Reference(s): FCP v2.2 Section 7.14

9.4 Stakeholder input

To be drafted at Client and Peer Review Draft Report stage

The CAB shall use the ‘MSC Template for Stakeholder Input into Fishery Assessments’ to include all written stakeholder input during the stakeholder input opportunities (Announcement Comment Draft Report, site visit and Public Comment Draft Report). Using the ‘MSC Template for Stakeholder Input into Fishery Assessments’, the team shall respond to all written stakeholder input identifying what changes to scoring, rationales and conditions have been made in response, where the changes have been made, and assigning a ‘CAB response code’.

The ‘MSC Template for Stakeholder Input into Fishery Assessments’ shall also be used to provide a summary of verbal submissions received during the site visit likely to cause a material difference to the outcome of the assessment. Using the ‘MSC Template for Stakeholder Input into Fishery Assessments’ the team shall respond to the summary of verbal submissions identifying what changes to scoring, rationales and conditions have been made in response, where the changes have been made, and assigning a ‘CAB response code’.

Reference(s): FCP v2.2 Sections 7.15, 7.20.5 and 7.22.3

9.5 Conditions – delete if not applicable

9.5.1 Summary of conditions closed under previous certificate

The CAB shall include a summary of conditions that were closed during the previous certificate.

9.5.2 Open Conditions at reassessment announcement – delete if not applicable

The CAB shall complete this section if:
1. The assessment is a reassessment, and
2. There are open conditions when the reassessment is announced.

The CAB shall identify conditions that are open at the time of the reassessment announcement, conditions that will be closed during the reassessment including an outline of how and when the condition will be closed, and conditions that are being carried over into the next certificate.

The CAB shall confirm the status of progress for each open condition. For the ACDR the CAB shall base this on the most recent surveillance audit. For the PCDR the CAB shall base this on the site visit.

The CAB shall include details regarding the closing of conditions during the reassessment following Section 5.3.2 from the MSC Surveillance Reporting Template.

The CAB shall only include information on conditions that are being carried over in the ACDR. In the Client and Peer Review Draft Report and subsequent reports the CAB shall incorporate all conditions that are being carried over into Section 8.5.2.

Reference(s): FCP v2.2 Section 7.30.5.

Table X – Open Condition 1 (*use existing numbering)*

Performance Indicator	Erstwhile 3.2.4 (Research plan)
Score	*70.*
Justification	Although a comprehensive set of research topics is conducted on the fisheries and other related environmental aspects of the reservoir to achieve the objectives consistent with MSC's Principles 1 and 2 there is no single research plan for this particular fishery. As common with other fisheries in the Russian Federation, there is a coherent plan for research handled by the relevant responsible bodies within the Russian Federation that covers a wider basis than just the pikeperch fisheries and covers the entire reservoir and all fisheries within it but not one for this specific fishery. This system, although not in a single management plan, provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. Therefore the SG60 guidepost is met but as no specific written plan exists the SG80 and SG100 guideposts cannot be shown to be met.
Condition	A research plan should be prepared and implemented for the Irikla Reservoir pikeperch fishery that is designed to provide the management system with a strategic approach to research and **reliable and timely information** sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
Condition start	*2016 for perch, 2019 for pikeperch*
Condition deadline	2021
Milestones	Develop and implement a research plan and meet the SG80 milestone by the recertification date in 2021 (expected score 80)

Progress on Condition	*State a summary of the progress made by the fishery client to address the condition.* *Identify if milestones have been revised as part of remedial action at previous Surveillance Audits.*
Progress status	*Identify whether this condition is 'on target', 'ahead of target', 'behind target', or progress is inadequate, and provide justification as per FCP v2.2 7.28.16.1 and 7.28.16.2.*
Carrying over condition ☐	*Check the box if the condition is being carried into the next certificate and include a justification for carrying over the condition (FCP v2.2 7.30.5.1.a).*
Closing the condition during the reassessment	*Outline how and when the condition will be closed during the reassessment.*

9.5.3 Conditions – delete if not applicable

To be drafted at Client and Peer Review Draft Report stage

The CAB shall document in the report all conditions in separate tables.

Reference(s): FCP v2.2 Section 7.18, 7.30.5 and 7.30.6

9.6 Client Action Plan

To be drafted at Public Comment Draft Report stage

The CAB shall include in the report the Client Action Plan from the fishery client to address conditions.

Reference(s): FCP v2.2 Section 7.19

9.7 Surveillance

To be drafted at Client and Peer Review Draft Report stage

The CAB shall include in the report the program for surveillance, timing of surveillance audits and a supporting justification.

Reference(s): FCP v2.2 Section 7.28

Table X – Fishery surveillance program

Surveillance level	Year 1	Year 2	Year 3	Year 4
e.g. Level 5	e.g. On-site surveillance audit	e.g. On-site surveillance audit	e.g. On-site surveillance audit	e.g. On-site surveillance audit & re-certification site visit

Table X – Timing of surveillance audit

Year	Anniversary date of certificate	Proposed date of surveillance audit	Rationale
e.g. 1	e.g. May 2018	e.g. July 2018	e.g. Scientific advice to be released in June 2018, proposal to postpone audit to include findings of scientific advice

Table X – Surveillance level justification

Year	Surveillance activity	Number of auditors	Rationale
e.g.3	e.g. On-site audit	e.g. 1 auditor on-site with remote support from 1 auditor	e.g. From client action plan it can be deduced that information needed to verify progress towards conditions 1.2.1, 2.2.3 and 3.2.3 can be provided remotely in year 3. Considering that milestones indicate that most conditions will be closed out in year 3, the CAB proposes to have an on-site audit with 1 auditor on-site with remote support – this is to ensure that all information is collected and because the information can be provided remotely.

9.8 Objection Procedure – delete if not applicable

To be added at Public Certification Report stage

The CAB shall include in the report all written decisions arising from the Objection Procedure.

Reference(s): MSC Disputes Process v1.0, FCP v2.2 Annex PD Objection Procedure