
MSC Public Comment Draft Report
for
Irikla Reservoir Pikeperch Fishery Scope Extension Assessment



MRAG Americas, Inc.
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CLIENT DETAILS:

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Acronyms

CAB	Conformity Assessment Body
CPUE	Catch per unit effort
EIA	Environmental Impact Assessment
ETP	Endangered, Threatened and Protected Species
EU	European Union
FGBU KamUralRybvod	Federal State Institution - Kama-Ural Fishery Enhancement Agency
GosNIORKh	State Research Institute on Lake and River Fishery
IUCN	International Union for the Conservation of Nature
IUU	Illegal, unreported and unregulated (fishing)
MCS	Monitoring, control and surveillance
MSC	Marine Stewardship Council
MSY	Maximum sustainable yield
PI	Performance Indicator
RAC	Recommended Allocated Catch
SG	Scoring Guideline
SRI	Saratov Research Institute
SPNR	Specially Protected Natural Reservations
SI	Scoring Issue
TAC	Total Allocated Catch
UOC	Unit of Certification
VNIRO	Russian Federal "Research Institute on Fisheries and Oceanography"

1 Executive Summary

1. This report sets out the results of the assessment of the Irikla Reservoir Pikeperch Gillnet Fishery against the Marine Stewardship Council (MSC) Principles and Criteria for Sustainable Fishing (MSC FCR ver1.3). The assessment started in September 2018.
2. The assessment was carried out by a team of two assessors: Robert Wakeford and Dmitry Sendek. A full account of the assessment team members' relevant experience is set out in section 2.1 of this report.
3. The evaluation process for this assessment involved gathering information relevant to the fishery during a site visit in October 2018; discussions with experts and stakeholders; and reviewing relevant literature. The assessment team then compiled a draft report, and met to 'score' the performance of the fishery. The draft report that was produced by the team has been considered by the client, subject to peer review, and has then been published for stakeholder comment in September, 2019.
4. This small-scale fishery operates a quota system with a limited number of licensed fishermen using highly selective small-mesh gillnets within a controlled area of the Irikla Reservoir, known as parcels. Some of the main strengths of the fishery include annual fisheries-independent assessments of finfish stock biomass within the reservoir, the level of catch reporting, monitoring of a wide range of environmental variables and a negligible environmental impact within the waterbody. Fishermen continue to support a precautionary approach to fisheries management and proactively help to maintain and improve the aquatic environment through annual clean-up operations (e.g. removal of illegal and lost gear). Good reporting and monitoring of the commercial catches prevent the fishery from exceeding the commercial quota, which are often not fully taken up and has allowed the perch population to increase within the Irikla Reservoir.
5. Some of the weaknesses occurring within this small-scale fishery are the lack of research plans to demonstrate the work undertaken within the reservoir fulfils one or more objective, and the lack of regular internal and occasional external review. Given the scale and intensity of the fishery, these have not previously been deemed a high priority. A condition has been drawn up in response to these findings and the client has produced an action plan to ensure that progress is made to address these weaknesses.
6. MSC certification requires that each of the three MSC Principles have aggregated scores of 80 or higher; that no individual Performance Indicator (PI) score less than 60; and that the client provides a "client action plan" to improve the performance of indicators with scores less than 80 for which a condition has been prescribed. The fishery has met these three requirements. The assessment team has therefore recommended that this fishery should be certified according to the Marine Stewardship Council Principles and Criteria. The MSC Principle scores were calculated according to the procedures set out in the MSC Certification Requirements v1.3 and are set out in the table below.

Overall weighted Principle-level scores	Score
Principle 1 – Target Species	81.9
Principle 2 – Ecosystem	83.3
Principle 3 – Management System	82.6

7. A score of less than 80 and more than 60 was awarded for one PI. A condition of certification was identified by the assessment team that would lead to an improvement in performance to a level consistent with or better than a score of 80 for this PI. The client has produced an Action Plan that should lead to these scores being attained within 5

years of the certification of this Unit of Assessment (which will extend beyond its initial certification validity, as it is a scope extension. The full condition and Action Plan is listed in Appendix 3 of this report. The conditions of certification are summarised in the table below].

8. MRAG Americas has determined that the Irikla Reservoir Perch fishery should be certified as sustainable according to the Marine Stewardship Council Fisheries Standard.

Number	Condition	Performance Indicator
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 achieve the objectives consistent with MSC's Principles 1 and 2.	3.2.4

2 Authorship and Peer Reviewers

2.1 Assessment Team

The assessment team consisted of Robert Wakeford and Dmitry Sendek. Both were members of the original Irikla Reservoir Perch Fishery assessment.

Dr. Robert Wakeford, Assessment Team Leader

Robert Wakeford is Director of Fisheries at MRAG and has over nineteen years' experience with a broad range of multi-disciplinary skills in fisheries resource management and policy, including fish stock assessment, eco-labelling, survey design and analysis, statistical and empirical modelling, international observer programmes, database design and project management. He has gained considerable experience with the Marine Stewardship Council and associated Certification Requirements, and has conducted numerous MSC pre-assessments for a number of private clients. In addition to pre-assessments, he was Lead Assessor and P2 expert for the successful Mexican Caribbean spiny lobster fishery (Banco Chinchorro and Sian Ka'an fishery), and was responsible for testing the MSC's original Risk Based Framework (RBF) in 2006/07, prior to becoming P2 expert for the certification of the Cornwall sardine fishery. Since 2007, he has worked closely with WWF to develop a framework for implementing Fisheries Improvement Projects (FIPs) based on the Marine Stewardship Council Standard. Robert has previously conducted assessments on freshwater fish populations, and was Team Leader to conduct a fish biodiversity and fisheries survey in Sierra Leone as part of an EIA during 2006. More recently, he is working in Liberia and Sierra Leone as part of the World Bank Funded Regional Fisheries Programme (WARFP) on scientific research, stock assessment and curriculum development and is currently Project Director and Principal Investigator on numerous EU-funded projects to conduct retrospective and prospective evaluations of the Common Fisheries Policy.

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.

2.2 Peer Reviewer

Since this is a scope extension with only one peer reviewer, that person remains anonymous.

3 Description of the Fishery

3.1 Unit(s) of Certification and scope of certification sought

The MRAG Americas assessment team has determined that the fishery is within scope as required by the MSC. It is not a fishery based on introduced species, it is not an enhanced fishery, it does not exist as a controversial unilateral exemption to an international agreement, it does not use destructive fishing practices as defined by MSC, and it does not target mammals, birds, or reptiles.

This assessment considers one unit of certification. A description of the fishing method is given in section 3.2.1.4 of this report.

Unit of Certification	
Species:	Pikeperch (<i>Sander lucioperca</i>)
Geographical Area:	Irikla Reservoir on Ural River, Orenburg Province, Russian Federation.
Method of Capture:	Gillnets (50 – 70 mm mesh size)
Stock	Stock of pikeperch inhabiting Irikla Reservoir
Management System:	The fishery is entirely within the Russian Federation and is managed by the Federal Agency for Fisheries and its subordinate bodies.
Client Group:	FOLLOWFOOD GMBH, Allmandstrasse 8, 88045, FRIEDRICHSHAFEN, Baden-Württemberg – Tübingen, Germany.
Eligible Fishers:	All licensed commercial fishermen nominated by client
Other eligible Fishers:	No other commercial fishermen have been identified

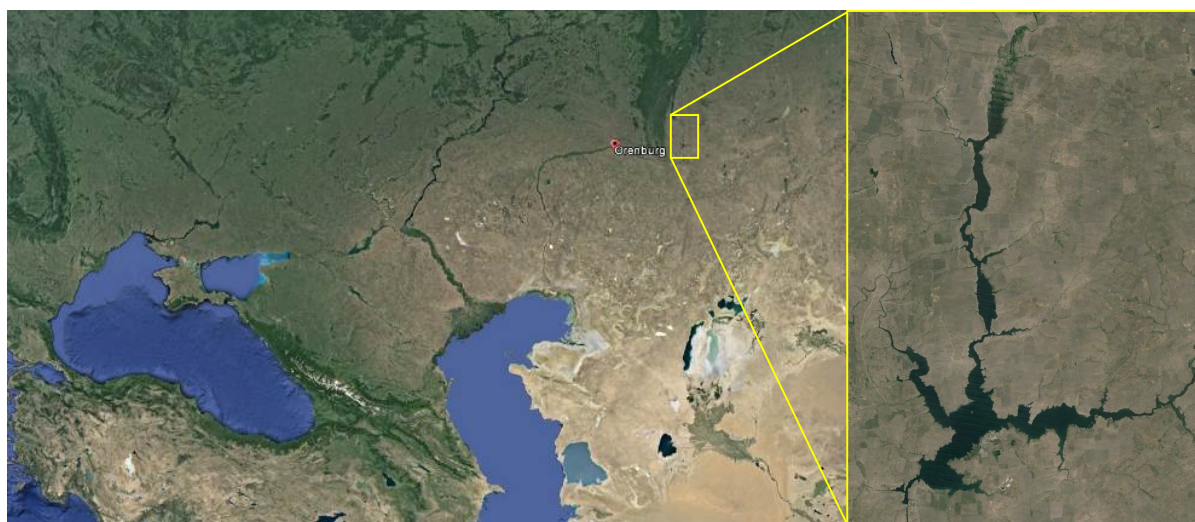


Figure 1. Map showing the location of the Irikla Reservoir, Orenburg Province, Russian Federation [Source: GoogleEarth].

Eligible fishers within the Unit of Certification include those nominated by FOLLOWFOOD GMBH and FRIEDRICHSHAFEN. To date, there are currently 47 eligible fishermen within the UoC, as shown in Table 1.

Table 1. List of eligible fisherman and associated boats included in unit of certification (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-5M2
4	Mukhamedzhanov Bereg Kakimovich- Мухамеджанов Берег Какимович	Fisherman	Irikla-08	Kazanka-5M2 - Казанка-5M2
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-5M2
8	Brylev Alexey Vladimirovich- Брылев Алексей Владимирович	Fisherman	-	Rubber boat - Резиновая лодка
9	Naumenko Nikolay Vladimirovich - Наumenko 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-5M2
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-5M3
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-5M3
	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				

No.	Name	Position	Boat ID	
			Name	Type
	Chapaevsky reach			
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) - Крауялис Владимир Здиславович(аренда)	Fisherman	Irikla-30	Kazanka-5M2 - Казанка-5М2

No.	Name	Position	Boat ID	
			Name	Type
45	Krauyalis Vladimir Zdislavovich (rent) - Крауялис 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
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

3.1.1 Scope of Assessment

MRAG Americas considers that both potential units of certification in the fishery are within the scope set out in the MSC Certification Requirements v.1.3 at §27.4.

Specifically:

- **Controversial unilateral exemptions §27.4.4.1** – the fishery is not subject to any “controversial unilateral exemption to an international agreement”.
- **Destructive fishing practices §27.4.4.2** – no destructive fishing practices (explosives or poisons) are used in this unit of certification.
- **Controversial disputes §27.4.5** – there are mechanisms in place for resolving disputes between the fishery and the management system.
- **Previous failed assessments / certificate withdrawals §27.4.7** – no previous UoC has failed a previous assessment nor had a certificate withdrawal.
- **Inseparable or practically inseparable catches §27.4.9** – there are no non-target IPI species in the fishery.
- **Enhanced fishery §27.4.12** – these are not enhanced fisheries.
- **Introduced Species Based Fisheries §27.4.14** – these are not introduced species.

The fishery is therefore eligible for assessment against the MSC Standard.

3.2 Overview of the fishery

An overview of the Irikla Reservoir perch gillnet fishery was given in MRAG 2016. This section has been updated to include specific details related to the targeting of pikeperch (*Sander lucioperca*) using larger mesh size (50-70 mm) gillnets.

3.2.1 History and context of the fishery

3.2.1.1 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 km² 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.

3.2.1.2 Life historical characteristics

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 2). 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.

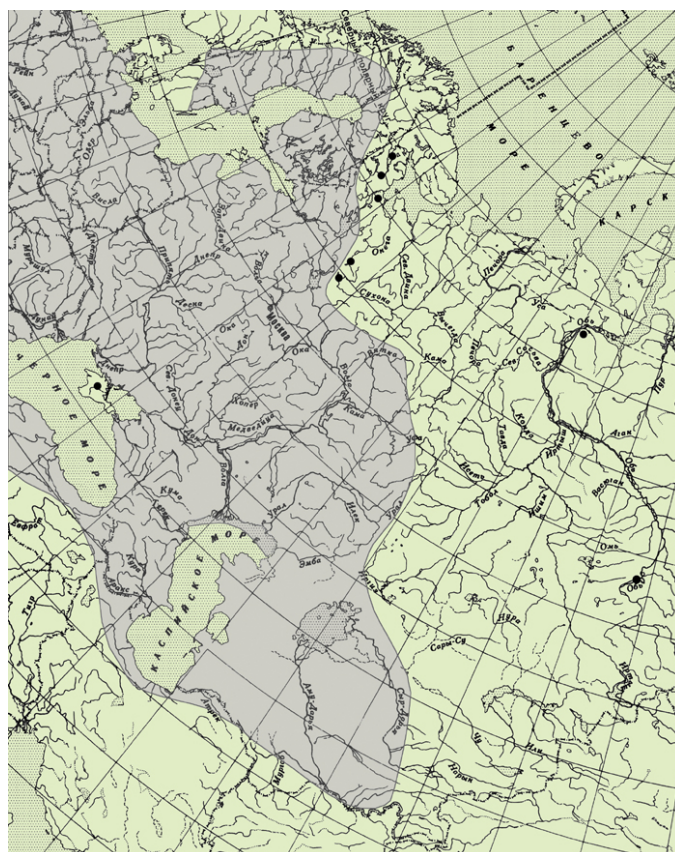


Figure 2. The distribution of pikeperch within study area.

Source: Reshetnikov (2003)

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.

3.2.1.3 Pikeperch biology in Irikla Reservoir

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).

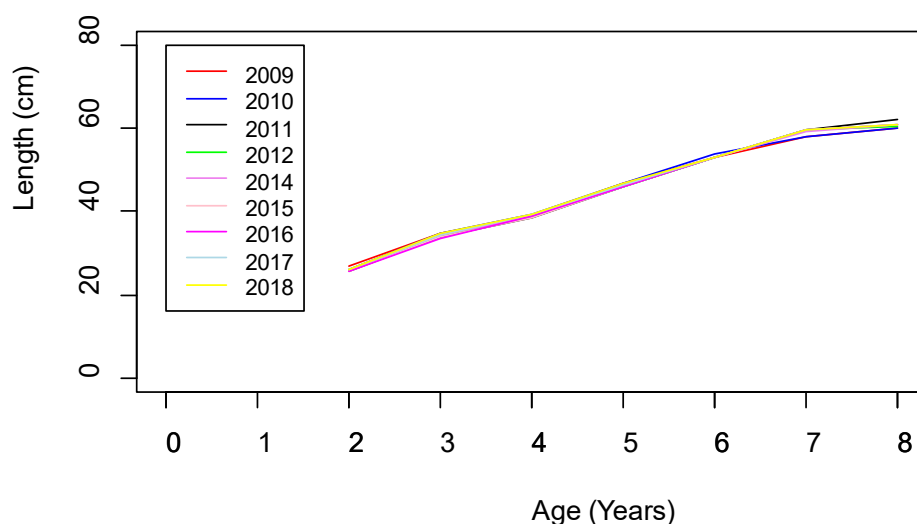


Figure 3. Size characteristics of pikeperch in the Irikla Reservoir for 2009-2018 (2-7 yrs and 8+ yrs).

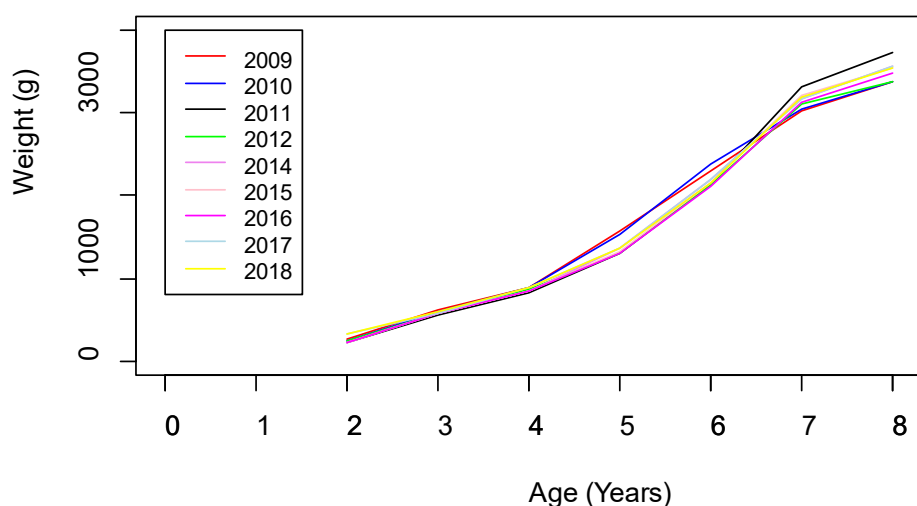


Figure 4. Weight characteristics of pikeperch in the Irikla Reservoir for 2009-2018.

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 5). 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.

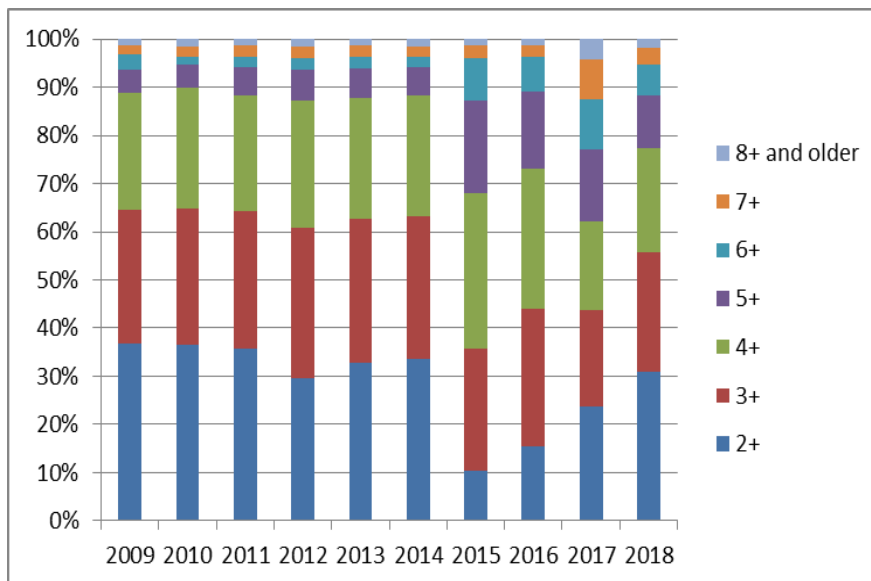


Figure 5. Age composition of pikeperch from the control catches by nets with mesh size 25-120 mm, %.

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.

3.2.1.4 Vessels and fishing gear

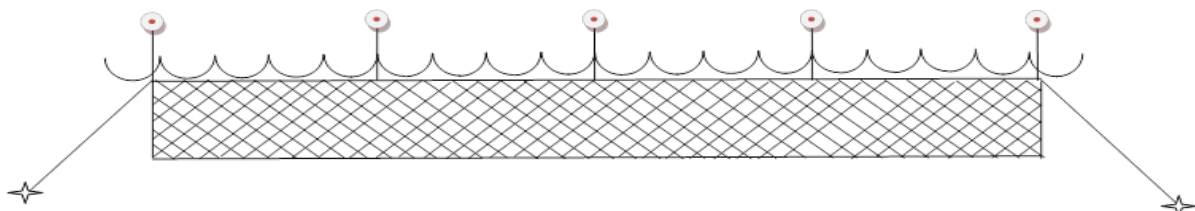
There are currently 47 eligible fishermen operating small boats in the Irikla Reservoir within the Unit of Certification, with additional 3 transport boats. Fishing is conducted in a very simple manner with individual fishermen operating from 43 small single engine boats (see Figure 6). The only fishing 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.



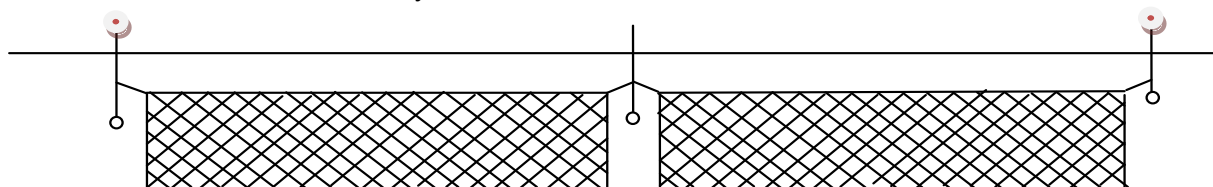
Figure 6: Picture of typical boats, *P11-650Ж* and *P10270Ж* used by fishermen in the unit of certification, based near Energetik.

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:



3.2.1.5 Landings

The commercial pikeperch gillnet fishery accounts for the majority of landings from the Irikla Reservoir. The importance of pikeperch within the commercial fishery has changed considerably throughout the existence of Irikla Reservoir. Two periods with high 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 7). 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.

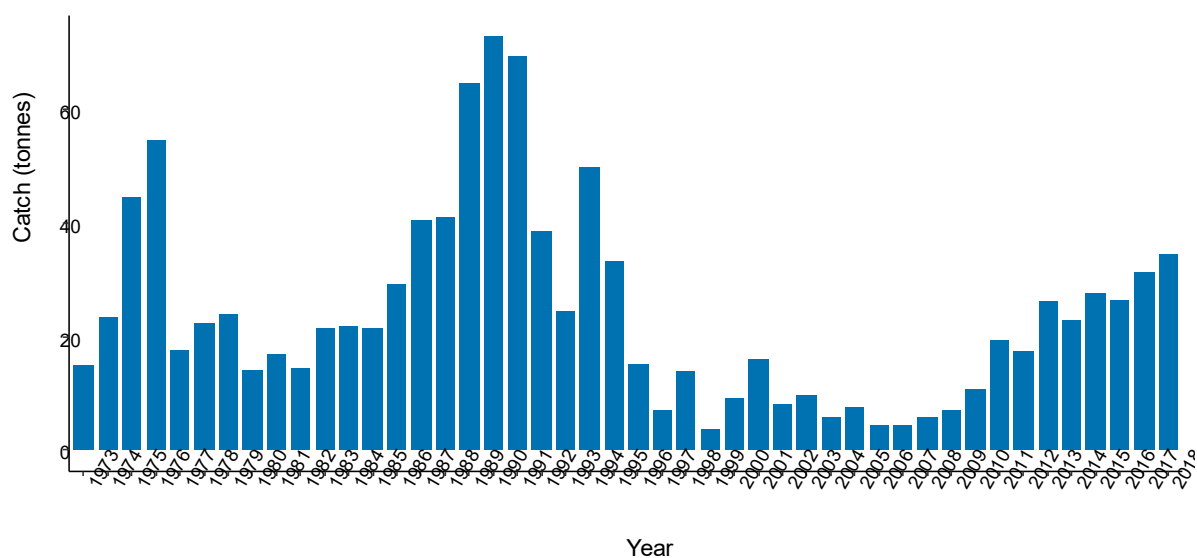


Figure 7. Total annual landings of pikeperch in Irikla Reservoir, 1973-2018.

Data source: Saratov Research Institute

Over the last five years (2013-2017) there has been an overall increase in the total catch of the pikeperch of the Irikla Reservoir. The composition of catches in small-meshed nets (30-36 mm) and large-meshed nets (50-70 mm) differs. If in small-meshed nets, such species as perch, roach, crucian carp and pikeperch dominate in numbers and biomass, in large-meshed nets, pikeperch and bream predominate (Table 2).

Table 2. The composition of catches in control gill nets with different mesh size in 2017.

Fish species	Mesh size											
	30 mm		32 mm		36 mm		50 mm		60 mm		70 mm	
	Number, ind.	Weight, kg	Number, ind.	Weight, kg	Number, ind.	Weight, kg	Number, ind.	Weight, kg	Number, ind.	Weight, kg	Number, ind.	Weight, kg
Vendace	2	0.24	2	0.37	3	0.795	0	0	0	0	0	0
Perch	34	5.61	45	9.45	29	7.395	8	2.2	1	0.38	0	0
Crucian carp	7	2.38	13	4.68	10	4.1	11	5.28	2	1.05	0	0
Roach	14	3.29	17	4.335	18	5.01	3	0.89	0	0	0	0
Bream	2	0.25	4	0.7	5	1.075	24	17.8	34	33.6	13	14.68
Pikeperch	6	1.134	8	1.72	11	3.74	28	24.8	16	15.65	7	8.6
Bleak	1	0.065	1	0.095	0	0	0	0	0	0	0	0
Ruff	2	0.128	2	0.19	3	0.36	0	0	0	0	0	0
Total	68	13.097	92	21.54	79	22.47	74	50.97	53	50.68	20	23.28

Since pikeperch of the Irikla Reservoir is a TAC regulated species, the Fishery Rules set a minimum fishing size for it (TL=40 cm for commercial fishery and TL=35 cm for recreational fishery) and the rate of by-catch. In addition, for amateur anglers, the daily catch rate for pikeperch is set at no more than 5 kg. These measures contribute to the implementation of the strategy of fishing, aimed at the preservation and increase of stock in the Irikla Reservoir.

3.3 Principle One: Target Species Background

This is a scope extension of the Irikla Reservoir perch gillnet fishery to include pikeperch as a main target species under Principle 1. The information provided in the following sections updates that reported by MRAG 2016 to refer specifically to pikeperch and provides additional evidence to score the outcome and management components of this fishery.

3.3.1 Stock Status

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. Thus, in the last century, two periods of maximum catches occurred in 1975 (45 tonnes) and in 1989–1991 (73 tonnes in 1990), between which catches decreased significantly. However, high catches at the turn of 1980–1990 are associated not so much with the increase in the number of pikeperch in the Irikla

Reservoir as a result of natural cyclical fluctuations of fish stocks, but rather with the collapse of the USSR and the sharp deterioration of the economic situation in the country. It was at this time that 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 occurred only in 2005–2008, after which a gradual increase in the stock began. Since 2008 the stock status of the pikeperch population within the Irikla Reservoir is determined on an annual basis by the Saratov branch of the Russian Federal “Research Institute on Fisheries and Oceanography” (VNIRO). 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 8).

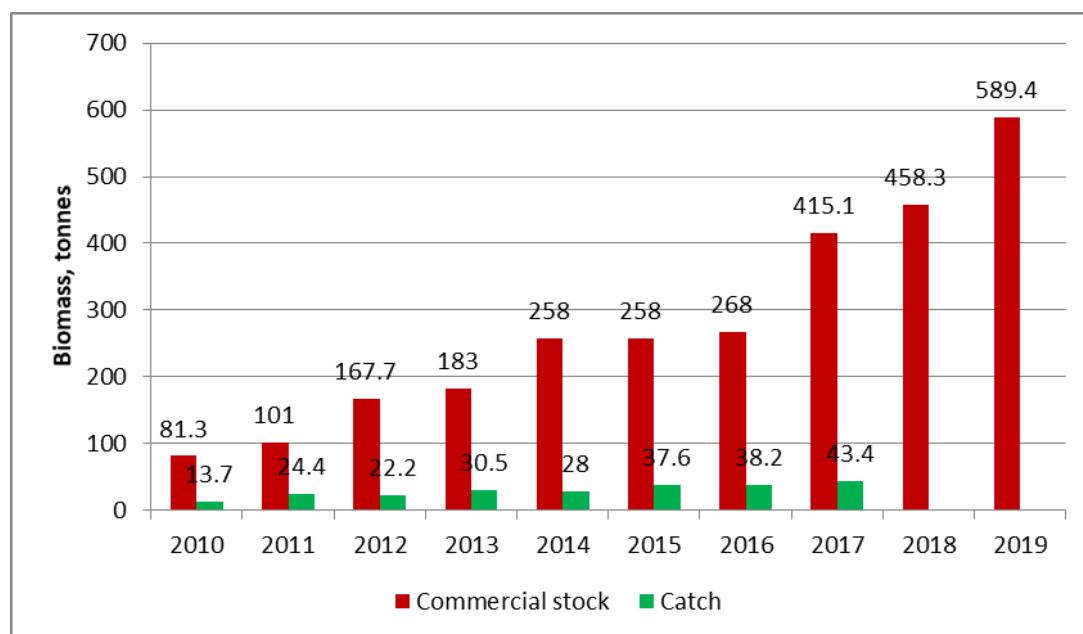


Figure 8. The dynamics of total commercial stock biomass and total catches (commercial plus recreational) of pikeperch in the Irikla Reservoir for 2010-2019.

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 9).

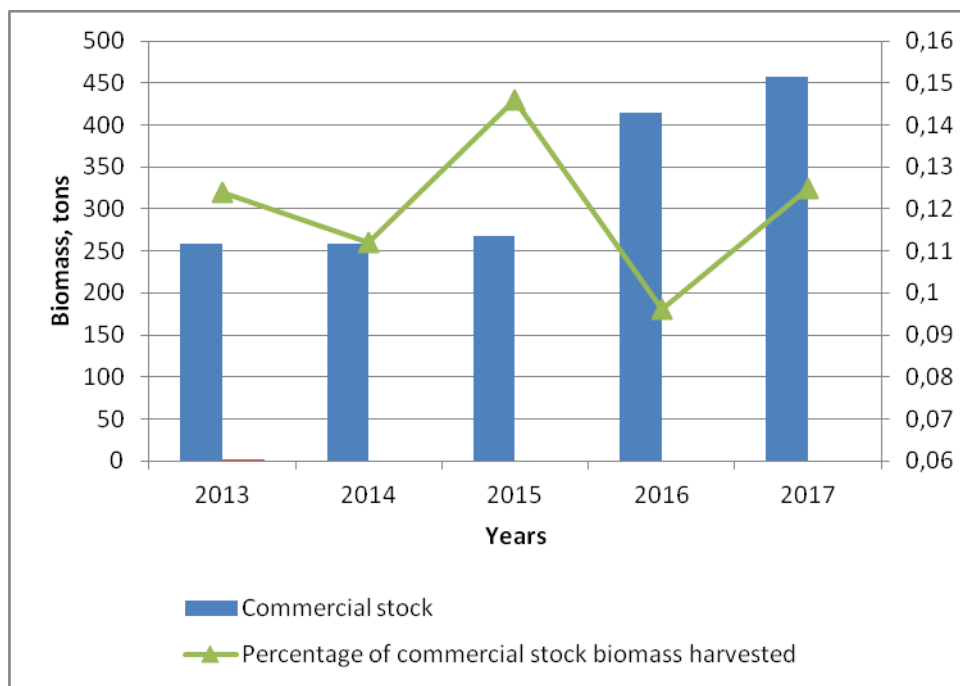


Figure 9. Percentage of commercial stock biomass harvested in the Irikla Reservoir in 2013-2017.

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 3.3.2 below). However, it is argued that the stock biomass must be above the point where recruitment would be impaired, else the stock would not show the year-on-year increase in biomass over the past 10 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 is 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 has not always been fully utilised by commercial fishery (usually not more than 80% of TAC), this would enable the stock to continue to increase with the observed trend in biomass.

3.3.2 Reference Points

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

Stock assessments for pikeperch are carried out by the Saratov Research Institute to estimate the total commercially available biomass (B_a) on an annual basis (Voronin 2007, 2008; Yermolin, 2014). Calculation of the commercially available biomass (B_a) is carried out according to the results of scientific fishing of all age classes of the pikeperch population using specialized ichthyological gill nets with different mesh sizes. The lower 95% CI estimate of B_a is used to calculate $0.2B_a$, which is equivalent to the target reference point (TRP) as is used with the same intent as B_{MSY} . The TRP based on $20\%B_0$ rather than virgin biomass (i.e. $20\%B_0$) is used to establish annual fishing opportunities for pikeperch and 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 (Figure 10).

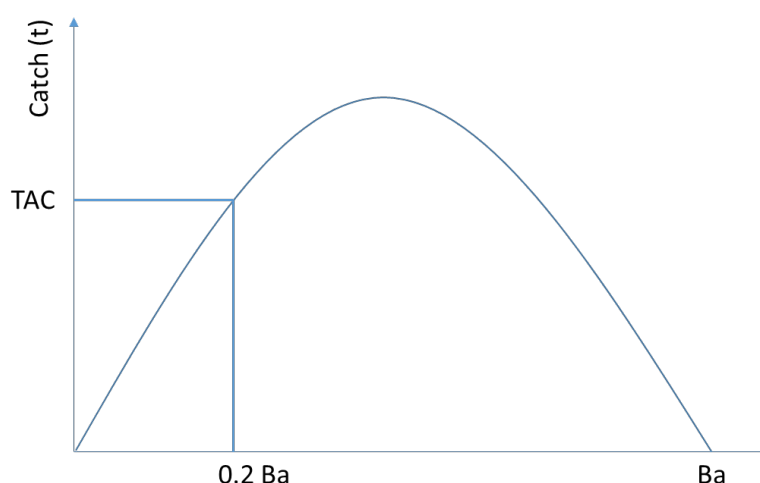


Figure 10. Schematic illustration to show calculation of total allowable catch (TAC) based on the total commercially available biomass ($0.2Ba$), used with the same intent as BMSY and maintains the stock level well above the point at which recruitment would be impaired.

In addition, there is no explicit limit reference point (LRP) in the Irikla pikeperch fishery, although this is considered to be implicit within the management measures and harvest control rules (see section 3.3.4 below). For example, according to fishing regulations for the Irikla Reservoir, the minimum size of a pikeperch to be caught by commercial fishery is 40 cm, therefore the legal mesh size of gillnets used within the pikeperch fishery prevent capture of undersized fish and minimises the risk of recruitment 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 stock.

3.3.3 Harvest Strategy

The Irikla 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 stock 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 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. As a result, management quotas for this species are set based on the results of an assessment for total allowable catch (TAC) species. The value of TAC is 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 pikeperch stock by commercial fishermen below the TAC 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 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: the uptake of quotas by commercial fishermen usually is around 80% of TAC.

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 pikeperch from research catches show that the harvest strategy is sustainable. Although the target age range of the commercial pikeperch fishery consists of fish of 3+-10+ years, the year 3+-6+ fish were the most prevalent in age in the catches (see Figure 3). 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 well-known methods of possible fishing (taking into account commercial, recreational and potential IUU catches) it can be seen that overfishing of pikeperch population has not been observed. On the contrary, in the last decade there is a steady increase of biomass of pikeperch in the Irikla Reservoir and proportion of this 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, a registration of catch of ABR by cumulative total by separate species is kept in the register book. 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.

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.

3.3.4 Harvest Control Rules and Tools

The Irikla 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 pikeperch to removal is ‘no higher than that which would cause the risk to the target species to be above an acceptable risk range’ (§GCB2.6, MSC CR ver1.3) 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 pikeperch 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 *B_a*) 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 *B_a* 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 (*B_{total}*) is provided in Figure 11.

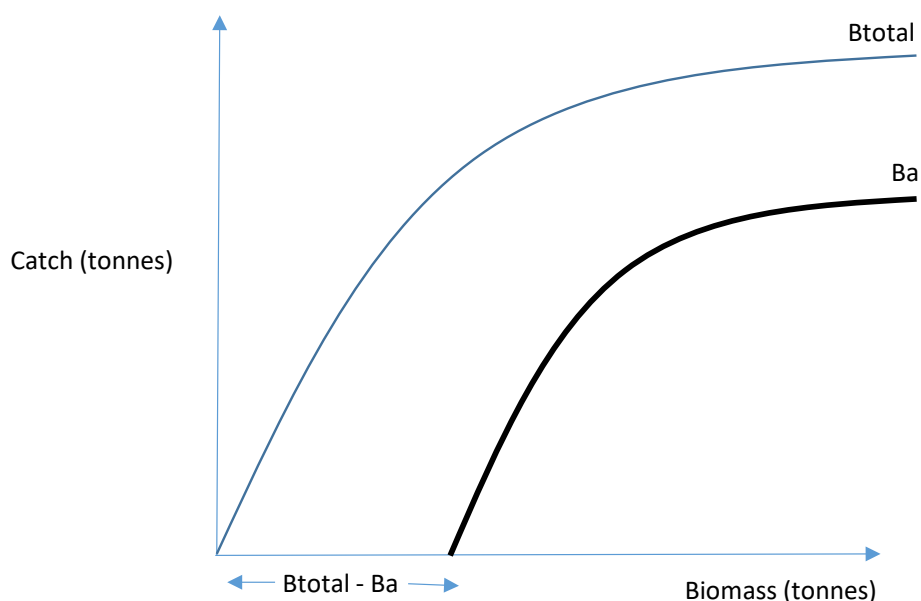


Figure 11. Schematic illustration of the implicit harvest control rule used for Irikla pikeperch. Annual catch quotas based on estimates of annual commercially available biomass (Ba) rather than total biomass.

It has been noted that as the annual TAC is calculated on the commercially available biomass (Ba), not total stock biomass (B_{total} ; Figure 11). 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 pikeperch TAC 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 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.

3.3.5 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, O₂) 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.

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 section 3.2 above).

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. A summary of the total monthly catch data from the commercial fishery (all gears) is presented in Figure 12.

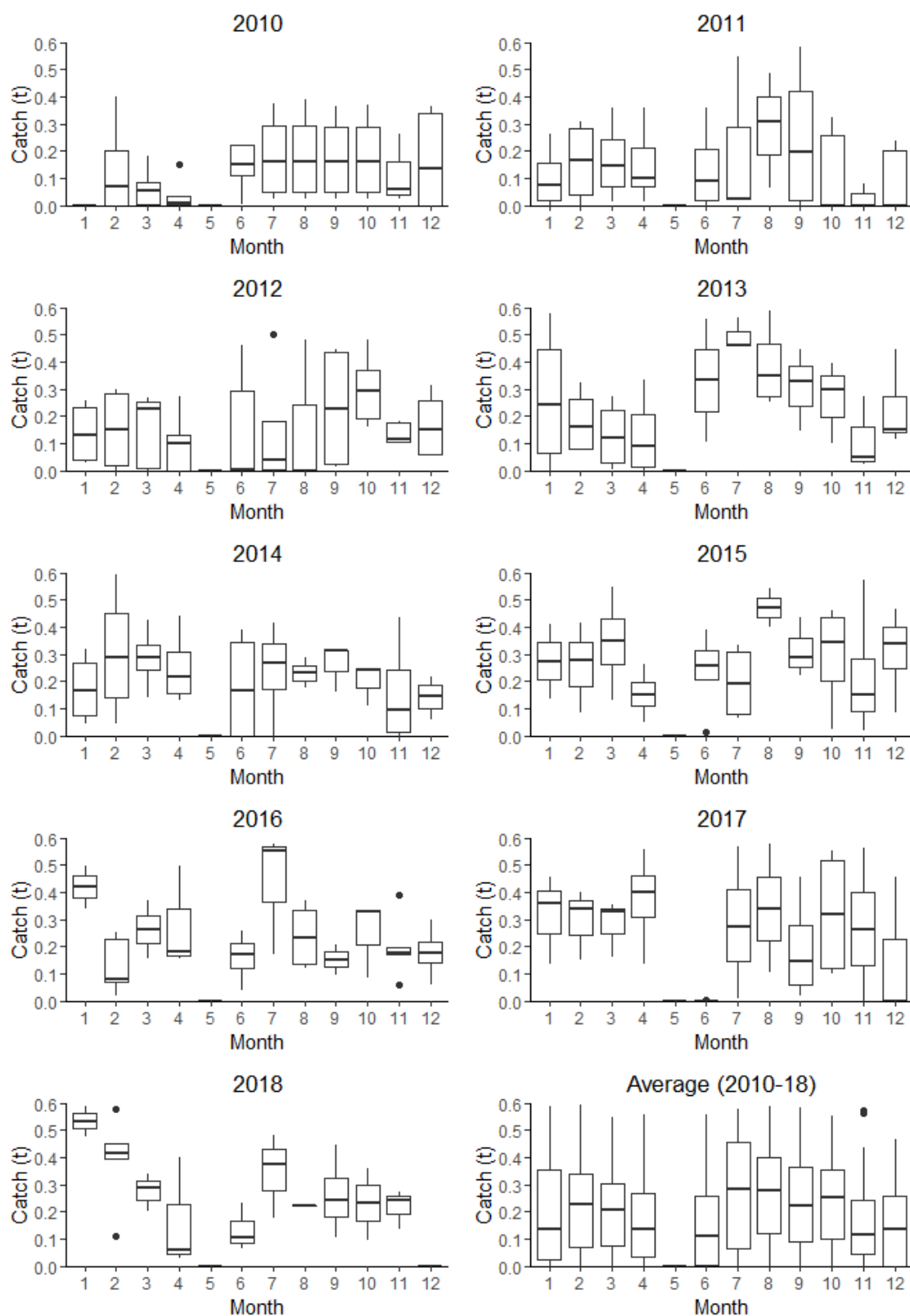


Figure 12. Average monthly catch of pikeperch (tonnes) between January 2010 and November 2018 for combined gillnet mesh sizes.

Data source: Fish-ka (December 2018).

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 in the Irikla Reservoir.

Table 3. 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)

According to official statistics (Table 3), the total annual catch of pikeperch has exceeded the quota in recent years by approximately 6-10%. This was due to overruns from the recreational sector, which is calculated at the end of the season. Whilst this additional modest catch and the precautionary nature of the assessment methodology to set quotas has not threatened the status of the stock, new regulations have been introduced to restrict the volume of recreational catches of pikeperch to 5 kg per person per day (see Table 13). It is anticipated that these new measures will prevent future overruns from the recreational sector.

The commercial catch has consistently been within annual quotas set, which 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. 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.

3.3.6 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 pikeperch analysed each year exceeds 700 with age determination conducted in about 400 individuals.

Calculation of the total available stock biomass¹ of the main commercial fish, including 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.

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

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

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 3).

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 ($S_{\text{total}} = 26,000$ 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. $56.5 \text{ t} / 0.08 = 706 \text{ t}$). 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, Karagoysheiev, 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. $6.01 \text{ kg} \times 19,500 \text{ ha} / 0.283 \times 0.7 = 591.6 \text{ t}$). 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. Further details are available within section 3.5.

3.4 Principle Two: Ecosystem Background

As this is a scope extension assessment, most of the ecosystem background information pertaining to this fishery contained in MRAG (2016) is relevant here and not repeated.

The exception to the above is that the assessment team now reviewed and updated Retained species composition since pikeperch was a main retained scoring element in the perch assessment and is now under consideration as a Principal 1 species. The assessment team had to assess the impact of this change to P2 species composition and scoring. In addition, due to the increase in mesh size used to target pikeperch (50-70 mm), a review of bycatch and ETP species was made and scoring updated, where necessary. For completeness, a review of the pikeperch fishery was made against both habitat and ecosystem impacts to ensure no further information was available at the time of this assessment.

3.4.1 Retained 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 13).

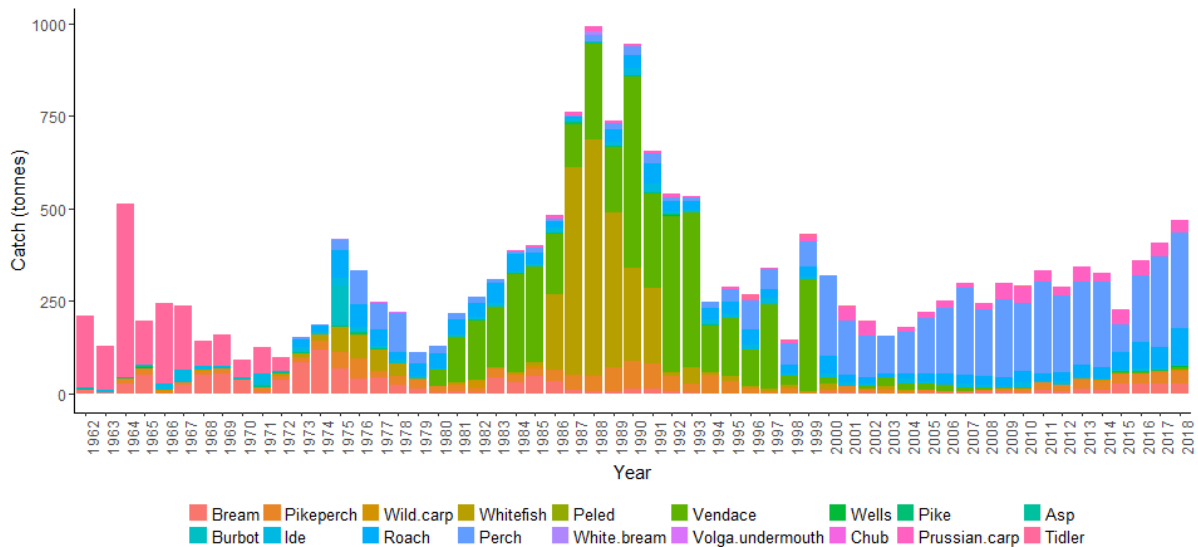


Figure 13: Commercial landings (tonnes) of main commercial fish species in the Irikla Reservoir, updated from MRAG 2016.

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

The commercial landings of main commercial species has 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 14. 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.

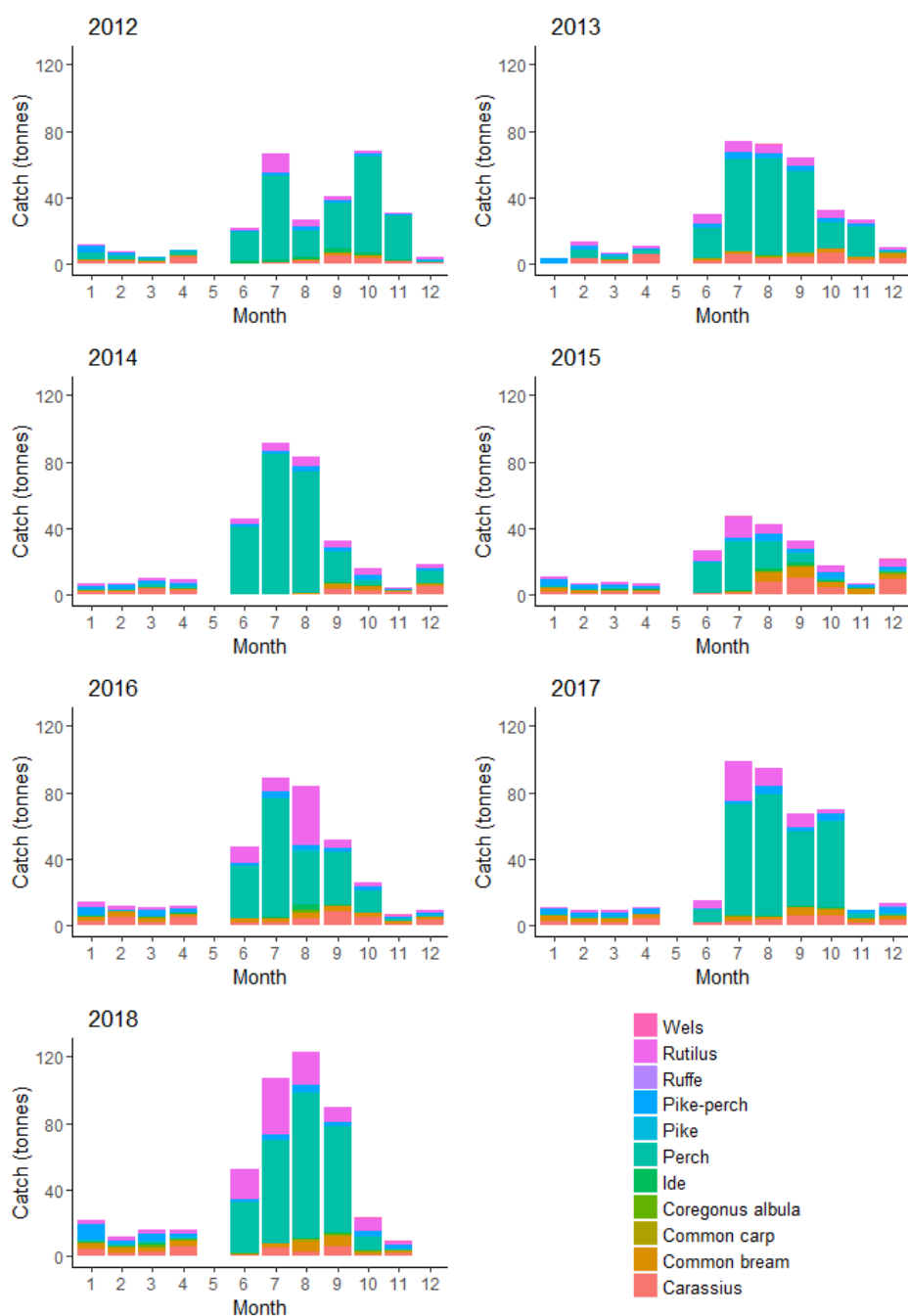


Figure 14. Monthly total weight (tonnes) of fish species captured by small mesh (30 – 36 mm) and large mesh (50 – 70 mm) gillnets between January 2012 and November 2018, updated from MRAG 2016.

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 catch (in weight) of retained species within the gillnet fishery (30-36 mm and 50-70 mm mesh size) between 2012 and 2018, updated from MRAG 2016.

Name	Species Name	2012	2013	2014	2015	2016	2017	2018
Roach	<i>Rutilus rutilus</i>	8.3	10.3	9.7	20.0	19.9	13.8	21.0
Prussian carp	<i>Carassius gibelio</i>	8.4	11.7	7.0	18.4	11.3	8.9	7.3
Bream	<i>Abramis brama</i>	2.5	3.7	3.8	12.1	7.4	6.7	6.0
Vendace	<i>Coregonus albula</i>	0.0	0.2	0.2	0.7	0.7	0.3	1.4
Wild carp	<i>Cyprinus carpio</i>	0.0	0.7	0.4	0.5	0.5	0.4	0.7
Ide	<i>Leuciscus idus</i>	3.2	0.1	0.7	2.7	1.5	1.0	0.7
Pike	<i>Esox lucius</i>	0.1	0.3	0.2	0.6	0.9	0.5	0.4
Wells	<i>Silurus glanis</i>	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 retained finfish species taken using small (30-36 mm) and large (50-70 mm) gillnet mesh sizes, updated from MRAG 2016.

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

Table 6. Species composition of retained finish species (excl. pikeperch and perch) taken during 2018 research using gillnet mesh sizes (50, 60 and 70 mm).

Species	Species Name	Mesh size						
		50 mm		60 mm		70 mm		Total
		No.	kg	No.	kg	No.	kg	%
Bream	<i>Abramis brama</i>	22	16.2	31	31.6	14	15.9	67
Prussian carp	<i>Carassius gibelio</i>	13	5.7	3	1.6	0	0	16
Ide	<i>Leuciscus idus</i>	12	4.3	1	0.4	0	0	13
Roach	<i>Rutilus rutilus</i>	3	0.87	0	0	0	0	3
Pike	<i>Esox lucius</i>	1	0.9	0	0	0	0	1
Total		51	27.97	35	33.6	14	15.9	100

Both perch and pikeperch are now considered under Principle 1. Based on the latest catch information for large mesh size (50-70 mm), three species are classified as main retained 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 retained 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 retained scoring elements. However, the assessment of retained species management and information basis as contained in MRAG 2016 applies equally to this scope extension, therefore rescoring of the management and information PIs for retained species is not necessary.

Table 7. Retained 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	<i>Leuciscus idus</i>	No	No	20.1	Retained - main
Bream	<i>Abramis brama</i>	No	No	17.9	Retained – main
Prussian Carp	<i>Carassius gibelio</i>	No	No	16.7	Retained – main
Perch	<i>Perca fluviatilis</i>	No	No	1.6	Retained – minor
Roach	<i>Rutilus rutilus</i>	No	No	0.4	Retained – minor
Vendace	<i>Coregonus albula</i>	No	No	0.2	Retained – minor

3.4.1.1 Status of new main retained species

Of the three main retained 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 system².

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

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.

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 retained species in the Irikla Reservoir pikeperch gillnet fishery (bream, ide and Prussian carp) is shown in the table below.

Table 8. 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 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 9. 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	<i>Abramis brama</i>	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 10. 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	<i>Leuciscus idus</i>	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	<i>Carassius gibelio</i>	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.

3.4.2 Bycatch species

As this is a scope extension to the Irikla Reservoir perch fishery, MRAG (2016) has previously described the monitoring and evaluation of 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 bycatch species is negligible or non-existent Davygora pers. comm., 2018).

3.4.3 ETP-listed species

MRAG (2016) has previously described the range of fish, mammals, amphibians and birds associated with water bodies listed in the Red Book of the Orenburg Province that may potentially interact with the perch gillnet fishery. During the stakeholder consultation in October 2018, it was confirmed that no changes had occurred in either national legislation or ETP species composition within the region (Davygora, pers. comm., 2018).

Due to the seasonal pattern of the pikeperch fishery, which occurs mainly throughout the autumn and winter periods, there is potentially a risk to migrating fish-eating birds. There are a number of species that can dive down to about 10 m depth, but these are all common species of least concern and not considered ETP species (e.g. breeding loon, *Gavia arctica*, great crested grebe, *Podiceps cristatus*, and red-breasted merganser, *Mergus serrator*).

Of the ETP species of waterfowl, the Pallas's gull (*Larus ichthyaetus*) in the Suunduksky region is regularly monitored. This is a large gull that is capable of taking fish from nets close to shore. To date, there is one nesting colony with 600-800 pairs. The population is reported to be stable with only small fluctuations, showing the existing 5 km exclusion zone for fishing around the colony is currently effective at minimising interactions (Davygora, pers. comm., 2018). A separate logbook kept by each fisherman also keeps a record of bird interactions, including ETP species.

Stakeholder consultation during this scope extension confirmed that the fishery does not have any further updates or significant impacts on ETP species within the reservoir.

3.4.4 Habitat

The potential risk of habitat interactions from the fishery were described in MRAG 2016. This scope extension assessment confirms that the fishery does not have any further updates or significant impacts on the habitats within the reservoir. The large mesh gillnets are set under the ice close to the bottom during the winter period and either near the surface or kept near the bottom during the spring and autumn periods. Lost or damaged gillnets occur infrequently and great efforts are made to retrieve lost gear (Belyanin pers. comm, 2018).

The assessment of habitat status, management and information basis as contained in MRAG 2016 applies equally to this scope extension, therefore rescoring of these PIs for habitat is not necessary.

3.4.5 Ecosystem

A detailed description of the ecosystem has been provided in MRAG 2016. With specific reference to pikeperch, *S. lucioperca* consumes both arthropods (including isopods and insects) and fish (including cyprinids, percids, and salmonids) (Argillier et al. 2012) and consumes zooplankton when young (Gröger et al. 2007). It has been reported that pikeperch can also change their prey selection relatively rapidly in response to changes in the abundance and vulnerability of prey species (Popova 1978; 1979). *S. lucioperca* can shift to a planktivore diet during their first year if fish prey are not available, indicating that they are able to adopt an optimal foraging strategy (Persson and Brönmark 2008).

The assessment of ecosystem status, management and information basis as contained in MRAG 2016 applies equally to this scope extension, therefore rescoring of these PIs for ecosystem is not necessary.

3.5 Principle Three: Management System Background

3.5.1 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)³ an Agency of the Ministry of Agriculture of the Russian Federation⁴. 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.

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.

³ <http://government.ru/en/department/243/>

⁴ <http://www.mcx.ru>

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: Russian legal entities, individual entrepreneurs and citizens engaged in fishing in the Caspian Sea and inland waters, the fisheries;

1. Russian legal entities, individual entrepreneurs and citizens engaged in fishing in the Caspian Sea and inland waters, the fisheries; 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;
2. 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);
3. 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.
4. 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.
5. 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.

6. 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.
7. 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.
8. 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)).
9. 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.
10. 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.

11. 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.
12. 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 is 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.
22. 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 Irikliinskaya Hydroelectric Power Station.
23. 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.
25. 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 11. Minimum retention sizes (cm) by species and location in commercial fishery.

Species	Location ⁵	Minimum retention size (cm)
Sterlet		42
Asp		40
Pike		32
Pikeperch		40
Bream		25
	Volgograd Reservoir	30
	(Orenburg region), except for Irikla Reservoir	28
	Iriklienskoye (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 (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.

⁵ Entire Orenburg Province if not specified elsewhere.

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

Species	Location ⁶	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 13. 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;

⁶ Entire Orenburg Province if not specified elsewhere.

- 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”.

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.

3.5.1.1 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.

3.5.1.2 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;
- 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 42).

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.

3.5.2 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.

3.5.3 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.⁷

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.

3.5.4 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 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.

⁷ <http://www.fish.gov.ru/lawbase/Pages/default.aspx>

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.

3.5.5 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 (Iliia 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.

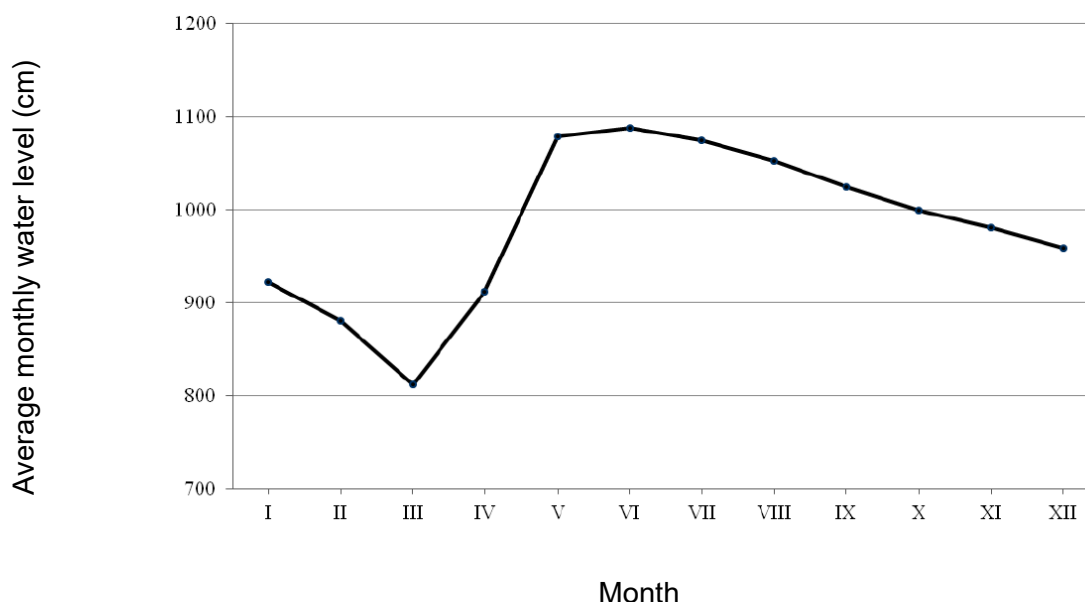


Figure 15. Average monthly water levels (cm) - Irikla Reservoir (1961 - 2010).

Source: Saratov Research Institute.

3.5.6 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)

3.5.7 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.

3.5.8 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)⁸. 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 described⁹. 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 (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

⁸ Andrey Yermolaev, Orenburg Region, Federal Agency for Fisheries. Personal communication, 21st October, 2014.

⁹ Alexander Zobkov (Head - Department of state control, supervision and protection of aquatic biological resources) Thursday 23rd October, 2014; Wednesday 17th October, 2018).

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.

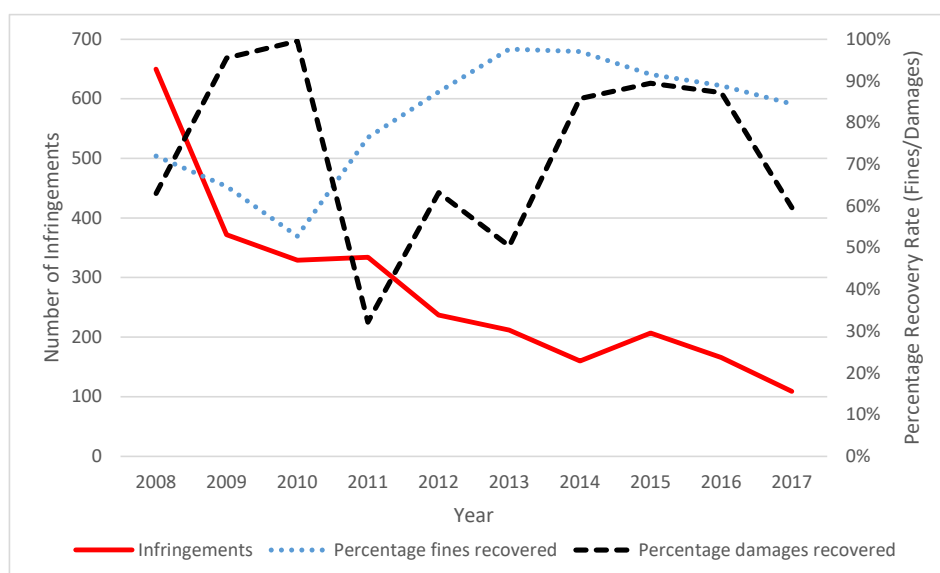


Figure 17. Reported infringements and rates of recovery of fines and damages, Irikla Reservoir (2008-2013).

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.

3.5.9 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.

3.5.10 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.

3.5.11 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.

4 Evaluation Procedure

4.1 Harmonised Fishery Assessment

There are no previous fishery assessments of pikeperch that have been certified within the Irikla Reservoir freshwater body.

4.2 Previous assessments

This is the first assessment of the pikeperch fishery on the Irikla Reservoir and forms part of a scope extension to the Irikla Reservoir perch gillnet fishery.

4.3 Assessment Methodologies

To carry out the scope extension process, MSC FCR version 2.0 Annex PE was used. Indicators that are newly scored are from the default assessment tree contained within MSC CR version 1.3 without alterations. This version of the CR was used for scoring per scope extension requirements, because the original perch assessment used this version.

4.4 Evaluation Processes and Techniques

4.4.1 Site Visits

Irikla Pikeperch Fishery Site Visit Assessment Schedule

The site visits for the Irikla Reservoir pikeperch fishery were held between the 17th and 18th October 2018 in Energetik and Orenburg, Orenburg Province, Russian Federation. The itinerary for the site visits conducted, detailing the dates, locations and attendees for each meeting is as follows:

Summary of meetings conducted in Energetik and Orenburg, 17th – 18th October 2018

Date	Activity	Attendance
17 th October, 2018	Meeting with client, Energetik, Russia	Konstantin Ageev (Director, Fish-ka) Elena Ermolova (Lawyer, Volna) Aleksander Ageev (Head of fishery department, Fish-ka). Dmitry Lajus (Advisor, Fish-ka)
	Orenburg province of the Federal Agency for Fisheries (Rosrybolovstvo)	Alexander Zobkov (Head – Department of state control, supervision and protection of aquatic biological resources) Konstantin Ageev (Director, Fish-ka) Elena Ermolova (Lawyer, Volna) Dmitry Lajus (Advisor, Fish-ka)
	Stakeholder meeting with fishermen from fishing companies Volna Ltd and Fish-ka Ltd	Pavel Laptov (Director, Volna Ltd) Alymov Igor (master of fishing, Volna Ltd) Yeskin Aleksander (fisherman, Volna Ltd) Konstantin Ageev (Fish-ka, Director) Dmitry Lajus (Advisor, Fish-ka)
18 th October, 2018	Stakeholder meeting with Saratov Research Institute,	Iliya Belyanin (Senior Researcher, Saratov branch of the State Research Institute for Lake

Date	Activity	Attendance
	Energetik, Russia	and River Fisheries) Konstantin Ageev (Director, Fish-ka) Elena Ermolova (Lawyer, Volna), Dmitry Lajus (Advisor, Fihs-ka)
	Orenburg State Pedagogical University on ETP Species	Anatoly Davygora (Associate Professor, department of Zoology and human and animal physiology) Elena Ermolova (Lawyer, Volna) Dmitry Lajus (Advisor)
	Meeting with client, Orenburg, Russia	Aleksander Ageev (Head of fishery department, Fish-ka). Konstantin Ageev (Director, Fish-ka) Elena Ermolova (Director, Fish-ka) Dmitry Lajus (Advisor)

4.4.2 Consultations

Stakeholder comments and Conformity Assessment Body (CAB) responses have been included where appropriate in Appendix 5. The assessment team met with a number of stakeholders representing the various stakeholder interests: industry, local government, regional bodies and research institutions. The names and affiliations are listed in section 4.4.1. Details of the interviews are recorded. The issues and concerns raised by the stakeholders in the meetings highlighted were recorded and where appropriate they have been considered in the scoring of the relevant PIs.

All individuals interviewed were invited by the assessment team and the client to obtain specific information about the pikeperch fishery and the management of the Irikla Reservoir. Notification of the site visits were published locally as per requirements (English version at <https://fisheries.msc.org/en/fisheries/irikla-reservoir-perch-fishery/@assessments>).

In response to the notification, there were no other interested stakeholders who requested an opportunity to participate in the stakeholder meetings followed the notification of the visit by the assessment team. It had previously been noted in the pre-assessment report that there are no NGOs with an active interest in the reservoir and the impacts of the pikeperch fishery in particular.

Industry

- Fish-ka and Volna
- Fishermen

Regional Management

- Orenburg Territorial Administration of the Federal Agency for Fisheries (Rosrybolovstvo)

Science and Research

- Saratov branch of the Lake and River Fishery Research Institute
- Orenburg State Pedagogical University (on ETP Species)

Other Stakeholders

- At the current time no single representative body for the recreational fishermen exists and no individual was available to comment.
- There are at this time no recognised NGOs with a particular interest for the Irikla Reservoir.

4.4.3 Evaluation Techniques

This assessment used the Standard Assessment Tree set out in MSC Certification Requirements v1.3. Sufficient data was available to score all main species (target and retained), and therefore the MSC Risk Based Framework (RBF) was not used in the assessment for these species (Table 14). Use of this assessment tree has been the subject of stakeholder consultation (direct e-mail from MRAG Americas; notification on the MSC website; and notification via the MSC Fishery Updates). No comments were received from any stakeholders.

The MSC Principles and Criteria set out the requirements of a certified fishery. The certification methodology adopted by the MSC involves the interpretation of these Principles and Criteria into specific PIs and Scoring Guideposts against which the performance of Fishery can be measured. In order to make the assessment process as clear and transparent as possible, these identify the level of performance necessary to achieve 100, 80 (a pass score), and 60 scores for each Indicator.

For each PI, the performance of the fishery is assessed as a 'score'. In order for the fishery to achieve certification, an overall score of 80 is considered necessary for each of the three Principles, 100 represent ideal best practice and 60 a measurable shortfall. A fishery cannot be certified if a score below 60 is recorded. As it is not considered possible to allocate precise scores, a scoring interval of five is therefore used in evaluations. Scores are allocated based on the consensus opinion of the assessment team.

Scores allocated for each PI were entered into the MSC Fishery Assessment Scoring Worksheet in order to attain the overall Principle scores; the final scores for each PI are shown in Section 6 of this report.

Table 14. Scoring elements.

Component	Scoring elements		Main/minor	Data-deficient?
1.1.1 Stock status	Pikeperch	<i>Sander lucioperca</i>	Main	No
2.1.1 Retained	Ides	<i>Leuciscus idus</i>	Main	No
	Bream	<i>Abramis brama</i>	Main	No
	Prussian carp	<i>Carassius gibelio</i>	Main	No
	Perch	<i>Perca fluviatilis</i>	Minor	No
	Roach	<i>Rutilus rutilus</i>	Minor	NA
	Vendace	<i>Coregonus albula</i>	Minor	NA
2.2.1 Bycatch	Grebe	<i>Podiceps</i> spp	NA	NA
2.3.1 ETP	Pallas's gull (syn. greater black-headed gull)	<i>Ichthyaetus ichthyaetus</i> (syn. <i>Larus ichthyaetus</i>)	NA	NA
2.4.1 Habitat	Pelagic waters		NA	NA
2.5.1 Ecosystem	Irikla Reservoir		NA	NA

5 Traceability

5.1 Eligibility Date

The eligibility date for the pikeperch UoC in this scope extension assessment is the date of publication of the Public Comment Draft Report. This is in line with the proposed timeline outlined in the MSC Fishery Announcement.

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 outlined below.

Table 15. Traceability factors within the fishery.

Traceability Factor	Description of risk factor if present. Where applicable, a description of relevant mitigation measures or traceability systems (this can include the role of existing regulatory or fishery management controls)
Potential for non-certified gear/s to be used within the fishery.	<p>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.</p> <p>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).</p> <p>Two companies operate collaboratively within the Irikla Reservoir and temporal changes in retained species composition and size structure of processed fish would be reported.</p>
Potential for vessels from the UoC to fish outside the UoC or in different geographical areas (on the same trips or different trips).	<p>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.</p>
Potential for vessels outside of the UoC or client group fishing the same stock.	<p>Fishing is tightly controlled by the two companies who are the only buyers of pikeperch from the Irikla Reservoir. Therefore, the risk of vessels fishing outside the UoC is considered to be negligible.</p>
Risks of mixing between certified and non-certified catch during storage, transport, or handling activities (including transport at sea and on land, points of landing, and sales at auction).	<p>All licensed commercial fishermen are included within the UoC.</p> <p>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).</p> <p>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</p>

	representatives from each fishing company and transported in their original fish boxes to their premises at Energetik, Irikla Reservoir for processing.
Risks of mixing between certified and non-certified catch during processing activities (at-sea and/or before subsequent Chain of Custody).	There is no on-board processing in this fishery.
Risks of mixing between certified and non-certified catch during transshipment.	There is no transshipment 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.
Any other risks of substitution between fish from the UoC (certified catch) and fish from outside this unit (non-certified catch) before subsequent Chain of Custody is required.	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

MRAG Americas has evaluated the eligibility of 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 (FISH & MORE 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 point of sale between fishers and the processor (FISH & MORE GMBH).

5.4 Eligibility of Inseparable or Practically Inseparable (IPI) stock(s) to Enter Further Chains of Custody

No IPI stocks are involved in this assessment.

6 Evaluation Results

6.1 Principle Level Scores

The performance of this fishery in relation to MSC Principles 1, 2, and 3 is summarised in the table below.

Table 16. Final Principle scores.

	Score
Principle 1 – Target Species	81.9
Principle 2 – Ecosystem	83.3
Principle 3 – Management System	82.6

6.2 Summary of Scores

The scores assigned to each PI for this fishery are shown in Table 17.

Table 17. Scores for the Irikla Reservoir pikeperch fishery.

Principle	Component	Wt (L2)	PI No.	PI	Score
One	Outcome	0.5	1.1.1	Stock status	80
			1.1.2	Reference points	80
			1.1.3	Stock rebuilding	NA
	Management	0.5	1.2.1	Harvest strategy	85
			1.2.2	Harvest control rules & tools	80
			1.2.3	Information & monitoring	90
			1.2.4	Assessment of stock status	80
Two	Retained species	0.2	2.1.1	Outcome	80
			2.1.2	Management	80
			2.1.3	Information	80
	Bycatch species	0.2	2.2.1	Outcome	80
			2.2.2	Management	80
			2.2.3	Information	80
	ETP species	0.2	2.3.1	Outcome	95
			2.3.2	Management	85
			2.3.3	Information	80
	Habitats	0.2	2.4.1	Outcome	100
			2.4.2	Management	90
			2.4.3	Information	80
	Ecosystem	0.2	2.5.1	Outcome	80
			2.5.2	Management	80
			2.5.3	Information	80

Principle	Component	Wt (L2)	PI No.	PI	Score
Three	Governance and policy	0.5	3.1.1	Legal & customary framework	100
			3.1.2	Consultation, roles & responsibilities	85
			3.1.3	Long term objectives	80
			3.1.4	Incentives for sustainable fishing	100
	Fishery specific management system	0.5	3.2.1	Fishery specific objectives	80
			3.2.2	Decision making processes	85
			3.2.3	Compliance & enforcement	80
			3.2.4	Research plan	70
			3.2.5	Management performance evaluation	80

6.3 Summary of Conditions and Recommendations

6.3.1 Conditions

The Irikla Reservoir pikeperch fishery attained a score below 80 for one PI. The assessment team has therefore set a condition for continuation of certification that the client is required to address. The condition is applied to improve performance to at least the 80 level within a period set by the certification body but no longer than the term of the certification.

As a standard requirement of the MSC certification methodology, the fishery shall be subject to (as a minimum) annual surveillance audits. Progress towards the milestones set out in the conditions shall be reviewed at these annual audits. The annual surveillance audits shall be publicised and reports made publicly available.

The condition, associated timescales, and relevant PI is summarised in the table below.

Table 18. Summary of conditions.

Condition number	Condition	Performance Indicator	Related to previously raised condition? (Y/N/N/A)
1	A research plan should be prepared for the Irikla Reservoir pikeperch fishery that is designed to provide the management system with reliable and timely information about the effects of the fishery on the pikeperch stock and the components of the reservoir environment.	3.2.4	N

6.3.2 Recommendations

Recommendation for PI 1.2.3 – Although the average weight of pikeperch retained by 50 mm gillnets in scientific catches is above 800 g (Table 2) that is larger than the minimum size limits (40 cm TL; Table 11) it is recommended that that future research be conducted to demonstrate the size composition of fish caught does not fall below this limit. In addition, given the recent changes in regulation to impose 5 kg catch limit of pikeperch per day, it is important to monitor catches to determine whether this is sufficient to control the observed end-of-season overrun of catches against the quota against for PI 3.2.3.

6.4 Determination, Formal Conclusion and Agreement

The fishery attained a score of 80 or more against each of the MSC Principles and did not score less than 60 against any PIs. The assessment team has concluded that the Irikla Reservoir Pikeperch Gillnet Fishery (as defined in this report) should therefore be certified according to the Marine Stewardship Council Principles and Criteria for Sustainable Fisheries.

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Legislation

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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).

Appendix 1 Scoring and Rationales

Principle 1 Evaluation Table

Evaluation Table for PI 1.1.1

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	Guidepost	It is likely that the stock is above the point where recruitment would be impaired.	It is highly likely that the stock is above the point where recruitment would be impaired.	There is a high degree of certainty that the stock is above the point where recruitment would be impaired.
	Met?	Y	Y	N
	Justification	<p>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).</p> <p>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.</p> <p>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.</p> <p>This qualitative assessment is deemed sufficient evidence to meet the highly likely requirements at SG80. However, the stock assessment does not provide evidence to confirm with a high degree of certainty that the stock is above the PRI to meet SG100.</p>		
b	Guidepost		The stock is at or fluctuating around its target reference point.	There is a high degree of certainty that the stock has been fluctuating around its target reference point, or has been above its target reference point, over recent years.
	Met?		Y	N
	Justification	<p>The harvest strategy does not use explicit reference points, such a target reference point (TRP) to determine stock status.</p> <p>As changes in the reservoir ecosystem continue, including annual fluctuations in water level and ice cover, it is difficult to establish a B_{MSY}-</p>		

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing	
		<p>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 largely because of food availability released by reductions in competitor fish.</p> <p>The lower 95% CI estimate of the total available biomass (B_a) is used to calculate TAC at the level of $0.3B_a$, which is equivalent to the target reference point (TRP) as is used with the same intent as BMSY. The TRP based on $30\%B_a$ 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.</p> <p>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.</p> <p>However, uncertainty in the definition of target reference point, 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.</p>	
References		Voronin (2007); Voronin (2008); Yermolin (2014); Kilyakova & Lysenko (2007); Belyanin (2018). See also section 3.3 of this report.	
Stock Status relative to Reference Points			
	Type of reference point	Value of reference point	Current stock status relative to reference point
Target reference point	Biomass	$B_{MSY} \sim 30\%B_a$ (recommend) $B_{MSY} \sim 20\%B_a$ (in practice)	Abundance demonstrably higher than just a few years ago with persisting increasing trend of biomass
Limit reference point	Biomass	Equivalent to TRP	Abundance demonstrably higher than just a few years ago with persisting increasing trend of biomass
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and 1 out of 2 at SG100.			80
CONDITION NUMBER (if relevant):			NA

Evaluation Table for PI 1.1.2

PI 1.1.2		Limit and target reference points are appropriate for the stock		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.	Reference points are appropriate for the stock and can be estimated.	
	Met?	Y	Y	
	Justification	<p>The fishery does not have explicit reference points, such as B_{LIM} or B_{MSY}. Instead, a proxy value is used for both TRP and LRP, which recommended as $30\%Ba$ for TAC species (including pikeperch), where Ba is the total commercially available biomass, calculated by the Saratov Research Institute on an annual basis. However, for the pikeperch, a milder fishing regime has been defined, so that the established fishing mortality for fishing ages does not exceed $F = 0.2$ on average. The precautionary practice of pikeperch fishing in the Irikla Reservoir has demonstrated its effectiveness in the form of a progressive increase in the number and biomass of the population over the past decade.</p> <p>Estimation of the Ba reflects the high selectivity of gillnets used by the fisheries-independent survey to sample the population and is also similar to the selectivity of the commercial fishery, which excludes juvenile and older mature fish.</p> <p>Reference points specific to the fishery are considered appropriate to maintain the stock above the point where recruitment would be impaired and are estimated on an annual basis by the Saratov Research Institute. Combined these are considered appropriate to meet both SG60 and SG80.</p>		
b	Guidepost		The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.	The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of precautionary issues.
	Met?		Y	N
	Justification	<p>As highlighted in SIa above, the LRP is equivalent to the TRP and therefore aims to maintain the stock at a level consistent with BMSY and ensure further growth of the population.</p> <p>Studies conducted by Saratov Research Institute at Irikla reservoir (which belongs to the Volga basin as well as Volgograd and Saratov reservoirs) confirmed the possibility of implementation of such an approach in terms of current increasing of pikeperch population, which gives a certain advantage for the organization of the fishery (Yermolin, 2014).</p> <p>According to researchers, within the range of removal of 35 - 50% of commercially available stock biomass ($LRP = 35-50\%Ba$) significant changes in the ecosystem does not occur. The ichthyocenosis structure remains stable mainly due to the fact that the ecological niches of fish in Irikla</p>		

PI 1.1.2		Limit and target reference points are appropriate for the stock		
		<p>reservoir are species-specific. There are no significant changes in food resources and the spatial distribution of fish under that fishing pressure. For pikeperch, belonging to the valuable species of fish, the fishery pressure is regulated by TAC, the value of which is recommended to be set at the level of 30%<i>Ba</i>. In practice, commercial mortality for pikeperch never exceeds 20%<i>Ba</i>, since it has been established on a precautionary basis with the aim of gradually increasing the biomass of the population in the Irikla Reservoir. Therefore, it can be stated that $LRP < 20\%Ba$.</p> <p>The precautionary LRP (equivalent to TRP) maintains the stock above the point that there is an appreciable risk of impairing reproductive capacity, as demonstrated by the year-on-year increase in biomass (Figure 8), and is sufficient evidence to meet SG80 level. It cannot be clearly demonstrated that LRP has been specifically been set following consideration of precautionary issues to meet SG100, rather it has been set ($LRP=TRP$) as default.</p>		
c	Guidepost		The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome.	The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, or a higher level, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.
	Met?		Y	N
	Justification	<p>The fishery does not use B_{MSY} as a TRP, but instead calculates a proxy value (about 20%<i>Ba</i>) on an annual basis that is used with the same level of intent and outcome (see section 3.3).</p> <p>Using a proportion of the commercially available biomass (<i>Ba</i>) as a proxy for the TRP ensures that both juvenile and older mature fish remain unfished in the population and maintain the stock at highly productive levels.</p> <p>This proxy used for the TRP, coupled with the suite of precautionary management measures as part of the harvest strategy has demonstrated to be very effective at allowing the stock to increase during the last decade (cf. Figure 8).</p> <p>This provides a strong qualitative rationale that the TRP is appropriate for maintaining the stock at productive levels sufficient to meet SG80. However, while it could be argued that use of the available biomass (<i>Ba</i>) rather than total biomass (<i>Btotal</i>) is more precautionary in setting a TRP, there is currently no evidence that other issues such as the ecological role of the stock has been considered in the TRP sufficient to meet SG100.</p>		
d	Guidepost		For key low trophic level stocks, the target reference point takes into account the ecological role of the stock.	
	Met?		Not applicable	

PI 1.1.2		Limit and target reference points are appropriate for the stock		
	Justification	Pikeperch is a predatory fish, maturing at age 3-4 years thus it cannot be considered low trophic level species.		
References		Nebolsina (1980); Nebolsina et al., (1986); Yermolin (1980); Yermolin (2004); Yermolin (2014); (Poddubniy & Gordeev (1966); Shashulovskiy & Mosiyash (2003); Karagoyshev & Romanenko (1981); Belyanin (2018). See section 3.3.1 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 1.1.3

PI 1.1.3		Where the stock is depleted, there is evidence of stock rebuilding within a specified timeframe		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Where stocks are depleted rebuilding strategies, which have a reasonable expectation of success, are in place.		Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the specified timeframe.
	Met?	NA		NA
	Justification	There is no evidence that the stock is depleted. This PI is not scored		
b	Guidepost	A rebuilding timeframe is specified for the depleted stock that is the shorter of 30 years or 3 times its generation time. For cases where 3 generations is less than 5 years, the rebuilding timeframe is up to 5 years.	A rebuilding timeframe is specified for the depleted 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 depleted stock.
	Met?	NA	NA	NA
	Justification	There is no evidence that the stock is depleted. This PI is not scored		
c	Guidepost	Monitoring is in place to determine whether the rebuilding strategies are effective in rebuilding the stock within a specified timeframe.	There is evidence that they are rebuilding stocks, or it is highly likely based on simulation modelling or previous performance that they will be able to rebuild the stock within a specified timeframe.	
	Met?	NA	NA	
	Justification	There is no evidence that the stock is depleted. This PI is not scored		
References		NA		
OVERALL PERFORMANCE INDICATOR SCORE: This PI is not applicable and has not been scored.				NA
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 1.2.1

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	The harvest strategy is expected to achieve stock management objectives reflected in the target and limit reference points.	The harvest strategy is responsive to the state of the stock 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 responsive to the state of the stock and is designed to achieve stock management objectives reflected in the target and limit reference points.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>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 (<i>Ba</i>) and proxy TRP (about 20%<i>Ba</i>), which are calculated by the Saratov Research Institute before each fishing season commences.</p> <p>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.</p> <p>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).</p> <p>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.</p>		
b	Guidepost	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.

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
	Met?	Y	Y	N
	Justification	<p>There is a range of evidence to demonstrate the harvest strategy has been successful in achieving its objectives.</p> <p>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).</p> <p>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 frequently below the TAC quota (cf. Table 9). Further to this, the level of infringements is infrequent and relatively minor, implying the harvest strategy is effective.</p> <p>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 8). At the same time, the growth rate of pikeperch remains stable in all age groups. In addition, an increased proportion of pikeperch is reported in catches compared to other fish species (Figure 13).</p> <p>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.</p>		
c	Guidepost	Monitoring is in place that is expected to determine whether the harvest strategy is working.		
	Met?	Y		
	Justification	<p>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.</p> <p>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.</p> <p>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.</p> <p>In recent years considerable reduction of the level of illegal catch of fish in the</p>		

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
		<p>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.</p> <p>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.</p> <p>Available evidence on the level of monitoring of the harvest strategy is sufficient to meet SG60.</p>		
d	Guidepost			The harvest strategy is periodically reviewed and improved as necessary.
	Met?			Y
	Justification	<p>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.</p> <p>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.</p> <p>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</p>		

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
		<p>stock assessment.</p> <p>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 planned to be allocated to any fishing company in 2019. 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).</p> <p>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.</p>		
e	Guidepost	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?	Not relevant	Not relevant	Not relevant
	Justification	The target species is not a shark.		
References		Shashulovsky <i>et al.</i> , (2014); Yermolin (2014); Belyanin (2018). Section 3.3.3 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				85
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 1.2.2

PI 1.2.2		There are well defined and effective harvest control rules in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Generally understood harvest rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.	Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.	
	Met?	Y	Y	
	Justification	<p>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' (§GCB2.6, MSC ver1.3) that is considered relevant to the scale and intensity of the fishery.</p> <p>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, <i>Ba</i>) 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 <i>Ba</i> such that the exploitation rate decreases as a function of stock size (cf. Figure 11). Furthermore, the TAC quotas for pikeperch are calculated on the available biomass (<i>Ba</i>), i.e., approximately 20% of the lower 95% confidence interval of stock abundance. Were the <i>Ba</i> 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; <i>Btotal</i> - <i>Ba</i>) would remain to facilitate rebuilding and thus reduces the risk of impairing recruitment capacity.</p> <p>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 <i>Ba</i> is significantly reduced. To date, there is no record of this management action being required in the fishery.</p> <p>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. The highly selective mesh size prevents the capture of both juvenile and large mature fish, thus helping to eliminate recruitment and growth overfishing.</p> <p>These relatively simple harvest control rules and tools are appropriate for the scale and intensity of the fishery, and are deemed sufficient to meet both the requirements at both SG60 and SG80 levels.</p>		
b	Guidepost		The selection of the	The design of the harvest

PI 1.2.2		There are well defined and effective harvest control rules in place		
			harvest control rules takes into account the main uncertainties.	control rules takes into account a wide range of uncertainties.
	Met?		Y	N
	Justification	<p>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.</p> <p>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).</p> <p>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.</p>		
c	Guidepost	There is some evidence that tools used to implement harvest control rules 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 harvest control rules.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>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.</p> <p>Under these circumstances, there is sufficient evidence to meet the requirements at both SG60 and SG80 levels but not considered comprehensive to meet SG100.</p>		
References		Shashulovsky <i>et al.</i> , (2014); Yermolin (2014); Belyanin (2018). Section 3.3 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 1.2.3

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring Issue		SG 60	SG 80	SG 100
A	Guidepost	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 is available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Y	Y	Y
	Justification	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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).</p>		

PI 1.2.3		Relevant information is collected to support the harvest strategy		
		<p>The organisation for the management and production of the Irikla Reservoir carries out systematic monitoring of 32 (including pH, O₂) 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.</p> <p>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.</p>		
b	Guidepost	Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and fishery 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?	Y	Y	N
	Justification	<p>The harvest control rule is managed on an annual frequency which is appropriate for the management of the stock.</p> <p>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.</p> <p>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.</p> <p>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 (<i>Ba</i>) to the fishery. The Saratov Research</p>		

PI 1.2.3		Relevant information is collected to support the harvest strategy		
		<p>Institute uses gillnets with a gear selectivity similar to that of the commercial fishery to estimate biomass.</p> <p>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.</p> <p>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.</p>		
c	Guidepost		There is good information on all other fishery removals from the stock.	
	Met?		Y	
	Justification	<p>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.</p> <p>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.</p> <p>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.</p>		
References		Poddubniy & Gordeev (1966); Yermolin (1980); Yermolin (2004); Karagoishev, (1983); Yermolin (2014); Belyanin (2018); Federal law 20.12.2004 N 166-FZ Section 3.3.5 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				90
CONDITION NUMBER (if relevant):				N/A

Evaluation Table for PI 1.2.4

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost		The assessment is appropriate for the stock and for the harvest control rule.	The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.
	Met?		Y	N
	Justification	<p>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.</p> <p>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.</p>		
b	Guidepost	The assessment estimates stock status relative to reference points.		
	Met?	Y		

PI 1.2.4		There is an adequate assessment of the stock status		
	Justification	The current stock assessment methodology defines both target and limit reference points 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 and are deemed appropriate to meet the SG60 scoring level.		
c	Guidepost	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?	Y	Y	N
	Justification	<p>The assessment takes uncertainty into account, including estimates on the level of the recreational catch and illegal fishing.</p> <p>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.</p> <p>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.</p> <p>Given the scale and 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.</p>		
d	Guidepost			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			N
	Justification	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, given in section 3.3.6), 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		

PI 1.2.4		There is an adequate assessment of the stock status		
		concluded that alternative hypotheses have been rigorously explored to meet the requirements at the SG100 level.		
e	Guidepost		The assessment of stock status is subject to peer review.	The assessment has been internally and externally peer reviewed.
	Met?		Y	N
	Justification	<p>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.</p> <p>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.</p> <p>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.</p>		
References		Poddubniy & Gordeev (1966); Yermolin (1980); Nebolsina, 1980;); Yermolin (2004); Karagoysheyev (1978); Karagoishev, Romanenko (1981); Treschev (1983); Shashulovsky & Mosiyash (2003); Shashulovsky et al (2014); Yermolin (2014); Belyanin (2018). Section 3.3.6 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Principle 2 Evaluation Tables

Evaluation Table for PI 2.1.1

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Main retained species are likely to be within biologically based limits (if not, go to scoring issue c below).	Main retained species are highly likely to be within biologically based limits (if not, go to scoring issue c below).	There is a high degree of certainty that retained species are within biologically based limits and fluctuating around their target reference points.
	Met?	Y	Y	N
	Justification	<p>For the purposes of an MSC assessment, “retained” species are those that are caught in the fishery and are landed by a fishing vessel, even if these species have no commercial value.</p> <p>The MSC define “main” retained species as those that make up 5% or more of the total catch (unless the retained species have a high value, are vulnerable, or the fishery is large (MSC GCR at §GCB3.5.2). The MSC also specify that only those parts of the retained catch that are not assessed under Principle 1 should be assessed under Principle 2 (MSC CR at §CB3.5.1). The available evidence indicates that there are three “main” retained species in the pikeperch gillnet fishery using large mesh size (50-70 mm), ide (<i>Leuciscus idus</i>), bream (<i>Abramis brama</i>) and Prussian carp (<i>Carassius gibelio</i>). This is based on commercial catch data and species retention by gillnet mesh sizes (Table 4 and Table 5).</p> <p>Bream is currently assessed and managed as a TAC species whereas both ide and Prussian carp are assessed and managed based on a recommended catch quota (RAC species). Stock assessments conducted by Saratov Research Institute are used to calculate quotas based on the lower confidence limit of 30 per cent of the total biomass for TAC species (i.e. bream) and 50 per cent of the total biomass for RAC species (i.e. ide and Prussian carp).</p> <p>All ‘main’ retained species in the pikeperch fishery are managed and assessed either as a TAC (bream) or RAC (ide and Prussian carp) species (see Table 9 and Table 10). Fisheries statistics from 2009 to date, show reported catches for all retained species have remained below precautionary TAC or RAC quotas, calculated from annual stock assessments for each species. Results from stock assessments show that the retained species are highly likely within biologically based limits although biomass levels for both bream and Prussian carp continue to show year-on-year increases, suggesting each population has not reached, or is fluctuating around, the TRP. Lower catch levels have had a positive impact on the status of both bream and Prussian carp stock biomass, which have increased by 74% and 125%, respectively between 2010 and 2017, whereas the status of ide populations has remained relatively stable over this period (Table 8).</p> <p>This provides strong quantitative evidence that the fishery does not cause serious or irreversible harm to these species and that all three stocks are highly likely to be above biologically based limits. This is sufficient to meet SG60 and SG80.</p> <p>While results of the stock assessment show each ‘main’ species is highly</p>		

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species		
		likely to be above biologically based limits, the reported year-on-year increase in population biomass for both bream and Prussian carp suggests the populations are still increasing and there is insufficient evidence is available to demonstrate that they have reached or are fluctuating around their TRP. The fishery does not meet SG100.		
b	Guidepost			Target reference points are defined for retained species.
	Met?			N
	Justification	<p>Similar to pikeperch, the 'main' retained species (either TAC or RAC species) are managed as a proportion of the commercially available biomass (<i>Ba</i>), which is used as a proxy for the TRP with the same level of intent and outcome. In addition, they are used to establish fishing opportunities for TAC (30%<i>Ba</i>) and RAC (50%<i>Ba</i>) species.</p> <p>However, some evidence indicates that non-quota species (i.e. neither TAC nor RAC) such as Vendace (<i>Coregonus albula</i>) are likely to be retained as a 'minor' species, albeit in very small numbers, that prohibit the fishery meeting SG100.</p>		
c	Guidepost	If main retained species are outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species.	If main retained species are outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding.	
	Met?	NA	NA	
	Justification	As highlighted in Scoring Issue a (S1a) above, the main retained species are highly likely to be within biological based limits. This not applicable.		
d	Guidepost	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.		
	Met?	Y		
	Justification	The status of bream, ide and Prussian carp are well understood and are considered to be above the point that would impair recruitment or hinder recovery (see section 3.4.1 of this report). As noted in S1a above, each species is managed on an annual basis using catch limits based on a proportion of the available biomass and effort is restricted based on a finite		

PI 2.1.1		The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species	
		number of licenses and both spatial and temporal closed areas. These measures are sufficient to meet the requirements at SG60.	
References		Poddubniy & Gordeev (1966); Yermolin (1980); Nebolsina, 1980; Nebolsina <i>et al.</i> , 1986); Yermolin (2004); Karagoyshiyev (1987); Shashulovsky & Mosiyash (2003); Yermolin (2014); Mosiyash (1984); Mosiyash and Nikanorov (1978); Belyanin (2018). Section 3.4 of this report.	
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.			80
CONDITION NUMBER (if relevant):			NA

Evaluation Table for PI 2.1.2

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing retained species.
	Met?	Y	Y	N
	Justification	<p>For the purposes of an MSC assessment, “measures” are individual management actions or tools which may manage impacts either deliberately or coincidentally; a “partial strategy” is a cohesive set of measures that work together (again, either deliberately or coincidentally) to achieve a management outcome; and a “strategy” is a cohesive, deliberate and effective management approach designed to addressing unacceptable impacts (full definitions are given in the MSC GCR at §GCB3.3).</p> <p>There are a number of measures in place to ensure the objectives of the fisheries management systems are met. These include gear restrictions, closed areas, closed seasons and fishing quotas. The pikeperch fishery limits the mesh size of gillnets to between 50 and 70 mm, which also limits the potential interactions of other finfish species. The pikeperch fishery has a number of closed areas, mainly to protect ETP species. In addition to closed areas, a closed season exists annually between 15th April and 15th May to protect spring spawning fish in the reservoir.</p> <p>The main retained species (bream, ide and Prussian carp) are managed through an effort-based catch quota system limiting the number of fishermen; TAC (bream) or a recommended catch (ide and Prussian carp) that is designed to ensure the pikeperch fishery does not hinder their recovery or rebuilding.</p> <p>Compliance with the management measures is conducted by inspectors of the Territorial Branch of the FFA. Catch quotas are also carefully monitored by the fishing company for TAC and RAC species. Combined, these represent a strategy for ‘main’ species that clearly meets the requirements for SG60 and SG80. SG100 is not met as there is no clear strategy to manage all retained species, including other ‘minor’ species such as Vendace (<i>Coregonus albula</i>) albeit caught in small numbers, through a quota system.</p>		
b	Guidepost	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.

PI 2.1.2		There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species		
		similar fisheries/species).	species involved.	
	Met?	Y	Y	N
	Justification	<p>There is an objective basis for confidence that the fishery does not pose a risk of serious or irreversible harm to retained non-target species. The evidence that supports this view is provided by the information (from both industry sources and independent stock assessment results) that demonstrates current status of the fish stocks. The statutory controls and industry-led monitoring programme in place prevent catch quotas being exceeded and the over-exploitation of the main retained species.</p> <p>The partial strategy in place (comprising of industry-led measures and statutory controls) therefore meets the SG60 and SG80 requirements. SG100 is not met because there has been no testing of a formal strategy for managing retained species capture.</p>		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	N
	Justification	<p>There is evidence to demonstrate that the partial strategy is being implemented successfully through monthly catch reporting (Figure 14), industry-led utilisation of large-mesh sizes (50-70 mm), and limited number of licensed fishermen operating within a delimited area in Irikla Reservoir. Annual quotas (TAC and recommended catch) are also calculated for main retained species that are established based on a precautionary basis.</p> <p>The SG80 requirements are met, but in the absence of a full management strategy SG100 is not met.</p>		
d	Guidepost			There is some evidence that the strategy is achieving its overall objective.
	Met?			N
	Justification	There is no overall objective for the retained non-target species in the Irikla Reservoir. This SI is not met at SG100.		
e	Guidepost	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?	Not relevant.	Not relevant.	Not relevant.
	Justification	There is no evidence of the capture of any sharks in this fishery. This SI is not relevant.		
References		Poddubniy & Gordeev (1966); Yermolin (1980); Yermolin (2004);		

PI 2.1.2	There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species	
	Karagoishev, (1983); Yermolin (2014); Federal law 20.12.2004 N 166-FZ. Section 3.4 of this report.	
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.		80
CONDITION NUMBER (if relevant):		NA

Evaluation Table for PI 2.1.3

PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Qualitative information is available on the amount of main retained species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery.	Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.
	Met?	Y	Y	N
	Justification	Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery. Some qualitative information is available from local fishermen about the type and quantity of fish landed. In addition, quantitative catch data are reported by commercial fisherman on a daily basis through logbooks and reported to the processor for all retained species and used to monitor cumulative catch quotas on a regular basis. This is sufficient to meet the requirements at SG60 and SG80. No evidence is available to demonstrate that the quantitative catch data is accurate or verifies that it represents all retained species (including minor species) sufficient to meet SG100.		
b	Guidepost	Information is adequate to qualitatively assess outcome status with respect to biologically based limits.	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.
	Met?	Y	Y	N
	Justification	Given the closed nature of fish populations within the Irikla Reservoir, the Saratov Research Institute conduct fisheries-independent research to determine stock status and establish annual catch quotas for a number of commercially important retained species based on biologically based limits. This is sufficient to meet SG60 and SG80. Quantitative information is not collected to conduct assessments of stock status for minor species. The lack of quantitative data does not provide a high degree of certainty for all retained species sufficient to meet SG100.		
c	Guidepost	Information is adequate to support measures to manage main retained species.	Information is adequate to support a partial strategy to manage main retained species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Y	Y	N
	Justification	The information available about the total landed catch of main retained species in the fishery, coupled with the information about the distribution of		

PI 2.1.3		Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species		
		closed areas with respect to non-target species range and the good compliance with statutory controls is sufficient to meet the SG60 and SG80 requirements. However, due to the lack of information from an assessment of stock status to establish a strategy using quotas for all retained species (i.e. both main and minor species) is deemed insufficient to meet SG100.		
d	Guidepost		Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator score or the operation of the fishery or the effectiveness of the strategy)	Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.
	Met?		Y	N
	Justification	Catch data are collected by processors and abundance estimated during the independent annual stock surveys in the Irikla Reservoir that would detect a change in risk level to non-target species. This meets the SG80 requirements, but while catch data are available for all main commercial species (i.e. TAC and RAC species), ongoing mortalities are not calculated for non-quota species preventing the fishery meeting the requirements at SG100.		
References		Shashulovsky <i>et al.</i> , (2014); Yermolin (2014); Belyanin (2018); Section 3.4.1 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 2.2.1

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Main bycatch species are likely to be within biologically based limits (if not, go to scoring issue b below).	Main bycatch species are highly likely to be within biologically based limits (if not, go to scoring issue b below).	There is a high degree of certainty that bycatch species are within biologically based limits.
	Met?	Y	Y	N
	Justification	<p>For the purposes of an MSC assessment “bycatch” are those species that are caught in the fishing gear and are then thrown back into the water (either alive or dead). In many parts of the world, the term “discards” is used in preference to “bycatch” to describe this element of the catch.</p> <p>The MSC define “main” bycatch species as those that make up 5% or more of the total catch (unless the species are vulnerable, or the fishery is large (MSC GCR at §GCB3.5.2). The MSC also specify that only those species that are discarded and that are not assessed either under Principle 1 or other components of P2 (i.e. as retained species) should be assessed under Principle 2 (MSC CR at §CB3.8.1).</p> <p>There are around 30 species of fish found within the Irikla Reservoir (MRAG, 2016) and a number of bird and amphibian species. However, the pelagic gear is highly selective and set in specific locations as to maximize the catch of pikeperch and a modest volume of other retained species of commercial importance (TAC or RAC species). A specific bycatch reporting form has been developed to record any bycatch in the fishery, which was designed primarily for birds, but can include other species such as discarded fish species and amphibians, where necessary.</p> <p>To date, there are no records of any “main” bycatch fish species in the pikeperch fishery (i.e. making up 5% or more of the catch). Similarly, reported data shows a negligible number of birds have been caught in gillnets (grebes, mainly great crested grebe) and no amphibians and demonstrates that there are no main bycatch species taken by the fishery.</p> <p>The SG60 and SG80 requirements are met because there is evidence that there are no ‘main’ bycatch species in this fishery. The SG100 requirements are not met because there is some uncertainty about the status of the bycatch species (grebe) in the fishery (even though it is highly unlikely that the reported discarding of live grebe in small quantities from this fishery would have any effect on the stock status of the species concerned).</p>		
b	Guidepost	If main bycatch species are outside biologically based limits there are mitigation measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding.	If main bycatch species are outside biologically based limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	

PI 2.2.1		The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
	Met?	NA	NA	
	Justification	There are no 'main' bycatch species in the fishery (i.e. making up more than 5% of the total catch), that are considered to be outside biologically based limits, so this SI is not scored.		
c	Guidepost	If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the bycatch species to be outside biologically based limits or hindering recovery.		
	Met?	Y		
	Justification	<p>There are a number of management measures in place that help reduce the impact of the fishery on bycatch species so that it does not cause species to be outside biologically based limits or hindering recovery. These include industry measures to regulate the number of gillnets in use and mesh size (50-70 mm), and statutory controls on the seasonal closures that limit the level of interactions with bycatch species, including birds. Only pelagic gillnets are used, limiting the interaction with other species such as amphibians.</p> <p>The status of the great crested grebe within the Irikla Reservoir is poorly known. However, the breeding population is known to extend across some 158 million km², and their status is reported as least concern by IUCN Red List for birds. Within Irikla Reservoir, a very small number of birds are discarded (released alive) from a finite number of fishing parcels, which makes it highly unlikely that this fishery would have an impact on this population. The SG60 requirement is met.</p>		
References		IUCN red list (2015); Yermolin (2014); MRAG (2016); Birdlife International (2019); Section 3.4.2 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 2.2.2

PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There are measures in place, if necessary, that are expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a partial strategy in place, if necessary, that is expected to maintain the main bycatch species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.	There is a strategy in place for managing and minimizing bycatch.
	Met?	Y	Y	N
	Justification	<p>For the purposes of an MSC assessment, 'measures' are individual management actions or tools which may manage impacts either deliberately or coincidentally; a 'partial strategy' is a cohesive set of measures that work together (again, either deliberately or coincidentally) to achieve a management outcome; and a 'strategy' is a cohesive, deliberate and effective management approach designed to addressing unacceptable impacts (full definitions are given in the MSC GCR at §GCB3.3).</p> <p>As the fishery does not catch any 'main' bycatch species, measures or a partial strategy is not considered necessary (MSC CR at §CB3.3.1). The fishery therefore meets SG60 and SG80. Although not considered as necessary, a range of management measures are in place for the Irikla Reservoir pikeperch fishery that also act to minimize the bycatch rate of fish and other species. These measures include industry measures to regulate the number of gillnets in use and mesh size (50-70 mm), and statutory controls on the seasonal and specific areal closures that limit the level of interactions with bycatch species, including birds. In addition, industry led fishing practices (e.g. gear setting) and statutory controls (e.g. mesh size, quota allocation, closed areas) applying to the Irikla Reservoir pikeperch fishery also constitute a partial strategy for managing bycatch, thus also meeting the SG60 and SG80 requirements.</p> <p>While the management measures and partial strategy used to manage the commercial fishery also benefit the management of bycatch species, there is no evidence of a strategy in place specifically to minimize bycatch. There is no evidence that this fishery and/or the species discarded have been considered under a specific strategy for managing and minimizing bycatch species sufficient to meet the requirement at SG100.</p>		
b	Guidepost	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar	There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or species involved.

PI 2.2.2		There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations		
		fisheries/species).		
	Met?	Y	Y	N
	Justification	<p>The fishery does not catch any 'main' bycatch species, and as such measures or a partial strategy is not considered necessary (MSC CR at §CB3.3.1). The fishery therefore meets both SG60 and SG80.</p> <p>However, in addition to this, the fishery operates a number of management measures and industry led initiatives that provides some objective basis that the fishery will have a negligible impact on bycatch species. Gear is carefully monitored by the processors on an annual basis, and known bycatch species (reportedly birds) that are discarded (dead or alive) from the fishery have a broad distribution and across Europe and Russia.</p> <p>Given there is currently no overarching strategy in place to manage bycatch species, this cannot be tested to meet SG100.</p>		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	N
	Justification	<p>The fishery does not catch any 'main' bycatch species, and as such measures or a partial strategy is not considered necessary (MSC CR at §CB3.3.1). The fishery therefore meets both SG60 and SG80.</p> <p>There is evidence, however, that the partial strategy of industry-led measures and statutory controls are being implemented effectively. This evidence is provided through logbook records provided by fishermen to processors and level of compliance with fisheries regulations (e.g. closed seasons). Catch data collected using similar gear during the Saratov Research Institute stock assessment surveys support the findings of low catches of non-target species (including bird) within the fishery.</p> <p>This is sufficient to meet the requirements for SG80. However, there is currently no overarching strategy in place to manage bycatch species that can be monitored to meet SG100.</p>		
D	Guidepost			There is some evidence that the strategy is achieving its overall objective.
	Met?			N
	Justification	<p>The fishing gear is designed to efficiently catch the target size of pikeperch. The large size of mesh used to target pikeperch (50-70 mm) does not catch many discarded fish species, and the existing management measures and partial strategy helps prevent significant capture of other bird or amphibian species such that bycatch is not a serious issue. However, given there is no bycatch-specific strategy to meet SG100.</p>		
References		Shashulovsky <i>et al.</i> , (2014); Yermolin (2014); Belyanin (2018); Section 3.4.2 of this report.		

PI 2.2.2	There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations	
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.		80
CONDITION NUMBER (if relevant):		NA

Evaluation Table for PI 2.2.3

PI 2.2.3		Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Qualitative information is available on the amount of main bycatch species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main bycatch species taken by the fishery.	Accurate and verifiable information is available on the catch of all bycatch species and the consequences for the status of affected populations.
	Met?	Y	Y	N
	Justification	<p>There is qualitative information from stakeholder interviews and some quantitative information from the fishing industry (e.g. bycatch forms) and research survey data (similar gear used to commercial fishery) to describe the amount of bycatch species taken by the fishery. These are sufficient to meet SG60 and SG80.</p> <p>No accurate and verifiable information is available for all bycatch species (e.g. amphibians) sufficient to meet the requirements at SG100.</p>		
b	Guidepost	Information is adequate to broadly understand outcome status with respect to biologically based limits	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty.
	Met?	Y	Y	N
	Justification	<p>A bycatch reporting form is issued to all licensed fishermen in addition to the logbook to report all main retained commercial species (MRAG, 2016).</p> <p>To date, due to the high selectivity of the pelagic large mesh gillnets, small number of licenced fishermen and conservative management measures, only a small number of birds have been reported as bycatch on catch forms. This detailed quantitative information on bycatch is deemed sufficient to estimate the outcome status with respect species' biologically based limits to meet both SG60 and SG80.</p> <p>A lack of fisheries independent observations on the level of all bycatch prevents the fishery meeting SG100.</p>		
c	Guidepost	Information is adequate to support measures to manage bycatch.	Information is adequate to support a partial strategy to manage main bycatch species.	Information is adequate to support a strategy to manage bycatch, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Y	Y	N
	Justification	No main bycatch species are caught in the fishery. However, quantitative information on bycatch (including photographic records) is deemed adequate to support a partial strategy, including closed areas and closed seasons and		

PI 2.2.3		Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch		
		gillnet mesh size. This is sufficient to meet SG60 and SG80. The fishery does not meet SG100 as data are not available for all bycatch species caught and there is not a specific bycatch strategy in place.		
d	Guidepost		Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).	Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.
	Met?		Y	N
	Justification	Fisheries dependent data on bycatch (to date only number of birds caught) are reported through bycatch forms and annual fisheries independent surveys using similar gear types are conducted on a regular basis sufficient to detect any increase in risk to potential main bycatch species. Both SG60 and SG80 are met. SG100 is not met as current fisheries dependent monitoring does not occur at such a level as to assess ongoing mortalities to all bycatch species.		
References		Poddubniy & Gordeev (1966); Yermolin (1980); Yermolin (2004); Karagoishev, (1983); Yermolin (2014); Belyanin (2018); Section 3.4.2 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 2.3.1

PI 2.3.1		The fishery meets national and international requirements for the protection of ETP species The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Known effects of the fishery are likely to be within limits of national and international requirements for protection of ETP species.	The effects of the fishery are known and are highly likely to be within limits of national and international requirements for protection of ETP species.	There is a high degree of certainty that the effects of the fishery are within limits of national and international requirements for protection of ETP species.
	Met?	Y	Y	Y
	Justification	<p>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. Furthermore, with exception to the Pallas's gull (<i>Larus ichthyaetus</i>), no bird or mammal species identified under CITES Appendix I and the national legislation (Orenburg Red Book) are resident in the reservoir. Bird species only occur during periods of migration when they do not feed in the reservoir and therefore not be expected to come into direct contact with the fishing gear. The spatial and temporal distribution of fishing effort is controlled and is known not to come into contact with Pallas's gull.</p> <p>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.</p>		
b	Guidepost	Known direct effects are unlikely to create unacceptable impacts to ETP species.	Direct effects are highly unlikely to create unacceptable impacts to ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the fishery on ETP species.
	Met?	Y	Y	Y
	Justification	<p>Most ETP species do not feed in the reservoir and would not come into contact with the fishing gear. Of the ETP species present in the reservoir only Pallas's gull is resident and the specific fishing area "parcel" in which the gull colony is resident is not currently fished (an distance of 5 km has been closed to fishing around the colony).</p> <p>There are no known direct effects of the fishery on ETP species, which is sufficient to meet the requirements at SG60, SG80 and SG100.</p>		
c	Guidepost		Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the fishery on ETP species.
	Met?		Y	N
	Justification	While the indirect effects of the fishery on ETP species have been		

PI 2.3.1		<p>The fishery meets national and international requirements for the protection of ETP species</p> <p>The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species</p>
		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 <i>et al.</i> , (1977); Davygora, (2014); Davygora, (2015); Red book of the Orenburg Province; Appendix 1, CITES; Section 3.4.3 of this report.
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and 2 out of 3 at SG100.		95
CONDITION NUMBER (if relevant):		NA

Evaluation Table for PI 2.3.2

PI 2.3.2		The fishery has in place precautionary management strategies designed to: <ul style="list-style-type: none"> • Meet national and international requirements; • Ensure the fishery does not pose a risk of serious harm to ETP species; • Ensure the fishery does not hinder recovery of ETP species; and • Minimise mortality of ETP species. 		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There are measures in place that minimise 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 fishery'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 fishery'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?	Y	Y	N
	Justification	<p>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.</p> <p>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.</p> <p>This is deemed sufficient to meet the requirements at SG60 and SG80. Given the scale and intensity of the fishery, a comprehensive strategy is not deemed necessary, although this prevents the fishery from meeting SG100.</p>		
b	Guidepost	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 strategy will work, based on information directly about the fishery and/or the species involved.	The 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?	Y	Y	N
	Justification	The temporal and spatial distribution of both Pallas's gull and fishery is well known within the reservoir, and given the known lack of any interaction between them provides some evidence that the measures in place will work.		

PI 2.3.2		The fishery has in place precautionary management strategies designed to: <ul style="list-style-type: none"> • Meet national and international requirements; • Ensure the fishery does not pose a risk of serious harm to ETP species; • Ensure the fishery does not hinder recovery of ETP species; and • Minimise mortality of ETP species. 		
		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.		
c	Guidepost		There is evidence that the strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	Statutory controls limit spatial and temporal fishing effort such that they are expected to reduce or eliminate interactions with Pallas's gull. Quantitative data collected from bird bycatch forms also provide clear evidence that the current management strategy to avoid fishing within certain parcels where the gull is present is working. This is sufficient to meet the requirements at both SG 80 and SG100.		
d	Guidepost			There is evidence that the strategy is achieving its objective.
	Met?			N
	Justification	There is some evidence that the strategy is achieving its objectives, as the number of reported bycatch is small and the impact of the fishery on bycatch species is therefore likely to be negligible. However, lack of routine sampling of bycatch (grebe) species cannot clearly demonstrate that the strategy is achieving its objective to meet SG100.		
References		Davygora, (2014); Davygora, (2015); Section 3.4.3 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and 1 out of 4 at SG100.				85
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 2.3.3

PI 2.3.3		Relevant information is collected to support the management of fishery impacts on ETP species, including: <ul style="list-style-type: none"> 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	Guidepost	Information is sufficient to qualitatively estimate the fishery related mortality of ETP species.	Sufficient information is available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.	Information is sufficient to quantitatively estimate outcome status of ETP species with a high degree of certainty.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>While a 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.</p>		
b	Guidepost	Information is adequate to broadly understand the impact of the fishery on ETP species.	Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species.	Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.
	Met?	Y	Y	N
	Justification	<p>The spatial and temporal distribution of the fishery is known in respect to the known distribution of ETP species to determine level of risk. Reporting requirements detail species-specific information on a quantitative basis sufficient to determine whether the fishery may be a threat to protection and recovery of ETP species. This is sufficient to meet both SG60 and SG80.</p> <p>The precise spatial distribution of all vessels is not currently monitored within the reservoir and no quantitative analysis of the status of the ETP species are available to determine whether the information provided is sufficiently accurate and verifiable to meet the requirements at SG100.</p>		
c	Guidepost	Information is adequate to support measures to manage the impacts on ETP	Information is sufficient to measure trends and support a full strategy to manage impacts on	Information is adequate to support a comprehensive strategy to manage impacts,

PI 2.3.3		Relevant information is collected to support the management of fishery impacts on ETP species, including: <ul style="list-style-type: none"> • 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. 		
		species.	ETP species.	minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.
	Met?	Y	Y	N
	Justification	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); Section 3.4.3 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 2.4.1

PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
	Met?	Y	Y	Y
	Justification	<p>The licensed fishery operates pelagic gillnets set approximately 1 m below the surface of the water-body to target adult pikeperch. The gear is set in deeper mid-water areas where the target species are more abundant, and away from benthic substrates and nearshore areas.</p> <p>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.</p> <p>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.</p>		
References		Balabanova, (1971); Kozmin & Matyukhin, (1971); Isaev & Karpov, (1980); Anon., (2013); Yermolin, (2014); Belyanin (2018); Section 3.4.4 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60, SG80 and SG100 are met.				100
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 2.4.2

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	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 the fishery on habitat types.
	Met?	Y	Y	Y
	Justification	<p>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.</p> <p>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.</p> <p>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.</p> <p>Strategies to minimize impacts of gear loss and habitat restoration are deemed sufficient to meet the requirements at SG100.</p>		
b	Guidepost	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).	There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or habitats involved.
	Met?	Y	Y	N
	Justification	<p>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</p>		

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
		<p>impact to shallow nearshore areas than fishing activities.</p> <p>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.</p> <p>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.</p> <p>Information is available directly about the fishery to provide sufficient evidence to meet the requirements at SG60 and SG80.</p> <p>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.</p>		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	Y
	Justification	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.		
d	Guidepost			There is some evidence that the strategy is achieving its objective.
	Met?			N
	Justification	There is no clear evidence available to demonstrate the strategy is achieving its object sufficient to meet the requirements at SG100.		
References		Shvetsov, pers. comm., (2014); Yermolin, (2014); Belyanin (2018); Section 3.4.4 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and 2 out of 4 at SG100.				90
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 2.4.3

PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There is basic understanding of the types and distribution of main habitats in the area of the fishery.	The nature, distribution and vulnerability of all main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>The lack of information on the distribution of all known habitats prevents the fishery meeting SG100.</p>		
b	Guidepost	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.	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear.	The physical impacts of the gear on the habitat types have been quantified fully.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>No evidence of a quantitative evaluation is available to show the physical impacts of the gear to meet SG100.</p>		
c	Guidepost		Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the	Changes in habitat distributions over time are measured.

PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types		
			outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	
	Met?		Y	N
	Justification	<p>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.</p> <p>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.</p> <p>There is no evidence to demonstrate that changes in habitat distributions are monitored over time to meet SG100.</p>		
References		Yermolin, (2014); Belyanin (2018); Section 3.4.4 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 2.5.1

PI 2.5.1		The fishery 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	Guidepost	The fishery 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 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.	There is 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.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>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.</p> <p>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.</p>		
References		Matyukhin, (1967); Isaev & Karpov, (1980); Yermolin, (2014); Belyanin (2018); Section 3.4.5 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 2.5.2

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There are measures in place, if necessary.	There is a partial strategy in place, if necessary.	There is a strategy that consists of a plan, in place.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>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.</p>		
b	Guidepost	The measures take into account potential impacts of the fishery on key elements of the ecosystem.	The partial strategy takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	<p>The strategy, which consists of a plan, contains measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem.</p> <p>This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm.</p>
	Met?	Y	Y	N
	Justification	<p>The partial strategy uses available information about the location and sensitivity of ecosystem components to fishing activity, and is part of an adaptive management regime for the fishery that responds to changes in stock size, ecosystem information, and new information about the fishery. The spatial and temporal distribution of fishing effort has been carefully monitored and controlled that can be used to restrain impacts of the fishery on the ecosystem. For example, commercial fishing has been restricted in</p>		

PI 2.5.2		There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function		
		<p>some areas to protect ETP species, such as Pallas's gull.</p> <p>There is sufficient evidence to demonstrate that the fishery meets the requirements at both SG60 and SG80. In the absence of a specific ecosystem management plan, the SG100 requirements are be met.</p>		
c	Guidepost	The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The partial strategy is considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/ecosystems).	The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery/ecosystems involved.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>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.</p>		
d	Guidepost		There is some evidence that the measures comprising the partial strategy are being implemented successfully.	There is evidence that the measures are being implemented successfully.
	Met?		Y	N
	Justification	<p>A range of evidence exists to demonstrate that the measures comprising the partial strategy are being implemented successfully. These include:</p> <ol style="list-style-type: none"> 1. The total number of reported government inspections and low number of infringements detected each year; 2. Trends in stock status of TAC and RAC species do not show significant decline in abundance; 3. Low incidence of bird bycatch reported by commercial fishermen; 4. Government monitoring and research of biotic and abiotic factors within the reservoir have reported no adverse changes; 5. Low incidence of reports from commercial fishermen on fishing violations. <p>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.</p>		

PI 2.5.2	There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function	
References	Yermolin, (2014); Yermolin & Belyanin, (2015); Zobkov, (2015); Belyanin (2018) Section 3.4.5 of this report.	
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and 1 out of 4 at SG100.		80
CONDITION NUMBER (if relevant):		NA

Evaluation Table for PI 2.5.3

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Information is adequate to identify the key elements of the ecosystem (e.g., trophic structure and function, community composition, productivity pattern and biodiversity).	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	Y	Y	
	Justification	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	Guidepost	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, and have not been investigated in detail.	Main impacts of the fishery on these key ecosystem elements can be inferred from existing information and some have been investigated in detail.	Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated in detail.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>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.</p>		
c	Guidepost		The main functions of the Components (i.e., target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are	The impacts of the fishery on target, Bycatch, Retained and ETP species are identified and the main functions of these

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem		
			known.	Components in the ecosystem are understood.
	Met?		Y	N
	Justification	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.		
d	Guidepost		Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred.	Sufficient information is available on the impacts of the fishery on the Components and elements to allow the main consequences for the ecosystem to be inferred.
	Met?		Y	N
	Justification	<p>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.</p> <p>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.</p>		
e	Guidepost		Sufficient data continue to be collected to detect any increase in risk level (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Information is sufficient to support the development of strategies to manage ecosystem impacts.
	Met?		Y	N
	Justification	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		

PI 2.5.3		There is adequate knowledge of the impacts of the fishery on the ecosystem
		<p>ecosystem.</p> <p>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.</p> <p>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.</p> <p>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.</p>
References		Isaev & Karpov, (1980); Voronin, (2007); Yermolin, (2014); Shvetsov, pers. comm., (2015); Belyanin (2018); Section 3.4.5 of this report.
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.		80
CONDITION NUMBER (if relevant):		NA

Principle 3 Evaluation Tables

The evaluation tables for PI3.1.1 – PI3.2.5 have been reviewed and updated within this scope assessment report.

Evaluation Table for PI 3.1.1

PI 3.1.1		The management system exists within an appropriate legal and/or customary framework which ensures that it: <ul style="list-style-type: none"> • Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and • 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	Guidepost	There is an effective national legal system and a framework for <u>cooperation</u> with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and <u>organised and effective cooperation</u> with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and <u>binding procedures governing cooperation with other parties</u> which delivers management outcomes consistent with MSC Principles 1 and 2.
	Met?	Y	Y	Y
	Justification	<p>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.</p> <p>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).</p> <p>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".</p> <p>The requirements at SG60, SG80 and SG100 are all met.</p>		
b	Guidepost	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	The management system incorporates or 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

PI 3.1.1		<p>The management system exists within an appropriate legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and 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. 		
			appropriate to the context of the fishery.	to be effective.
	Met?	Y	Y	Y
	Justification	<p>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</p> <p>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.</p> <p>Therefore, the SG60, SG80 and SG100 guideposts are all met.</p>		
d	Guidepost	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?	Y	Y	Y
	Justification	<p>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 pike-perch every day.</p> <p>The SG60, SG80 and SG100 guideposts are therefore all met.</p>		

PI 3.1.1	<p>The management system exists within an appropriate legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none">• Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2; and• 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.	
References	<p>Russian Federal Law on Fisheries and Protection of Aquatic Resources of 2004 (with Amendments – 6th Edition, March 2019).</p> <p>Russian Federal Law on Protection of Environment (2001).</p> <p>State Programme of the Russian Federation on the Development of Fisheries (2014).</p>	
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60, SG80 and SG100 are met.		100
CONDITION NUMBER (if relevant):		NA

Evaluation Table for PI 3.1.2

PI 3.1.2		<p>The management system has effective consultation processes that are open to interested and affected parties.</p> <p>The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties</p>		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	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?	Y	Y	Y
	Justification	<p>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.</p> <p>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.</p>		
b	Guidepost	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?	Y	Y	N
	Justification	The management system includes consultation processes through regular data collection and interaction by KamUralRyvbod and the Inspectorate with the commercial, recreational and sports fishers throughout the season and		

PI 3.1.2		<p>The management system has effective consultation processes that are open to interested and affected parties.</p> <p>The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties</p>		
		<p>formally through the Fisheries Council four times per year. Management authorities clearly seek and accept relevant information, from the commercial fisheries through catch and effort data compiled by the client companies and submitted on a fortnightly basis and from the recreational fishermen through interviews and 100 questionnaire cards each year (A. Zobkov, 17th October, 2018, Pers. Comm.), including local knowledge. These data are combined with the information collected by the Saratov Research Institute and a single official data set is issued. Recreational and sports fishermen are consulted also (for example, through fishermen themed websites), although this was not the case in the past when they noted a lack of influence and comments were often ignored. The economic importance of the sports fishing sector has now been noted by local management and are involved in providing information through the Fisheries Council. Their data are not used as they operate a catch and release system and therefore have zero catches. Information on illegal fishing when encountered is passed by sports fishers to the appropriate authorities. The management system therefore demonstrates consideration of the information obtained in contributing to combined official datasets and information on illegal fishing.</p> <p>Clear transparent explanation of the information collected and its use is not available and therefore the management system can be shown to meet SG60 and SG80 but not SG100.</p>		
c	Guidepost		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?		Y	N
	Justification	<p>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.</p>		
References		<p>Russian Federal Law on Fisheries and Protection of Aquatic Resources 2004 (with Amendments - Edition 6th March 2019).</p> <p>Russian Federal Law on Protection of Environment (2001).</p> <p>State Programme of the Russian Federation on the Development of Fisheries (2014).</p> <p>Undocumented evidence of the establishment of the Fisheries Council.</p>		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and 1 of 3 at SG100.				85

PI 3.1.2	<p>The management system has effective consultation processes that are open to interested and affected parties.</p> <p>The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties</p>
CONDITION NUMBER (if relevant):	NA

Evaluation Table for PI 3.1.3

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Long-term objectives to guide decision-making, consistent with the MSC Principles and Criteria and the precautionary approach, are implicit within management policy	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>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.</p> <p>These objectives however are not required by management policy and therefore the SG100 guidepost has not been met.</p>		
References		<p>Russian Federal Law on Fisheries and Protection of Aquatic Resources 2004 (with Amendments - Edition 6th March 2019).</p> <p>Russian Federal Law on Protection of Environment (2001).</p> <p>State Programme of the Russian Federation on the Development of Fisheries (2014).</p>		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 3.1.4

PI 3.1.4		The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that negative incentives do not arise.	The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and explicitly considers incentives in a regular review of management policy or procedures to ensure they do not contribute to unsustainable fishing practices.
	Met?	Y	Y	N
	Justification	<p>The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that perverse or negative incentives do not arise.</p> <p>The licence / quota allocation system to commercial fishing companies is considered as a positive incentive in the development of the management policy (the fishery is still in the first phase of allocation so it has not been reviewed yet). The positive subsidy is in the form of the allocation of long-term access agreements to the commercial fishing companies successful in obtaining licences. These companies are granted long-term limited access to the resource which contributes to long-term sustainability and protection of the resource. The control of access to particular parcels is also included as part of this process, ensuring that a particular company will ensure that there are limited local impacts at the parcel level. The management system considers incentives in a regular review of management policy evidenced by the review of licensing policy that has led to the reduction in number of active fishing companies, long-term rights allocation and parcel management. A new Federal Law to introduce a single parcel in the waterbody has not yet been passed at the regional level. This however is not explicitly considered in a regular review of management policy or procedures. This is therefore deemed sufficient to meet the SG80 requirements but not the SG100 requirements.</p> <p>In addition, the fishing companies contribute to the positive management due to the reduction of impacts through the collection of illegal and lost “ghost” gear annually.</p> <p>As there are incentives to promote the achievement of P1 and P2 and no negative subsidies have been observed in the fishery, SG60 and SG80 have been met.</p>		
References		<p>Zobkov, A. (17th October, 2018) Pers. Comm. Information submitted during interview with the Head of Department of state control, supervision and protection of aquatic biological resources of Orenburg province.</p> <p>Voronin (2007); Voronin (2008); Yermolin (2014); Kilyakova & Lysenko (2007).</p>		

PI 3.1.4	The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing	
	Section 3.5 of this report.	
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 0 are met.		80
CONDITION NUMBER (if relevant):		NA

Evaluation Table for PI 3.2.1

PPI 3.2.1		The fishery 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	Guidepost	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery's 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's 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's management system.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>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.</p> <p>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.</p>		
References		<p>Russian Federal Law on Fisheries and Protection of Aquatic Resources 2004 (with Amendments - Edition 6th March 2019).</p> <p>Russian Federal Law on Protection of Environment (2001).</p>		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and not at SG100.				80
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 3.2.2

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 under assessment.		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	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?	Y	Y	
	Justification	<p>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.</p> <p>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.</p> <p>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) (see Section 4.3.3) 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.</p>		
b	Guidepost	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?	Y	Y	N
	Justification	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		

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 under assessment.		
		<p>one-year quotas for each species that is allocated a total allowable catch (i.e. pikeperch) or a recommended allowable catch.</p> <p>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.</p> <p>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.</p> <p>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.</p>		
c	Guidepost		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Y	
	Justification	<p>Although it is not formally enshrined there is a precautionary approach applied to the quota allocation process.</p> <p>Best available information is used throughout the decision-making process. The amount of data available for the scale of the fishery is very good.</p> <p>The fishery therefore would meet the requirements at SG80.</p>		
d	Guidepost	Some information on fishery performance and management action is generally available on request to stakeholders.	Information on fishery 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	Formal reporting to all interested stakeholders provides comprehensive information on fishery performance and management actions and describes how the management system responded to findings and relevant recommendations

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 under assessment.		
			research, monitoring, evaluation and review activity.	emerging from research, monitoring, evaluation and review activity.
	Met?	Y	Y	N
	Justification	<p>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.</p> <p>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.</p>		
e	Guidepost	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.	The management system or fishery is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or fishery acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	Y	Y	Y
	Justification	<p>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.</p>		
References		See sections 3.5.2 and 3.5.4.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and 1 out of 3 at SG100.				85
CONDITION NUMBER (if relevant):				NA

Evaluation Table for PI 3.2.3

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Monitoring, control and surveillance mechanisms exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance system has been implemented in the fishery under assessment 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 under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Y	Y	N
	Justification	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	Guidepost	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?	Y	Y	N
	Justification	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. ¹⁰ The activities of fishery		

¹⁰ 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

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with		
		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	Guidepost	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?	Y	Y	N
	Justification	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.		
d	Guidepost		There is no evidence of systematic non-compliance.	
	Met?		Y	
	Justification	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		

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

PI 3.2.3		Monitoring, control and surveillance mechanisms ensure the fishery’s management measures are enforced and complied with
		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.
References		See section 3.5 of this report.
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are met and none at SG100.		80
CONDITION NUMBER (if relevant):		NA

Evaluation Table for PI 3.2.4

PI 3.2.4		The fishery has a research plan that addresses the information needs of management		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2.	A research 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.	A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.
	Met?	Y	N	N
	Justification	<p>A comprehensive set of research 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. In common with other freshwater fisheries in the Russian Federation there is no single research plan for this particular fishery, but 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. 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 a specific written plan does not exist, the SG80 and SG100 guideposts cannot be shown to be met.</p> <p>It is recommended that annual milestones are developed to develop a comprehensive management plan within the client action plan to address Condition 1 raised here.</p>		
b	Guidepost	Research results are available to interested parties.	Research results are disseminated to all interested parties in a timely fashion.	Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.
	Met?	Y	Y	N
	Justification	<p>Research results from all research organisations are disseminated to all interested parties in a timely fashion and the researchers working on the reservoir are willing to share their research data with other scientists where this is relevant and reduces duplication. Data and research material were very willingly shared with the team. All research data material is made available in timely fashion to those individuals charged with performing the stock assessment. Data on fish catches are collected and publically available for external monitoring, fish survey and regular environmental data are collected and are available on request from the relevant bodies although detailed survey results are not published in the public domain. At this time although the results are disseminated to all interested parties in a timely fashion through publications and via the Fisheries Council or other means</p>		

PI 3.2.4		The fishery has a research plan that addresses the information needs of management	
		therefore a score of 80 can be given at this time but as no research plan exists, the SG100 is not met.	
References		<p>Alexander Zobkov: 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; 17th October 2018.</p> <p>Andrey Yermolaev, Orenburg Region, Federal Agency for Fisheries. Interview date: 21st October, 2014.</p> <ul style="list-style-type: none">Росрыболовство, (2015) <p>Section 3.5 of this report.</p>	
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and 1 out of 2 met at SG80.			
70			
CONDITION NUMBER (if relevant):			
1			

Evaluation Table for PI 3.2.5

PI 3.2.5		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	Guidepost	The fishery has in place mechanisms to evaluate some parts of the management system.	The fishery has in place mechanisms to evaluate key parts of the management system	The fishery has in place mechanisms to evaluate all parts of the management system.
	Met?	Y	Y	N
	Justification	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	Guidepost	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?	Y	Y	N
	Justification	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). Section 3.5 of this report.		
OVERALL PERFORMANCE INDICATOR SCORE: All scoring issues at SG60 and SG80 are				80

PI 3.2.5	<p>There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives</p> <p>There is effective and timely review of the fishery-specific management system</p>
met and none at SG100.	
CONDITION NUMBER (if relevant):	NA

Appendix 2. Risk Based Framework (RBF) Outputs

The Risk-Based Framework was not used during the assessment.

Appendix 3. Conditions of Certification

The score awarded for one PI was above 60 and below the MSC unconditional pass level of 80. The MSC Certification Requirements specify that conditions of certification shall be raised for all of the Performance Indicators that score between 60 and 80, with the aim of improving the score to 80 or more during the period of certification (5 years).

The conditions of certification for the Performance Indicator that scored between 60 and 80 in this assessment are set out in the following pages, along with the associated client action plan which is designed to bring about the required improvements in the fishery.

Table A1.3. Condition 1: Research Plan.

Performance Indicator	PI 3.2.4 The fishery has a research plan that addresses the information needs of management
Score	70
Rationale	<p>The full scoring rationale is given in the evaluation table for this PI. The scoring issue that does not attain the SG80 standard at Sla:</p> <p><i>Sla</i></p> <p><i>A research 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.</i></p> <p>The rationale for this is:</p> <p>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.</p>
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.
Milestones	Develop and implement a research plan and meet the SG80 milestone by end of year 2.
Client action plan	<p>By the first surveillance audit, the Client will identify information gaps which are needed to be addressed in the Research Plan. The Client will consult with potential research collaborators regarding methodology and goals of the planned research. The client will liaise with the relevant research bodies to develop a fishery specific research plan, detailing the overall goal for the fishery, specific research objectives to meet that goal and a summary of the activities conducted to meet each of the specific objectives.</p> <p>By the second surveillance audit the Client will develop the Research Plan.</p>
Consultation on	The assessment team is aware of the assistance Saratov Fisheries Research Institute has provided to the client in preparation of the MSC assessment, and

condition	confirmed with the client that the Institute will work collaboratively with the client to achieve the improvements in the CAP.
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Appendix 4. Peer Review Report

General Comments

Peer Reviewer Justification (as given at initial Peer Review stage). Peer Reviewers should provide brief explanations for their 'Yes' or 'No' answers in this table, summarising the detailed comments made in the PI and RBF tables.	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)
<p>Detailed rationales are provided based on evidence in the report and scores are consistent with the MSC standard. Evidence is summarized in background sections and scoring rationales explain how the corresponding standard is met. This is the case for 60 and 80 scores. Scoring rationales at the 100 level generally do not provide a similar level of detail. In a number of cases higher scores than 80 might be appropriate based on the evidence but the basis for the 100-level scoring decision was vague. This did not affect the ultimate outcome of the assessment as a Principles scored higher than 80.</p> <p>The assessment would be bolstered by addition of an explanation why pikeperch were not included in the original perch certification and what has changed which now invites and allows them to be certified.</p>	<p>Scoring rationales for scoring issues at 100 level have been reviewed and edited where necessary.</p> <p>An explanation for the reasons why pikeperch was not included in the original assessment is a commercial decision and no further details can be provided.</p>
<p>The single condition is appropriately written.</p>	<p>No action required.</p>
<p>It is unclear whether the research plan identified in the client action plan will include a schedule and commitments for research implementation or simply a list of research needs. Otherwise the client action plan is clear. (This is not to suggest that schedule and commitments would be required elements but rather to clarify the function of the list in the management framework.)</p>	<p>The plan provides justifications for the existing aspects of certification requiring improvement and suggests ways to solve these problems. The document does not contain schedules and obligations for the implementation of the plan, however, the organizations responsible for the implementation of individual points of the plan are defined.</p>
<p>Not applicable.</p>	<p>No action required.</p>

<p>Executive summary. Item 2. two not three assessors</p> <p>Clarification of the unit of certification is needed. It appears that it includes only catch in large mesh gillnets but that is not always clear. If the UoC includes only large mesh catch, then additional information is needed on the total catch in large mesh and small mesh gillnets and fishing seasons and overlap when both are employed. A primary concern would be for corresponding traceability and separation of catch issues. Some explanation of why small mesh gillnets are not included would also be needed to identify any related issues or concerns.</p> <p>Figure 9. What does "share of total catch in the commercial stock"? Percentage of commercial stock biomass harvested?</p> <p>Please clarify the basis for the estimate of total commercially available biomass - does this mean the biomass of fish > 40 cm in length?</p> <p>Figure 10. Please label the axes. Is this yield per recruit, exploitation or what?</p> <p>Figure 11. It is unclear what the axes represent. Doesn't seem to make sense that y axis is labelled catch which doesn't appear to be displayed in the graph since only a portion of Ba is commercially harvested. It is not clear why the lines would be curvilinear if the graph is catch vs. biomass and Ba is a fixed proportion of Btotal</p> <p>Table 14 on scoring elements does not match Table 8</p> <p>Table 15. Statement says that due to the selectivity of gillnet mesh sizes, it would be obvious whether undersized pikeperch have been retained from small mesh gillnets. This is confusing since there is a minimum size restriction on commercial retention of pikeperch. And it does not address the potential issue of retention of commercial-legal sizes in small mesh nets if that gear is not included in the UoC.</p> <p>Same table re: certified and noncertified fish in blue and yellow boxes. Please clarify if fishing certified and noncertified gear at the same time. If they are fishing both gears concurrently, what is to keep them from throwing all the pikeperch in the blue box?</p> <p>Distinctions and applications of TAC and RAC are confusing. In some places they seem to be used interchangeably and elsewhere applied differently to different species. Needs clarification on how applied to different species and the implications in scoring.</p> <p>Section 4.4.3. not clear how reference to Table 14 is applicable to the RBF</p>	<p>Executive summary updated.</p> <p>The unit of certification relates only to the large mesh size (50 – 70 mm) gillnet as the smaller mesh size (30 – 36 mm) gillnet retains only undersized illegal pikeperch (< 40 cm total length). Research data illustrates the distribution of catches by number and catch weight for different gillnet mesh sizes (Table 2). By comparing the average catch weight (g) of an individual fish with growth curves (Fig. 3 and Fig. 4) demonstrates small mesh size gillnets only retain undersized pikeperch. Effective MCS and enforcement ensures undersized pikeperch are not retained in the commercial fishery. Table 15 (section 5) provided information about gear selectivity related for traceability concerns.</p> <p>Figure 9 - it is confirmed that the statement means "percentage of commercial stock biomass harvested".</p> <p>Total commercially available biomass (Ba) is a term used by Saratov Research Institute and reflects the high selectivity of research gillnets used to sample the population, which excludes estimates of biomass for both juvenile fish and older mature individuals and is thus similar to the selectivity of gear used in the commercial fishery.</p> <p>Figure 10 - Labels have been added on y-axis (catch), x-axis already labelled (Ba - available biomass). This is a schematic diagram to illustrate how TAC values are calculated for Russia freshwater fisheries based on estimation of total available biomass (Ba). This is similar to perch assessment, and is not based on YPR or other surplus production models used Western fish stock assessment methods.</p> <p>Figure 11 - both axes have been clearly labelled (catch and biomass). This schematic diagram shows how annual catches (tonnes) are expected to change with available biomass (Ba) calculated each year from stock assessments. This shows the</p>
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	<p>precautionary nature of setting catches, as Ba is always below total population biomass (Btotal). The stock assessment section in the report describes how Ba is calculated. This is based on the typical 'hockey-stick' harvest control rule used by ICES, RFMOs etc.</p> <p>Table 14 - information now updated to match Table 8.</p> <p>Table 15 - see previous comment above on UoC. Only large mesh size gillnets are included in UoC.</p> <p>Comment re: fishing boxes. It is not possible to retain pikeperch of legal size (> 40 cm) using small mesh size. If undersized pikeperch were placed in either blue or yellow boxes they would be fishing illegally. Illegal fish would also be noted by processors, who do not want small/undersized pikeperch and have a self-interest to retain licence to fish in reservoir.</p> <p>RAC vs TAC species. This has been addressed fully in MRAG (2016) but additional text has been added where necessary.</p> <p>Section 4.4.3 has been updated.</p>
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PI-Specific Comments

PI	PI Information	PI Scoring	PI Condition	Peer Reviewer Justification (as given at initial Peer Review stage)	CAB Response to Peer Reviewer's comments (as included in the Public Comment Draft Report - PCDR)	CAB Response Code
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Performance Indicator (PI)	Has all available relevant information been used to score this PI?	Does the information and/or rationale used to score this PI support the given score?	Will the condition(s) raised improve the fishery's performance to the SG80 level?	<p>PRs should provide support for their answers in the left three columns by referring to specific scoring issues and/or scoring elements, and any relevant documentation as appropriate. Additional rows should be inserted for any PIs where two or more discrete comments are raised e.g. for different scoring issues, allowing CABs to give a different answer in each case. Paragraph breaks may also be made within cells using the Alt-return key combination.</p> <p>Detailed justifications are only required where answers given are one of the 'No' options. In other (Yes) cases, either confirm 'scoring agreed' or identify any places where weak rationales could be strengthened (without any implications for the scores).</p>	<p>CABs should summarise their response to the Peer Reviewer comments in the CAB Response Code column and provide justification for their response in this column.</p> <p>Where multiple comments are raised by Peer Reviewers with more than one row for a single PI, the CAB response should relate to each of the specific issues raised in each row.</p> <p>CAB responses should include details of where different changes have been made in the report (which section #, table etc).</p>	See codes page for response options
1.1.1	Yes	Yes	NA	<p>Multiple lines of evidence indicate that the stock is at a high level of sustainability. These include increasing biomass, modest exploitation rates, broad age distribution, consistent recruitment, size limits which protect pre-reproductive ages, etc. Restrictions also appear to support consistent with high levels of recruitment and yield per recruit, thus avoiding both recruitment and growth overfishing.</p>	No comments, thank you.	Accepted (no score change)
1.1.2	Yes	Yes	NA	<p>Terminology describing reference points is inconsistent and confusing. Are they reference points, proxy values or what? What is the distinction between a biological and a target reference point?</p>	<p>Thank you for the comment. We have made some update of justifications for section 1.1.2 for better clarity.</p> <p>Traditionally Russian inland freshwater fisheries do not have explicit reference points, such as BLIM or BMSY. Instead, a proxy value for the target reference point (TRP) is used, which is also equivalent to the limit reference point (LRP).</p> <p>Due to annual fluctuations in water level and other environmental conditions (e.g., ice cover), the ecosystem and fish populations within the Irikla</p>	Accepted (no score change)

					<p>Reservoir do not reach equilibrium status and it is difficult to establish a BMSY-related reference point. 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 is calculated each year based on maintaining the level of commercially available stock biomass (Ba) at or above a proxy value consistent with BMSY (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. The TRP based on 20%Ba is used to establish annual fishing opportunities for pikeperch of Irikla Reservoir and this precautionary approach has been demonstrated to effectively keep the stock well above the point at which recruitment would be impaired.</p> <p>Although there is no explicit limit reference point (LRP) in the Irikla pikeperch fishery, this is considered to be implicit within the management measures and harvest control rules.</p> <p>A similar approach to the determination of specific reference points is also characteristic of those fisheries that have already received the MSC certificate (perch of the Bratsk Reservoir (2016), perch of the Irikla Reservoir (2016), perch and pike perch of Lake Peipsi (2017, 2019).</p>	
1.1.3	Yes	Yes	NA	Not applicable - no depleted stocks		

1.2.1	Yes	Yes	NA	Harvest strategy based on effort, area, gear, size and quota measures is comprehensive and effective, and well supported by monitoring. SG100 rationale could be bolstered by noting the harvest strategy has not been fully tested by shifts in reservoir conditions and species composition like those which have occurred in the past.	<p>Thank you for the comment.</p> <p>Prior to 2008, the stock assessment of pikeperch had been carried out by the State Research – Industrial Centre of Fisheries (located in Yekaterinburg). At that time the stock calculation methods applied as well as quality of pikeperch 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. Since 2008 the stock status of the pikeperch population within the Irikla Reservoir is determined on an annual basis by the Saratov branch of the Russian Federal “Research Institute on Fisheries and Oceanography” (VNIRO). 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 8).</p> <p>Thus, the fishing strategy associated with the stock assessment implementing by the Saratov Institution has been carried out only in a relatively short period of increase in the pikeperch stock (2010-2018) and still has not been met with periods of decrease in stock. Thus, the assessment team believes that the fishing strategy has not been fully tested and leaves the scores for 1.2.1 unchanged.</p>	Accepted (no score change)
1.2.2	Yes	Yes	NA	Status and trends in catches and fish community confirm that harvest control rules are effective	No comments, thank you.	Accepted (no score change)

1.2.3	Yes	Yes	NA	Extensive information is available on the fishery, harvest, stock and ecosystem.	No comments, thank you.	Accepted (no score change)
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1.2.4	Yes	Yes	NA	<p>Rationales would be bolstered with better explanations of the stock assessment methodology. The background sections include descriptions of independent methods of biomass estimation with some references but methodologies are still unclear. Are assessments based on cpue indices referenced to independent estimates of abundance from mark-recapture studies? Inferences from catch curves of abundance vs size? some kind of virtual population estimates from catch reconstructions? Where do catch efficiency estimate used in the second method come from?</p> <p>It is agreed that there is no evidence to indicate methods have been thoroughly tested and explored but it is not clear what it means that "they do not give similar results" and the corresponding implications to the management application</p>	<p>Thank you for the comment.</p> <p>Existing methods for assessing fish stocks in inland waters of Russia can be divided into two groups: biostatistical and direct statistical methods. The stock assessment of pikeperch at the Irikla Reservoir is carried out using methods from both groups.</p> <p>Indirectly characterize the stock status of fish according to fishing statistics and catch intensity allows the first method. The calculations take into account all types of fishing (commercial, recreational, IUU), and the intensity of the catch is calculated according to a number of parameters (number of fishing gear, fishing gear area, fishing gear efficiency coefficient, fishing duration, etc.).</p> <p>The second method belongs to the so-called family of direct statistical methods, and is based on the CPUE series recorded from the fishery survey with one standard set net. In this case, the catch value is determined on the area caught by one standard net, and then, taking into account the catch coefficient of fishing gear (the experimentally established value given in the reference books on commercial ichthyology), the obtained value is recounted for the entire area occupied by this species.</p> <p>To improve the presentation of information, the contents of section 3.3.6 of the narrative of the report, as well as the rationales for the scoring tables 1.2.4, were partially revised and expanded.</p>	Accepted (no score change)
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2.1.1	Yes	Yes	NA	<p>The following statement is confusing and contradictory: "While results of the stock assessment show each 'main' species is highly likely to be above biologically based limits, no evidence is available to demonstrate that they have reached their equivalent to a TRP." If they are above limits, doesn't that mean they have reached the equivalent of a TRP? Aren't all the main species within their TACs? Don't you mean instead that it is the non-main retained species which don't pass SG100?</p> <p>For issue b, is the reference to Vendace pertinent if the UoC includes only the large mesh nets? It is not clear throughout the assessment what the respective catch volumes are in large and small mesh nets for P2 species. This seems important if only large mesh nets are certified. If all nets are included then additional information may be needed on all of the nontarget catches</p>	<p>Thank you for your comment. Low catches for quota species (as a proportion of quota) and increasing biomass levels indicate that the populations are not at risk of collapse and are highly likely to be above <i>biological based limits</i>. Further to this, results of annual stock assessments show populations of bream and Prussian carp are still increasing year-on-year during the period 2013 to 2017 (Table 8) but do not clearly demonstrate that they have reached, or are fluctuating, around the TRP.</p> <p>Stable levels of biomass for ide suggests this species has reached an equilibrium point at or around TRP. Given recent changes to the management regime of the reservoir (i.e. change in water levels), both bream and Prussian carp populations show they continue to grow to reach a new equilibrium point, which is highly likely to be equivalent to TRP. The lack of a stable biomass for bream and Prussian carp prevents rescoring of this PI to meet SG100.</p> <p>The description and scoring rationale for 2.1.1 has been updated.</p>	Accepted (no score change)
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2.1.2	Yes	No (scoring implications unknown)	NA	<p>Scoring issue (a). Minimum size limits and effort-based quota system are also part of the pikeperch strategy.</p> <p>Also the basis for not scoring this fishery as 100 is not clear. It says there is not a clear strategy to manage all retained species. Don't all the gear, quota, season, area measures constitute a strategy which protects all retained species? If it doesn't, we would want to know which ones and how then the lack of protection is consistent with scoring for SG60 and SG80.</p>	<p>Thank you for your comment. There is deemed a strategy in place to manage 'main' species, which includes quotas for bream (TAC species), ide and Prussian carp (RAC species). However, there is currently no catch limits or quota for 'minor' species, such as Vendace, that would be considered part of a strategy. Minimum size limits, season and gear restrictions represent only a partial strategy for these non-quota species.</p> <p>Given there is no strategy for all retained species (main and minor species), the fishery does not meet SG100. Equally, if there is no strategy for all retained species, it cannot be evaluated under remaining scoring issues at 100.</p> <p>The description and scoring rationale in 2.1.2 have been partially revised and expanded.</p>	Accepted (no score change)
2.1.2	Yes	No (scoring implications unknown)	NA	<p>Scoring issue (b). Hasn't the strategy been tested by implementation which has translated into sustained catches or retained species?</p>	<p>Thank you for your comment. There is deemed a strategy in place to manage 'main' species, which includes quotas for bream (TAC species), ide and Prussian carp (RAC species). However, there is currently no catch limits or quota for 'minor' species, such as Vendace, that would be considered part of a strategy. Minimum size limits, season and gear restrictions represent only a partial strategy for these non-quota species. Given there is no strategy for all retained species (main and minor species), the fishery does not meet SG100. Equally, if there is no strategy for all retained species, it cannot be evaluated under remaining scoring issues at 100. The description and scoring rationale in 2.1.2 have been partially revised and expanded.</p>	Accepted (no score change)

2.1.2	Yes	No (scoring implications unknown)	NA	Scoring issue (c). Hasn't the strategy been tested by implementation which has translated into sustained catches or retained species? How are the described strategy elements not a full strategy? This appears to be a highly regulated fishery and is meeting its targets which are precautionary and harvests appear to be stable or growing. This seems like pretty clear evidence that the strategy is meeting its objective.	Thank you for your comment. There is deemed a strategy in place to manage 'main' species, which includes quotas for bream (TAC species), ide and Prussian carp (RAC species). However, there is currently no catch limits or quota for 'minor' species, such as Vendace, that would be considered part of a strategy. Minimum size limits, season and gear restrictions represent only a partial strategy for these non-quota species. Given there is no strategy for all retained species (main and minor species), the fishery does not meet SG100. Equally, if there is no strategy for all retained species, it cannot be evaluated under remaining scoring issues at 100.	Accepted (no score change)
2.1.3	Yes	No (scoring implications unknown)	NA	The statement "Given the closed nature of fish populations within the Irikla Reservoir, the Saratov Research Institute conduct fisheries-independent research to determine stock status and establish annual catch quotas for all commercially retained species based on biologically based limits" seems inconsistent with previous statements regarding the lack of a clear or full management strategy. Scoring issue (c) includes no explanation for why SG100 is not met.	<p>Thank you for your comment. Catch quotas are calculated for a finite number of important commercial species, but does not include all retained species. As such, insufficient data are collected to calculate outcome status for all retained species, sufficient to meet SG100 under scoring issue (b). Text has been revised and updated in the scoring issue.</p> <p>The lack of information from an assessment of stock status for all retained species prevents an evaluation with a high degree of certainty that a strategy could achieve its objective.</p> <p>The scoring rationale for 2.1.3 has been updated.</p>	Accepted (no score change)
2.2.1	Yes	Yes	NA	Is there an important distinction between TAC or RAC species and if so which species are which and what are the implications?	Thank you for your comment. The distinction between TAC and RAC species is summarised in section 3.4.1. Specific details how TAC quotas are calculated is provided for pikeperch in section 3.3.6 (stock assessment), and RAC for perch was previously described in further detail under the original assessment (MRAG 2016).	Accepted (no score change)

2.2.2	Yes	No (scoring implications unknown)	NA	Isn't the strategy tested by implementation and doesn't the lack of significant bycatch support high confidence that it is working? Same comment for assertion that there is no evidence of a specific bycatch management strategy being applied to the fishery.	<p>Thank you for your comment. There is currently no overarching strategy in place to manage all bycatch, although a series of measures are in place that are considered a partial strategy.</p> <p>While practical implementation of the fishery helps demonstrate certain measures are working, there is currently no strategy to test sufficient to meet SG100. Further to this, the current measures have only been in place for a limited period since introduction of water level controls and therefore not been fully tested were the levels to revert to inter-annual fluctuations.</p> <p>The narrative in the scoring issues have been updated to reflect this. The original score remains the same.</p>	Accepted (no score change)
2.2.3	Yes	Yes	NA	No comments		
2.3.1	Yes	Yes	NA	No comments		
2.3.2	Yes	Yes	NA	No comments		
2.3.3	Yes	Yes	NA	No comments		
2.4.1	Yes	Yes	NA	No comments except to note that the habitats are artificially created by a reservoir and far more affected by operations than any fishery effect.	No comments, thank you.	Accepted (no score change)
2.4.2	Yes	Yes	NA	No comments		
2.4.3	Yes	Yes	NA	No comments		
2.5.1	Yes	Yes	NA	No comments		
2.5.2	Yes	Yes	NA	No comments		
2.5.3	Yes	Yes	NA	Agree that the SG100 standard is not met. A general understanding of the reservoir ecosystem elements exists but dynamic historical patterns, shifts in the fish communities and the potential for future such changes remains unclear. This issue	<p>Thank you for your comment.</p> <p>Routine monitoring of the Irikla reservoir is ongoing to better understand the status of this ecosystem. The changing status of fish populations within the reservoir help demonstrate</p>	Accepted (no score change)

				is perhaps better addressed in the research plan than by reconsidering scores under this PI.	the ecosystem continues to change and is unlikely to reach an 'equilibrium' status. However, whilst information is used to monitor trends, future projections of the structure and function of the ecosystem is deemed unnecessary given the scale and intensity of the fishery and limited resources available.	
3.1.1	Yes	Yes	NA	No comments		
3.1.2	Yes	Yes	NA	The statement "Clear transparent explanation of the information collected and its use is not available and therefore the management system can be shown to meet SG60 and SG80 but not SG100" would appear inconsistent with scores and rationales under 3.2.2.	Thank you for the comment. Please, see our response to the PI 3.2.2	Accepted (no score change)
3.1.3	Yes	Yes	NA	No comments		
3.1.4	Yes	Yes	NA	No comments		
3.2.1	Yes	Yes	NA	No comments		
3.2.2	Yes	Yes	NA	Please clarify the extent to which information on fishery performance and management action has been made available outside the MSC certification process. This has been identified as a significant concern in other Russian fisheries where information is used by the management system but not generally made accessible to other public and stakeholders as a normal matter or course. Please provide examples	<p>Thank you for the comment.</p> <p>Commercial fishery in the relatively small area of Irikla Reservoir is organized quite simply and is carried out by a limited number of fishery companies according to clear and well-established rules. Thanks to this, the interaction between fisheries, science and management throughout the fishing year takes place according to the established scheme. Information on fishery performance and management action is exchanged at four Fisheries Councils held throughout the year in the city of Orenburg. Interested parties have the opportunity to attend these meetings and express their opinions in an advisory capacity. However, the existing opportunity to participate in Fisheries Councils is rarely realized in practice by public organizations, societies, NGOs, etc. (e.g. organized clubs of</p>	Accepted (no score change)

					<p>sports and recreational fishermen). Therefore, the interaction between fishery, science and management, on the one hand, and public organizations, recreational fishery communities, etc. - on the other hand, is often carried out on an alternative basis, for example, through the media. For example, in the second half of 2018, the head of the FAR territorial administration of Orenburg Province Alexander Zobkov repeatedly spoke on the Internet websites of amateur and sport fishermen with various consultations: he explained special aspects of new fishing rules, presented scientific data on the dynamics of the populations of certain species and decisions taken in this regard to manage the fishery (e.g. annual TAC (RAC) changing, the introduction of a new norm of daily catch, changing the minimum catch size etc.), covered changes in the control and supervision of fish resources of the Irikla Reservoir (e.g., changing the terms and places of the ban on fishing, increasing fines for a number of violations, etc.).</p> <p>Thus, to some extent the information on fishery performance and management action has been made available outside the MSC certification process.</p>	
3.2.3	Yes	Yes	NA	No comments		

3.2.4	Yes	Yes	Yes	Scores and rationale are appropriate. A research plan might consider including work to address ecosystem dynamics in a changing future environment and management implications and responses.	<p>Thank you for the comment.</p> <p>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 (MRAG, 2016). However, future projections of the structure and function of the ecosystem is deemed unnecessary given the scale and intensity of the fishery (approx. 30 tonnes per annum) and limited resources available.</p>	Not accepted (no score change)
3.2.5	Yes	Yes	NA	No comments		

Appendix 5. Stakeholder Submissions

Site visit

Interviews were conducted with a range of stakeholders that expressed a wish to meet the team during the site visit. Further details of each meeting are provided in the section below.

Record of meetings conducted during site visit

MSC Fishery Assessment Stakeholder Interview Record	
Meeting Location	Fish-ka Ltd., Energetik, Russia
Date	17 th October, 2018, 14:00 – 14:30
Assessment Team	Name
Lead Assessor	Robert Wakeford
P1 and P3 Team Member	Dmitry Sendek
P2 and P3 Team Member	Robert Wakeford
Stakeholders	Affiliation
Konstantin Ageev	Director, Fish-ka
Elena Ermolova	Lawyer, Volna
Aleksander Ageev	Head of fishery department, Fish-ka
Dmitry Lajus	Advisor
Topics discussed	<ul style="list-style-type: none">• Outline of evaluation and planned stakeholder meetings• Description of the fishery

a. Status

Fish-ka is the client for the assessment.

b. Stakeholder key issues

A discussion related to the organisation of stakeholder meetings and specific information requirements.

Summary of meetings conducted in Energetik, 17th October 2018

MSC Fishery Assessment Stakeholder Interview Record	
Meeting Location	Energetik, Russia
Date	17 th October, 2018, 14:30 – 15:30
Assessment Team	Name
Lead Assessor	Robert Wakeford
P1 and P3 Team Member	Dmitry Sendek
P2 and P3 Team Member	Robert Wakeford
Stakeholders name	Affiliation
Alexander Zobkov	Head – Department of state control, supervision and protection of aquatic biological resources (Orenburg province of the Federal Agency for Fisheries - Rosrybolovstvo)
Konstantin Ageev	Director, Fish-ka
Elena Ermolova	Lawyer, Volna
Dmitry Lajus	Advisor
Topics discussed	<ul style="list-style-type: none"> • Stock assessment and status, harvest strategies and HCRs • Management and governance issues • Sanctions

MSC Fishery Assessment Stakeholder Interview Record	
Meeting Location	Energetik, Russia
Date	17 th October, 2018, 16:00 – 17:00
Assessment Team	Name
Lead Assessor	Robert Wakeford
P1 and P3 Team Member	Dmitry Sendek
P2 and P3 Team Member	Robert Wakeford
Stakeholders name	Affiliation
Pavel Laptov	Volna Ltd - Director
Andrey Liskovich	Fish-ka Ltd - Brigadier fisherman
Alymov Igor	Volna Ltd – Master fisherman
Yeskin Aleksander	Volna Ltd – Fisherman
Dmitry Lajus	Advisor
Topics discussed	<ul style="list-style-type: none"> • Catch reporting (target and bycatch) • Description of fishing activities (fishing parcels, licenses, gear, landing sites etc.) • Bycatch information and monitoring • Management and governance of the fishery

Summary of meetings conducted in Orenburg, 18th October 2018

Irikla Reservoir Pikeperch scope extension to Irikla Reservoir Perch Fishery – Public Comment Draft Report	page 164
Date of issue: 15 th July , 2019	MRAG Americas

MSC Fishery Assessment Stakeholder Interview Record	
Meeting Location	Orenburg, Russia
Date	18 th October, 2018, 14:00 – 15:30
Assessment Team	Name
Lead Assessor	Robert Wakeford
P1 and P3 Team Member	Dmitry Sendek
P2 and P3 Team Member	Robert Wakeford
Stakeholders name	Affiliation
Ilia Belyanin	Senior Researcher, Saratov branch of the State Research Institute for Lake and River Fisheries
Konstantin Ageev	Director, Fish-ka
Elena Ermolova	Lawyer, Volna
Dmitry Lajus	Advisor
Topics discussed	<ul style="list-style-type: none"> • Fisheries stock assessment • Harvest Strategies • Reference points • Bycatch status (retained and discarded) • Irikla Reservoir ecological status, including habitats

MSC Fishery Assessment Stakeholder Interview Record	
Meeting Location	Orenburg, Russia
Date	18 th October, 2018, 16:00 – 17:30
Assessment Team	Name
Lead Assessor	Robert Wakeford
P1 and P3 Team Member	Dmitry Sendek
P2 and P3 Team Member	Robert Wakeford
Stakeholders name	Affiliation
Anatoly Davygora	Associate Professor, Head of Dept. of Zoology and human and animal physiology, Orenburg State University on ETP Species
Elena Ermolova	Lawyer, Fish-ka Ltd
Dmitry Lajus	Advisor
Topics discussed	<ul style="list-style-type: none"> • ETP species status • ETP management strategies • ETP information and monitoring • Habitat status • Habitat management strategies • Habitat information and monitoring

MSC Fishery Assessment Stakeholder Interview Record	
Irikla Reservoir Pikeperch scope extension to Irikla Reservoir Perch Fishery – Public Comment Draft Report	page 165
Date of issue: 15 th July , 2019	MRAG Americas

Meeting Location	Orenburg, Russia
Date	18 th October, 2018, 18:00 – 18:30
Assessment Team	Name
Lead Assessor	Robert Wakeford
P1 and P3 Team Member	Dmitry Sendek
P2 and P3 Team Member	Robert Wakeford
Stakeholders name	Affiliation
Alexander Zobkov	Head – Department of state control, supervision and protection of aquatic biological resources
Konstantin Ageev	Director, Fish-ka
Elena Ermolova	Lawyer, Volna
Dmitry Lajus	Advisor
Topics discussed	<ul style="list-style-type: none"> • Review of assessment process and additional information requirements • Next steps

Meeting Location	Orenburg, Russia
Date	18 th October, 2018, 18:00 – 18:30
Assessment Team	Name
Lead Assessor	Robert Wakeford
P1 and P3 Team Member	Dmitry Sendek
P2 and P3 Team Member	Robert Wakeford
Topics discussed	<ul style="list-style-type: none"> • Review of information • Preliminary scoring

Written submissions received during site visit / assessment

No written submissions were received during the site visit.

Written submissions received during consultation on report

Written submissions were received only from the Marine Stewardship Council during consultation on report.

Technical Oversight Comments from Marine Stewardship Council

To be inserted, where required.

Appendix 6. Surveillance Frequency

The MSC Certification Requirements specify that after each certification, surveillance and re-certification the CAB shall determine the level at which subsequent surveillance of the fishery shall be undertaken.

The surveillance level required for this fishery has been calculated using the methodology set out in the MSC Certification Requirements. The Irikla Reservoir pikeperch fishery has a “surveillance score” of 3 (see Table 19).

Table 19. Surveillance score for the fishery

Criteria	Surveillance score	Pikeperch Fishery
1. Default assessment tree		
Yes	0	0
No	2	-
2. Number of conditions		
Zero conditions	0	-
1-5 Conditions	1	1
>5 Conditions	2	-
3. Principle level scores		
≥ 85	0	-
< 85	2	2
4. Conditions on outcome PIs?		
Yes	2	-
No	0	0
Total score		3

The response to this score is set out in Table C4 of the MSC Certification Requirements. Fisheries that score 2 or more have a “Normal” surveillance level, requiring annual assessments throughout the period of certification. Fisheries that score 1 or 0 have the option of “remote” or “reduced” surveillance.

The pikeperch fishery returns a score of 3.

The MSC CRv1.3 specifies that under such circumstances the highest score should be adopted for all UoCs (CR at §27.22.1.3. Overall, a Normal surveillance schedule is therefore appropriate for this fishery. The surveillance activities required under this schedule are listed in the fishery surveillance plan for this fishery (Table 21).

As part of a scope extension assessment to the Irikla Reservoir perch fishery (MRAG, 2016), this fishery requires only 2 out of four remaining annual surveillance audits (see Table 20).

Table 20. MSC fishery surveillance levels (from MSC Certification Requirements v1.3, Table C4).

Surveillance score	Surveillance level		Years after certification or recertification			
			Year 1	Year 2	Year 3	Year 4
2 or more	Normal surveillance		On-site surveillance audit	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit & recertification visit
1	Remote surveillance	Option 1	Off-site surveillance audit	On-site surveillance audit	Off-site surveillance audit	On-site surveillance audit & recertification visit
		Option 2	On-site surveillance audit	Off-site surveillance audit	On-site surveillance audit	
0	Reduced surveillance		Review new information	On-site surveillance audit	Review new information	On-site surveillance audit & recertification visit

Table 21. Fishery surveillance plan for the Irikla Reservoir Pikeperch Gillnet Fishery UoC.

Score from CR Table C3	Surveillance Category	Year 1	Year 2	Year 3	Year 4
5	Normal	On-site	On-site	On-site	On-site

Appendix 7. Client Agreement

To be appended to the Public Certification Report.

Appendix 7.1 Objections Process

To be completed following the objections period for the fishery.