Southern Gulf of California Thread Herring Fishery, Sinaloa & Nayarit, Mexico

First Surveillance Audit Report

Certification Code: F-SCS-0097

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Table of Contents

Soι	ithern	n Gulf of California Thread Herring Fishery, Sinaloa & Nayarit, M	exico1
Firs	t Surv	veillance Audit Report	1
Tab	le of C	Contents	2
Tab	le List	st	3
Glo	ssary .	/	4
1	Gene	neral Information	6
2	Exec	ecutive Summary & Conclusion	7
3	Back	kground	
3	.1	Stock Status Update	
З	.2	Updates on Information on Principle 1	
3	.3	Updates on Information and Management on Principle 2	
	3.3.1	.1 On-board observer program: Coverage & Sampling	
	3.3.2	.2 Port Observer Program	
	3.3.3	.3 Fishery Logbooks	
	3.3.4	4 Best Practices Training	14
	225	5 Catch Management Program	11
	2.2.2	Catch Management Program	
	3.3.1	.1 Outcomes on Fishery Impact P2	
3	.1	Updates on the Management System and Regulations	
3	5.2	Updates on Personnel Involved in Science, Management or Inc	lustry1
1	ο.3 Λιτο	Changes to the Fishing Operations and Traceability Systems	2
4	A55E	Assessment Methodologies	
4	.⊥ ⊃	Assessment Methodologies	
4	.2	Harmonization Considerations	
4	.4	Assessment Team	
5	Resu	sults	8
5	1	Condition 1-1	8
5	.2	Condition 1-2	10
5	.3	Condition 1-3 (Part A)	
5	.4	Condition 1-3 (Part B)	
5	.5	Condition 1-4 (Part A)	
5	.6	Condition 1-4 (Part B)	17
5	.7	Condition 1-5	
5	.8	Condition 1-6	20
5	.9	Condition 1-7	21
5	.10	Condition 2-1, 2-2, 2-3 and 2-4	
5	.11	Condition 2-5	
5	.12	Condition 2-6	
5	.13	Condition 2-7	
5	.14 15	Condition 2.2	
5	.12		

5	.16	Condition 3-3	. 35
5	.17	Condition 3-4	. 38
5	.18	Condition 3-5	.41
5	.19	Condition 3-6	. 43
6	Refe	erences	. 45
7	Арр	endices	. 47
7	.1	Appendix 1. Re-scoring evaluation tables	.47
7	.2	Appendix 2. Review of IPI stocks	. 49
	7.2.2	1 Requirements for IPI stocks	. 49
	7.2.2	2 Annex PA: Requirements for inseparable or practicably inseparable (IPI) stocks	.51
	7.2.3	8 Entry into Further Chains of Custody	. 53
7	.3	Appendix 3	. 54

Table List

Table 1 . TAC and Catch Data	,
Table 2. Summary of Assessment Conditions	
Table 3. Incidental capture (Retained and Discarded Capture) in metric tons registered in the	
observations on board the southern pelagic fishery in the southern Gulf of California during the five	
seasons analysed (2012 - 2017). Table modified from Jacob-Cervantes et al. 2017c	į
Table 4. Scheme Documents	
Table 5. Schedule of surveillance audits	
Table 6. List of stakeholder organizations contacted for the MSC Assessment	
Table 7. Audit Plan: Key Meetings held in Mazatlán, Sinaloa, Mexico at the offices of MazIndustrial5	
Table 8. Proportions of retained catches in UoA from 2012 to 2017. Information collected from landings	
data and observer program	J
Table 9. List of species caught by the fishery during the 2016-17 fishing year, the only species not	
proposed for IPI is Thread herring (<i>Opisthonema spp. Target</i>)54	

Glossary

ASI	Accreditation Services International
BAC	Biologically Acceptable Catch
B ₀	unfished biomass
B _{MSY}	biomass at maximum sustainable yield
CAB	Certification Assessment Body
CCNN	<i>Comités Consultivos Nacionales de Normalización</i> (National Consulting Normalization Committees)
CEPA	<i>Consejos Estatales de Pesca y Acuacultura</i> (State Councils for Fisheries and Aquaculture)
CICESE	Centro de Investigación Científica y de Educación Superior de Ensenada, Baja California
CICIMAR	Centro Interdisciplinario de Ciencias Marinas
CITES	Convention on International Trade in Endangered Species
cm	Centimeter
CNPA	Consejo Nacional de Pesca y Acuacultura (National Council for Fisheries and Aquaculture)
СОВІ	Comunidad y Biodiversidad
CNP	Carta Nacional Pesquera (National Fisheries Chart)
COI/IOCARIBE	<i>Comisión Oceanográfica Intergubernamental/la Zona Costera de la región del Caribe</i> (Intergovernmental Oceanographic Commission/the Caribbean Shoreline Zone)
COFEMER	Comisión Federal de Mejora Regulatoria
CONAPESCA	Comisión Nacional de Pesca y Acuacultura (National Commission of Fish and Agriculture)
CPUE	Catch Per Unit Effort
CRIP	Centro Regional de Investigación Pesquera (Regional Center for Fisheries Research)
DAT	Default Assessment Tree
ETP	Environmentally Threatened or Protected
ERA	Ecological Risk Assessment
ESD	Ecologically Sustainable Development
F	Fishing rate/catching rate

fishing rate at which catchability will be impaired
fishing rate at which catchability is sustainable and at a maximum
Gram (0.001 kg)
Instituto Nacional de la Pesca (National Fisheries Institute)
Inseparable or practicably inseparable
Ley General de Pesca y Acuacultura Sustentables (General Law for Sustainable Fishing and Aquaculture)
Low Trophic Level stocks
Limit reference point
Millimeter
Marine Stewardship Council
Maximum Sustainable Yield
Metric Ton
Non-Governmental Organization
Nautical mile (1nm = 1.852 km)
Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (Secretariat of Agriculture, Livestock, Fisheries and Food)
Scientific Certification Systems
Scoring guidepost
Standard Length (from tip of closed mouth to end of fleshy body)
Small Pelagics Management Plan
Spawning Stock Biomass and Recruitment
Total Allowable Catch
Total length
Target reference point
Virtual Population Analysis

1 General Information

Fishery name	Southern Gulf of California Thread Herring Fishery, Sinaloa & Nayarit, Mexico						
Unit(s) of assessment	The target species of the Unit is a thread herring stock complex (<i>Opisthonema</i> spp.), made up of three subspecies (<i>O. libertate, O. medirastre</i> and <i>O. bulleri</i>), or <i>sardina crinuda</i> and <i>arenque de hebra</i> in Spanish. The UoA covers purse seiner vessels subject to Mexican National Standard Number 003, which operate in the Mexican territorial waters of the states of Sinaloa and Nayarit, Mexico. At the moment only the ten vessels belonging to the client group Maz Sardina meet these characteristic.						
Date certified	October 1, 2016 Date of ex	october 1, 2021					
Surveillance level and type	Surveillance level 6						
Date of surveillance audit	November 14 th and 15 th , 2017						
Justification	NA						
Surveillance stage (tick one)	1st Surveillance	Х					
	2nd Surveillance						
	3rd Surveillance						
	4th Surveillance						
	Other (expedited etc)						
Surveillance team	Lead assessor: Gabriela Anhalzer						
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	Contact name(s)	Francia Zamora					

2 Executive Summary & Conclusion

This report summarizes the findings from the 2017 first surveillance audit of the Southern Gulf of California Thread Herring fishery. The fishery was first certified to the MSC requirements in October, 2016 using the default assessment tree MSC Certification Requirements v1.3

In this year's first annual surveillance report, the assessment team evaluated expected outcomes of open conditions against the first year milestones, reviewed any changes in the management system, regulations, the scientific base of information and any changes affecting traceability. An onsite meeting was conducted on November 14-15th in Mazatlán, Sinaloa, Mexico, during which the assessment team met with the clients and stakeholders to review the progress of the fishery on open conditions and review new information (See <u>Assessment Consultations</u>).

The fishery originally received twenty conditions in the 2016 full assessment; seven conditions in Principle 1, seven conditions in Principle 2 and six in Principle 3 (See Table 2). Most of the conditions were set as 'on-target'; except <u>Condition 3-3</u> (PI 3.2.3 Sib) and <u>Condition 3-4</u> (PI 3.2.3 SIC & d), which were set as behind target. Additionally, Condition 3-5 (PI 3.2.4a) was <u>closed</u> and the evaluation table for this PI was re-scored (See <u>Appendix 1</u>).

Changes to fishing operations and traceability lead SCS to revise the negative determination awarded during the full assessment on the sufficiency of traceability systems to address risk of mixing between certified and non-certified product. As part of the first surveillance SCS submitted a variation request to MSC to fulfil IPI requirements (FCR 7.4.14) to allow fish and fish products from the UoA to enter into certified chains of custody and be eligible to be sold as MSC-certified or carry the MSC ecolabel (Appendix 2. Review of IPI stocks; Appendix 4. Traceability).

It is SCS's view that the Southern Gulf of California Thread Herring Fishery continues to meet the standards of the MSC and complies with the 'Requirements for Continued Certification.' SCS recommends the continued use of the MSC certificate through to the end of this certificate cycle when conditions are expected to close. The continuation of this positive determination is dependent on efforts of the fishery towards getting back on track to meet milestones marked as "behind target".

Progress on conditions related to Principle 1 was deemed acceptable and their status was considered on target. The conditions in this Principle are related to the design and implementation of a harvest strategy, including the reference points, the control rule and the stock assessment. The scientific branch of the government presented reports and minutes indicating relevant progress along the path stated in the action plan towards meeting the requirements in the CR. The scientists have discussed and communicated to other interested parties options to define reference points that are appropriate for the fishery although caveats have been also identified and no conclusion has been reached yet. The fishery also modified the control rule in the Fisheries Management Plan as required at the full assessment. The scientists continue investigating the best approach to the stock assessment and attempted new methods.

Out of the six Conditions from Principle 3, four showed good progress while two not only arrived to the audit behind target, but are having difficulties to meet the requirements. These two conditions are closely related to the problem of non-compliance in the small pelagic fisheries to size limit regulations. While the audit team is aware of the complexity of this problem, it is also concerned about the amount of time that may be required to meet the requirements in the CR and the reality of what it takes to achieve significant results. The team recommends that the fishery increases the amount of time and effort to discuss with authorities and other relevant stakeholders the best and most realistic alternatives to get back on track towards resolving this problem. In this sense, the team also observed that the original milestones were not so closely related to the deficiencies in meeting the requirements in PI 3.2.3 SIs b, c and d. This was considered a source of potential problems preventing the client to meet the milestones. For this reason, the milestones for Conditions 3-3 and 3-4 were rewritten in an attempt to favour a clearer understanding of what needs to be achieved and more realistic expectation of goals and the timeline.

	Species	Year	Catch (mt)	Effort (days fishing)	N. of vessels
ТАС	Opisthonema Complex	2016	94,779		
UoA share of TAC	Opisthonema Complex	2016	94,779		
UoC share of TAC	Opisthonema Complex	2016	94,779		
	Opisthonema Complex		41,212		
	O. libertate	2016	15,701	080	8
	O. medirastre		11,143	989	
Total green weight	O. bulleri		14,368		
catch by UoC	Opisthonema Total		43,381		
	O. libertate	2015	16,620		-
	O. medirastre	2015	10,963	1,046	/
	O. bulleri		15,798		

Table 1 . TAC and Catch Data

Table 2. Summary of Assessment Conditions

	Condition number	Performance indicator (PI)	Status	PI original score	PI revised score
1	1-1	1.2.1a	On target	70	Score not revised
2	1-2	1.2.1a	On target	70	Score not revised
3	1-3	1.2.2a	On target	70	Score not revised
4	1-4	1.2.2a	On target	70	Score not revised
5	1-5	1.2.3b	On target	75	Score not revised
6	1-6	1.2.4c	On target	65	Score not revised
7	1-7	1.2.4e	On target	65	Score not revised
8	2-1	PI 2.1.1a	On target	75	Score not revised
9	2-2	PI 2.1.3d	On target	75	Score not revised
10	2-3	PI 2.2.2c	On target	75	Score not revised
11	2-4	PI 2.2.3d	On target	75	Score not revised
12	2-5	PI 2.3.3a	On target	75	Score not revised
13	2-6	PI 2.5.2b	On target	70	Score not revised
14	2-7	PI 2.5.2b	On target	70	Score not revised
15	3-1	PI 3.2.2a	On target	70	Score not revised
16	3-2	PI 3.2.3a	On target	60	Score not revised
17	3-3	PI 3.2.3b	Behind target	60	Score not revised
18	3-4	PI 3.2.3cd	Behind target	60	Score not revised
19	3-5	PI 3.2.4a	Closed (1 st Surveillance)	75	80
20	3-6	PI 3.2.5b	On target	75	Score not revised

3 Background

3.1 Stock Status Update

Abundance was estimated by means of acoustic surveys and through population dynamics models. Abundance from acoustic surveys shows a moderate declining trend from 2012 to 2016 although the age structured model fit to these data predicts a stabilization of the trend around 600,000 mt (Figure 1; Jacob-Cervantes *et al.* 2017a).



Figure 1. Biomass trend of the thread herring complex in the southern Gulf of California as predicted using an age structured model fit to acoustic based estimates of abundance (dots). Estimation was conducted under the assumption of natural mortality M=0.6. Reproduced from Jacob-Cervantes et al. (2017a).

The harvest rate (C/B) increased from approximately 0.17 in 2010 to a historic high of near 0.29 in 2014, however, the rate declined to a level under 0.15 in 2016 probably reflecting low availability of the stock to the fishery (Figure 2; Jacob-Cervantes et al. 2017a). This is consistent with the scattered patterns of school aggregation observed during surveys in 2017 (Jacob-Cervantes et al. 2017b; Becerra-Arroyo et al. 2017).



Figure 2. Fishing mortality (F), the contribution of fishing to total mortality (E) and the harvest rate (C/Bexploit) on the thread herring complex in the southern Gulf of California Reproduced from Jacob-Cervantes et al. (2017a).

In agreement with the patterns described in the preceding paragraphs, the catch continued the declining trend observed at the time of the full assessment (Figure 3).



Figure 3. History of observed catch (continuous line) of thread herring in the southern Gulf of California. The dotted line represents the catch predicted by an age structured model. Reproduced from Jacob-Cervantes et al. (2017a).

3.2 Updates on Information on Principle 1

Stock assessment

A new approach to assess stock status was introduced by the INAPESCA staff using an age structured model fit to catch and acoustic based indices of abundance (Jacob-Cervantes *et al.* 2017a). The model performed reasonably well but it still is in early stages of development and requires further testing, exploring alternative scenarios and release assumptions to estimate parameters. For example, explored model fit performance under alternative assumptions about natural mortality (M) reaching conclusions about assumption reliability. However, the criteria was not formal (e.g. based on likelihood or other index) and didn't consider that such conclusion may imply that the data could allow estimating the parameter and release the assumption. Additionally, if the parameter could not be estimated, releasing the parameter assumption for estimation allows for better treatment of the uncertainty. The stock assessment therefore still needs work and the MSC assessment team will be observing the development of the model.

Acoustic surveys

Two acoustic surveys were conducted in 2017 with the purpose of obtaining indices of abundance. The first cruise took place in May and the second in September (Jacob-Cervantes *et al.* 2017b; Becerra-Arroyo *et al.* 2017). On both occasions, the survey found the small pelagic fish to be too scattered causing low representation in verification tows. Also, the fish was found associated to river mouths along the coast. It was also considered that the fishing gear used in tows included mesh sizes that may have not been the best for the survey purposes. In addition, the acoustic surveys are using a new eco-sounder with better signal discrimination capacity but the staff has not calibrated the device calibration.

Obtaining reliably estimates of abundance by means of data collected during acoustic surveys continues being an elusive methodology that has demanded extensive testing and development. Although the

assessment team acknowledges the difficulties in obtaining such indices, it remains a source of concern to be followed in future surveillance audits.

Computing the Biologically Acceptable Catch

Calculating the biologically acceptable catch improved replacing the quantity FRACTION with a harvest rate computed as HR = 1-exp(-F_msy) (INAPESCA unpublished meeting minutes, 2017). For now, F_msy still is the default 0.25 suggested in the management plan (Jacob-Cervantes 2017), but the INAPESCA staff is considering substituting this value with the estimated parameter once the model operates to the satisfaction of the assessment needs. The calculation of the allowable catch with this control rule also needs to use as input the most recent abundance available, which in this case is the biomass estimated with the population dynamics model and do not rely on an outdated survey based estimate. See updates on P3 for additional consequences of modifications on the control rule.

3.3 Updates on Information and Management on Principle 2

Since the Full Assessment initiated in 2015 the fishery has implemented a number of measures to strengthen data collection systems and mitigate the impact of the fishery on Principle 2 elements. The progress on these areas are detailed in the sections below:

3.3.1 On-board observer program: Coverage & Sampling

The observer program initiated as an industry initiative, operated by INAPESCA with support from MazIndustrial. In the 2017-2018 season CONAPESCA took over the financial support role, with INAPESCA continuing to be responsible for the operational aspects.

During the first two years of operation of the observer program there was a single observer designated to one vessel for the whole season. The assessment team expressed concerns regarding the representativeness of this sampling approach. From the third year of the observer program (2015-2016 fishing season) to the fifth year of operation (2016-2017) a second observer program was assigned to cover a second vessel. The client explained during the onsite that accommodations in vessels needed to be adapted in order to be able to carry an on-board observer; three additional vessels were adapted to carry observers; in the current fishing season (2017-2018), a total of five vessels out of the fleet of nine operation vessels carried on-board observers.

In terms of effort measured by number of trips, coverage of the observer program has increased from ~8% in the 2012-2013 fishing season to 22% in the 2016-2017 fishing season. This relative increase in coverage is mostly accounted by a decrease in effort (number of trips) and a more or less constant number of trips observed (Figure 4).





Training

INAPESCA held a training course for on-board and port observers from October 24 to 28, 2016. During the course observers reviewed the data logs used for the samplings and received an update on the identification keys for bycatch. Additionally, the course included a practice sessions for sampling techniques of organisms and the taxonomic identification, dissection, determination of sex and maturity phase, weight and count of gill rakers for small pelagic species. During the program the observers noted that an area of improvement was identification of bony and cartilaginous fish.

In 2017 INAPESCA published a Manual for the Observer Program for the small pelagic fishery to be used in training of on-board observers (Jacob-Cervantes et al. 2017d). The observer manual includes information on the regulations of the fishery, outlines the responsibilities of the observers and details the type of information that needs to be collected according the specific forms.

3.3.2 Port Observer Program

To complement data collection for those vessels that are not equipped to carry on-board observers and to provide more robust information, MazSardina with INAPESCA proposed a port-observer program in 2016. The port observers collect information on volumes, species and sizes of small pelagics and bycatch species. The program initiated implementation in the 2017-2018 season, thus the collected information was not available for review in this surveillance. The port-observer program will also work as part of the verification of the proportion of bycatch program (See <u>Catch Management Program</u>).

3.3.3 Fishery Logbooks

In 2016 the captain's logbook (*Bitacora de capitan*) was modified to include additional information than the Landing Ticket (*Aviso de Arribo*) with the intention that the crew would record more detailed information on discards, retention and transhipment of small pelagic species, capture of bycatch and ETP species (retained and discarded) and their status (live or dead). During the first surveillance audit the

assessment team confirmed that the logbooks are already in use, however, it was noted that implementation is still low, and that most logbooks are incomplete in the sections for non-target species.

3.3.4 Best Practices Training

On October 17 and 18, 2016, INAPESCA offered the fourth workshop to the crew focused on best fishing practices. The objectives of the workshop included: presenting the results of the 2015-2016 On-Board Observer Program, review of existing and new mitigation measures to reduce impacts on ETP species and reduce bycatch, and to publicize the Navigation and Mitigation Measures Manual prepared by Maz Sardina and INAPESCA. As part of the workshop exercises to practice use of the logbooks were conducted and identification guides were reviewed to help standardize use of common names. One of the goals of the course was also to provide an opportunity for the participants to share ideas, experiences and knowledge to assist in the implementation of "best practices". Lastly, the participants completed a survey targeted at the feasibility of implementing mitigation measures and learn more about the knowledge and opinion of the participants. The results of the survey indicated that only 24% of participants knew about and has used the Manual for Mitigation Measures issued by Maz Sardina.

On October 12 and 25th 2017 INAPESCA in collaboration with Maz Sardina completed the 5th "Best Practices workshop. The objectives of this workshop were similar to the one imparted the previous year. Participants also completed a survey, which indicated that the proportion of participants who knew about and has used the Manual for Mitigation Measures issued by Maz Sardina was 27%. It's uknown whether different crew members participated in the 5th and 4th best practices workshop.

The Manual for Mitigation Measures and Best Practices was published in 2015, and it includes guidelines in manipulation of rays, sharks and sea turtles. At the moment excluder grids are also being used to filter organisms such as rays and return them to the ocean before the catch is stored in the haul.

3.3.5 Catch Management Program

When the full assessment was conducted the proportion of non-target species captured by the fishery did not meet the criteria for inseparable or practicably inseparable (IPI) stocks required to allow fish or fish products from IPI stocks to enter into chains of custody (MSC CR v2.0 7.4.14). Subsequently, the fishery put in place a number of measures to reduce the proportion of bycatch species that were considered IPI stocks. In conjunction with the 'Best Practices Workshop's and the 'Mitigation Measures' described previously the fishery also established a traceability program to ensure that only trips with a maximum of 2% bycatch could be considered eligible to enter chain of custody. A financial incentive program was put in place to reward the crew for trips with a proportion of bycatch $\leq 2\%$ of catch. The information to determine whether the trip met the criteria was taken from the sampling conducted by the port observer program and/or the on-board observer program.

3.3.1 Outcomes on Fishery Impact P2

The improvements in the coverage and training of the observer program has resulted in a high number of species registered, the number of registered bony fishes increased from 38 to 83 species between the first season (2012-2013) and the most recent season (2016-2017); in elasmobranchs the number of registered species increased from 5 to 12 species, an in crustaceans the number of registered species increased from 2 to 13 (Jacob-Cervantes et al. 2017c).

As a result of the changes in the fishery the overall proportion of bycatch species was reduced (See Table 8). For bony fish the retained capture decreased from ~500 t in 2013-12 to ~160 t in 2016-17 fishing season. The volume of discards of bony fish also decreased (from 450 to 8.2 t). One of the groups of concern in the initial assessment was rays, due to their inherent vulnerability, particularly of *Mobula japanica* and *Aetobatus narinari*. The retained catch of *M. japanica* has reduced from ~.1 t to zero in the last three seasons, for *A. narinari* the volume of retained catch has also reduced from .84 to .02 t from the 2012-13 to the 2016-17 fishing season. As with bony fish in the elasmobranch group there is also a reduction in discards. This seems to indicate that the overall reduction in bycatch is not merely a result of the implementation of mitigation measures to return bycatch species to the sea (i.e. excluder grids), but rather that there is a change in fishing behaviour.

Data collected by the observer program indicates that the number of sets made in areas with a depth under 5 fathoms has decreased; 12% of sets were made in areas <5fathoms in 2012-13 fishing season, compared to only 2% in the 2016-17 fishing season (Jacob-Cervantes et al. 2017c). Distance of fishing activities from the coastline has also increased, supporting the conclusion that the fleet is minimizing effort in coastal/shallow areas. The motivations behind this change in fishing behaviour are not known, they could either be the result of a conscious effort to reduce bycatch motivated by the workshops or the economic incentives provided to those trips with <2% of bycatch. Alternatively, the catch and presumably availability of *bocona* sardine has decreased. This species is known to be primarily an inshore species Cotto et al. 2010), thus the change in fishing areas could be a result of a current low in the abundance of *bocona* sardine, which is caused natural fluctuations in abundance of small pelagics in response to environmental variations

Table 3. Incidental capture (Retained and Discarded Capture) in metric tons registered in the observations on board the southern pelagic fishery in the southern Gulf of California during the five seasons analysed (2012 - 2017). Table modified from Jacob-Cervantes et al. 2017c

	2	2012-2	013			2013-	2014			2014-2	2015			2015-2	2016			2016-2	2017	
Species Group	Ret.	%	Disc	%	Ret.	%	Disc	%	Ret.	%	Disc	%	Ret.	%	Disc	%	Ret.	%	Disc	%
Target Stock	5,965	40%	103	12%	7,524	90%	69	16%	10,138	95%	12	33%	11,164	99%	75	77%	14,084	96%	101	92%
Other Small Pelagic Species	8,459	57%	320	38%	629	8%	345	82%	471	4%	11	31%	50	0.4%	-	0.0%	468	3.2%	-	0.0%
Bony Fish	489	3%	415	50%	214	3%	5.0	1%	92	1%	12.1	35%	24	0.2%	23	23%	164	1.1%	8.2	7.4%
Elasmobranchs	2.2	0.0%	-	0%	0.3	0.0%	0.2	0.0%	0.2	0.0%	0.3	0.8%	0.2	0.0%	0	0.1%	0.7	0.0%	1.0	0.9%
Crustaceans	0.7	0.0%	-	0%	0.6	0.0%	-	0.0%	0.2	0.0%	0.0	0.0%	0.2	0.0%	0	0.0%	0.1	0.0%	0.0	0.0%
Echinoderms	-	0.0%	-	0%	-	0.0%	-	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%	-	0.0%
Molluscs	-	0.0%	-	0%	-	0.0%	-	0.0%	0.0	0.0%	-	0.0%	0.0	0.0%	-	0.0%	0.0	0.0%	-	0.0%
Cnidarians	-	0.0%	-	0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	1.3	0.0%	0.0	0.0%
Total Catch (t)	14,916		838		8,367		419		10,701		35		11,238		98		14,718		110	

3.1 Updates on the Management System and Regulations

An update in the development of the management plan for the small pelagics fishery in the southern Gulf of California was presented. The update includes all preliminary information from biology, status and other relevant aspects of the fishery. The plan is still missing a harvest strategy or a description of how it would be linked with the fisheries plan for small pelagics in north-western Mexico (Jacob-Cervantes et al. 2016).

Evidence in the form of minutes was presented documenting the collaboration of the industry with authorities to determine the specifics of how the fishing season would stop if the BAC is reached. Minutes were also presented including agreements to stop fishing as a result of advice derived from monitoring. The update regarding the status of the revision of the NOM included several aspects. A relevant aspect is the modification to the rule defining minimum size and the proportion of the catch that is currently allowed to be under the size limit. The current proposed change would not determine a minimum size but would maintain a limitation in size that would be determined every year by INAPESCA depending on information from monitoring surveys. It isn't clear yet how this dynamic limit would be implemented in practice to stop operations if the allowed percentage under the year's limit is reached. CONAPESCA staff indicated that there is a chance that COFEMER could rule that the cost of this new regulation would be too high and unrealistic.

A minute of an internal INAPESCA meeting was presented where the staff presented and discussed changes to the current definitions in the harvest strategy inserted in the management plan of the small pelagics fishery in North-western Mexico (Anonymous 2017). In this meeting, the staff from Mazatlán participated in discussions about proposed changes to management procedures.

An important development was discussed in the management system review which included a proposal to modify the control rule as is currently defined in the management plan. The new rule substitutes the quantity FRACTION by an actual harvest rate specified as $HR = 1 - \exp(-F_{RMS})$. In this expression, F_{RMS} is the fishing mortality rate producing the maximum sustainable yield which would be defined as the biologically acceptable catch (BAC) or, in the context of the small pelagics management plan, the limit reference point. When this harvest rate is inserted in the control rule, and assuming the current biomass is the one producing MSY, the result is an allowable catch that is lower than the MSY because the rule subtracts the biomass threshold that would make the fishery stop if reached or fell under. This catch would therefore be considered optimal (OY) and is computed as $C_t = (B_t - B_{min}) * HR$. Potential problems arising from the small distance between the BAC and the OY given that B_{min} is a small quantity, are being discussed and the INAPESCA staff indicated that work is done in collaboration with Dr Kevin Hill from NOAA Fisheries to conduct testing to determine better approaches to the reference points.

3.2 Updates on Personnel Involved in Science, Management or Industry

There are no significant updates in personnel involved in science, management or industry.

3.3 Changes to the Fishing Operations and Traceability Systems

During this surveillance changes a variation request in order to fulfil IPI requirements (FCR 7.4.14) and annex PA was applied to IPI stocks. Upon the inclusion of these species as IPI stocks, SCS is now making positive determination under 7.12.1, to allow fish and fish products from the UoA to enter into certified chains of custody and be eligible to be sold as MSC-certified or carry the MSC ecolabel (See <u>Review of IPI stocks</u>).

4 Assessment Process

4.1 Assessment Methodologies

Table 4. Scheme Documents

MSC Scheme Document	Issue Date
MSC Certification Requirements CR v1.3	2013
MSC FSR and Guidance v2.0	October 1, 2014
General Certification Requirements v.2.1	February 20, 2015
Surveillance Reporting Template v1.0	October 8, 2014

Table 5. Schedule of surveillance audits.

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 6	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit & re- certification site visit

The surveillance audit was carried out in accordance with the default assessment tree of the MSC Fisheries Certification Requirements V1.3 under which the fishery was originally certified. Following the MSC guidelines for implementation timeframes, the surveillance was conducted in accordance with the new process requirements in FCR v2.0.

The issues for the certifier, in addition to checking progress against conditions to close out, is to determine whether a random check on the performance of the fishery verifies continued compliance with the MSC standards and to document the most recent research, landings, and survey trends relating to the fishery.

The annual surveillance audit process is comprised of five general parts:

- 1. The certification body provides questions around areas of inquiry to determine if the fishery is maintaining the level of management observed during the original certification.
- 2. The certification body informs stakeholders that they have the opportunity to contribute to the surveillance audit by participating in a face-to-face interview process or by submitting comments in writing. The certification body must inform stakeholders of the opportunity to provide comment at least 30 days before the onsite meeting.
- 3. The surveillance assessment team meets with the fishery client in an opening meeting to allow the client to present the information gathered and to answer questions asked by the surveillance team. The surveillance team can then ask questions about the information provided to ensure full understanding of how well the fishery management system is functioning and if the fishery management system is continuing to meet the MSC standards. Additional interviews are conducted of fishery management and science personnel as well as stakeholders.
- 4. The surveillance team determines if any PIs should be re-scored and presents its findings to the client fishery at the end of the site visit in a closing meeting. The results outline the assessment

team's understanding of the information presented and its conclusion regarding the fishery management system's continued compliance with MSC standards.

5. The surveillance team submits a draft report to the fishery client and a subsequent final report to the MSC for posting on the MSC website. If there are continued compliance concerns, these are presented as non-conformances that require further action and audits as specified in the surveillance report.

4.2 Consultations

SCS identified relevant stakeholders for this fishery through professional networks of SCS and the audit team and know-how of the organizations working in the area. A list of over 25 individuals from 14 different organizations was compiled including representatives from the government, private sector and non-profit sectors working at regional and national levels (**Table 6**). The main form of communication to stakeholders has been via email to personal or organizational email addresses. Stakeholders on the list received an email with the surveillance announcement, the MSC stakeholder template to provide input and an invitation to participate at the onsite.

No stakeholder written comments were received prior to the closing of the 30 day consultation period.

Organization	Туре
Instituto Nacional de Pesca(INP)	Government Institution/Research
СОВІ	NGO
INAPESCA	Government Institution/Research
Universidad Veracruzana	Academic Institution/Research
Conservación de Islas	NGO
WWF	NGO
EDF Mexico	NGO
Fundación Carlos Slim, A.C.	NGO
Centro de Investigaciones Biológicas del Noroeste S.C. (CIBNOR)	Research Institute
CICIMAR	Research Institute
CONAPESCA	Goverment Institution
Pronatura	NGO
Niparajá	NGO
New England Aquarium	NGO
Secretaria de Pesca BC	Government Institution

Table 6. List of stakeholder organizations contacted for the MSC Assessment

An announcement of the surveillance audit onsite meeting to take place in Mazatlán, Sinaloa was published to the MSC website on October 12th, 2017. Stakeholders were informed of the announcements through the MSC website and through email. An audit plan was provided to the client, management, scientists, and interested stakeholders by SCS before the meeting.

No stakeholders requested a private meeting with the team.

At the onsite the assessment team met with representatives from management agencies, research institutions and the client group, for details see Table 7.

Meeting Date	Торіс	Attendees
November 14, 2017	 Advances in methodology / stock assessment models- Conditions 1-1, 1-6 and 1-7 Review of changes in the scientific basis of information and progress of hydroacoustic studies Condition 1-5 	INAPESCA representatives
November 14, 2017	 Advances to define capture control tools and rules Conditions 1-3 and 1-4 Advances in the determination of explicit reference points and the methodology used. Conditions 1-2 and 1-4 Advances in management system applies an effective decision making process implementation of the control rule; including monitoring of catches, and use of the Biologically Acceptable Catch limit (BAC) Condition 3-1 	INAPESCA and CONAPESCA representatives
November 14, 2017	 Meeting with Fisheries Research and Management personnel to review: Advances in port and onboard monitoring to support the capture strategy, the control of the minimum size and to demonstrate compliance with regulations Conditions 3-2, 3-3 and 3-4 	INAPESCA and CONAPESCA representatives
November 15, 2017	 Meeting with fisheries research and observer staff to review: Operation of the on-board observer program and presentation of fishery observer program data Conditions 2-1 to 2-4 Advances in the design of the information program for accompanying fauna (port sampling, on-board observers and logbooks) Conditions 2-1 to 2-4, and 2-7 Advances in training for fishing observers and crew for data collection Condition 2-5 Advances in information collection for ecosystem models Condition 2-6 	INAPESCA and CONAPESCA representatives and Client group

Table 7. Audit Plan: Key Meetings held in Mazatlán	, Sinaloa, Mexico at the offices of MazIndustrial

4.3 Harmonization Considerations

CABs shall prepare for harmonisation with overlapping fisheries early in each assessment or surveillance process and not later than the site visit stage (rather than after scoring/re-scoring is concluded).

Where assessments of two or more fisheries occur at the same time, CABs shall coordinate their assessments so as to make sure that harmonisation of important steps in the assessment and subsequent surveillance audits takes place and that outcomes are harmonised.

[References PB3.1.1]

4.4 Assessment Team

The surveillance team consisted of Gabriela Anhalzer as lead and P2 team member and Dr Carlos Alvarez responsible for Principle 1 and 3. Assessment team experience and qualification summaries were provided in the assessment announcement and here:

Gabriela Anhalzer — SCS Global Services - Sustainable Seafood

Lead, Principle 2

Gabriela Anhalzer received a Master's degree in coastal environmental management from Duke University. Ms. Anhalzer has several years of experience in marine conservation and fisheries, she has worked as an independent consultant conducting evaluations of fishery improvement projects and as a fisheries policy and stakeholder specialist. She has also worked as an associated researcher in Latin America for sea turtle population studies, sea bird census, and supporting stakeholder engagement in participatory management of marine protected areas. Ms. Anhalzer has provided technical support for numerous MSC assessment and possess a comprehensive understanding of MSC fisheries standard and stages; meeting MSC's team leader qualifications and competency criteria. Ms. Anhalzer has received ISO 9001 auditor training, has completed the MSC training and has affirmed she has no conflict of interest.

Dr. Carlos M. Alvarez-Flores – Oceanides Conservacion y Desarrollo Marino Principle 1 and Principle 3

Dr. Carlos Alvarez-Flores was born in Mexico City in 1961 and obtained Bachelors of Science and Master of Science degrees at the National University of Mexico. He later moved to Seattle, USA to obtain a Doctor of Philosophy degree at the School of Fisheries of the University of Washington. His research interests are focused on the management and conservation of wildlife and fisheries. This includes abundance estimation; assessment of population status; estimation of population parameters; the effect of human intervention; direct harvest; bycatch and associated environmental effects; projections based on biological potential; population viability; risk assessment; design of alternative management strategies. His background comes from work dealing with large, pelagic, data rich fisheries, but his current assignments are related to small-scale, coastal, data poor fisheries. Therefore, his present challenge is to combine ideas, techniques, knowledge and experience to improve the performance of these problematic activities in developing countries. Most of his experience has been focused on practical investigations applied to population and fishery assessment and management as a consultant for governments, NGOs and the private sector of different countries. To the present, he has worked for SCS for over two years in MSC pre-assessments, assessments and surveillance audits of different types of fisheries in different countries.

Dr. Alvarez was a member of the initial full assessment team, together the team meets the competency criteria (FCR7.23.11.1-7.23.11.3) and affirm they have no conflict of interest.

5 Results

5.1 Condition 1-1

Performance	Insert relevant PI	Insert relevant scoring issue/	Ecore
Indicator(s) &	number(s)	scoring guidepost text	Score
Score(s)	1.2.1	Sla	70
Condition	The fishery must provide evidence that the harvest strategy is responsive to the state of the stock. A robust stock assessment and a harvest control rule with agreed outcomes must be active and working together towards achieving the harvest strategy objectives reflected in the target and limit reference points.		
Milestones	Surveillance 1 (2017) At this stage, INAPESCA will discuss the implementation of changes in thread herring stock assessment and define the approach that will be used. Expected Outcome: The client will provide a report with the information of the agreements reached in the discussion. Expected score: No anticipate changes in score at this stage. Surveillance 2 (2018) At this stage, the fishery shall have demonstrated some progress toward the closure of this condition. Progress can be measured in terms of changes on thread herring stock assessment and the start of changes to the management system (negotiations between key parties, drafting of agreements, etc.). Expected Outcome: Same outcome as surveillance 1 (2017) Expected Outcome: Some outcome as surveillance 1 (2017) Expected Score: No changes in score are anticipated at this stage. Surveillance 3 (2019) At this stage, the fishery shall have demonstrated further progress toward the closure of the condition, consistent with the achievement of the condition within the allowed four years. Expected Outcome: The client will provide evidence of the implementation of a robust thread herring stock assessment; reports with the progress in the changes in the management system will be provided; in case of carrying out meetings, minutes with the agreements reached will be submitted. Expected Score: No changes in score are anticipated at this stage. Surveillance 4 (2020) Condition expected to be fully met. Expected Autcome: same outcome as surveillance 3; also, active control rule for thread herring sardine will be applied effectively and systematically. Expected score: 80		
Client action plan	The fishery will provide ev state of the stock. A robus agreed outcomes will be a harvest strategy objectives	idence that the harvest strategy is resp t stock assessment and a harvest contr ctive and working together towards ac s reflected in the target and limit refer	oonsive to the rol rule with chieving the ence points.

	The client will collaborate with INAPESCA (Technical/Scientific body) in the	
	research respect to thread herring for the implementation of a robust stock	
	assessment to determine the status of each thread herring species.	
	The outcomes of this stock assessment will be taken into account for the	
	estimation of the Control Rule; these results will be reflected in a technical	
	report that will be the basis for decision making for the management, ensuring	
	that the fishery does not pose a risk for the populations of thread herring.	
	Control rule outcomes will be announced through a technical meeting early	
	year and/or seasonal to the industry and CONAPESCA (Administrative body) for	
	systematic and effective implementation.	
	The second state of the second	
	The condition and milestones will be assessed as outlined and addressed	
	within the stated timeframe.	
	The client presented results of a new approach to assess the status of the thread	
	nerring stock in the southern Guif of California. The new model with age	
	structure is fit to the acoustic indices of abundance and catch data. Model	
	predicted abundance is estimated for the whole complex and each species	
	separately. The outputs include management oriented parameters such as	
	improvement in the accessment of the TU stack complex, however it still peeds	
Progress on	improvement in the assessment of the TH stock complex, however it still needs	
Condition [Year 1]	development of the model is paired with a discussion of what reference points	
	are appropriate for the stock and whether they can be estimated	
	are appropriate for the stock and whether they can be estimated.	
	Overall the team considers that the fishery is on target with this condition.	
	However, the fishery needs to evaluate the time needed to incorporate further	
	model developments and testing and assure compliance with the milestones of	
	year 2 without sacrificing achievement of the main goals to close the condition.	
Status of	On target	
condition		

5.2 Condition 1-2

Performance	Insert relevant PI	Insert relevant scoring issue/	Score
Indicator(s) &	number(s)	scoring guidepost text	Score
Score(s)	1.2.1	Sic	70
Condition	The target reference point	must be explicitly determined so that	it can work
	with the rest of the strategy to achieve its objectives.		
	Surveillance 1 (2017). At this stage, INAPESCA will discuss the explicitly		
	determination of the targ	set reference point and proposing a n	nethodology to
	reach this goal.		
	Expected Outcome: The client will provide minutes signed by the participants of		
	the agreements reached in the meetings; the methodology to determine the		
	target reference point will be submitted.		
	Expected score: No change	es in score are anticipated at this stage	. .
	Surveillance 2 (2018) At	this stage literature and informat	ion about the
	determination of the TRP will be reviewed and the analysis for determining of		
	the target reference point will have started.		
	Expected Outcome: The client will provide a technical report showing the		
	progress in the determination of the TRP.		
	Expected score: No changes in score are anticipated at this stage.		
Milestones			
	Surveillance 3 (2019) At this stage, the Target Reference Point for the thread herring sardine fishery will be determined and established. The stakeholders will have a meeting with reviewers of INAPESCA to discuss the addition of the TRP in the regulatory documents, including the Management Plan, before its publication in the Official Federal Gazette (DOF, for its acronym in Spanish). Expected Outcome: The client will provide a technical report showing the progress in the determination of the TRP: a minute of the agreements reached		
	and reviews made in the meetings		
	Expected score: No anticip	ate changes in score at this stage.	
	Surveillance 4 (2020) At the	nis point, the Target Reference Point v	vill be included
	in the Management Plan a	nd other regulatory documents.	
	Expected Outcome: The cl	ient will provide a final report of the Ta	arget Reference
	Point for the fishery; the I	Management Plan and other regulato	ry mechanisms
	will include the TRP.		
	Expected score: 80		

	The client will collaborate with INAPESCA in necessary research to determine the target reference point for thread herring.
	The fishery will provide evidence that the target reference point have been explicitly determined so that it can work with the rest of the strategy to achieve its objectives.
Client action plan	These results will be reflected in a technical report, and they will be announced by a technical meeting to the industry and CONAPESCA for systematic and effective implementation.
	The client in collaboration with INAPESCA and, if it is necessary, stakeholders will make meetings to review, discuss and approve the TRP and its inclusion in the regulatory documents (CNP, MP, etc.) which will be published in the Official Federal Gazette.
	The condition and milestones will be assessed as outlined and addressed within the stated timeframe.
	The fishery presented minutes where the INAPESCA staff from different
	aspects about the performance of the current management system. The
	discussion included the proposal to modify the control rule presently active in the management plan. The modification included a clearer definition of what
Progress on	the biologically acceptable catch and optimum catch would be. However, the
Condition [Year 1]	proposal was deemed still unsatisfactory because the distance from the BAC to the OY is too small given the low value of Bmin. From the presentations at the
	onsite, it was clear that the definitive determination of the reference points is
	still in progress and further work is required, nevertheless, the improvement is significant and the progress according to the milestone for year 1.
Status of	On target.
condition	

5.3 Condition 1-3 (Part A)

Performance	Insert relevant PI	Insert relevant scoring issue/ scoring	Scoro
Indicator(s) &	number(s)	guidepost text	30016
Score(s)	1.2.2	Sla	70
Condition	The fishery must provide evidence that the Harvest Control Rule is effectively in place to ensure that exploitation rate is reduced as limit reference points are approached.		
Milestones	The fishery must provide evidence that the Harvest Control Rule is effectively in place to ensure that exploitation rate is reduced as limit reference points are approached. Surveillance 1 (2017): The client and INAPESCA will initiate meetings in order to propose the most acceptable mechanisms for limiting, reducing or ceasing fishing when the BAC is being approached. Expected Output: Minute of the meetings signed by the participants with all the agreements reached will be submitted; the main agreed mechanisms will be provided. Expected score: No anticipate changes in score at this stage. Surveillance 2 (2018) At this stage, the fishery will have demonstrated some changes toward the closure of the condition. The mechanisms for limiting, reducing or ceasing fishing when the biological allowable catch (BAC) of the year is being achieved will be announced. A meeting will be carried out where INAPESCA and the client will discuss the methods to implement the mechanisms for limiting, reducing and ceasing. Some tests of the mechanisms chosen will be carried out to determine their feasibility when the BAC is being approached. Expected Output: The minute of the meeting signed by participants with the agreements reached will be provided; a report of the mechanisms selected will be presented; and a report of progress made after first testing the mechanisms will be provided. Expected Score: No changes in score are anticipated at this stage. Surveillance 3 (2019) At this stage, the client, INAPESCA and CONAPESCA will review and discuss the actions that will be done when the BAC is being approached and They will propose the official document where it will be published (MP, CNP, regulatory agreement, etc.). Expected Outcome: The minute of the meeting signed by the participants for the discussion and review of the mechanisms will be provided. Expected Score: No changes in score are anticipated at this stage. Surveillance 4 (2020) Condition expected to be fully met. The mechanisms to limit reduce or cease fishing		
Client action plan	Explicit mechanisms will be of the year is being approa	e presented to limit, reduce or cease fis iched, systematic and effective implen	hing as the BAC nentation.

	The client will collaborate with INAPESCA for implement systematic monitoring
	at the catch levels to determine the time when the BAC of the year is being
	achieved. INAPESCA will announce these results through a technical report that
	will be the basis for decision making for the management (limit, reduce or cease
	fishing as the BAC of the year is being approached), ensuring that the fishery
	does not a pose a risk for the populations of thread herring. These mechanisms
	are defined in the Management Plan.
	For the implementation of these mechanisms, the technical report will be
	release through technical meeting between industry, INAPESCA and
	CONAPESCA for their systematic and effective application and publication in the
	Official Federal Gazette (DOF).
	The condition and milestones will be assessed as outlined and addressed
	within the stated timeframe.
	Minutes were presented with evidence of discussion about the need to determine the
	potential mechanisms to shut operations as the real time cumulative catch of the
	season approaches 90% of the allowable catch of the year. Minutes were also
	presented where actual decisions made together between the industry and the
	authorities to stop operations based on results of in-season monitoring of abundance
	and size. This is a positive setting to future determinations on the mechanisms that
Progress on	strategy effective in reducing effort as the stock approaches the limit reference point
Condition [Year 1]	
	A relevant situation was discussed at the onsite point out the difficulties to implement
	a control rule over a stock complex that could require a low allowable catch level on
	one component of the complex while other components are abundant but could not
	be harvested in full because the fishery cannot separate the least abundant species
	from the most abundant. The client needs to be aware of this problem to discuss with
	the scientific staff and start working to develop a strategy to address this issue.
Status of condition	On target.

5.4 Condition 1-3 (Part B)

Performance	Insert relevant PI	Insert relevant scoring issue/	Coore
Indicator(s) &	number(s)	scoring guidepost text	Score
Score(s)	1.2.2	Sla	70
Condition	The fishery must provide e in place to ensure that exp approached.	evidence that the Harvest Control Rule ploitation rate is reduced as limit refere	is effectively ence points are
Milestones	1.2.2Sia70The fishery must provide evidence that the Harvest Control Rule is effectively in place to ensure that exploitation rate is reduced as limit reference points are approached.Surveillance 1 (2017) The client will support INAPESCA for the monitoring and tracing fishery and the divulgation of outcomes at the stakeholder (The client, INAPESCA and CONAPESCA) will be initiated through systematic technical meetings.Expected Output: The client will provide the minutes of the meetings and technical reports.Expected Output: The client will provide the minutes of the meetings and technical reports.Surveillance 2 (2018) At this stage, the fishery will have demonstrated some changes toward the closure of the condition. Progress can be measured in terms of outcomes analysis, technical meetings among stakeholders (Client, INAPESCA and CONAPESCA) for the outcomes dissemination and reaching agreements respect to status of the stock, systematic application, monitoring and tracing fishery, changes in abundance above biological levels or the preparation for 		
Client action plan	The client will collaborate	with INAPESCA to do an continuous mo	onitoring of the
	fishery assessment (catch,	effort and size, etc.) to ensure that th	e management

	tools established (effort control and limits of the size of first allowable catch) are applied in accordance with current regulations, systematic and effectively. The results of these monitoring and the fishery tracing will be announced through a technical report in quarterly technical meetings with the participation of the client, INAPESCA and CONAPESCA; in case of exceeding the guidelines established in control tools will be announced the relevant management measures, which are defined in the Management Plan to ensure the resource sustainability. These measures will be implemented effectively and systematically.
	This will allow ensure that the regulations established are met, and verify that tools are effective in achievement of exploitation levels required by harvest control rule.
	The condition and milestones will be assessed as outlined and addressed within the stated timeframe.
Progress on Condition [Year 1]	Regular technical meetings are taking place with participation of all interested parties. Minutes and abstracts are submitted and discussions towards determination of the control rule are on track.
Status of condition	On target.

5.5 Condition 1-4 (Part A)

Performance	Insert relevant PI	Insert relevant scoring issue/	Score
Score(s)	1.2.2	Sla	70
Condition	Evidence must be presented confirming that the harvest control rules for the		
	thread herring complex are well defined		
Milestones	thread herring complex and Surveillance 1 (2017): At the will discuss, analyze and divalue for the Opisthoner (harvest control rule). Expected Output: The client technical report with evided in the HCR. Expected score: No changed Surveillance 2 (2018) The "Fraction" in the Control R be carried out through the generate changes in the M Expected Outcome: Minute be provided. Expected score: No changed Surveillance 3 (2019) The of with the stakeholders Expected Outcome: Technicase will be provided. Expected Score: No anticipe Surveillance 4 (2020) The FRACTION value determining achieve the strategy objuincluded in the MP or othe Federal Gazette (DOF). Expected outcome: The value of the MP or othe Official Federal Gazette (D	e well defined his stage, the client in collaboration with letermine of the feasibility of incorpo- na complex to be used as FRACTIO and the utilization with the INAPESCA ence of the utilization of the new value es in score are anticipated at this stage e determination of the best value ule. Consensus among the different st e Small Pelagic Committee to reach ag- lanagement Plan. tes of the meeting with the agreement es in score are anticipated at this stage control rule will be done with the agreement ate changes in score at this stage. te condition is expected to be fully hed will be applied effectively and sy ectives. Additionally, this value is e er regulatory document and published alue that will be used as FRACTION in the port.	h the INAPESCA rating the best DN in the HCR A will provide a as a FRACTION 2. to be used as akeholders will greements that its reached will 2. ements reached nents if it is the met. The best estematically to expected to be d in the Official the HCR will be published in the
Client action plan	These results will be and meeting to the industry implementation.	nounced in a technical report throu and CONAPESCA, for systematic	gh a technical and effective

The value that will be used as FRACTION in the HCR is expected to be in in the MP or other regulatory binding document and published in the Federal Gazette (DOF).	
	The condition and milestones will be assessed as outlined and addressed within the stated timeframe.
Progress on Condition [Year 1]	The fishery presented minutes of a meeting where proposed modifications to the control rule were discussed. The modifications included an alternative definition of FRACTION as a harvest rate (see above for details). This proposition represents an important development even if the parameter F_{RMS} has not been estimated yet.
Status of condition	On target.

5.6 Condition 1-4 (Part B)

Performance	Insert relevant PI	Insert relevant scoring issue/	Score	
Indicator(s) &	number(s)	scoring guidepost text	70	
Score(s)	1.2.2	Sia	/0	
Condition	Evidence must be presented confirming that the harvest control rules for the			
	thread herring complex are well defined			
	 Surveillance 1 (2017) The stakeholders will initiate meetings in order to discuss the design of the methodology that will be used in the determination of the limit reference point for thread herring to have a better representation of the specific characteristics of these species. Expected Outcome: The client will provide minutes of the meetings with the agreement reached. 			
	Expected score: No anticipate changes in score at this stage.			
	Surveillance 2 (2018) At t	his stage, the fishery shall have demo	onstrated some	
	changes toward the closure of the condition. Progress can be measur			
willestones	starting the investigations	to determine the specific value for the	limit reference	
	point used in the Control Rule. Also, some preliminary results of a formal analysis			
will be obtained by applying the agreed methodology previously.				
	Expected Outcome: A tec	hnical report of progress will be prov	cal report of progress will be provide in order to	
	submit the principal preliminary results obtained after the first tests.			
	Expected score: No changes in score are anticipated at this stage.			
	Surveillance 3 (2019): The	progress at this stage can be measured	d by continuing	
	investigations to determinate the specific value for the limit reference point			
	used in the Control Rule. C	Once it has been determined the specif	ic value for the	
	TRP, the consensus amor	ng stakeholders will start through the	e Small Pelagic	

	Committee to generate agreements that result in changes in the Management Plan or other regulatory document, to include the values determined for thread herring. Expected Outcome: The client will provide the minute of the meeting with the
	agreement reached to add the TRP into the MP. Expected score: No changes in score are anticipated at this stage
	Surveillance 4 (2020) The condition is expected to be fully met. The best specific value for the TRP will be applied effectively and systematically to achieve the strategy objectives. Additionally, the specific values of TRP are expected to be included in the MP o other regulatory document and published in the Official Federal Gazette (DOF). Expected outcome: The specific value for the TRP will be included in the MP or other regulatory binding document and published in the Official Federal Gazette (DOF).
	Expected score: 80 The client will collaborate with INAPESCA for perform the necessary research to determine the specific value for the limit reference point for thread herring used in the Control Rule, to work effectively and appropriately to achieve the exploitation levels established by the harvest control rule.
Client action plan	It will make the necessary agreements between stakeholders also so that these changes can be incorporated into the Management Plan. The condition and milestones will be assessed as outlined and addressed within the stated timeframe.
Progress on Condition [Year 1]	The redefinition of the reference points has been discussed in technical meetings and a variant has been proposed and is being evaluated. Although there is positive progress on this portion of the Condition, for Surveillance Audit 2 it would be expected that progress in the testing in collaboration with NOAA scientists will be presented with detail.
Status of condition	On target.

5.7 Condition 1-5

Performance Indicator(s) &	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Score(s)	1.2.3	SIb	75
Condition	Because stock assessments are key elements of a harvest strategy, and stock		
	assessments require reliable indices of abundance, the acoustic surveys need to		
	be conducted on a regular basis to feed this important element of the harvest		

	strategy. These surveys need to be consolidated and their methods refined to be able to support the control rule.		
	 Surveillance 1 (2017) Continuation with the biomass assessment by hydro acoustic methods. Expected Outcome: The client will present a report of progress of the hydroacoustic surveys Expected score: No changes in score are anticipated at this stage. 		
Milestones	Surveillance 2 (2018) At this stage, the fishery will have demonstrated some progress toward the closure of this condition. Progress can be measured in terms of changes in the thread herring biomass assessment by hydro acoustic methods in the Southern Gulf of California. The analysis for specific thread herring complex assessment will be initiated. Results will be announced through reports that will be presented in technical meetings attended by stakeholder. Expected Outcome: The client will submit technical reports of progress with the main results of the specific thread herring complex assessment. Expected score: No anticipate changes in score at this stage.		
	 Surveillance 3 (2019) Systematic acoustic researches and specific evaluation of the stock of thread herring will be continued. Also, technical meetings among stakeholder for the application of the specific evaluation for thread herring in the control rule will be carried out. The use of "Target strength" will be analyzed and discussed so that it can be applied with more robustness in assessments of thread herring. Expected Outcome: The minutes of the meetings signed by all participants will be provided; also, minutes of the discussion, analysis and agreements of the use of specific target strength for thread herring will be submitted. Expected score: No changes in score are anticipated at this stage. 		
	Surveillance 4 (2020) Condition expected to be fully met. Expected Outcome: A final technical report with the results of the hydroacoustic survey will be provide. Expected score: 80		
Client action plan	The client will collaborate with INAPESCA for conducting research for biomass assessment through acoustic methods. This research will be regular and focused on the analysis and consolidation of its methods for that "Target strength" parameters used can be applied with more strength to the thread herring.		
	In addition, these assessments will tend to be carried out at specific level including different species of <i>Opisthonema</i> complex. This will allow obtain abundance index independents of the fishery, systemic and reliable, that can be include in the harvest strategy. Obtained results in this research will be announced through a technical meeting to stakeholder for their effective and systematic application in Control Rule.		

	The condition and milestones will be assessed as outlined and addressed within the stated timeframe.
Progress on Condition [Year 1]	The INAPESCA scientific staff presented reports indicating that two hydroacoustic surveys were conducted in 2017 even if unsuccessful because the fish apparently was scattered in the surveyed area. The staff also informed that a new echosounder has been acquired and is being calibrated. The staff also informed that experiments to determine specific signal recognition for thread herring and other small pelagic fish will soon be conducted and that the setting is ready for the experiments. The progress on this condition is acceptable but the client needs to be aware that for Surveillance audit 2 it will be expected that detailed progress will be presented on 1) fishing gear selectivity; 2) echosounder performance and 3) experiments towards specific TH signal discrimination
Status of	On target
condition	

5.8 Condition 1-6

Performance	Insert relevant PI	Insert relevant scoring issue/	Score		
Indicator(s) &	number(s)	scoring guidepost text	30012		
Score(s)	1.2.4	SIC	65		
	The stock assessment methodology must be improved to resolve the current				
Condition	tion inconsistencies shown between the VPA and Multispecies Production models. This type of model uncertainty must be accounted for to increase the reliability				
	of the assessment methodology to support the harvest strategy.				
	Surveillance 1 (2017) Analysis and discussions will be carried out to design the methodology that will be used to solve inconsistencies in VPA and Multispecies				
	Production models for thread herring to increase the reliability of the assessment methodology.				
	Expected Outcome: The client will provide a technical report with the progress obtained in this issue. Milestones Expected score: No anticipate changes in score at this stage. Surveillance 2 (2018) At this stage, the fishery shall have demonstrated some progress toward the closure of this condition. Progress can be measured by				
Milestones					
	analyzing the inconsistencies between the VPA and multispecies production				
	models.				
	Expected Outcome: The client will provide a technical report with the analysis				
	or the inconsistencies.				
	Expected score: No change	es in score are anticipated at this stage	j •		
	 Surveillance 3 (2019) At this stage, the fishery will have demonstrated further progress toward the closure of the condition; progress may be measured by implementing a more robust methodology for evaluating the stock taking into account the involved uncertainties. Expected Outcome: A report of progress will be provide with partial results. Expected score: No anticipate changes in score at this stage. Surveillance 4 (2020) Condition is expected to be fully met. Expected Outcome: A final technical report with the main results will be submitted. 				
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	The client will collaborate with INAPESCA to improve the methodology in stock assessment and provide estimations more robust of biologic and management parameters where take into account involved inconsistencies.				
Client action plan	In addition, factors will be analyzed contributing to the main uncertainties such as differences in the abundance estimated between assessment methods; the models sensitivity in assumptions on parameters such as natural mortality; or information type included in data, to assess the results validity and increase the reliability assessment methodology that support the harvest strategy.				
Progress on Condition [Year 1]	The client presented results of a new approach to assess the status of the thread herring stock in the southern Gulf of California. The new model with age structure is fit to the acoustic indices of abundance and catch data. Model predicted abundance is estimated for the whole complex and each species separately. The outputs include management oriented parameters such as harvest rate and fishing mortality rates. This is considered a significant improvement in the assessment of the TH stock complex, however it still needs considerable development and improvement.				
	Overall the team considers that the fishery is on target with this condition. However, the fishery needs to evaluate the time needed to incorporate further model developments and testing and assure compliance with the milestones of year 2 without sacrificing achievement of the main goals to close the condition.				
Status of condition	On target.				

5.9 Condition 1-7

Performance Indicator(s) &	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Score(s)	1.2.4	Sle	65
Condition	The stock assessment mus	t be subject to peer review.	

	Surveillance 1 (2017) No improvement or outcome expected
	Surveinance 1 (2017) No improvement of outcome expected
	expected score: No anticipate changes in score at this stage.
Milestones	 Surveillance 2 (2018) At this stage, the fishery will have demonstrated some progress toward the closure of this condition. Progress can be measured in terms of the assessment presentation at the Workshop of Small Pelagic Forum. Expected Outcome: The Workshop of Small Pelagic proceedings will be provide. Expected score: No changes in score are anticipated at this stage. Surveillance 3 (2019) At this stage, the progress may be measured by a manuscript submitted to a scientific journal for a peer reviewing. Expected Outcome: A manuscript which will be subject of reviewing will be submitted. Expected score: No anticipate changes in score at this stage.
	Surveillance 4 (2020) Condition expected to be fully met.
	Expected Output: A Stock Assessment paper (in press) will be provided.
	Expected score: 100
Client action plan	The client will collaborate with INAPESCA for that the assessments be subject to peer review.
	The condition and milestones will be assessed as outlined and addressed within the stated timeframe.
Progress on	No outcome was expected after the first year.
Condition [Year 1]	
Status of condition	On target.

5.10 Condition 2-1, 2-2, 2-3 and 2-4

Dorformanco	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Indicator(c) &	2.1.2	SI c	75
	2.1.3	SI d	75
Score(s)	2.2.2	SI c	75
	2.2.3	SI c	75
	2-1 (PI. 2.1.2) Evidence must be presented that the partial strategy for spotted		
	eagle rays is being implem	ented successfully.	
Condition			
	2-3 (PI. 2.1.3) Demonstrate that sufficient data continue to be collected to		
	detect any increase in risk level for spotted eagle rays and devil rays		

	2-3 (PI. 2.2.2). Present evidence that the partial strategy is being implemented successfully for cownose rays.
	2-4 (PI. 2.2.3), Demonstrate that sufficient data continues to be collected to detect any increase in risk to cownose rays.
	 Surveillance 1 (2017) (All Conditions) The client in collaboration with INAPESCA will initiate the implementation of biological sampling of commercial landings for the whole fleet by port observers, with special emphasis on sharks, rays and other non-target species of the small pelagic fishery. The client will support Observer Program of INAPESCA with resources for the addition of observer on port. On board observer program continues to operate with 20 % coverage. Expected Output: The client will present evidence that the design of the sampling strategy (port sampling, on board observers and fisher logbooks) is cohesive and feasible, and that the selected monitoring tools, goals and data analysis will provide accurate and reliable date to respond to the conditions for the management and information conditions for retained and bycatch species. Client will present evidence that fishers have received training to collect information on logbooks; Client will present report of finding for corresponding fishing season from on board observer program.
	Expected Score: No changes in scores are anticipated at this stage.
Milestones	At this stage, the fishery will have shown some progress toward closing.
	Expected Output : Client will present evidence that logbooks on board the fleet are in place and that estimates for volume of retained and discarded species are collected alongside spatial information of fishing event; data from on board program continues to be collected for the registration of retained and discarded species, detailed information on the biology of eagle and devil rays (size, maturity, sex, etc.) and other non-target species of the fishery; Information on retained species from port observers.
	Expected Score : No changes in score are anticipated at this stage.
	Surveillance 3 (2019) (All Conditions) At this stage, on board observer program and on port observer will have demonstrated further progress toward the closure of the condition, consistent with the achievement of the condition within the allowed four years. Expected Output: Same output as Surveillance 2.
	Expected Score: No changes in scores are anticipated at this stage.
	Surveillance 4 (2020) (All Conditions)

	At this stage the action plan provides evidence that the partial strategy for spotted eagle rays is being implemented successfully. The data collected and analyzed respond to the condition. Expected Output: The client will present reports from on board observers, fisher logbooks and port sampling, which show the sampling strategy is implemented and in place; the client will present evidence that there is in place a data quality control system that evaluates consistency between the three monitoring tools (on board observers, fisher logbooks and port sampling) for authentication and accuracy. Expected Score : 80
	Evidence will be present to show that the strategy for managing retained and bycatch species is being carried out s, successfully, and that information continues to be collected to detect any increase in risk levels.
	The client will cooperate with the INAPESCA to carry out a sampling strategy resulting in obtaining timely and adequate information concerning the biology (size structure, maturity, sex, weight, etc.) of the spotted eagle rays and other non-target species of the fleet. This strategy will be implemented by the observer on board vessels as well as observer from port. The biological information obtained will processed, analyzed and compared with the scientific information available for the species.
Client action plan	The client in collaboration with INAPESCA will continue to implement the mitigation measures established on all boats and will obtained records of these events in the blogs and photo files.
	The client in collaboration with INAPESCA will implement the use of logbooks in all vessels of the sardine fleet in order to obtain detailed record of the target catch, incidental, ETP and retained species, as well as registration of the implementation of mitigation measures complying with the provisions of NOM- 029-PESC.
	The implementation of the action plan will be systematic and effective to achieve the objectives of the strategy for managing retained species on Principle 2.
Progress on Condition [Year 1]	During the first surveillance the client presented reports from the on-board observer program from fishing seasons through 2012 to 2017. For the current on-going fishing season (2017-2018), the sampling of the observer program has been increased from two to seven out of the nine vessels in the fleet. Observer coverage has continued to increase since the first year of the observer program in 2012-12 (See Figure 4). Evidence presented also indicated that the observers participated in multiple training sessions to improve data collection methodologies and species identification. The client also developed in 2016 a port-observer program and expanded the captain's logbook data format to include data collection on non-target species.

	season, data collected from these programs was not available for this surveillance audit. The client in coordination with INAPESA led their fifth workshop for best-practices for crew members to share mitigation measures.
	Results from the final 2012-2017 observer program report indicates that retained catch of bycatch species has decreased from ~500 t ($3.3.\%$ of catch of UoA) in the 2012-13 fishing year to ~160 t ($1.1.\%$ of catch of the UoA) in the 2016-17 fishing season. Likewise, the proportion of discarded catch of all bycatch species has decreased from 415 t (50% of discards of UoA) to 9.2 t (8% discards of the UoA). The elasmobranch group shows overall reduction in relative catch volumes from 2.2 t to 0.7 tons (See Table 8). The cause of the fleet moving away from more shallow and coastal areas (See <u>Outcomes on Fishery Impact</u>). These changes in fishing behavior could be the result of best-practices workshops, mitigation measures and the implementation of economic incentives for trips with $\leq 2\%$ bycatch.
	The assessment team concludes that continuous training, improvements in sampling coverage of the observer program, and development of additional data collection systems (port-observers and logbooks) are important measures to implement a system to control data quality.
	The decrease in catch contribution of bycatch species also indicates that the fishery has been able to put in place measures (best-practices workshop and economic incentives for clean catch) to reduce impact of the fishery on vulnerable species such as rays.
Status of condition	The assessment team concludes that the evidence presented in the Surveillance for Year 1 indicate that the fishery is meeting milestone 1 for conditions 2-1 (PI 2.1.2), 2-2 ((PI 2.1.3), 2-3 (PI 2.2.2) and 2-4 (PI 2.2.3) and is considered to be 'on target; to closing these conditions.

5.11 Condition 2-5

Performance Indicator(s) &	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Score(s)	2.3.3	Sla	75
Condition	Demonstrate that sufficie mortality and the impact species.	ent information is available to allow t of fishing to be quantitatively esti	fishery related mated for ETP

	Surveillance 1 (2017)	
	Fishers will be trained on the use and implementation of logbooks on board	
	vessels of the fleet for the registration of ETP species.	
	Expected Output: The client will provide the files of the fishers training	
	(dialances attendance whether report ate)	
	(dipiomas, attendance, photos, report, etc.).	
	Expected Score: No changes in score are anticipated at this stage.	
	Surveillance 2 (2018)	
	At this stage, the fishery will demonstrate further progress toward the closure	
	At this stage, the history will demonstrate further progress toward the closure	
	of the condition, consistent with use logbooks on board vessels of the neet for	
	the registration of species with special protection status (ETP).	
	Expected Output: The client will present evidence that logbooks on board the	
	fleet are in place and the sighting and application of mitigation measures of ETP	
	species are collected alongside spatial information of fishing event data and	
	species are concered alongside spatial information of fishing event data and	
	evidence (photographs) from on-board observer program continue to be	
	collected for the registration of information on ETP species and detailed	
	information of the application of mitigation measures.	
Milestones		
	Expected Score : No anticipate changes in score at this stage.	
	Surveillance 3 (2019)	
	At this stage, the fishery will have shown some progress toward closing this	
	condition. Progress can be measured in terms of quantitative information on	
	sightings and implementation of mitigation measures of organisms found on a	
	spacial protection status (ETD) within the vessels of the float of small palaris	
	special protection status (ETP) within the vessels of the neet of small pelagic	
	southern Gulf of California.	
	Expected Output: Same output as Surveillance 2.	
	Expected Score: No changes in score are anticipated at this stage.	
	Surveillance 4 (2020) Condition expected to be fully met.	
	Expected Output: The client will present reports using the information obtained	
	by contains logbooks and nistures as ovidence to demonstrate that strategy for	
	by capitaling logbooks and pictures as evidence to demonstrate that strategy for	
	special protection status species (ETP) is being implemented in place; The client	
	will present evidence that there is in place a data quality control system that	
	evaluates consistency between the three monitoring tools (on board observers	
	and fisher logbooks) for authentication and accuracy.	
	Expected Score: 80	
	The information from the implementation of logbooks to record species with	
	special protection status (ETD) will be sufficient to allow reliable sweetitative	
	special protection status (ETP) will be sufficient to allow reliable quantitative	
Client action plan	estimate of the impact of fishing on species.	
	Customer will cooperate with the INAPESCA to implement the use of logbooks	
	sustamatically aboard vessels in the fleet for the quantitative record of righting	
	systematically aboard vessels in the neet for the quantitative record of sighting,	
	mortality and implementation of mitigation measures dolphins and other	

	species in special protection status (ETP) in order to obtain data and more accurate and representative information that reveal with greater certainty the impact of fishing on these species. This includes training of fishermen to the success of action plan.
Progress on Condition [Year x]	In 2016 the captain's logbook (<i>Bitacora de capitan</i>) was modified to include additional information n on discards, retention and transhipment of small pelagic species, capture of bycatch and ETP species and whether these were retained and discarded and their status (live or dead). During the first surveillance audit the assessment team confirmed that the logbooks are already in use, however, it was noted that implementation is still low, and that most logbooks are incomplete in the sections for non-target species. The crew has attended a number of workshops on best practices, the workshops have focused on conducting exercised for the crew to practice use of the logbooks and review of identification guides to help standardize use of common names. The results of surveys conducted at the end of the workshops indicates that the use of logbooks is still low, however the knowledge of the logbook appears to be improving based on the survey results between the fourth and fifth workshops. The client has provided evidence that the logbooks are being implemented and that the crew has received training.
Status of condition	On target

5.12 Condition 2-6

Coorda	252		
Score(s)	2.J.2	SIb	70
Condition	Demonstrate that sufficie mortality and the impact species.	ent information is available to allow t of fishing to be quantitatively esti	fishery related mated for ETP
Milestones	Surveillance 1 (2017) Collection of information a Expected Output: The clie of the species involved in t information (scientific liter and on port observers info Expected Score: No anticip	available and necessary to feed the eco nt will create a database which will ha the fishery, the gut content, preys, pre rature, grey literature, theses, reports prmation, etc. pate changes in score at this stage.	osystem model. ive information edators, type of , etc.) on board

	The stakeholders will continue the process of organizing and analyzing the information available to facilitate the implementation of an ecosystem model. Information needed for ecosystem analysis is also generated. Moreover, different groups carry out technical meetings to discuss the incorporation of explicit procedures and linked to management measures. Expected Output: The client will present the information gathered in the database and that will be organize for the implementation of the ecosystem model; the client will provide reports of the meetings that will be carried out in order to discuss the incorporation of procedural linkages. Expected Score: No changes in score are anticipated at this stage.
	Surveillance 3 (2019) At this stage, the fishery will be demonstrated further progress toward the closure of the condition. The processing and analysis of available information being to facilitate the implementation of an ecosystem model <i>"Ecopath with Ecosim"</i> . In addition the groups involved in technical meetings will provide proposals to establish procedures relating to management measures.
	Expected Outcome: At this stage, the client will initiate the process of analyzing the information in order to implement the ecosystem model and obtain some results; the stakeholders will provide some proposals in the meetings to establish procedural linkages in management measures; the client will provide reports of the meetings that will be carried out in order to discuss the incorporation of procedural linkages. Expected score : No anticipate changes in score at this stage.
	 Surveillance 4 (2020) It is expected that the condition has been met in full. Expected Output: The client will present a report with the main obtained results after the implementation of the ecosystem model; also, the client will provide reports with evidence of agreements reached in all the meetings carried out to incorporate procedural linkages in the management measures. Expected Score: 80
	Identify key species and the necessary biomass for the function of the ecosystem through ecosystem models, as well as the incorporation of systematic procedures and linked to measures of management and protection, which is considered a strategy to reduce impacts of the fishery on the ecosystem.
Client action plan	The client in collaboration with INAPESCA will obtain and analyze timely and sufficient information including available data of the small pelagic fishery to apply a ecosystemic model " <i>Ecopath with Ecosim</i> ", which results will determine key species and necessary biomass for the pelagic ecosystem function, allowing implement measures for reduce fishery potential impacts to the pelagic ecosystem.
	The client in collaboration with INAPESCA and CONAPESCA (Monitoring and surveillance) will establish explicit, systematic and effective procedures to apply

	management and protection measures in case to find some negative potential on the ecosystem and link these procedures with the current regulations for the
	fishery of these resources.
Progress on Condition [Year 1]	The client presented evidence that the fishers Collection of information available and necessary to feed the ecosystem model. Expected Output: The client will create a database which will have information of the species involved in the fishery, the gut content, preys, predators, type of information (scientific literature, grey literature, theses, reports, etc.) on board and on port observers information, etc. Expected Output: The client will provide the files of the fishers training (diplomas,
	attendance, photos, report, etc.).
Status of condition	On target

5.13 Condition 2-7

Performance Indicator(s) &	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Score(s)	2.5.2	SIb	70
Condition	Demonstrate that partial strategy for bycatch takes into account available information and is expected to restrain impacts of the fishery on the estuarine ecosystem so as to continue to achieve the Ecosystem Outcome 80 level of performance.		
Milestones	 Surveillance 1 (2017) Systematic samplings of non-target species by port observers will be carried of to obtain biological information. Expected Outcome: The client will present evidence that the design of the sampling strategy (port sampling and on board observers) is cohesive at feasible, and that the selected monitoring tools, goals and data analysis we provide accurate and reliable date to respond to the conditions for the management and information conditions for non-target species. Client we present reports of information obtained for non-target species. Expected Score: No anticipate changes in score at this stage 		
	Surveillance 2 (2018)		
	Quarterly technical meetings will be carried out in order to present the results of the monitoring conducted through a technical report and, if the evidence denotes potentially negative impacts of the fishery on pelagic ecosystem, agreements will be reached between stakeholders to implement procedures related to the current regulations which will be established to reduce the impact. At this stage, the fishery will have shown some progress toward the closure of this condition. Progress can be measured in terms of detail information on the biology of non-target organisms fishery (size, maturity, sex etc.) derived from the monitoring on board observers and port.		

	Expected Outcome: The client will provide reports of the quarterly meetings with the information of the agreements reached to protect the ecosystem; present evidence that on board and on port observers are in place and the biological information of non-target species are collected alongside spatial information of fishing events; data from on board observer program continues to be collected for the registration of retained and discarded species and detailed information on the biology of all non-target species (size, maturity, sex, etc.) of the fishery; Information on retained species from port observers. Expected Score : No changes in score are anticipated at this stage. Surveillance 3 (2019) At this stage, the fishery will be demonstrated further progress toward the
	 closure of the condition, consistent with the achievement of the condition within the allowed four years. Expected Outcome: Same outcome as surveillance 2. Expected Score: No anticipate changes in score at this stage.
	 Surveillance 4 (2020) It is expected that the condition has been fully met. Expected Outcome: The client will provide a report with all evidence of the agreements reached in the meetings for the protection of the ecosystem; the client will present a report to demonstrate that a strategy is implemented to protect the pelagic ecosystem and estuarine communities. Expected Score: 80
	The incorporation of procedures that are explicit and linked to the current regulations for the management and protection of the ecosystem. As well as detailed monitoring of the fishery with various actions, will provide sufficient evidence to show that the strategy to protect the pelagic ecosystem and estuarine communities is implemented successfully.
Client action plan	The client in collaboration with INAPESCA and CONAPESCA will make quarterly technical meetings where they will announce the results of monitoring the fishery through technical reports and, if there is evidence of potential negative impacts of the fishery on the pelagic ecosystem and estuarine communities, agreements between the parties involved will be taken to implement procedures related to the current regulations to reduce them.
	The client will cooperate with INAPESCA to carry out a strategy that results in obtaining systematic, timely and sufficient information concerning the biology (size structure, maturity, sex, weight, etc.) of non-target species of the fishery which by observers on board vessels as well as by observers port will take place. The information obtained from the organisms will be analyzed and compared with available scientific information allowing obtaining sufficient and appropriate elements to avoid any potential risk communities and estuarine pelagic ecosystem.

Progress on Condition [Year 1]	The fishery has structured a comprehensive data collection system via the ob board and port observer programs (See <u>Updates on Information and</u>
	Management on Principle 2). The assessment team had some questions regarding the sampling strategy and
	sample size of these programs, and potential implications on data accuracy. However, the implementation of both the extended on-board observer program and the new port observer program are undergoing implementation, this will be something that the team recommends reviewing in Year 2 surveillance.
	The client has also made some advances on conducting a literature review to gather information on food chains and diet composition as part of a database to inform ecosystem models (Jacob Cervantes 2017e.)
	The reduction in overall bycatch species (Table 3) seems to indicate that the management measures adopted by the fishery are successfully mitigating overall direct impact on ecosystem functions. However, as noted previously the change in fishing behavior may be accounted a phase of low availability of the in-shore <i>bocona</i> sardine. The assessment team will continue to review progress on this condition throughout the upcoming surveillances.
	Lastly, the progress on conditions in Principle 1 related to improvements on the harvest strategy and harvest control rules are also important measures to restrain impacts of the fishery on the estuarine and pelagic ecosystems.
Status of condition	On target

5.14 Condition 3-1

Performance Indicator(s) &	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Score(s)	3.2.2	Sla	70
Condition	At each annual audit, the c management system appli in measures and strategi actions taken to any wrong	lient should provide evidence that the es an effective decision-making proces es to reach the objectives of the fis gdoing during fishing operations.	fishery-specific ss that resulted hery, including
Milestones	Surveillance 1 (2017) Control rule and allowable catch application starts, will be announce through technical meeting among stakeholder (The client, CONAPESCA, INAPESCA). Each month will evaluate the catch development of the fishery to control it in case to approach the limit of the biologically acceptable catch (BAC) and will announce in technical meeting among stakeholder. Each surveillance, the client will show to the audit team records of the meetings signed by participants.		

	Expect output: The fishery complies with the BAC.		
	Expected score: No changes to score anticipated at this stage.		
	Surveillance 2 (2018) See surveillance 1.		
	Expected score: No changes to score anticipated at this stage.		
	Surveillance 3 (2019) Will carry out technical meetings to establish agreements among stakeholder and the review of the decision making process relative at the fishery management that could negatively affect at the population. Necessary actions will be evaluate to mitigate the impact on fishing activity; in case to be necessary it will be implement requires actions including measures taken to any wrongdoing during fishing operations.		
	Expect output: The client will present record of meetings and mitigation measures applied.		
	Expected score: No changes to score anticipated at this stage.		
	Surveillance 4 (2020) The client will demonstrate that the fishery management system has been improved through mitigations measures to reduce the fishery impact on the ecosystem and taking actions to any wrongdoing during fishing operations.		
	Expect output: The client will present the results of the mitigation measures applied through a technical report Expected score: 80		
	The incorporation of procedures that are explicit and linked to the current regulations for the management and protection of the ecosystem. As well as detailed monitoring of the fishery with various actions, will provide sufficient evidence to show that the strategy to protect the pelagic ecosystem and estuarine communities is implemented successfully.		
Client action plan	The client in collaboration with INAPESCA and CONAPESCA will make quarterly technical meetings where they will announce the results of monitoring the fishery through technical reports and, if there is evidence of potential negative impacts of the fishery on the pelagic ecosystem and estuarine communities, agreements between the parties involved will be taken to implement procedures related to the current regulations to reduce them.		
	The client applies an effective and systematic control rule of the Maximum Sustainable Yield (MSY) and BAC, obtained from the thread herring biomass estimate issued by INAPESCA (Client will show to the CAB the signed records of each meeting). This control rule and BAC will be announce through technical meeting among stakeholder. Moreover, it will be monitoring the landings for the control rule assessment as well as BAC and it will submit the corresponding inspection records.		
	The condition and milestones will be assessed as outlined and addressed within the stated timeframe.		

Progress on Condition [Year 1]	The client presented evidence that meetings took place to discuss relevant aspects of the management system, particularly in the development and implementation of a more efficient harvest strategy. The client also presented evidence of meetings with industry and government authorities discussing the results of monitoring resulting in closures. However, it was also evident at the Surveillance Audit that the management system is still unclear about how decisions will be made under specific scenarios and that a clear path or course of action still needs to be drawn.
	The status of this condition will be set to on target, however at the second Surveillance Audit, a draft document will be required outlining the specific steps of the decision making process in the implementation of the control rule.
Status of condition	On target.

5.15 Condition 3-2

Performance Indicator(s) &	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
Score(s)	3.2.3	Sla	60
Condition	Demonstrate that the monitoring, control and surveillance system has an ability to enforce relevant management measures, strategies, and/or rules.		
Milestones	 Milestones for this conditions were revised to provide a include more detail an provide a more clear stepwise approach to closing the condition. Surveillance 1 (2017) Begins monitoring on port and on board vessels, and tak agreements between stakeholder (The client, INAPESCA and CONAPESC/ about procedures for the control of minimum sizes, allowable catch an general management tools fishery. No improvement or outcome expected. Expected output: Fishery complies with the rules approved. Surveillance 1 (2017) Begins monitoring on port and on board vessels, and tak agreements between stakeholder (The client, INAPESCA and CONAPESC/ babout procedures to protect the stock based on size, allowable catch ar general management tools fishery. No improvement or outcome expected. 		nore detail and essels, and take d CONAPESCA) ible catch and e expected. essels, and take d CONAPESCA) able catch and e expected.
	Expected output: The fishery advances in the operation of the current monitoring, control and surveillance system which is presently focused on supporting management decisions. The system in this stage informs stakeholders and discuss with them the consequences of findings to agree on alternative actions when needed.		
	Expected score: No change	es to score anticipated at this stage.	
	Surveillance 2 (2018) Mon	itoring on port and on board vessels c	ontinues.

	Expect output: Fishery continues complies with the rules approved.
	Surveillance 2 (2018) The fishery consolidates the scientific monitoring system on port and on board vessels. The on port enforcement monitoring program is expanded to have a more frequent and systematic approach.
	Expect output: The fishery presents: a) The scientific monitoring and sampling program is consolidated and a report is produced describing methodological details and results; b) The first stage of the expansion of the CONAPESCA surveillance program is developed and started producing records of frequent inspections directed to detect irregularities in fishing operations and records of infractions observed by inspectors if any. A report is provided with a description of achieved improvements.
	Expected score: No changes to score anticipated at this stage
	 Surveillance 3 (2019) Progress can be measured in terms of fishery monitoring and control. The client will present the results of the monitoring on port and on board vessels and agreements between stakeholders (in case). Expect output: Monitoring control and surveillance system are enforced. Expected score: No changes to score anticipated at this stage. Surveillance 3 (2019) The fishery's scientific monitoring system is fully operational and informs the fishery to make management decisions. The CONAPESCA surveillance program presents significant improvements.
	Expected output: The fishery's scientific monitoring system operates according to a program clearly describing goals, methods, sampling intensity and required information. This program regularly informs the fishery and stakeholders about results, proposed course of actions and results. The fishery presents documentation about the program and a report of activities and results. The CONAPESCA surveillance program has developed a systematic approach, increasing the frequency of inspections and reporting activities and observed infractions.
	Expected score: No changes to score anticipated at this stage.
	Surveillance 4 (2020) Condition expected to be fully met. Expected score: 80
Client action plan	The client will collaborate with CONAPESCA and INAPESCA in the necessary actions to consolidate and improve the monitoring, control and surveillance system through landing place and on board fishing vessel inspections to enforce management measures, strategies and rules. Yearly reports of improvements, activities and records of inspections and a final report will be submitted.

Progress on Condition [Year 1]	The evidence indicates a clear collaboration between the industry and the INAPESCA scientific staff with quarterly reports of activities including sampling the catch to obtain trends in the size of fish in the commercial fishery. Results of this sampling program indicate that the fishery continues catching fish under the size limit in large proportions in violation of the rulings in the NOM-003-PESC-1993 and the CNP. Although the revision of the NOM apparently will modify the current definition regarding size restrictions, the publication of the revised NOM is taking too long and there is no clear definition yet about how the alternative will be specified. The client presented evidence of procedures in which the industry met the INAPESCA and CONAPESCA to discuss the results of surveys and sampling indicating not only unusual distribution of TH, but making emphasis in the size distribution of the catch, noting an intense reproductive activity. The discussion of this process led to an agreement to stop operations for three months with the purpose of protecting the stock. A formalization of these type of procedures leading to regular meetings to review the performance of the fishery after the regular monitoring activities can be discussed in the future as an acceptable system to meet part of the requirements of this condition. However, the team stresses out that the MCS system must have a more explicit and effective connectivity with the authorities with the capacity to directly impose sanctions when violations are detected. This approach to monitoring contrasts with the current approach in which monitoring is effective from the scientific perspective to support management, but is not acting to detect infractions and impose sanctions. The fishery met the milestone for year 1. After the onsite, the team noticed that the original definition of the milestones may lack the clarity required for the client and the fishery to fulfil the
	fishery met the milestone for year 1. After the onsite, the team noticed that the original definition of the milestones may lack the clarity required for the client and the fishery to fulfil the requirements of this condition. The milestones were therefore modified to
	better reflect the expectations after execution of the action plan and to propose more realistic goals for the given timeline.
Status of condition	On target

5.16 Condition 3-3

Performance	Insert relevant PI	Insert relevant scoring issue/	Score
Indicator(s) &	number(s)	scoring guidepost text	
Score(s)	3.2.3	SIb	60
Condition	Demonstrate that sanctions to deal with non-compliance exist and are consistently applied and thought to provide effective deterrence.		
Milestones	Original Milestone Surve	illance 1 (2017) Biological and fleet ca	itch monitoring
	starts by on board and on p	port observers to provide systematic ar	nd timely follow
	at the fishery evolution in	order to meet with current manageme	ent measures.

Expected output: Fishery complies with current regulation.

Expected score: No changes to score anticipated at this stage.

Modified (As part of the remedial action to get the fishery back on target)

Surveillance 1 (2017) The fishery holds meetings with CONAPESCA to conduct a diagnostic review of the problems leading to the inconsistencies in the application of sanctions. Expected output: The fishery presents a report describing the current structure of the process to impose sanctions, identify challenges to consistent application of sanctions to non-compliances in the small pelagics fishery in the southern GoC and suggest improvements.

Expected score: No changes to score anticipated at this stage.

Surveillance 2 (2018) Progress can be measured in terms of analyze current regulations for the improvements implementation in monitoring, control and surveillance and where stakeholder participate (The client, CONAPESCA and INAPESCA). Through technical meeting between stakeholder to achieve agreements. Review of the decision making process starts for its implementation and improvement respect with fishery actions that could adversely affect sardine population.

Expect output: Fishery complies with the rules approved.

Expected score: No changes to score anticipated at this stage.

Surveillance 2 (2018) The fishery and CONAPESCA develop a proposal to make the necessary amendments to institutional procedures to assure that application of sanctions takes place when required.

Expected output: The fishery and CONAPESCA present a proposal to improve specific aspects of the regulatory system so that imposing sanctions is possible when required. It would be expected that this proposal includes explicit mention of limitations and obstacles and how to overcome them.

Expected score: No changes to score anticipated at this stage.

Surveillance 3 (2019) Progress can be measured in terms of the improvements implementation in monitoring, control and surveillance and where stakeholder participate (The client, CONAPESCA and INAPESCA). Assessment results and measures monitoring will report in technical meeting among stakeholder. Decision making process continues and is expect to achieve agreements among parties for the implementation and improvement respect fishery actions and that could adversely affect sardine population.

Expect output: Fishery complies with the current rules.

Expected score: No changes to score anticipated at this stage.

Surveillance 3 (2019) The fishery initiates the administrative process to make changes to the MCS system so that sanctions can be promptly imposed after infractions have been detected

	Expected output: A report describing procedures implemented to the Monitoring Control and Surveillance system to ensure sanctions are consistently applied		
	Expected score: No changes to score anticipated at this stage.		
	Surveillance 4 (2020) Condition expected to be fully met.		
	Surveillance 4 (2020) Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.		
	Expected output: Records demonstrating consistent application of sanctions are provided.		
	Expected score: 80		
	The client in collaboration with INAPESCA will continue to the biological monitoring and fleet catch through on board and on port observers to follow the fishery development and will collaborate with CONAPESCA to have a better monitoring, control and surveillance to detect wrongdoing cases in fishing activities.		
Client action plan	The client will facilitate meetings and process with CONAPESCA as needed to determine the causes preventing the timely application of regulation. The client will also participate actively in discussions to develop solutions and their implementation.		
	The client presents inspection records as well as the infringement and punishment if any.		
	The condition and milestones will be assessed as outlined and addressed within the stated timeframe.		
Progress on Condition [Year 1]	The milestone for Year 1 for this condition required that biological and fleet catch monitoring start (via on board and port observer programs) with the aim that it provide systematic information to help the fishery meet the management measures. During the onsite the team confirmed that the on board and port observer programs have commenced implementation, however, there is no evidence that this information that the information compiled by these monitoring programs is informing the monitoring control and surveillance (MCS) system. The purpose of the Observer Programs is to collect scientific fisheries data and not to report on compliance with fisheries regulations. For this reason the progress of this condition is deemed to be 'Behind Target'.		
	The evidence indicates a clear collaboration between the industry and the INAPESCA scientific staff with quarterly reports of activities including sampling the catch to obtain trends in the size of fish in the commercial fishery. Results of this sampling program indicates that the fishery continues catching fish under the size limit in large proportions in violation of the rulings in the NOM-003-PESC-1993 and the CNP. Although the revision of the NOM apparently will modify the current definition regarding size restrictions, the publication of the revised NOM is taking too long and there still is not a clear alternative idea about how to resolve this issue. No record of sanctions related to violations on		

	size limits has been presented. There was no mention of any other meeting, procedure or agreement towards resolving the issue of non-compliance with size limit regulations. After the onsite, the team noticed that the original definition of the milestones did not reflect the requirements of this condition appropriately. In particular, the expectations in the milestones were more closely related to actions that do not seem to be sufficiently directed to resolve the problem of consistent application of sanctions when violations to the regulations are detected. The milestones were therefore modified to better reflect the needs of this Condition and an attempt was made to propose more realistic goals for the given timeline.
Status of condition	Behind target The remedial actions to bring the fishery back to target by the next surveillance focused on the review of milestones.

5.17 Condition 3-4

Performance Indicator(s) &	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score		
Score(s)	3.2.3	Sic & d	60		
Condition	Demonstrate some evidence that fishers comply with the management system and provide information of importance, and that there is no evidence of systematic non-compliance.				
	Original Surveillance 1 (2 INAPESCA on board and of of the fishery development current management mea	017) Biological and fleet catch monit provide the provident of the provi	coring starts by d timely follow rmen meet the		
	Expect output: Fishers understand and complies with the management measures.				
	Expected score: No changes to score anticipated at this stage.				
Milestones	Modified (As part of the remedial action to get the fishery back on target) Surveillance 1 (2017). The onboard and port observers programs provide biological monitoring of the fishery. The client will convene a meeting with authorities to analyse the causes leading to non-compliance and devise potential solutions. Expected output: The fishery produces an initial report analysing situations leading to non-compliance and drafts potential solutions.				
	Expected score: No change	es to score anticipated at this stage.			

Surveillance 2 (2018) Progress can be measured in terms of analyze current regulations for the improvements implementation in monitoring, control and surveillance and where stakeholder participate (The client, CONAPESCA and INAPESCA). Through technical meeting between stakeholder to achieve agreements.

Review of the decision making process between stakeholder starts for the implementation and improvement, achieving to be clear and effective respect to fishery actions that could negatively affect sardine population.

Expect output: Fisher complies with the rules.

Expected score: No changes to score anticipated at this stage.

Surveillance 2 (2018) Observer biological monitoring continues. A meeting is convened to analyse compliance and situations where the fishery continues to have difficulties complying with current regulations.. The fishery, in agreement with authorities, agree on one or several actions that were proposed the previous year to reduce the level of non-compliance and make adjustments as necessary. Concrete actions take place toward implementation of solutions.

Expected output: The fishery produces a report including an analysis of situations leading to non-compliance, decided potential solutions and steps taken towards resolving current problems.

Expected score: No changes to score anticipated at this stage.

Surveillance 3 (2019) Progress can be measured in terms of implementation of improvements for the monitoring, control and surveillance agree between stakeholder (The client, CONAPESCA and INAPESCA).

Assessment and monitoring measures results will be report in a technical meeting among stakeholder to demonstrate that fishery meet with management system and that is no evidence of systematic non-compliance.

Decision making process continues and is expect achieve agreements among parties for the implementation and improvement, achieving clear and timely processes respect to the fishery actions to demonstrate that in the fishery activity is no evidence of systematic non-compliance.

Expect output: Fishery complies with the rules approved.

Expected score: No changes to score anticipated at this stage.

Surveillance 3 (2019) The fishery implements specific actions based on plan from 3^{rd} year surveillance to improve fishers compliance with the management system.

Expected output: The fishery produces a report with advances on improvements to compliance.

Expected score: No changes to score anticipated at this stage.

	Surveillance 4 (2020) The client will present a final report of the biological monitoring and fleet catches will be submit to the audit team. Condition expected to be fully met.
	Surveillance 4 (2020) 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 AND There is no evidence of systematic non-compliance.
	Expected output: The client presents evidence of reduction of non-compliance.
	The client will comply the resolutions of CONAPESCA and INAPESCA as well as monitoring, control and surveillance, for the implementation of fishery improvements and thus comply with the management measures issued in the Norma Oficial, Carta Nacional Pesquera, Plan de Manejo, etc., mainly concerning to minimum size catch, allowable catch proportion under the size limit and BAC to demonstrate that in the fishery is no evidence of systematic non-compliance. Inspections records if any will be submit.
Client action plan	The client will collaborate with CONAPESCA and INAPESCA for implement and improve actions in management system, in order to avoid systematic non-compliance and will submit the records of those meetings.
	The client in collaboration with INAPESCA will continuity to biological monitoring and fleet catches through on board and on port observers to follow the fishery development and will collaborate with CONAPESCA to get an better monitoring, control and surveillance to demonstrate that the fishery has no evidence of systematic non-compliance. A final report of the biological monitoring and fleet catches will be submit to the audit team.
	The condition and milestones will be assessed as outlined and addressed within the stated timeframe.
Progress on Condition [Year x]	The milestone for Year 1 for this condition required that biological and fleet catch monitoring start (via on board and port observer programs) with the aim that it provide systematic information to help the fishery meet the management measures. During the onsite the team confirmed that the on board and port observer programs have commenced implementation, however, there is no evidence that this information that the information compiled by these monitoring programs is informing the monitoring control and surveillance (MCS) system. The purpose of the Observer Programs is to collect scientific fisheries data and not to report on compliance with fisheries regulations. For this reason the progress of this condition is deemed to be 'Behind Target'

	The evidence indicates a clear collaboration between the industry and the
	INAPESCA scientific staff with quarterly reports of activities including sampling
	the catch to obtain trends in the size of fish in the commercial fishery. Results
	of this sampling program indicates that the fishery continues catching fish
	under the size limit in large proportions in violation of the rulings in the NOM-
	003-PESC-1993 and the CNP. Although the revision of the NOM apparently will
	modify the current definition regarding size restrictions, the publication of the
	revised NOM is taking too long and there still is not a clear alternative idea
	about how to resolve this issue.
	After the onsite, the team noticed that the original definition of the milestones
	did not reflect the requirements of this condition appropriately. In particular,
	the expectations in the milestones were more related to actions that do not
	seem to be sufficiently directed to resolve the problem of the fishery
	systematically not complying with a specific demand in a regulatory document.
	Milestones were therefore modified to better reflect the needs of this
	Condition and an attempt was made to propose more realistic goals for the
	given timeline.
Status of	Behind target.
condition	The remedial actions to bring the fishery back to target by the next surveillance
condition	focused on the review of milestones.

5.18 Condition 3-5

Performance Indicator(s) &	PerformanceInsert relevant PIInsert relevant scoring issue/Indicator(s) &number(s)scoring guidepost text		Score		
Score(s)	3.2.4	Sia	75		
Condition	Demonstrate that 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				
	Surveillance 1 (2017)				
	The client will present the latest update of the Management Plan and will show evidence that there is a budget to support the necessary research to address deficiencies in the new thread herring stock assessment processes and for the analysis of the fishery impact on ecosystem.				
Milestones	Expect output: Research trips are made.				
	Expected score: No changes to score anticipated at this stage.				
	Surveillance 2 (2018) The c including evidence of that that exist a clear plan for assessment processes and this zone.	client will propose an update of the Ma the research cover all the small pela r approach goals and deficiencies in in the analysis of the fishery impact or	nagement Plan gic species and the new stock recosystems of		

	Expect output: Data of research trips are analyzed.
	Expected score: No changes to score anticipated at this stage.
	Surveillance 3 (2019) The client will impulse agreements and necessary management for the incorporation of update information in the current Management Plan.
	Expect output: Information of the research trips are used to update the management plan.
	Expected score: No changes to score anticipated at this stage.
	Surveillance 4 (2020) Condition expected to be fully met. Expected score: 80
Client action plan	The client will collaborate and support INAPESCA in research the thread herring and others small pelagic in the region and in the Management Plan update (INAPESCA and CONAPESCA) to generate evidence to established research in the management tool (Management Plan) not only focus in Pacific sardine study, but in all fishes belonging at small pelagic group. Moreover, the client in collaboration with INAPESCA and CONAPESCA will demonstrate that these research are strategic, exist a clear plan in the Management Plan to address goals and deficiencies in the new stock assessment processes of the thread herring in southern Gulf of California, and in the sardine fishery impact analysis on ecosystem of this region. The client in collaboration with CONAPESCA and INAPESCA will submit evidence that exist resources to support necessary research to address the deficiencies in the new stock assessment processes of the thread herring and in the fishery impact analysis on ecosystem.
Progress on Condition [Year 1]	The staff of the INAPESCA provided a copy of its research plan covering the activities to be conducted in the operational years of 2016 to 2018 (INAPESCA 2016). This plan is the official Regional Office Annual Operative Program which defines the activity of every research in the INAPESCA. This particular project has been presented to define a medium term reach of the objectives which defines a strategic approach to satisfy not only the immediate management needs but also to address questions that require a more extensive approach. The project has clear objectives and goals that accompanied with an explicit calendar and expected outcomes. The main purpose of this Condition is that the fishery has a research program that is described in a formal document with the characteristic outlined in CR CB4.10.3. The client action plan proposed activities that were related to the management plan, in which a research program may be described in satisfaction with the SG80 criteria, but is not the only avenue through which a satisfactory research plan could be presented. The evidence provided by the INAPESCA Regional Center in Mazatlan has a structure and content that fits the

	(See FCRv2.0 7.23.13.1), and therefore, although the actions stipulated in the client's action plan were not achieved, the condition is considered met and is now closed. Re-evaluation of this SI will be conducted every year to determine if it can
	reach SG100.
Status of condition	Condition closed.

5.19 Condition 3-6

Performance Indicator(s) &	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score		
Score(s)	3.2.5	Sib	75		
Condition	Demonstrate that the fishery-specific management system is subject to regular internal and occasional external review.				
	Surveillance 1 (2017) The client will collaborate with INAPESCA for the monitoring of the fishery catch in the whole season.				
	report of the fishery interr	nal review issued by INAPESCA.			
	Expected score: No changes to score anticipated at this stage.				
	Surveillance 2 (2018) See surveillance 1. Expected score: No changes to score anticipated at this stage.				
Milestones Surveillance 3 (2019) The client will collaborate with the Technical of Small Pelagic for an external review of the fishery.					
	Expected output: At the end of the fishing season, the client will present a technical report of the fishery external review issued by the Technical Committee of Small Pelagic.				
	Expected score: No changes to score anticipated at this stage.				
	Surveillance 4 (2020) Condition expected to be fully met.				
	Expected score: 80				

Client action plan	The client will support systematic internal review for the monitoring and analysis of fishery assessment carry out by INAPESCA and it will submit the corresponding inspection records as well as request the external review results that are subject.
Progress on Condition [Year 1]	The fishery presented minutes where the INAPESCA staff from different regional offices involved in small pelagics fishery research discussed several aspects about the performance of the current management system including details of the current definitions in the harvest strategy. The fishery is required to continue holding this meetings regularly and discuss relevant issues leading to improvements in the management system.
Status of condition	On target

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7 Appendices

PI 3.2	2.4	The fishery has a research plan that addresses the information needs of management			
Scorin	g Issue	SG 60	SG 80	SG 100	
а	A research is undertaken, as required, to achieve the objectives consistent with MSC's Principles 1 and 2. A research pl provides 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	Ν	Ν	
	Justific ation	INAPESCA has an active research program based at the CRIP-Mazatlán. The program collects information on the catch and biological sampling to assess the performance of the fishery and the status of the stock. The Research Plan of the small pelagic fisheries is included in the SPFMP as Research Program, implying a strong relationship between research a management planning. The program takes into consideration that small pela species populations have large changes in their abundance related with t environment and the rate of exploitation. The program suggests that the resear must focus into develop adaptive reference points for their management. However, most of the concerns approached by research outlined in the SPFMP crelated to Pacific sardine. The program cover two main areas: 1) Scientific a technological research, and 2) Socioeconomic research. The specific aspects of are outlined in section 3.5.7 Fishery's Research Plan in the background. The work being done by the CRIP-Mazatalan, does undertakes research as required and in consultation with the industry, to achieve the objectives consistent w MSC's Principles 1 and 2. At the first annual surveillance audit, the INAPES Regional Center in Mazatlan provided evidence of a modified version of their regu Annual Operative Program (POA; INAPESCA 2016). This POA represents a resear project defines the medium term reach of the objectives organized as a strate approach to satisfy not only the immediate management needs but also to addred uses for the strate approach. Although the project does research approach. Although the project does research approach.			

7.1 Appendix 1. Re-scoring evaluation tables

		an explicit calendar and e	expected outcomes and a k	prief methodological sect	ion. This		
		plan for the fishery und	as u willen uucument er assessment relevant to	the scale and intensity	and the		
		issues requiring research" as defined in CR CB4.10.3 and therefore satisfies the MSC					
		requirements for a plan with a strategic approach to research and reliable and					
		timely information suff	icient to achieve the ob	viectives consistent with	MSC's		
		Principles 1 and 2. The S	G80 is met		1 10150 5		
			<u>doo is met.</u>				
		However, this plan is was	s not provided to the team,	, and it is not currently cle	ar there		
		are resources available	to provide a strategic	approach to research a	and the		
		production of and timely	information sufficient to a	achieve the objectives co	nsistent		
		with MSC's Principles 1	and 2. The observer prog	ram largely addresses as	pects of		
		non-target interactions,	and some analysis of eco	osystem interactions. H	owever,		
		there is not a clear plan i	n place to address objectiv	es and resourcing for def i	ciencies		
		in the new stock assess	ment processes for thread	herring in the southerr	Gulf of		
		California, nor is it clear	how ecosystem impacts	are being clearly researd	ched for		
		this portion of the threa	d herring stock. Therefore	e the SG 60, but not the	SG 80 is		
		met.	a				
b	Guide	Research results are	Research results are	Research plan and resu	Its are		
	post	available to interested	disseminated to all	disseminated to all inte	rested		
		parties. interested parties in a parties in a timely fashion and					
		timely_tashion. are widely and publicly					
		available.					
	Met?	Y	Ŷ	N			
	Justific	Research results are fou	und in reports of differen	t scope from internal IN	IAPESCA		
	ation	reports to scientific publ	ications. The information h	has been used for several	student		
		theses. Results of the m	onitoring of the fishery ar	nd their analysis are shai	red with		
		interested parties during	g the yearly meeting of th	e Technical Committee d	on Small		
		Pelagics, where the fi	sning industry, stakenor	ders, managers and a			
		participate, and the Ab	stract Proceedings of the	meetings are open to the discort	e public		
		of the results is not wide	al. 2015a, Colero Allamia alv and publicly available	Therefore a score of 80	hut not		
		of the results is not widely and publicly available. Therefore a score of 80, but not					
Poforo	ncoc						
Refere	ences						
OVER	OVERALL PERFORMANCE INDICATOR SCORE: 80						
COND	CONDITION NUMBER (if relevant):						

7.2 Appendix 2. Review of IPI stocks

7.2.1 Requirements for IPI stocks

No species in this fishery were categorized as Inseparable or Practically Inseparable (IPI) Stock(s) in the Full Assessment. The full-assessment was conducted with catch data from Fishing Year 2012-2013. At the first surveillance updated information on catch of non-target species was provided from FY 2013 through 2017. The new information provided indicated that the retained and bycatch species in this fishery meet the requirements outlined in MSC CRv2.0 7.4.14.1 to quality as IPI stocks and to enter into chains of custody:

7.4.13.1 The CAB shall only recognise stock(s) as being an IPI stock, where the inseparability arises because [...] b. When distinguishable, it is not commercially feasible to separate due to the practical operation of the fishery that would require significant modification to existing harvesting and processing methods.

The Mexico Sinaloan thread herring targets primarily thread herring complex and to a lesser extent six other small pelagic species (*Centengraulis mysticetus, Etrumeus teres, Oligoplites spp., Sardinops sagax, Scomber japonicus, and Trachurus symmetricus*). In addition to small pelagic species, the fishery also captures a high number, but low volume, of bycatch species. A total of >100 different non-target minor retained species have been recorded by the observer program. The majority of the species are bony fishes, there are also various genus of rays and crustaceans (See Table 9 in <u>Appendix 3</u>).

All species (the six small pelagic species and the bycatch species) are distinguishable from the P1 target stock (thread herring), however, it is not commercially feasible to separate due to the practical operation of the fishery, and it would require significant modification to existing harvesting and processing methods.

7.4.13.1 c. The total combined proportion of catches from the IPI stock(s) do not exceed 15% by weight of the total combined catches of target and IPI stock(s) for the UoA;

When the assessment team conducted the full assessment observer data available was only for the 2012-2013 fishing season. In this year the combined catch of proposed IPI stocks exceeded the 15% threshold by weight of the total combined retained catches of the UoA. In the subsequent four fishing seasons the catch of non- P1 target small pelagics *and* bycatch remained below the 15% threshold (See Table 8).

Species	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
MSC Target Species (Opisthonema spp)	41%	89.9%	94.7%	99%	95.7%
Non-MSC target small pelagic species:					
Centengraulis mysticetus	59%	7.4%	3.5%	0%	0.0%
Etrumeus teres	0%	0.0%	0.0%	0%	0.0%
Oligoplites spp.	0%	0.0%	0.0%	0%	0.0%
Sardinops sagax,	0%	0.0%	0.0%	0%	0.0%
Scomber japonicus	0%	0.1%	0.5%	0%	1.5%
Trachurus symmetricus	0%	0.0%	0.4%	0%	1.7%
Sub-total proportion of catches of non-MSC target small pelagics	59%	8%	4%	0%	3%
Non-target Species (Bony fish, elasmobranchs, mollusks and echinoderms) For a list of all species See Table 9	3%	2.6%	0.9%	0%	1.1%
Combined proportion of catches from IPI stocks	64%	10.6%	4.9%	0%	1.4%

 Table 8. Proportions of retained catches in UoA from 2012 to 2017. Information collected from landings data and observer program.

The principal reason for the reduction in the proportion of catches of the IPI stocks between after FU 2012-14 is the reduction in catch of bocona sardine (*Centengraulis mysticetus*). This species alone accounted for 59% of catches of the UoA in FY 2012- 2013 (See Table 8).

It has been widely documented that the abundance and landings of small pelagic species experience significant fluctuations in response to environmental variation. Given the variability in environmental conditions and the limited understanding we have of the duration of oscillation cycles for small pelagic species in the Gulf of California, it is not possible to predict when there will be an increase in abundance of *bocona* sardine, or another small pelagic species; leading to combined catches of IPI stocks surpassing the 15% threshold. To continue meeting IPI requirements under Annex PA (PA5.1), during each surveillance audit SCS will review catch composition data from the previous fishing season to ensure in that the combined proportion of catches from IPI stocks continue to meet the 15% threshold. Should the IPI stocks exceed the 15% threshold the fishery would no longer be considered to meet Annex PA and following Clause 7.4.14.1 (MSC FVR v2.0) fish or fish products coming from IPI stocks would no longer be allowed to enter into chains of custody

Since the assessment team will be reviewing approach functionally relies on a retroactive assessment of the fisheries compliance with IPI requirements. This approach allows for the possibility that product from

a fishery that no longer meets the 15% IPI threshold to go undetected until the catch data from the previous season is reviewed at the annual fishery/CoC surveillance is conducted.

7.4.13.1 d. The stocks are not ETP species

None of the proposed IPI stocks are ETP species

e. The stocks are not certified separately.

None of the proposed IPI stocks are certified separately

7.2.2 Annex PA: Requirements for inseparable or practicably inseparable (IPI) stocks

Requirements of Annex PA apply to all inseparable or practicably inseparable (IPI) catch within this fishery.

Under Annex PA SCS is required to use the tree to assess the IPI catch under the primary/retained or secondary/bycatch species component of Principle 2 (PA2.1.1.1). During the full assessment SCS already assessed the proposed IPI stocks under the retained and bycatch component of Principle 2. No conditions were raised on outcome for the retained or bycatch components. The scoring tables may be accessed via the MSC website in the full assessment report.

SCS also separately assessed the impact of all fishing activity on the IPI stock(s) considered for entry into certified chains of custody using the criteria specified in PA4.2:

PA4.2.1. The IPI stock(s) are likely to be above biologically based limits (FCR Table SA8), or if below the limits, there are measures in place that are expected to make sure that all fishing-related mortality does not hinder the recovery and rebuilding of IPI stock(s).

The impact of the fishery on the IPI stocks can be determined quantitatively from landings records and the observer programs. There are no stock assessments available for any of these species; and there are no benchmark (ex. Point of recruitment impairment, minimum viable population size or other metric) against which status these stocks can be evaluated (MSC CR. V2.0 Table SA8). For this reason the status of these IPI stocks was considered to be 'poorly known' and assessed in the next section PA4.2.2

PA4.2.2 If the stock status is poorly known, there are measures or practices in place that are expected to keep the IPI stock(s) above biologically based limits, or to prevent all fishing activity from hindering recovery.

Since the Full Assessment initiated in 2015, the fishery has already initiated and implemented a number of measures aimed at mitigating the impact of the fishery on all P2 species.

As part of the small pelagics fishery in the Gulf of California all small pelagic species are managed by NOM-003-PESC-1993 and the Small Pelagics Fisheries Management Plan (SPFMP). Under this management framework there is in place a sampling program to collect landing data and surveys to gather size data. There are also limits to fleet capacity, gear regulations and seasonal closures in place. Though the fishery is only actively managed at the moment for thread herring, the practices in place for this species (low exploitation rates relative to overall abundance) are expected to keep IPI stocks of small pelagics above biologically based limits.

For bycatch species (bony fishes, elasmobranchs, crustaceans...) there are no formal management measures such as fishery management plan. However, there are a number of practices expected to keep these IPI stocks either above biologically based limits or to prevent fishing activity from hindering recovery. The type of gear used in this fishery (purse-seine nets) generally results in relatively low catch levels of bycatch species. The permits granted for this fishery are exclusive to target small-pelagics, there a number of measures in place that prohibit the fishery from targeting and retaining other managed species (shrimp, lobster, number of shark species). Because this is a multi-species small pelagic fishery, the fishery sometimes operates within in-shore areas where the incidence of bycatch increases. During the full assessment the team identified a number of ray species as vulnerable and raised conditions to address shortcomings in components related to data collection and implementation of partial strategy to manage impact of the fishery on these species. Additionally, a condition was raised requiring that the measures in place to mitigate impacts to overall estuarine and pelagic ecosystems take into account available information and work to restrain impacts of the fishery (Condition 2-7).

Since the Full Assessment initiated in 2015 the fishery implemented a number of measures to strengthen data collection systems and mitigate the impact of the fishery on bycatch elements. These include increase in coverage and training for the on-observer program (See <u>On-board observer program: Coverage</u> & <u>Sampling</u>). Design of a port observer program to support gaps in the on-board observer program (See <u>Port Observer Program</u>). The modification of the fishery logbooks and a series of workshops for crew members to train on data input for the logbooks (See <u>Fishery Logbooks</u>). As part of the workshops crew also receive training on best practices, regulations and use of mitigation measures, which recently include the use of excluder grids to filter large bycatch organisms (See <u>Best Practices Training</u>). Lastly, the fishery has put in place a catch management program which works via a financial incentive program to reward for trips with a proportion of catch of bycatch ≤2% of combined weight for the UoA (See <u>Catch Management Program</u>).

The already low catch levels of bycatch species coupled with the anticipated continuation of monitoring by the observer program are expected to result in the fishery not causing these IPI stocks to be outside biologically based limits.

PA4.2.3 The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).

The measures for small pelagic species are expected to work based on evidence from the other small pelagics fishery operating in the northern section of the Gulf of California in the state of Sonora. This fishery recently was successfully re-assessed in January 2018. The fishery operating in Sonora is managed under the same Small Pelagics fishery management plan and fishery-specific regulations. For the Sonora fishery biomass dynamics models have already been used to estimate stock status of *bocona* sardine and

chub mackerel (*Scomber japonicus*). These models conclude that recorded catches for *bocona* and chub mackerel are below their estimated MSY for most of their trajectory and that estimated biomass for these species are predicted to have remained above BMSY. There are limitations in the interpretation of these assessments due to lack of fisheries independent estimates of biomass, high proportion of juveniles in the catch for *bocona*, and uncertainties regarding the biomass dynamic model. Nonetheless, in Sonora fishery the team concluded that it was highly likely that both bocona sardine and chub mackerel were within biologically based limits. Given the similarities in operations and management of the two fisheries, it's considered likely that the measures in this fishery will work to keep the IPI small pelagic stocks above biologically based limits.

For the non-target bycatch species there is already evidence that the proportion of catch has dropped from 3% to 1% from 2012-13 to the 2016-17 fishing season (See Table 3). For bony fish the retained capture decreased from ~500 t in 2013-12 to ~160 t in 2016-17 fishing season. The volume of discards of bony fish also decreased (from 450 to 8.2 t). One of the groups of concern in the initial assessment was rays, due to their inherent vulnerability, particularly of Mobula japanica and Aetobatus narinari. The retained catch of *M. japanica* was reduced from ~.1 t to zero in the last three seasons, for *A. narinari* the volume of retained catch was also reduced from .84 to .02 t from the 2012-13 to the 2016-17 fishing season. The reduction was both of retained and discarded bycatch species, indicating that the overall reduction in bycatch is not merely a result of the implementation of mitigation measures to return bycatch species to the sea (i.e. excluder grids), but rather of a change in fishing behaviour. There is evidence that the fleet has reduced effort in in-shore areas; where it's presumed to have a higher ratio of bycatch. The change in fishing behaviour may be accounted as evidence of the successful implementation of the numerous initiatives and measures described previously, however, the currently low abundance of bocona sardine, an inshore species, may also be an influencing factor. The team considers that the reduction in bycatch proportion is indicative that the measures to mitigate the impact of the fishery on bycatch IPI stocks are considered likely to work. The catch composition of the IPI stocks will continued to be monitored in future surveillances.

7.2.3 Entry into Further Chains of Custody

Based on the review conducted in Year 1 surveillance SCS concludes that the IPI stocks are eligible to enter further certified chains of custody.

IPI stocks are only eligible for the period of one certificate (PA6.1). At the moment the proportion of bycatch IPI stocks are already below the 2% threshold, making them eligible to seek a variation. For the small pelagic IPI stocks the fishery may choose to implement a traceability system to reduce separability or pass P1 assessment of the IPI stocks or continue to be certified with the eco-label use

7.3 Appendix 3

Table 9. List of species caught by the fishery during the 2016-17 fishing year, the only species not proposed for IPI is Thread herring (*Opisthonema spp. Target*)

Scientific Name	Catch (t)	% of total Catch
Target Species		
Opisthonema spp. (Target)	14083.5	95.69%
Small Pelagics		0.00%
Centengraulis mysticetus	1	0.01%
Etrumeus teres	1	0.01%
Oligoplites spp.	0.082	0.00%
Sardinops sagax	0	0.00%
Scomber japonicus	220.21	1.50%
Trachurus symmetricus	245.75	1.67%
Bony Fish		
Alphestes multiguttatus	0.001	0.00%
Aluterus monoceros	0.028	0.00%
Anchoa spp.	1.47	0.01%
Anchovia macrolepidota	0.013	0.00%
Ancylopsetta dendritica	0.006	0.00%
Bagre panamensis	2.54	0.02%
Bagre pinnimaculatus	0.035	0.00%
Balistes polylepis	0.054	0.00%
Carangoides otrynter	0.003	0.00%
Caranx caninus	1.36	0.01%
Centropomus nigrecens	0.16	0.00%
Centropomus robalito	0.035	0.00%
Chaetodipterus zonatus	0.031	0.00%
Chanos chanos	0.04	0.00%
Chloroscombrus orqueta	100.92	0.69%
Conodon serrifer	0.088	0.00%
Coryphaena hippurus	0.012	0.00%
Cyclopsetta panamensis	0.029	0.00%
Cyclopsetta querna	0.074	0.00%
Cynoscion reticulatus	3.10	0.02%
Cynoscion xanthulus	0.65	0.00%
Diapterus argenteus	0.042	0.00%
Diapterus peruvianus	0.11	0.00%
Diodon holocanthus	0.012	0.00%
Eucinostomus currani	0.0035	0.00%
Eucinostomus entomelas	0.014	0.00%
Eucinostomus gracilis	0.004	0.00%
Fistularia corneta	0.005	0.00%
Fodiator rostratus	0.0063	0.00%
Haemulopsis leuciscus	0.48	0.00%

Haemulopsis nitidus	0.37	0.00%
Hemicaranx leucurus	0.013	0.00%
Hemiramphus unifasciatus	0.0053	0.00%
Hoplopagrus guntherii	0.017	0.00%
Hyporthodus acanthistius	0.0065	0.00%
Isopisthus remifer	0.028	0.00%
Istiophorus platypterus	0.10	0.00%
Katsuwonus pelamis	0.01	0.00%
Larimus acliviis	0.032	0.00%
Larimus effulgens	1.66	0.01%
Lobotes pacificus	0.14	0.00%
Lutjanus colorado	0.077	0.00%
Lutjanus guttatus	0.028	0.00%
Lutjanus jordani	0.65	0.00%
Lutjanus peru	0.0001	0.00%
Lutjanus spp.	0.004	0.00%
Menticirrhus undulatus	0.002	0.00%
Micropogonias ectenes	0.72	0.00%
Mujil curema	0.003	0.00%
Nematistius pectoralis	0.03	0.00%
Oligoplites spp.	0.037	0.00%
Ophichthidae	0.014	0.00%
Ortopristis chalceus	0.66	0.00%
Peprilus medius	0.56	0.00%
Peprilus snyderi	0.004	0.00%
Pliosteostoma dovii	0.015	0.00%
Pliosteostoma lutipinnis	0.081	0.00%
Polydactylus approximans	0.18	0.00%
Polydactylus apercularis	0.31	0.00%
Pomadasys panamensis	0.47	0.00%
Porichthys analis	0.11	0.00%
Pseudupeneus grandisquamis	0.091	0.00%
Remora brachyptera	0.001	0.00%
Sarda orientalis	0.056	0.00%
Scomberomorus sierra	1.47	0.01%
Scorpaena russula	0.4	0.00%
Selar crumenophthalmus	20.01	0.14%
Selene brevorthi	0.011	0.00%
Selene peruviana	20.68	0.14%
Sphoeroides annulatus	0.0068	0.00%
Sphoeroides lobatus	0.0002	0.00%
Sphyraena ensis	3.05	0.02%
Stellifer ericymba	0.046	0.00%
Stellifer fuerthii	0.28	0.00%
Stellifer illecebrosus	0.068	0.00%
Syacium ovale	0.0000	0.00%
Symphurus elongatus	0.042	0.00%
Synodus scituliceps	0.0087	0.00%

Trachinotus kennedyi	0.26	0.00%
Trichiurus lepturus	0.0099	0.00%
Tylosurus pacificus	0.026	0.00%
Xenichtys xanti	0.031	0.00%
ELASMOBRANCHS		
Aetobatus narinari	0.02	0.00%
Carcharhinus falciformis	0.01	0.00%
Dasyatis brevis	0.02	0.00%
Dasyatis longa	0.09	0.00%
Rhinobatos leucorhynchus	0.01	0.00%
Rhinoptera steindachneri	0.47	0.00%
Sphyrna lewini	0.06	0.00%
Urolophus halleri	0.01	0.00%
CRUSTACEANS		
Calappa convexa	0.00009	0.00%
Callinectes arcuatus	0.011	0.00%
Callinectes toxotes	0.0032	0.00%
Dendobranchiata	0.001	0.00%
Panulirus gracilis	0.0005	0.00%
Penaeus californiensis	0.0097	0.00%
Penaeus stilyrostris	0.0095	0.00%
Penaeus vannamei	0.040	0.00%
Sicyoniidae	0.0005	0.00%
Squillidae	0.0050	0.00%
Trachypenaeus pacificus	0.0136	0.00%
MOLUSCS		
Lollinguncula panamensis	0.003	0.00%
Octopus hubbsorum	0.0004	0.00%
EQUINODERMS		
Luidia spp.	0.044	0.00%
Cnidario	1.3	0.01%
Total Catch (t)	1,4718	
7.4 Appendix 4. Traceability

At the time of issuance of the full assessment report SCS determined the following:

The actual eligibility date is to be equivalent to the date of certification of October 14, 2016. SCS has concluded that fish and fish products originating from the UoA are not eligible to be sold as MSC-certified or carry the ecolabel. This determination shall be revised in a subsequent assessment.

Currently the fishery has in place a system that generally separates small pelagic species-based sets into different wells in the holds of vessels. This separation system is deemed insufficient to fully separate MSC-eligible fish (*Opisthonema* spp.) from non-MSC eligible non-small pelagic retained minor species.

In the surveillance audit the fishery submitted new information, upon the review of the new procedures, SCS has concluded that the determination is changed, and that fish products from the UoA are eligible to be sold as MSC-certified or carry the MSC ecolabel.

The actual eligibility date is to be January 1, 2018.

The full text of the traceability section of the original assessment is not repeated here and may be accessed in the report on the MSC website.

To address the risk of mixing between MSC-eligible and non-MSC-eligible catches, Maz Sardina has now in place a procedure for management of catch by trip, and not by set. If a trip has more than 2% of non-MSC eligible catches, that trip is identified as non-MSC eligible and will be kept segregated from the moment of offloading all throughout processing and storage. The 2% threshold selected by Maz Sardina is below the 15% allowance for IPI species that has already been approved for this fishery. To identify whether a trip is MSC-eligible, the first point of identification will be a preliminary report of the vessel trip provided by the captain prior to offloading, identifying whether the trip is or not MSC eligible. If the trip is marked as MSC eligible, a visual inspection takes place at offloading to verify that the catch is >98% thread herring. If the trip passes inspection a report identifying the trip as MSC eligible is issued.