



Ecuadorian Pacific Mahi-Mahi Longline Pre-Assessment Report

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2. Glossary

B _{MSY}	Biomass at MSY
B _{lim}	Level of biomass that should be avoided considering that beyond such limits, the sustainability of the stock may be in danger
B _{target}	Management objective based on a level of biomass that should be achieved and maintained
BRP	Biological Reference Points
CIT	Inter-American Convention for the Protection and Conservation of Sea Turtles
CMAR	Corredor Marino del Pacifico Este Tropical (East Tropical Pacific Marine Corridor)
CMCDP	Fisheries Landing Monitoring and Control Certificate
CMM	Conservation and Management Measure
CoC	Chain of Custody
CPUE	Catch per Unit Effort
DD	Data Deficient
DMS	Dispositivo de Monitoreo Satelital (Satellite Monitoring Device)
EASI-Fish	Ecological Assessment for the Sustainable Impacts of Fisheries
EEZ	Exclusive Economic Zone
EMS	Electronic Monitoring System
EPO	Eastern Pacific Ocean
ETP	Endangered, Threatened and Protected
F _{MSY}	Fishing mortality at MSY
HCRs	Harvest Control Rules
HMS	Highly Migratory Species
IUU	Illegal, Underreported and Unregulated fishing
LRP	Limit Reference Point
MCS	Monitoring, Control and Surveillance
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
PAN	National Action Plan (Plan de Acción Nacional)
PNCTM	Plan Nacional de Conservación de Tortugas Martinas (National Plan for the Conservation of Sea Turtles)
PRI	Point where Recruitment would be Impaired
Rec	Recommendation
REM	Remote Electronic Monitoring
Res	Resolution
SEP	South East Pacific Ocean
SISESAT	Sistema de Seguimiento Satelital de Embarcaciones (Satellite Monitoring System for Fishing Vessels)
S _{MSY}	Spawning biomass at MSY level
S _{lim}	Level of the spawning biomass that should be avoided considering that beyond such limits, the sustainability of the stock may be in danger
SBR	Spawning Biomass Ratio
TAC	Total Allowable Catch
UoA	Unit of Assessment
UoC	Unit of Certification
VME	Vulnerable Marine Ecosystem
VMS	Vessel Monitoring System

3. Executive summary

This assessment follows the MSC Fisheries Certification Process v2.2, using the default assessment tree (Annex SA) of the MSC Fisheries Standard, v2.01. The evaluation found at least three PIs not reaching 60 (PI 1.2.2, PI 2.3.3, and PI 3.2.2), 14 PIs between 60 and 79, and 10 PIs at or above 80. Several efforts have been made to improve the fishery's status; among the most important is the implementation of a binational research agenda between Ecuador and Peru, which includes activities related to management (e.g., joint assessment). Additionally, action plans that aim to manage the species were designed and implemented by both nations. The available information was used to confirm the fishing gear's relatively high level of selectivity, with low levels of primary and secondary bycatch species. Most bycatch species are within their biological limits, confirmed by reports on their stock evaluations or using data-limited approaches. In addition, some management actions on associated species that are considered ETP species are in place (i.e., Plans for the Conservation of Sharks (PAT-Ec) and Sea Turtles, PNCTM) in place since 2013 and 2014, respectively). Finally, regarding management, the Ecuadorian government has created an inclusive governance system for mahi, including a council that oversees the implementation of the action plan. However, the governance system still needs to be implemented.

On the other hand, there are still areas that need attention. For example, although jurisdiction over the eastern Pacific Ocean falls under the IATTC, the body does not officially recognize dolphinfish as a responsible species. It has yet to make any managerial decisions on this stock. In addition, enough information has been generated to sustain the creation and implementation of a robust management plan. There is still a need to create more evidence to validate that the harvest strategy is responsive to the stock status and to generate harvest control rules.

Finally, it has been reported that despite the IATTC-Working Group on bycatch (BYC) recommendation to have at least 20% observer coverage, this is different. ASOAMAN is implementing a participatory monitoring system and signed a MoU with the undersecretary of fishing resources to have the collaboration of the observer programs as a verification means. Evidence shows that the UoA is implementing the mitigation measures for turtles adopted at the IATTC level (C19-04). Such evidence is reported in the FIP profile on the www.fisheryprogress.comⁱ.

4. Report details

4.1. Version details

Table 1: Fisheries program document versions

Document/Assessment Tree	Version number/Type
MSC Fisheries Standard	Version 2.01
Assessment tree	<i>Default</i>
MSC Pre-Assessment Reporting Template	Version 3.4

5. Unit(s) of Assessment and Unit(s) of Certification

5.1. Unit(s) of Assessment

Table 2: Unit(s) of Assessment (UoA)

UoA X	Description
Target Stock	Common dolphinfish or Mahi-Mahi (<i>Coryphaena hippurus</i>).
Geographical area	Southeast Pacific Ocean. The fleet operates in FAO Fishing Area 87 (Pacific, Southeast): - Subarea 87.1 (Northern): Subdivisions 87.1.11 & 87.1.12 (Northern Coastal, EEZ of Ecuador) and Division 87.1.4 (Northern Oceanic, International waters).
Fishing gear type(s) and, if relevant, vessel type(s)	Fishing gear: Surface Longline. Fleet: All authorized fishing vessels from Ecuador targeting dolphinfish using the thin surface longline are included in the assessment. However, only ASOAMAN vessels are part of the UoC.

Client group	Asociación de Producción Pesquera de Armadores de Manta
Other eligible fishers	All authorised vessels excluded from the UoC could be considered as other eligible fishers and they could only access the certificate by agreeing on signing the certificate sharing. Thus, to be included in the UoC the vessels must commit to complying with the requirements established by the client in the certificate sharing.

6. Traceability

6.1. Traceability - initial review and planning

In Ecuador, the fishery is carried out by either mother-ship vessels that can have up to ten fiberglass skiffs and fish together or by single fiberglass vessels locally known as ‘pata-pata.’ In the case of these, each fiberglass vessel lands its catches at the end of the fishing trip, while the mother-ship vessel stores and lands all the catches from the entire fishing unit. Both vessels (mother ship and fiberglass) can use either LL-TBS (thick longlines) to target tunas, Billfishes, Swordfish, or LL-DOL to target dolphinfish, depending on the fishing season. The main difference between these two types of LL is the hooks used. The authorized hooks for targeting dolphinfish (Ministerial Agreement No. 070 of May 19 2011) can be either J-hooks in sizes 3, 4, 5, and 6 or C-hooks (circle) in sizes 14 and 15 (see figure below).



Figure 1. J-hooks authorized to target dolphinfish in Ecuador (From: Martinez-Ortiz and Zuñiga-Flores, 2012).

The ‘Doradero’ is forbidden in Ecuador between 1 July and 7 October, so the dolphinfish season in Ecuador stretches from October to June each year (Ministerial Agreement No. 070). The mechanisms to verify the type of gear that the vessels use are:

- i) The fishing logbook (LODAP, article No. 162 and General Regulation, article No.225) has to be completed daily, and it must be delivered on the landing site or when the completion of fishing operations is achieved and
- ii) The Fisheries Landing Monitoring and Control Certificate (CMCDP) (Article 238, LODAP), which is issued after the inspector certifies that the vessel has the permits or documents required by law (fishing logbook, fishing permit, departure permit, and landing declaration). Each vessel must possess a CMCDP to obtain the mobilization permit, which allows the caught fish to be transported and sold.

The use of a fishing logbook is mandatory for the mother-ship vessels. However, this is not the case for the ‘pata-pata’ fiber vessels operating alone. In the case of the mother-ship vessels, all the catches from the fishing unit (comprised by the mother-ship vessel and its fiber-glass skiffs) are recorded in the logbook hosted by the mother-ship vessel. In addition to being mandatory, two types of “bitacoras” are currently being used. The ones from the SRP and another from the IPIAP are being piloted with the FIP of ASOAMAN. The IPIAP logbook provides the option to include the hook type, which is missing in the SRP version. However, only ten vessels currently use this parallel logbook, although training is in place to increase this coverage.

Regarding the possible risks of vessels in the UoC fishing outside the UoC geographic area and the risk of transshipment, the mother-ship vessels are tracked by a VMS during operation (Agreement MPCEIP-SRP-2022-0150- A). As for fiberglass skiffs, according to Article 113 of the LODAP, they must have a VMS installed. However, the client has informed us that the fiberglass skiffs still need to install the system. It is essential to highlight that the National Defense entity must authorize all VMS; the information from the VMS is managed by the Administration of the Monitoring Center (Administración del Centro de Monitoreo). The UoC geographic area is the Ecuadorian EEZ waters and international

waters. Different authorities monitor the VMS used during the operation, and the sanctions for fishing outside the UoC are deterrent for mother-ship vessels and fiber-glass skiffs.

Table 3: Traceability of initial planning

Factor	Description of the traceability risk factors and details of the risk mitigation and management
<p>Will the fishery use gears that are not part of the UoA? If Yes, include in the description:</p> <ul style="list-style-type: none"> • If this may occur on the same trip, on the same vessels, or during the same season; • How any risks are mitigated. 	<p>The vessels are authorized two different types of longlines LL-TBS (thick longlines) and LL-DOL (thin longlines). Therefore, this a relevant risk factor. The available mitigation measures to minimize this risk are the following: - The type/s of hooks used during the fishing trip shall be recorded in the logbook, and there is a specific field in the form for this purpose - All landings are inspected for the issuance of the CMCDP, and the inspector must detail the type of gear employed, since there is a specific field in a form. However, the current mitigation measures cannot ensure that dolphinfish caught using LL-TBS could be traced and segregated from the dolphinfish caught using LL-DOL which is the only product eligible for certification.</p>
<p>Will vessels in the UoA also fish outside the UoA geographic area? If Yes, include in the description:</p> <ul style="list-style-type: none"> • If this may occur on the same trip; • How any risks are mitigated. 	<p>The vessels fish either in Ecuadorian EEZ waters or in international waters covered by the UoC, so the only potential risk is that vessels included in the UoC would illegally fish in the neighboring EEZ of Peru. The following mitigation measures have been identified: - All mother-ship vessels have an operating VMS on board and there are different authorities monitoring those signals. As far as the team knows, the associated fiber-glass skiffs do not have a VMS on board, but the skiffs operate close to the mother-ship vessels. - Even though fiber-glass vessels and 'pata-pata' do not have VMS, the sanctions for operating in a non-authorized area are considered sufficient deterrent, and the border waters between Peru and Ecuador are heavily guarded. So, the risk that the vessels in the UoC operate outside the UoC geographic is considered to be NOT relevant for this fishery.</p>
<p>Do client group members ever handle certified and non-certified products during any of the activities covered by the UoA? This refers to both at-sea activities and on-land activities and should reflect those listed in product movement in Table 4. It includes: Translocation, transshipment, transport, storage, processing, sorting/ grading, packing, landing an auction. If yes please describe how any risks are mitigated.</p>	<p>The risk of handling non-certified products starts on board since there is a possibility that mixed lines (using hooks from LL-TBS together with hooks from LL-DOL) are set at certain time of the year. And there are no systems in place to segregate catches depending on the type of longline used. Therefore, the risk of handling non-eligible MSC dolphinfish (caught using LL-TBS) on board is considered relevant to this fishery.</p>
<p>Does transshipment occur within the fishery? If Yes, please describe:</p> <ul style="list-style-type: none"> • If transshipment takes place at-sea, in port, or both; • If the transshipment vessel may handle product from outside the UoA; <p>How any risks are mitigated.</p>	<p>Transshipment is allowed within the fishing unit comprised by the mothership and its associated fiber-glass skiffs. However, other transshipments are not allowed (i.e. between mother-ship vessels, from 'pata-pata' vessels to mother-ship vessels...). The following mitigation measures to avoid illegal transshipments have been identified during the assessment:</p> <ul style="list-style-type: none"> - Each mother-ship vessel shall register its own fishing activities in its own logbook. - All mother-ship vessels have an operating VMS on board and the Ecuadorian authorities are monitoring those signals. - The sanctions for illegal transshipments are considered a sufficient deterrent. These mitigation measures are considered effective to avoid this risk. So, the risk that non-eligible MSC product could be illegally transhipped to a fishing unit included in the UoC is considered to be NOT relevant for this fishery

7. Pre-assessment results

7.1. Summary of Potential Conditions by Principle

Table 4: Summary of Principle level scores

Principle of the Fisheries Standard	Number of PIs with draft scoring ranges <60
Principle 1 – Stock status	1
Principle 2 – Minimising environmental impacts	1
Principle 3 – Effective management	1

7.2. Summary of Performance Indicator scores

Table 5: Summary of Performance Indicator Level Scores

Performance Indicator	Scoring
1.1.1 – Stock status -	≥80
1.1.2 – Stock rebuilding	N/A
1.2.1 – Harvest Strategy	60-79
1.2.2 – Harvest control rules and tools	<60
1.2.3 – Information and monitoring	60-79
1.2.4 – Assessment of stock status	60-79
2.1.1 – Primary species outcome	>80
2.1.2 – Primary species management strategy	>80
2.1.3 – Primary species information	>80
2.2.1 – Secondary species outcome	60-79
2.2.2 – Secondary species management strategy	60-79
2.2.3 – Secondary species information	60-79
2.3.1 – ETP species information -	60-79
2.3.2 – ETP species management strategy	60-79
2.3.3 – ETP species information	<60
2.4.1 – Habitats outcome	>80
2.4.2 – Habitats management strategy	>80
2.4.3 – Habitats information	>80
2.5.1 – Ecosystem outcome	60-79
2.5.2 – Ecosystem management strategy	60-79
2.5.3 – Ecosystem information	60-79
3.1.1 – Legal and/or customary framework	60-79>
3.1.2 – Consultation, roles, and responsibilities	60-79
3.1.3 – Long term objectives	60-79
3.2.1 – Fishery-specific objectives	>80
3.2.2 – Decision-making processes	<60
3.2.3 – Compliance and enforcement	60-79
3.2.4 – Monitoring and management performance evaluation	>80

7.3. Principle 1

7.3.1. Principle 1 background

Biology

Coryphaena hippurus, commonly known as dolphinfish or mahi-mahi, is a highly migratory species distributed in the Atlantic, Pacific, and Indian Oceans in tropical and subtropical water where it forms schools. It lives in tropical and subtropical areas of the Atlantic, Indian, and Pacific Oceans and is believed to migrate seasonally to warm regions (**Figure 2**). Coastal distribution and abundance seem strongly related to surface temperature and distance from temperature fronts. The dolphinfish has a high growth rate and fast sexual maturity, which may be associated with physiological adaptations for an aquatic predator. The species is a general predator that feeds fish and squid. It can reach up to one meter long weighs up to 8 kg in its first year of life, and lives an average of two years and a maximum of five years. Between these ages, it can reach 2 m in length and weigh up to 40 kg. From six months old, males are usually bigger and heavier than females, and their neurocranium develops more in the front of their head. Males and females mature at four or five months and reproduce thrice a year (Guzman et al., 2015). There are several studies about the 50% first maturity average age, but most evaluate the L50% around 55 cm (<https://www.fishbase.se/summary/Coryphaena-hippurus>).

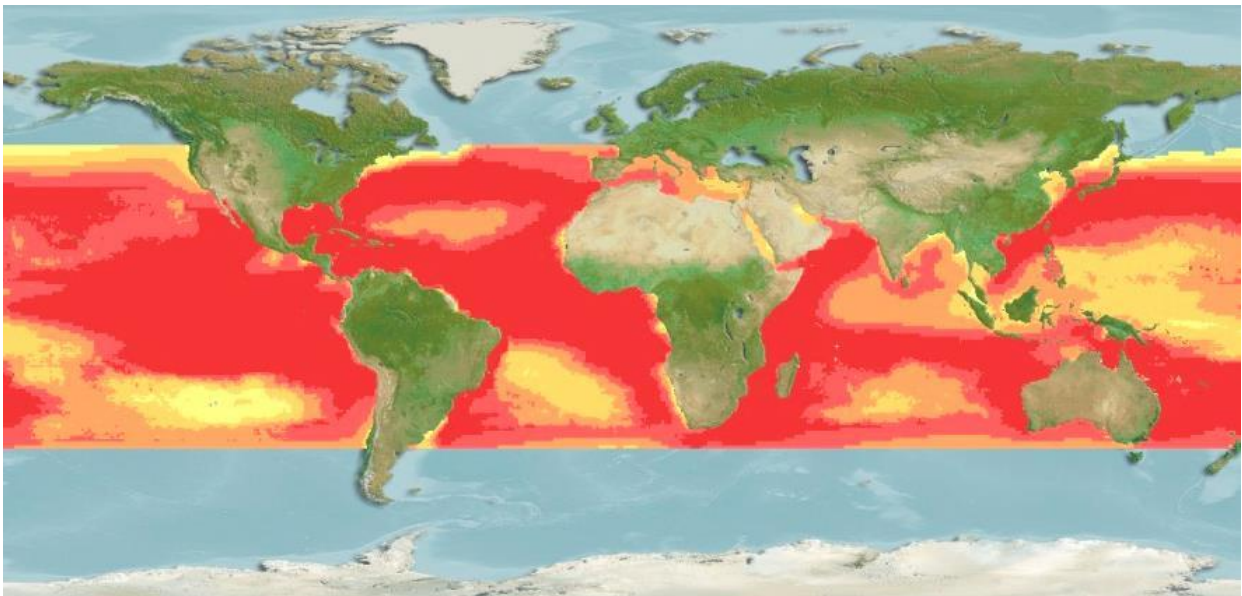


Figure 2- Distribution of dolphinfish (*Coryphaena hippurus*) (Image taken from Fishbase, 2023).

Fisheries

Dolphinfish are caught all along the Eastern Pacific coast, from Northern Chile to Southern, and are exploited in industrial, small-scale artisanal, and recreational fisheries. Ecuador is among the most important producers and exporters (**see table below**).

Table 6: Most important mahi exporters and main market partners (SFP 2023)

Exportador / Importador	Estados Unidos	Ecuador	República Dominicana	Antigua y Barbuda	Total
Ecuador	100%	0%	0%	0%	48%
Panamá	98%	1%	1%	0%	17%
Costa Rica	100%	0%	0%	0%	9%
Nicaragua	100%	0%	0%	0%	4%
Perú	33%	67%	0%	0%	4%
Otros nei ²	0%	100%	0%	0%	4%
Guatemala	100%	0%	0%	0%	2%
Brasil	99%	1%	0%	0%	2%
Venezuela	90%	10%	0%	0%	2%
Taiwán	100%	0%	0%	0%	1%
Fiyi	100%	0%	0%	0%	1%
El Salvador	100%	0%	0%	0%	1%
China	0%	0%	100%	0%	1%
Tonga	100%	0%	0%	0%	1%
India	0%	0%	100%	0%	1%
México	100%	0%	0%	0%	0%
Otros	100%	0%	0%	0%	0%
Total	91%	7%	2%	0%	

Stock distribution and differentiation

Regarding the structure of the stocks along such a great distance, (Lasso & Zapata, 1999) suggested the existence of only one stock in the Panama bight, related to the previously established stock for Costa Rica, Colombia, and North of Ecuador. At the Second Technical Meeting about dolphinfish organized by IATTC in Lima (DOR-02-PRES, 2015), an exercise of stock structure hypothesis and a separated Northern stock (North of 5° N) was explored. As Peru and Ecuador provided more complete information, a preliminary stock assessment was conducted, including just these 2 countries. According to a 2016 IATTC report, genetic studies showed no evidence of a stock separation in the Eastern Pacific Ocean, with dolphinfish showing high genetic variability. In Ecuadorian waters, there was evidence of only one panmictic population. However, there might be an oceanic component of the stock that moves closer to the coast seasonally and a coastal resident component in some areas. The latter would be located slightly north of the Equator, while the oceanic component would migrate to coastal areas of the EPO around October-November for feeding and spawning (Figure 3).

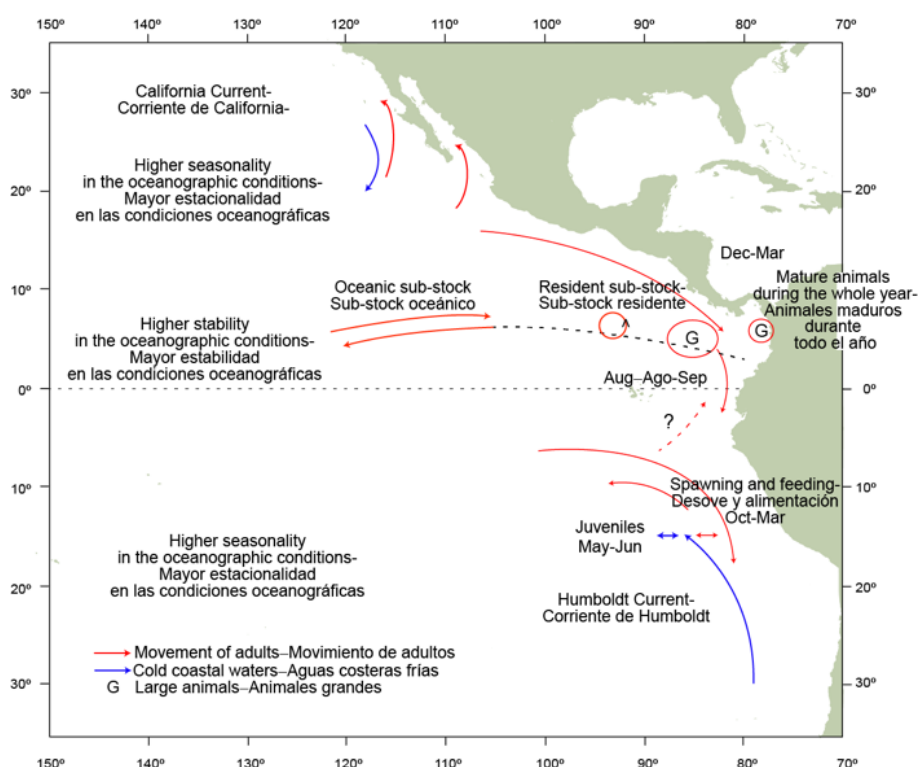


Figure 3 - Conceptual model of dolphinfish movements and spatial distribution (Aires-da- Silva *et al.* 2016).

Stock identity for this species in the Eastern Pacific Ocean is still under debate. 2024 study based on two single-nucleotide polymorphisms (SNPs) datasets obtained through next-generation sequencing protocols that covered the species' range distribution in the Tropical Eastern Pacific was conducted. The results revealed slight but significant differences among locations occupying the latitudinal limits of the species distribution. Overall results show high levels of connectivity across locations. However, genetic differences were observed for young of the year (YOY) individuals. This pattern was confirmed also in adult individuals by the significant differences observed between Cabo San Lucas (Northern) and the two Peruvian localities (Southern).

Moreover, the Oceanic location presented differences compared to the shoreline sample sites in the TEP. The genetic pattern detected, particularly for YOY individuals, is related to the oceanographic conditions in the Eastern Pacific, especially for populations with a limited species distributional range. Dolphinfish populations are being impacted by commercial fisheries in the area with no regulations ((Mar-Silva et al., 2023)). The authors suggested that considering at least three genetic clusters (Oceanic, Northern, and Southern) constitutes the first step toward implementing management and conservation plans ((Mar-Silva et al., 2023)).

Stock assessment & reference points

An exploratory assessment of the stock of *Coryphaena hippurus* in the Southeast Pacific was conducted by Aires-da-Silva et al. (2016), namely within the Peruvian and Ecuadorian EEZs, using a length-structured model with monthly time steps and CPUE indices of relative abundance in the Stock Synthesis package. The assessment estimated an annual F of between 0.53 and 0.85 during 2007-2014, while M was assumed to be 1. More recently, the dolphinfish stock in the SE Pacific was re-evaluated at a regional scale of the Peruvian and Ecuadorian ZEE. The assessment used a monthly depletion estimator based on the exponential decay model (generalized depletion model) to account for the specific characteristics of the stock and fisheries, which are based on a single cohort (assessment based on the effort catch dynamics). The results were used in a surplus production model to provide management advice and estimate potential reference points (assessment then based on aggregate biomass dynamics). The model used monthly total catch, monthly total effort, and sampled mean monthly weight between January 2004 and December 2019 (**Figure 4**) (Roa-Ureta et al., 2022). The 2022 assessment showed that the dolphinfish stock in the Southeast Pacific has a high intrinsic rate of population growth (r), making it a resilient stock that may recover quickly from low biomass, high mortality rate, and fast biomass production function. The authors conclude that the stock is not overfished and not experiencing overfishing. Still, contrary to the results of Aires-da-Silva et al. (2016) where the harvest rate was close to MSY , the current harvest is well below maximum sustainable harvest rates. The difference between the stock assessment results can be due to natural mortality, where the natural mortality rate obtained by Roa-Ureta et al. (2022) is very high and more than 3 times higher (0.339 per month) than the value assumed by Aires-da-Silva et al. (2016). However, other factors, such as the different fisheries' data time series, could also have impacted the results.

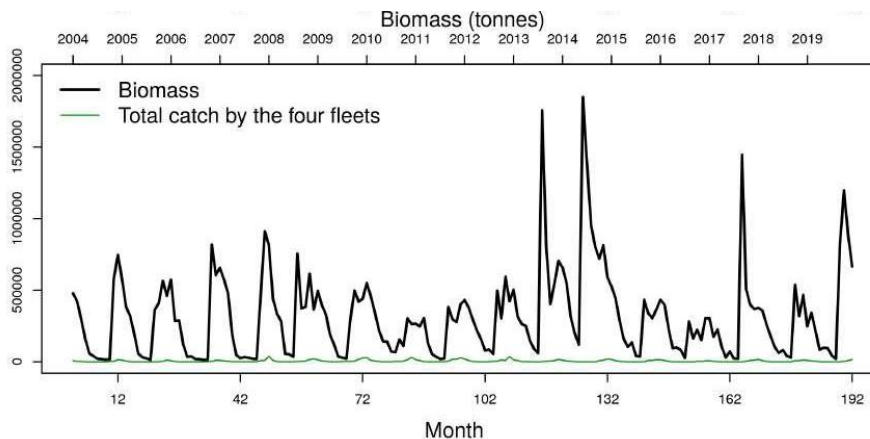


Figure 4 –Stock biomass and catch in weight (Roa-Ureta et al., 2022).

Similarly, Roa-Ureta et al. (2022) refer to the results obtained by Patterson (1992) that show that for stocks with a life history of small pelagic fish, instantaneous exploitation rates of less than 40% maintain a stable and sustainable spawning biomass. Although dolphinfish is not a small pelagic, Roa-Ureta et al. (2022) consider its life history similar to small pelagic fish and conclude that 0.4 can be used as a proxy reference point (**Figure 5**).

The Pella-Tomlinson production model results showed that the MSY estimate is very high, six times higher than the average catch of the four fleets over the time series. This is because the stock fluctuates; therefore, the authors conclude that MSY is not applicable. The estimated intrinsic rate of population growth r and the symmetry of the production function p is high, making the stock highly productive. Overall, stock biomass shows marked fluctuation about a constant mean close to 350 thousand tones. The rest of the parameters and biological reference points are shown in table 7.

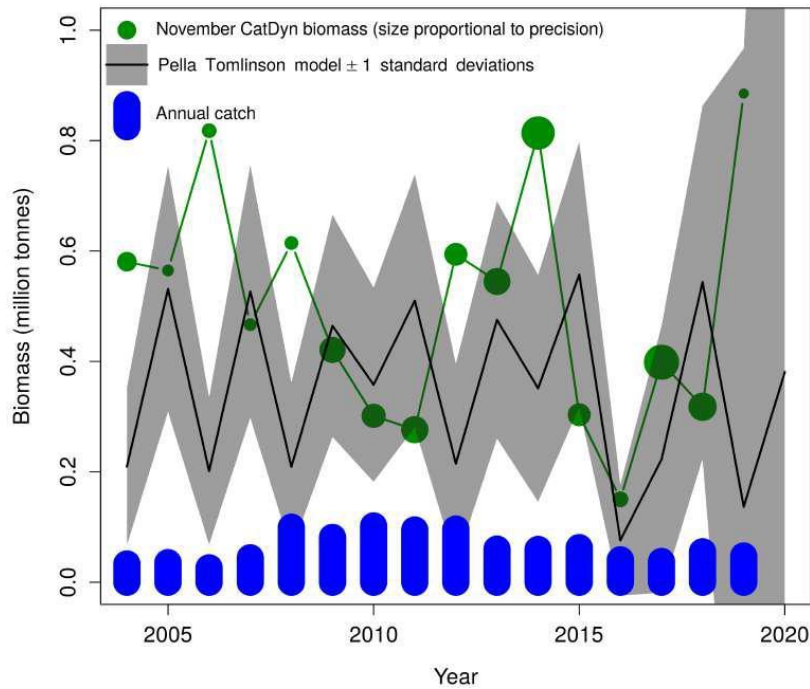


Figure 5 - November stock biomass estimated by generalized depletion model, total annual catch by four artisanal longline fleets, and fitted Pella-Tomlinson model of population dynamics of the dolphinfish in the Southeast Pacific (Peru and Ecuador) (Roa-Ureta et al., 2022).

Table 7- Parameters from the Pella-Tomlinson model (r , p and K) and derived biological reference points (MSY and B_{MSY}) for dolphinfish in the Southeast Pacific (Peru and Ecuador) (Roa-Ureta et al., 2022).

Parameter	Concept	Estimate	Standard error	CV (%)
r (yr^{-1})	Intrinsic growth rate	2.7783	1.96450	70.7
p	Production function symmetry	2.2063	0.61208	27.7
K (tonnes)	Environmental carrying capacity	456,960	187,860	41.1
B_{2003} (tonnes)	Initial biomass	209,590	142,470	68.0
MSY (tonnes)	Maximum sustainable yield	360,225	194,422	54.0
B_{MSY} (tonnes)	Biomass at MSY	237,131	102,124	43.1
\dot{P} (tonnes)	Average total latent productivity	152,980	562,595	367.8
$B_{\dot{P}}$ (tonnes)	Average biomass at \dot{P}	349,218	238,525	68.3

Stock Status

The 2022 assessment (Roa-Ureta et al., 2022) reported that the Southeast Pacific stock is not overfished or experiencing overfishing. Exploitation rates were well within sustainable levels for the time series 2004-2019, i.e. below 0.4 (Figure 6). The stock has a high intrinsic rate of population growth and asymmetric biomass production function, making it resilient and prone to large fluctuations in biomass. Biomass in 2020 was estimated to be almost 400,000 metric tons, although uncertain, while the lowest biomass of the time series (Bloss) was around 75,000 tons in 2016.

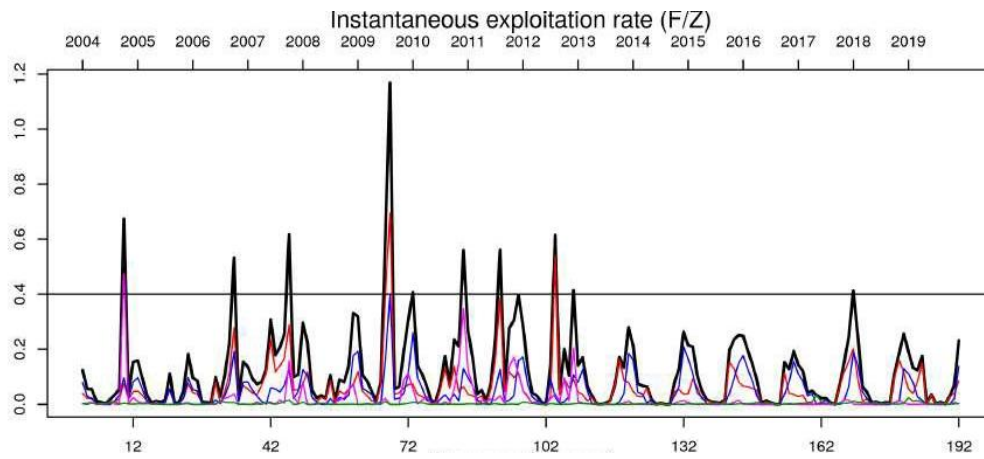


Figure 6- Instantaneous exploitation rate per fleet and total (Roa-Ureta et al., 2022).

Finally, the mean total latent productivity (i.e., possible sustainable yield) was evaluated at 152,980 tones per year, double the average catch of the four fleets over the time series (around 75,000 tons), though the estimate is uncertain.

Harvest strategy & control rules

In 2014, the Public Institute of Research in Fisheries and Aquaculture (IPIAP for its name in Spanish) of Ecuador and the Institute of the Sea of Peru (IMARPE) signed a Memorandum of Understanding (MOU) to cooperate in science and data collection, strengthen capacities, and exchange experiences regarding the management of the dolphinfish fishery. In this context, both institutions organized a series of meetings and workshops between 2015-2022 to incorporate fisheries data, and perform a combined analytical assessment of the stock (finalized in 2022), with the participation of Ecuador's IPIAP and Peru's IMARPE, but also of MPCEIP, PRODUCE, and NGOs. At the national level, the Ecuadorian Ministerial Agreement No. 023 of February 14, 2011, established the National Action Plan for the conservation and management of the dolphinfish 2011-2016 as a tool that provided guidelines for the conservation, management, and eco-certification of dolphinfish. In December 2019, the National Action Plan for this species was renewed for 2019-2024 (No. MPCEIP-SRP-2021-0145-A in June 2021) after evaluating the previous plan. The 2019 evaluation identified the following points to be improved: improve organizational structure, increase regulations to implement measures, ensure finance mechanism, ensure active advisory board, increase stakeholders participation, include specific deadlines for carrying out activities, and finally strengthen the technical capabilities of the team. The National Action Plan, in place since 2011, establishes specific management measures (Agreement 070/2011, Resolution 245-2014), such as a minimum size (80 cm with a 10% bycatch allowance), closed season to the targeted fishery to protect recruitment (1 July until 7 October), characteristics of fishing gear (hook type and size), permitted vessels and establishes (2011) and increases the coverage (from 2021) of the observer program.

In Peru, the National Management Regulation (Reglamento de Ordenación Pesquera, known as ROP) on the dolphinfish fishery was adopted in July 2021. The ROP contains several management measures, such as resource access limitations, mandatory VMS, minimum legal size, a TAC set based on scientific advice, bycatch cannot exceed 5% of the total landings, and there are measures to reduce the impact on protected species (D.S. No. 017-2021-PRODUCE).

Management Strategy Evaluation

A simplified version of the SS model used for the exploratory assessment (Aires-da-Silva et al. 2016) was used as the operating model for an MSE (Valero et al. 2016). The exploratory work focused on testing the management strategy in place, which is based on seasonal closures and alternatives, including different monthly fishery closures and openings, size limits for the fish in the catch, and discard mortality rates. There were trade-offs between spawning biomass ratio (SBR) and yield for strategies based on alternative season openings, closures, and minimum size limits with different assumptions regarding discard mortality rates of undersized fish. Alternative season closures and openings have similar general effects on SBR and total yield; later season openings, however, increase SBR without marked reductions in expected yield, while earlier closures increase SBR but at the expense of reduced catch. YPR analyses show that the age of entry that will produce the maximum YPR is around 10 months, based on the annual fishing mortalities estimated by the assessment. That would mean that openings around October-November would be consistent with YPR considerations. The entry age consistent with maximum YPR would be higher at fishing mortalities than those estimated by the assessment. SBR is expected to increase with minimum size limits, while yield is expected to increase with no or moderate discard mortality and to decrease with more significant discard mortality. Under assumed moderate discard mortalities, increasing minimum size limits is expected to result in increased SBR, but at the expense of reduced yield (Valero et al., 2016; IATTC, 2019).

7.3.2. Catch profiles

Total annual landings of dolphinfish made by the Ecuadorian longline fleet targeting dolphinfish show a variable pattern since 2013, peaking in 2014 at 11,356 tonnes and increasing again since 2018, reaching 5,441 tonnes in 2021 (Figure 7). Dolphinfish are mainly caught in Ecuador between 70-120 cm furcal length, and there is a latitudinal pattern from north to south, where larger to smaller individuals are caught, respectively. The average catch length decreases in spring, reaching minimum sizes in summer (June, July, and August) and below the minimum legal catch size of 80 cm total length (67.5 cm furcal) in Manta and Santa Rosa, increasing afterward (Zúñiga-Flores, 2023, stakeholder information)



Figure 7- Annual landings (in metric tons) of dolphinfish made by the Ecuadorian longline fleet targeting dolphinfish using LL-DOL between 2013 and 2021 (Data from SRP 2023)

7.3.3. Total Allowable Catch (TAC) and catch data

Table 7: Total Allowable Catch (TAC) and catch data

TAC / Catch Data	Year	Amount
TAC	2022	N / A
UoA share of TAC	2022	N / A
Total catch by UoA (most recent year)	2023	
Total catch by UoA (second most recent year)	2022	

7.3.4. Principle 1 Performance Indicator scores and rationales

PI 1.1.1 – Stock status

PI 1.1.1		The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
Scoring issue		SG 60	SG 80	SG 100
a	Stock status relative to recruitment impairment			
	Guidepost	It is likely that the stock is above the point where recruitment would be impaired (PRI).	It is highly likely that the stock is above the PRI.	There is a high degree of certainty that the stock is above the PRI.
	Met?	Yes	Yes	Yes
Rationale		The most recent assessment provides details about the status of the SE stock. Based on the results, the stock is not overfished and not experiencing overfishing, while the 2020 biomass (around 400,000 tonnes) is estimated to be more than 5 times the lowest observed biomass Bloss and 1.69 times BMSY (237,131 tonnes). SG 100 is met		
b	Stock status in relation to achievement of maximum sustainable yield (MSY)			
	Guidepost		The stock is at or fluctuating around a level consistent with MSY.	There is a high degree of certainty that the stock has been fluctuating around a level consistent with MSY or has been above this level over recent years.
	Met?		Yes	No
Rationale		Based on the 2022 evaluation, the dolphinfish stock was not overfished and biomass was reported to be above BMSY, a similar result from the previous assessment (Aires-da-Silva et al 2016). However, the 2023 author's report recommended to continue data collection program, in order to growth the stock assessment database. To update the assessments regularly and improve the statistical precision of some biological reference points. For this reason, a high degree of certainty might not be achieved. This PI reaches the SG80.		
Draft scoring range		80		
Stock status relative to reference points				
	Type of reference point	Value of reference point	Current stock status relative to reference point	
Reference point used in scoring stock relative to PRI (SIa)	Bloss = B2016	Around 75,000 tonnes	B2020/Bloss = around 5.33	
Reference point used in scoring stock relative to MSY (SIb)	BMSY F/Z = FMSY proxy	237,131 tonnes 0.4	B2020/BMSY = around 1.69 F2020/FMSY proxy = <1	

PI 1.2.1 – Harvest strategy

PI 1.2.1		There is a robust and precautionary harvest strategy in place					
Scoring issue		SG 60		SG 80		SG 100	
a	Harvest strategy design						
	Guide post	The harvest strategy is expected to achieve stock management objectives reflected in PI 1.1.1 SG80.		The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80.		The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in PI 1.1.1 SG80.	
	Met?	Yes		No		No	
Rationale							
<p>Currently, the mahi fishery in the region (SE Pacific) is being managed through a bilateral agreement between Peru and Ecuador. The collaboration includes aspects related to data generation and collaboration on research. The stock and the fisheries are monitored by both countries and a common stock assessment has been conducted by researchers from both national fisheries research institutions. At a national level, Ecuador has a National Plan of Action (NPOA) and management measures established through ministerial agreements such as permits (licenses), closed seasons, fishing gear restrictions and a minimum size. However, these measures are not fully aligned between the two countries. Based on the current (and most recent evaluation of the status of the stock) it is believed that the harvest strategy is expected to achieve stock management objectives reflected in PI 1.1.1. However, more details are needed to confirm if the elements of the harvest strategy are responsive to the state of the stock and therefore SG80 is not met.</p>							
b	Harvest strategy evaluation						
	Guide post	The harvest strategy is likely to work based on prior experience or plausible argument.		The harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives.		The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving the objectives including being clearly able to maintain stocks at target levels.	
	Met?	Yes		Yes		No	
Rationale							
<p>The combination of the current measures (closed season, a licencing scheme, minimum catch size) is likely to limit fishing mortality, even if production is not set via a TAC. Furthermore, although it is not clear that the strategy has been tested completely, the 2022 assessment showed that the stock is not overfished and not experiencing overfishing. So, generally it is achieving its objectives, therefore SG 80 is met but not for SG 100.</p>							
c	Harvest strategy monitoring						
	Guide post	Monitoring is in place that is expected to determine whether the harvest strategy is working.					
	Met?	Yes					
Rationale							
<p>The fishery is monitored by both countries and a common stock assessment based on the data collected and compiled is conducted by researchers from both national fisheries research institutions. The fisheries landings are monitored at landing sites, while there is an observer program implemented since 2011 in the Ecuadorian fishery. Therefore, some monitoring in place that can determine whether the harvest strategy is working. SG60 is met.</p>							
d	Harvest strategy review						
	Guidepost					The harvest strategy is periodically reviewed and improved as necessary.	
	Met?					No	
Rationale							
<p>The Ecuadorian action plan was reviewed in 2019, while the levels of at sea monitoring through the observer program were also reviewed and updated in 2021. Therefore, some elements of the harvest strategy are reviewed and improved as necessary. However, there is no information if other the elements of the harvest strategy are reviewed periodically and thus SG100 is not reached.</p>							
e	Shark finning						
	Guide post	It is likely that shark finning is not taking place		It is highly likely that shark finning is not taking place		There is high degree of certain that shark finning is not taking place	
	Met?	NA		NA		NA	
Rationale							
<p>Not applicable to this fishery as sharks are not targeted.</p>							

PI 1.2.1		There is a robust and precautionary harvest strategy in place		
f	Review of alternative measures			
	Guide post	There has been a review of potential effectiveness and practicality of alternative measures to minimise UoA-mortality of unwanted related target stock.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA related mortality of unwanted catch of the target stock and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA related mortality of unwanted catch of the target stock, and they are imp
	Met?	Yes	No	No
Rationale				
There is a minimum catch size in of 80 cm in Ecuador, although the level of catches under the minimum size is unknown. Some efforts to protect juveniles (close seasons) and reduce impact (size and type of hooks used) have been put in place, these can be considered as alternative measures. However, no information about the effectiveness of these measures has been released. For these reasons, only SG60 is met.				
References				
Ecuadorian Ministerial Agreement No. 023 of February 14, 2011 and No. MPCEIP-SRP-2021-0145-A in June2021 Roa-Ureta, RH, Amancio, GR, Abanto, PM, Izquierdo, IG, Sior, AAN, Elías, E, Peralta, M. 2022. Stock Assessment of the dolphinfish (<i>Coryphaena hippurus</i>) in the South-East Pacific Ocean. IATTC Doc SAC-13 INF-O. 40 pp. Valero, J. L., Aires-da-Silva, A., Maunder, M. N., Minte-Vera, C., Martínez-Ortiz, J., Torrejón-Magallanes, E. J. and Carranza, M. N. 2016. Exploratory management strategy evaluation (MSE) of Dorado (<i>Coryphaena hippurus</i>) in the south Eastern Pacific Ocean. Inter-American Tropical Tuna Commission, Scientific Advisory Committee, Seventh Meeting				
Draft scoring range		60-79		
Information gap indicator		More information sought		

PI 1.2.2 – Harvest control rules and tools

PI 1.2.2		There are well-defined and effective harvest control rules (HCRs) in place		
Scoring issue		SG 60	SG 80	SG 100
a	HCRs design and application			
	Guide post	Generally understood HCRs are in place or available that are expected to reduce the exploitation rate as the point of recruitment impairment (PRI) is approached.	Well defined HCRs are in place that ensure that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY, or for key LTL species a level consistent with ecosystem needs.	The HCRs are expected to keep the stock fluctuating at or above a target level consistent with MSY, or another more appropriate level taking into account the ecological role of the stock, most of the time.
	Met?	Yes	No	No
Rationale				
<p>Fishery established some limitations that include a fishing season, size limits, % of juvenile bycatch and gear specifications, and although these are not established within a specific agreement, there is some level of cooperation in place that led to the complementarity of the management measures taken nationally. The combination of these management measures was considered HCR by the IATTC and tested through a preliminary MSE exercise. Based on the above, it can be considered that generally understood HCRs are in place.</p> <p>However, details about how these measures may change in relation to changes on the stock or how exploitation will be reduced if the PRI is approached. For these reasons SG60 is not met.</p>				
b	HCRs robustness to uncertainty			
	Guide post		The HCRs are likely to be robust to the main uncertainties.	The HCRs take account of a wide range of uncertainties including the ecological role of the stock, and there is evidence that the HCRs are robust to the main uncertainties.
	Met?		No	No
Rationale				
As there are no HCRs SG80 is not met				
c	HCRs evaluation			
	Guide post	There is some evidence that tools used or available to implement HCRs are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the HCRs.
	Met?	No	No	No
Rationale				
Current measures, e.g., fishing season, licences and catch sizes, have limited fishing effort, and stock is not considered to be subject to overfishing, this can be considered evidence that tools are effectively controlling exploitation. SG60 is not met.				
References				
<p>Roa-Ureta, RH, Amancio, GR, Abanto, PM, Izquierdo, IG, Sior, AAN, Elías, E, Peralta, M. 2022. Stock Assessment of the dolphinfish (<i>Coryphaena hippurus</i>) in the South-East Pacific Ocean. IATTC Doc SAC-13 INF-O. 40 pp. Ecuadorian Ministerial Agreement No. 023 of February 14, 2011</p> <p>Ecuadorian Ministerial Agreement MPCEIP-SRP-2021-0145-A in June 2021</p> <p>Peruvian Ministerial Resolution No. 249-2011-PRODUCE, Resolution No. 245-2014-PRODUCE, Supreme Decree No. 17-2021-PRODUCE</p>				
Draft scoring range		<60		
Information gap indicator		More information sought		

PI 1.2.3 – Information and monitoring

PI 1.2.3		Relevant information is collected to support the harvest strategy		
Scoring issue		SG 60	SG 80	SG 100
a	Range of information			
	Guide post	Some relevant information related to stock structure, stock productivity, and fleet composition is available to support the harvest strategy.	Sufficient relevant information related to stock structure, stock productivity, fleet composition, and other data are available to support the harvest strategy.	A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, UoA removals, and other information such as environmental information), including some that may not be directly related to the current harvest strategy, is available.
	Met?	Yes	Yes	No
Rationale				
Information on catch and effort, length structure, growth, maturity and fleet composition are all available for the dolphinfish stock in Southeast Pacific. Most catches, area of occurrence, and area of operation of the fishery are sampled on a regular basis. Sufficient information is known to support the harvest strategy and both SG60 and SG80 are reached. Environmental information, namely the impact of sea surface temperature and temperature fronts on the distribution and abundance of dolphinfish is also available.				
b	Monitoring			
	Guide post	Stock abundance and UoA removals are monitored and at least 1 indicator is available and monitored with sufficient frequency to support the harvest control rule.	Stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule , and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.	All information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.
	Met?	Yes	No	No
Rationale				
UoA caches are regularly monitored, and there are four CPUEs series available from the Ecuador and Peru artisanal longline fisheries that are used in the stock assessment. Length and maturity estimates are derived mainly from samples collected by the Peruvian and Ecuadorian sampling schemes. So, all information required by a harvest control rule is regularly monitored with high frequency and thus both SG60 is reached, but no SG80 .				
c	Comprehensiveness of information			
	Guide post		There is good information on all other fishery removals from the stock.	
	Met?		Yes	
Rationale				
Dolphinfish is caught as a bycatch to seine fisheries but this fleet is also routinely sampled and accounts only for 2% of total dolphinfish catches, thus SG80 is reached .				
References				
IATTC. 2019. Status of the Tuna and Billfish Stocks in 2018. Stock Assessment Report 20. 142 pp. Roa-Ureta, RH, Amancio, GR, Abanto, PM, Izquierdo, IG, Sior, AAN, Elías, E, Peralta, M. 2022. Stock Assessment of the dolphinfish (<i>Coryphaena hippurus</i>) in the South-East Pacific Ocean. IATTC Doc SAC-13 INF-O. 40 pp.				
Draft scoring range		60-79		
Information gap indicator		Information sufficient to score PI		

PI 1.2.4 – Assessment of stock status

PI 1.2.4		There is an adequate assessment of the stock status		
Scoring issue		SG 60	SG 80	SG 100
a	Appropriateness of assessment to stock under consideration			
	Guide post		The assessment is appropriate for the stock and for the harvest control rule.	The assessment takes into account the major features relevant to the biology of the species and the nature of the UoA.
	Met?		Yes	No
Rationale				
<p>The dolphinfish stock in Southeast Pacific was assessed by Roa-Ureta et al. (2022) based on a generalised depletion model, where the results are then used in a surplus production model to provide management advice and estimate potential reference points. The depletion model uses monthly total catch, monthly total effort, and sampled mean monthly weight, and considers the stock natural mortality and fishery selectivity. Therefore, assessment is appropriate for the stock and for the harvest control rule and SG80 is met. However, different growth between different fleets is not considered due to the lack of length-weight data, while Ecuadorian fleets seem to catch larger fish, and thus major features of the nature of the UoA are not considered in the assessments.</p>				
b	Assessment approach			
	Guide post	The assessment estimates stock status relative to generic reference points appropriate to the species category.	The assessment estimates stock status relative to reference points that are appropriate to the stock and can be estimated.	
	Met?	Yes	No	
Rationale				
<p>The assessment carried out by Roa-Ureta et al. (2022) using a generalised depletion and surplus production models estimates stock status relative to reference points, namely F/Z as a FMSY proxy and BMSY and therefore there are to generic reference points appropriate to the species category and SG60 is met. However, the authors refer that MSY reference points are not necessarily appropriate for the stock since dolphinfish behaves as a small pelagic fish, a conclusion also reached by Ayres-da-Silva et al. (2016), and for this reason SG80 is not met.</p>				
c	Uncertainty in the assessment			
	Guide post	The assessment identifies major sources of uncertainty.	The assessment takes uncertainty into account .	The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.
	Met?	Yes	Yes	No
Rationale				
<p>The assessment identifies major sources of uncertainty in the catch data, particularly in the estimated catch weight of the Ecuadorian fleets and takes it into account in the ability of the depletion model fit those fleets, and as such SG60 and SG80 are met.</p>				
d	Evaluation of assessment			
	Guide post			The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.
	Met?			No
Rationale				
<p>The dolphinfish stock was previously assessed by Ayres-da-Silva et al. (2016). Although both stock assessments conclude that the stock is not overfished and not experiencing overfishing, there are conflicting results regarding the harvest rate and its proximity to maximum sustainable rates. Furthermore, the depletion model assessment has not been tested for alternative hypothesis. For these reasons SG100 is not met.</p>				

PI 1.2.4		There is an adequate assessment of the stock status		
e	Peer review of assessment			
	Guide post		The assessment of stock status is subject to peer review	The assessment has been internally and externally peer reviewed.
	Met?		Yes	No
Rationale				
<p>The assessment carried out by Roa-Ureta et al. (2022) was presented to the 13th meeting of the IATTC Scientific Advisory Council. Based on this, it can be assumed that it passed through a peer review process. Considering that Resolution C-23-09 committees IATTC to update the 2016 assessment to be completed by 2026, the process would be considered as internally and externally peer review. So SG100 is not achieved.</p>				
References				
<p>Aires-da-Silva, A, Valero, J, Maunder, M, Minte-Vera, C, Lennert-Cody, C, Román, M, Martínez-Ortiz, J, TorrejónMagallanes, E, Carranza, M. 2016. Exploratory stock assessment of dorado (<i>Coryphaena hippurus</i>) in the southeastern Pacific Ocean. IATTC Tech. Rep. Document SAC-07-06a(i). Roa-Ureta, RH, Amancio, GR, Abanto, PM, Izquierdo, IG, Sior, AAN, Elías, E, Peralta, M. 2022. Stock Assessment of the dolphinfish (<i>Coryphaena hippurus</i>) in the South-East Pacific Ocean. IATTC Doc SAC-13 INF-O. 40 pp.</p>				
Draft scoring range		60-79		
Information gap indicator		More information sought		

7.5. Principle 2

7.5.1. Principle 2 background

The information from the Fisheries Landing Control and Monitoring Certificates (CMCDP) from October to December 2020 showed that vessels using the ‘thin longline’ or ‘doradero’ had 91% of the total landed volume by dolphinfish, followed by blue shark (5,8%). All other species accounted for less than 1% of the total landed volume. All landed species are either dolphinfish, tunas (yellowfin tuna, wahoo), billfishes (swordfish, blue marlin, striped marlin, Indo-Pacific sailfish), or pelagic sharks (blue shark, shortfin mako shark, pelagic and bigeye thresher sharks, silky shark, blacktip shark). Results of landing volumes per species specific to mother-ship-based fishing operations using LL-DOL between 2013 and 2021, based on Fisheries Landing Control Monitoring Certificates (CMCDP) were obtained by Rios et al. (2024). In this report, authors confirmed that bony fish account for more than 90% of the total volume landed per year (92-99%), with sharks and rays accounting for the remaining 1-8%. However, in 2016, sharks' contribution increased to 43% of the total volume landed annually. Normally, the target species accounts for over 88% of the total volume landed per year. Most of the bony fish species landed account for less than 1% of the total volume landed per year. However, blue marlin (*Makaira nigricans*) and swordfish (*Xiphias gladius*) might contribute significantly to the total volume landed per year (e.g., blue marlin accounted for 15% in 2015, while swordfish accounted for 11% in 2018). Finally, the authors found that among sharks and rays, the species that contributed most regularly to the volume landed was the blue shark (*Prionace glauca*). Another shark species with significant contributions to the annual landed volume was the pelagic thresher shark (*Alopias pelagicus*), and concluded that the contribution of all the other shark and ray species to the total volume landed per year does not reach 0.5%. Overall, the authors reported that 50 should be considered P2 species; the list can be seen below in the Table 9.

Table 4: Scoring elements

Component	Scoring elements	Designation	Data-deficient
Secondary	<i>Coryphaena equiselis</i>	Minor	Yes
Secondary	<i>Acanthocybium solandri</i>	Minor	Yes
Primary	<i>Thunnus albacares</i>	Minor	No
Primary	<i>Thunnus obesus</i>	Minor	No
Primary	<i>Katsuwonus pelamis</i>	Minor	No
Secondary	<i>Euthynnus lineatus</i>	Minor	No
Secondary	<i>Istiompax indica</i>	Minor	Yes
Secondary	<i>Istiophorus platypterus</i>	Minor	Yes
Secondary	<i>Tetrapturus angustirostris</i>	Minor	Yes
Secondary	<i>Kajikia audax</i>	Minor	No
Secondary	<i>Makaira nigricans</i>	Main	No
Secondary	<i>Xiphias gladius</i>	Main	No
Secondary	<i>Lepidocybium flavobrunneum</i>	Minor	Yes
Secondary	<i>Alopias pelagicus</i>	Main	No
Secondary	<i>Alopias superciliosus</i>	Minor	No
Secondary	<i>Alopias vulpinus</i>	Minor	No
ETP	<i>Carcharhinus falciformis</i>		No
Secondary	<i>Carcharhinus galapagensis</i>	Minor	No
Secondary	<i>Carcharhinus leuca</i>	Minor	No
Secondary	<i>Carcharhinus limbatus</i>	Minor	No
ETP	<i>Carcharhinus longimanus</i>		Yes
Secondary	<i>Carcharhinus obscurus</i>	Minor	No
Secondary	<i>Galeocerdo cuvier</i>	Minor	No
Secondary	<i>Nasolamia velox</i>	Minor	No

Secondary	<i>Negaprion brevirostris</i>	Minor	No
Secondary	<i>Prionace glauca</i>	Main	No
Secondary	<i>Isurus oxyrinchus</i>	Minor	No
Secondary	<i>Isurus paucus</i>	Minor	No
Secondary	<i>Odontaspis noronhai</i>	Minor	No
Secondary	<i>Pseudocarcharias kamoharai</i>	Minor	No
ETP	<i>Sphyrna lewini</i>		Yes
ETP	<i>Sphyrna mokarran</i>		Yes
ETP	<i>Sphyrna tiburo</i>		Yes
ETP	<i>Sphyrna zygaena</i>		Yes
Secondary	<i>Galeorhinus galeus</i>	Minor	No
ETP	<i>Aetobatus laticeps</i>		Yes
Secondary	<i>Hypanus longus</i>	Minor	Yes
Secondary	<i>Pteroplatytrygon violacea</i>	Minor	Yes
ETP	<i>Mobula spp.</i>		Yes
ETP	<i>Caretta caretta</i>		Yes
ETP	<i>Chelonia mydas</i>		Yes
ETP	<i>Dermochelys coriacea</i>		Yes
ETP	<i>Eretmochelys imbricata</i>		Yes
ETP	<i>Lepidochelys olivacea</i>		Yes
Secondary	<i>Dosidicus gigas</i>	Main	Yes
Secondary	<i>Opisthonema spp.</i>	Minor	Yes
Secondary	<i>Selar crumenophthalmus</i>	Minor	Yes
Secondary	<i>Auxis spp.</i>	Minor	Yes
Secondary	<i>Scomber japonicus</i>	Minor	Yes

Primary Species

EPO bigeye (*Thunnus obesus*), yellowfin (*T. albacares*), and skipjack (*Katsuwonus pelamis*) management are based on the IATTC resolutions, which in turn are based on stock assessments performed by the ISC. The relative contribution of tropical tunas to the total catches of these species could be much higher. Therefore, these species were assessed as 'minor' subcomponents.

Secondary Species

A total of 35 species, including bony fish species, sharks, and rays, are part of the secondary species. Based on the information available, four species/stocks are above the threshold to be considered 'main' secondary components: Pacific blue marlin, South EPO swordfish, blue shark, and the pelagic thresher shark. The remaining 32 secondary species were classified as 'minor' components for this assessment.

Management tools or measures need to be in place to achieve stock management objectives reflected in either limit or target reference points, neither at a national level nor an international level for any of these species/stocks. For 20 out of these 35 secondary components, there are biologically based limits available, derived either from analytical stock assessments (e.g., EPO Striped marlin, Pacific blue marlin, South EPO swordfish, Pacific Jumbo squid) or using empirical approaches such as ecological risk assessments (e.g., all shark species in the list, but not ray species).

ETP Species

The five species of marine turtles are listed in Appendix I of CITES. They are also listed as Vulnerable (loggerhead, leatherback, and olive ridley turtle), Endangered (green turtle), or critically endangered (Hawksbill turtle) in the IUCN

Red list. At a National level, the State of Ecuador protects all marine turtles, so targeting, processing, and trading them is prohibited. Based on the above, all species of marine turtles listed in the table are considered ETPs.

In terms of management, Ecuador signed the Memorandum of Understanding on the Conservation of Migratory Sharks in 2017, and the Oceanic whitetip shark is included in Appendix I of the MoU, but this is a legally non-binding tool. However, the need to protect some shark species has been recognized by the state of Ecuador by the conservation measures adopted by the IATTC about sharks. Based on the PCDR, the ETP shark species that the UoA might impact are silky shark (*C.falciformis*), Oceanic white tip shark (*C.longimanus*), 4 hammerhead shark species (*S.lewini*, *S.mokarran*, *S.tiburo*, *S.Zygaena*), spotted eagle ray (*Atobatus laticeps*) and all mobula species (*Mobula spp.*) (Rios et al., 2024).

Ecuador protects all whales within its EEZ through the Ministerial Agreement 196 passed in June 1990, and more recently extended this protection to all marine mammals through the Ministerial Agreement MPCEIP-SRP-2021-0238-A. Ecuador is also a signatory Party to the legally binding Agreement on the Conservation of Albatrosses and Petrels (ACAP) concluded under the CMS. Onboard observers report that the Ecuadorian longline fleet targeting dolphinfish has no interactions with marine mammals or seabirds.

Turtles

As reported by Rios et al. (2024), the onboard observer's data shows low interactions, with an average of 0.13 interactions for every 1000 individuals of dolphinfish caught between 2017 and 2021 (min: 0,08 in 2018, 2020 & 2021; max: 0,20 in 2017). MPCEIP (2022c) does not provide the number of interactions per observed number of hooks fished. The green turtle (*Chelonia mydas*) accounts for 62% of the interactions, followed by the loggerhead turtle (*Caretta caretta*) (35%) and the olive ridley turtle (*Lepidochelys olivacea*) (3%). No data on the fate (released dead, alive, or alive with injuries) of the turtles that interacted during this period has been provided to the team. Previous reports (2008-2016) showed different patterns, and due to the inconsistencies, IATTC data was reviewed. The table shows that observed interactions in 2021 were 14 Olive Ridley turtles, 7 green turtles, and 2 Hawksbill turtles. Those differences cannot be attributed to data presented in MPCEIP (2022e), including both types of longline gear (LL-TBS and LL-DOL). Based on this, turtles were considered data-deficient species (DD), and RBF shall be triggered for its assessment.

Conservation and management measures

At a national level, all marine turtles have been protected species by the State of Ecuador since 1990. This includes targeting, processing, and trading these species. By 2014, the National Plan for the Conservation of Sea Turtles (PNCTM) was officially publicized. By 2021, the resolution MAAE-SPN-2021-001 approved and officialised the Action Plan for the Conservation of Sea Turtles in Ecuador 2021-2030, which will be the technical tool to implement efforts and initiatives to conserve these species. Finally, the country is a signatory party of the Inter-American Convention for the Protection and Conservation of Sea Turtles (CIT). Several Resolutions for conserving the marine turtles in the Eastern Pacific Ocean have been adopted within the CIT framework.

Sharks

Silky shark (*C.falciformis*) ratios range from 0.1 to 2.9 kg of silky shark for every ton of dolphinfish caught between 2017-2022, with hammerhead shark (*S.zygaena*) and the Pacific eagle ray (*Aetobatus laticeps*), both only in 2017 (the ratios were 0.2 kg of smooth hammerhead shark for every ton of dolphinfish and 0.003 kg of Pacific eagle ray). Based on the limited specific information from different sources, all protected sharks were considered data-deficient species (DD), except the silky shark (*C.falciformis*) (Rios et al., 2024). In the case of the silky shark, a national regulation passed in 2022 allows longline fisheries to retain incidentally caught individuals if they account for $\leq 20\%$ of the total catches (in weight) per fishing trip. Since this threshold is well above the historical bycatches of this species in this fishery, landing data is considered a reliable data source to assess the impact of this fishery on this species.

Management measures

In Ecuador, article 152 of the LODAP prohibits targeting any species of elasmobranchs, as well as the manufacture, transport, importation, and commercialization of fishing gears used to target these resources and shark finning. In addition, executive decree N°486 prohibits directed shark fishing, shark-finning, and the use of steel leaders, the retention on board of whale sharks (*Rhincodon typus*), basking sharks (*Cetorhinus maximus*), white sharks (*Carcharodon carcharias*), sawfish or catfish (*Pristis spp.*) is prohibited. Extra ministerial agreements regulate the retention on board of other species., such as the Spotted eagle ray (*Aetobatus laticeps*) and Snouted eagle ray (*Myliobatis longirostris*) that is prohibited, smooth hammerhead shark (*Sphyrna zygaena*), Scalloped hammerhead (*S.lewini*), Bonnethead (*S.tiburo*), Great hammerhead (*S.mokarra*) and Oceanic whitetip shark (*C.longimanus*) is prohibited. In addition, the Ministerial Agreement N°MPCEIP-SRP 2022-0002-A says that the retention of silky sharks on board purse seiners is prohibited, and incidental catches by longliners authorized for targeting large pelagic fish shall be lower than 20% of the total catches (in weight) per fishing trip.

The National Action Plan for the Conservation and Management of Sharks was adopted as a policy in 2018. The specific objectives are listed below (quoted from Agreement MPCEIP-SRP-2022-0068-A):

- Objective 1. Implement a fishing information system. Define and implement an information system that ensures data automation from its capture to its commercialization and that, by integrating the data throughout the chain and with information from external entities, allows cross-data analysis and report generation. resource condition.
- Objective 2. Determine inventories, distribution, habitats, and Threatened populations. Establish inventories of shark populations and their spatial-temporal distribution within Ecuador's maritime territory (coastal and insular). Determine critical habitats and particularly threatened populations.
- Objective 3. Establish applied research programs focused on supporting decisions for sustainable management. Systematize a Scientific Research process for which the related entities, the SRP and IPIAP, must structure and execute a Research Plan considering various local, national, and regional actors. This objective also seeks to structure scientific links with specialized entities worldwide (NOAA, IATTC, IFREMER).
- Objective 4. Develop adaptive management measures (technical and regulatory). Update management measures, both technical and regulatory, based on the information generated from Objectives 1, 2, and 3, generating a system of cyclical improvement of the regulatory framework with dynamic, timely, and precautionary characteristics. For this purpose, there must be capacity in human resources and data management that allows the analysis and issuance of indicators about the sustainability and recovery of the resource. This Objective also seeks to develop Binational and Regional coordination mechanisms for approving National PATs (of their actions) and regulations with neighbouring countries.
- Objective 5. Develop and implement an extension program focused on sustainable management of the shark resource. Develop capacities and establish an extension and education program on the sustainable conservation of sharks, rays, guitars, and chimeras throughout Ecuador's maritime territory.
- Objective 6. Improve surveillance, control, and enforcement of applicable regulations. Prevail the application of the regulations in fishing activities and make the compliance process more expeditious by updating the regulations and their entry into force through fishing inspectors and control agencies. Improve the effectiveness of the control of fishing gear to minimize incidental catches. Likewise, better coordination should be sought with the Environmental Authority to protect species in danger of extinction or with levels of protection. Improving Control and Surveillance will require a close and automated exchange of information with the Police, the Ecuadorian Navy, and the Environmental Authority, including, in particular, the records of infractions and the elaboration of user risk profiles.

Seabirds

Bycatch in longline fisheries is considered one of the main threats to the conservation of albatrosses and petrels worldwide (Jimenez et al., 2012). Considering that the fishery operates across an enormous area in oceanic waters, where different species of albatrosses and petrels protected by the Agreement on the Conservation of Albatrosses and Petrels (ACAP) are known to dwell. Thus, seabirds will also be considered ETPs to be assessed in this report.

Management measures

The International Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds) is a voluntary tool elaborated by FAO within the Code of Conduct for Responsible Fisheries framework. The plan mentions that States should carry out a set of activities. In addition, the IATTC Resolution C-11-02 to mitigate the impact on seabirds of fishing for species covered by the IATTC sets that CPCs shall report to the IATTC on their implementation of the IPOA-Seabirds, including the status of their National Plans of Action for reducing incidental catches of seabirds in longline fisheries. Besides, CPCs shall require their longline vessels of more than 20m in length that use hydraulic, mechanical, or electrical systems and that fish covered by the IATTC in the EPO within the areas shown. The regulation also encourages CPCs to establish observer programs on longline fleets to gather information on seabird interactions. Annual reporting on the recorded interactions is mandatory.

Marine mammals

Interactions with marine mammals occur more frequently in passive fisheries gear, such as gillnets than in active gears, such as trawling (Read, 2005). Among passive gears, gillnets cause higher mortalities in marine mammals than longlines. However, regular interactions with surface longlines, either by getting hooked or entangled in buoy lines or main lines, have been documented in similar fisheries worldwide (Passadore et al. 2015). Considering the low observer coverage, the information on the impact of the UoA on marine mammals cannot be analytically determined.

Management measures

Ecuador protected all whales within its EEZ through the Ministerial Agreement 196 passed in June 1990 and more recently extended this protection to all marine mammals through the Ministerial Agreement MPCEIP-SRP-2021-0238-

A. Fishers are required to record all interactions with marine mammals in their logbooks (Article 225, Executive Decree N° 362), and observers are also required to report all observed interactions. Thus, marine mammals will also be considered ETPs to be assessed in this report. At the international level, Ecuador has signed and ratified the Agreement on the International Dolphin Conservation Program (AIDCP), a legally binding multilateral agreement. The IATTC provides the Secretariat for the program, which covers the Eastern Pacific Ocean.

Commonly encountered habitats

Considering that the fishery takes place at around 9-14 m depth, the epipelagic habitat in the Southeastern Pacific Ocean is considered the most commonly encountered habitat for this assessment. The gear does not directly interact with the habitat.

Ecosystem impacts

The marine biodiversity in the Humboldt Current (Miloslavich et al., 2011) identified three zones of high richness for this region: the northern Peruvian coast between, (b) the northern Chilean coast between, and (c) the southern Chilean. The current diversity of the HC includes more than 10,000 species. Dolphinfish play an important role in epipelagic ecosystems since they may delineate the structure of the food webs through top-down controls. Trophic studies carried out in the Northern Pacific Ocean, Atlantic Ocean, and Mediterranean Sea have revealed that *C. hippurus* feeds on a wide variety of fish and invertebrate pelagic organisms (Oxenford & Hunte, 1999; Tripp-Valdez et al., 2015), and so has been defined as a non-selective and generalist predator (Massutí et al., 1998; Castriota et al., 2007). The diet and the feeding habits of *Coryphaena hippurus* in the Pacific coast of Ecuador were assessed by examining 320 stomachs of individuals ranging from 51 to 149 cm in total length (Varela et al., 2016). Fish was the predominant prey group in the diet, followed by cephalopods and crustaceans. Among the 17 prey items that made up mahi mahi's diet, *Dosidicus gigas* is the most abundant invertebrate species. The results of this study indicate that mahi mahi is an opportunistic feeder capable of consuming a wide variety of schooling epipelagic organisms (Varela et al., 2016).

According to Varela et al. (2016), in the Ecuadorian Pacific, mahi mahi has a varying degree of specialization on different prey taxa. *Hippocampus hippocampus*, *Lagocephalus lagocephalus*, *Gobiidae* and *Argonauta sp.* showed low occurrence and low prey-specific abundance (lower left), suggesting that all these species are unimportant and rare prey. *Scombridae*, *Pleuroncodes planes*, *Portunus xantusii*, and *Opisthonema liberate*, showed low occurrence and high prey-specific abundance (upper left), indicating a low number of individuals predate them. *Exocoetidae*, located in the upper central area of the graph, may be considered the most important prey species since it was found in a high percentage of stomachs (i.e., 39.39%). Even though some individuals predated on a small proportion of prey, many fed on the dominant taxa (*Exocoetidae*).

Marine Protected Areas

Ministerial agreement 134 of July 24, 2007, declared the area from the shore of Ecuador's continental coast profile up to a nautical mile into the sea a Reserve Area for producing bioaquatic species. In this reserved area, there is allowed:

- The collection, extraction, or manual capture of crustaceans and mollusks by traditional artisanal fishers.
- Traditional artisanal fishing gear, such as cast nets ("atarraya") or hand lines, is used.
- Sport fishing with a hand line and/or fishing rod.
- Capture of oysters or other mollusks by freediving.
- Non-extractive sport diving.
- Extractive APNEA sport diving or freediving.
- Extracting existing resources under all fishing modalities is only for scientific purposes.

In addition, Ministerial Agreements 2305 RO #3 and 080 declared a fishing area (within eight nautical miles) reserved exclusively for artisanal fishers. Artisanal fishers and the industrial shrimp (*Protrachypene precipua*) trawling fishing fleet are allowed to fish within this fishing area, subject to the Fishing Law and its Regulations. Finally, the country is part of the East Tropical Pacific Marine Corridor (CMAR), whose objectives are to promote the management and conservation of marine resources, improve and consolidate the management of Marine Protected Areas that make up the corridor, and establish a regional framework that facilitates the development and integral management of the corridor compatible with national policies and laws (León Cabrera, 2018)¹.

Among these protected areas is the Hermandad Marine Reserve, with an area of 60,000 km², which was adopted in 2022. This MPA complements the existing Galapagos Marine Reserve and connects it with the Cocos Island MPA in Costa Rica. The marine protected areas in the South Eastern Pacific Ocean, where the UoA fishery operates, are shown in the figure below. The protected habitats susceptible to being affected by the fleet being assessed are either the Galapagos Islands or coastal habitats, which are unlikely to be impacted by the doradero (thin surface longline), whose

¹ <https://www.iucn.org/es/content/corredor-marino-del-pacifico-este-tropical-cmar>

hooks are set around 6-13 m depth (Martínez-Ortiz & Zúñiga-Flores, 2012; Martínez-Ortiz et al., 2015) in oceanic waters as far as 100 W, west of the Galapagos Islands.

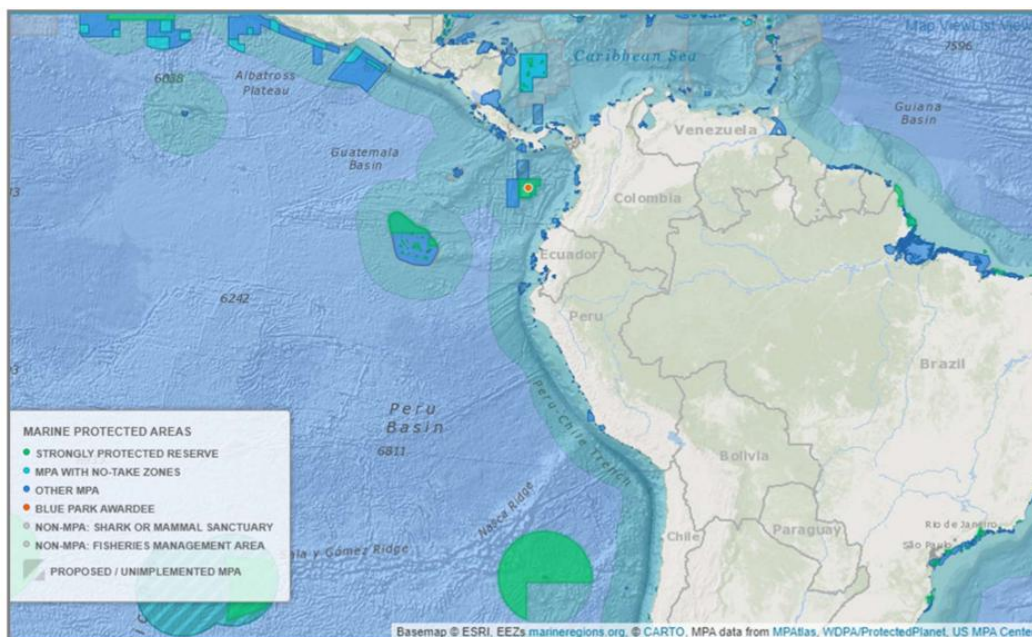
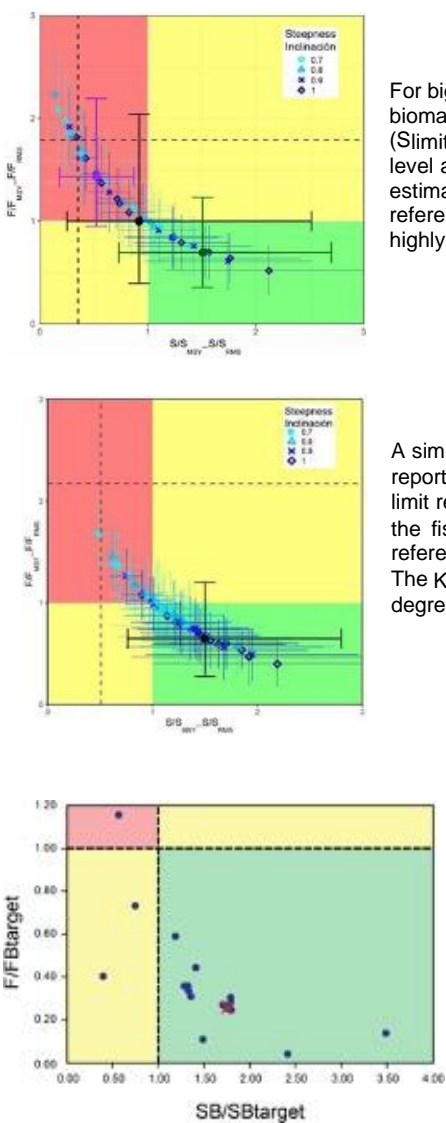


Figure 8. Marine protected areas in the Eastern Pacific Ocean (Source: MPAtlas website <https://mpatlas.org/mpaguide/>)

Principle 2 Performance Indicator scores and rationales

PI 2.1.1 – Primary species outcome

PI 2.1.1		The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI		
Scoring issue		SG 60	SG 80	SG 100
a	Main primary species stock status			
	Guide post	Main primary species are likely to be above the PRI. OR If the species is below the PRI, the UoA has measures in place that are expected to ensure that the UoA does not hinder recovery and rebuilding.	Main primary species are highly likely to be above the PRI. OR If the species is below the PRI, there is either evidence of recovery or a demonstrably effective strategy in place between all MSC UoAs which categorise this species as main , to ensure that they collectively do not hinder recovery and rebuilding.	There is a high degree of certainty that main primary species are above the PRI and are fluctuating around a level consistent with MSY.
	Met?	NA	NA	NA
Rationale		Based on the available information, no primary species that fulfil the MSC definition were identified. For this reason, this PI does not apply and it is not scored.		
b	Main primary species stock status			
	Guide post			Minor primary species are highly likely to be above the PRI. or If below the PRI, there is evidence that the UoA does not hinder the recovery and rebuilding of minor primary species.
	Met?			EPO BET: Yes EPO YFT: Yes EPO SKJ: Yes

PI 2.1.1	The UoA aims to maintain primary species above the point where recruitment would be impaired (PRI) and does not hinder recovery of primary species if they are below the PRI	
Rationale	<p>EPO bigeye (Thunnus obesus), EPO yellowfin tuna (T.albacares), and EPO skipjack tuna (Katsuwonus pelamis)</p>  <p>For bigeye tuna, a 2019 assessment was available and reported that spawning biomass (S) of bigeye ranged from 51% to 532% of the limit reference level (Slimit). The results also showed that Scurrent ranged from 14% to 212% of the level at dynamic MSY. A Kobe plot was included and showed the most recent estimates of spawning biomass (S) and fishing mortality (F) relative to their MSY reference points. Based, on the information included in the evaluation, is highly likely (>80th%) that the stock is above PRI.</p> <p>A similar report for EPO Yellowfin was available (Minte-Veral et al., 2020). The report, showed that spawning biomass (S) ranged from 145% to 345% of the limit reference level (Slimit). It also indicated that during the period 2017-2019, the fishing mortality (F) of yellowfin ranged from 22% to 65% of the limit reference level (Flimit), and no models suggested that it was above the limit. The Kobe plot information shared details that led to concluded that there is a high degree of certainty (>80%) that the stock is above PRI.</p> <p>Finally, for the EPO skipjack tuna, Maunder et al. released and interim assessment in 2022. The exercise estimated that the spawning biomass was above the target proxy of 30% of the unexploited spawning biomass under either the static (SBR) or the dynamic (SBR_d) spawning bio- mass ratio. Considering that the IATTC harvest control rule takes uncertainty into consideration, particularly for the limit reference point. The estimates of uncertainty for the reference model do not exceed the limit reference point. Based, on the information discussed above, it is considered there is a high degree of certainty (>80th%) that the stock is above PRI.</p>	
Draft scoring range	≥80	
Information gap indicator	Information sufficient to score PI	
Data-deficient? (Risk-Based Framework needed)	No	

PI 2.1.2 – Primary species management strategy

PI 2.1.2		There is a strategy in place that is designed to maintain or to not hinder rebuilding of primary species, and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch		
Scoring issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place for the UoA, if necessary, that are expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are likely to be above the PRI.	There is a partial strategy in place for the UoA, if necessary, that is expected to maintain or to not hinder rebuilding of the main primary species at/to levels which are highly likely to be above the PRI.	There is a strategy in place for the UoA for managing main and minor primary species.
	Met?	Yes	Yes	No
Rationale		Gear specifications are established within the national legislation that are directly (and indirectly) applicable to the associated species (including the minor primary species). Landing data collected can be used to confirm if measures maintain the level of bycatches of all non-targeted species at low levels. Finally, the IATTC has a set of management measures that aim to support the status of the stock status and have in place systems to monitor and review the effectiveness of the measures. The combinations of all these measures can be considered a partial strategy, but specific management actions that considered stock conditions, are still needed. The SG80 is met.		
b	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the fishery and/or species involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the fishery and/or species involved.
	Met?	Yes	Yes	No
Rationale		The current combination of measures that can be considered a partial harvest strategy is implemented by restricting the fishing effort of the entire purse seine fishery for yellowfin, bigeye and skipjack. Since this fishery is responsible for over 90% of the tropical tuna catches in the EPO it is considered likely to work. In addition, the resolution C-16-02 provides a decision-making framework based precautionary reference points. The quality of the stock assessments, risk analysis of different and continuous monitoring of fishery indicators performed by the scientific staff of the IATTC and peer-reviewed by the SAC provides objective basis for confidence that the partial strategy will work. SG80 is met.		
c	Management strategy implementation			
	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its overall objective as set out in scoring issue (a) .
	Met?		Yes	Yes
Rationale		Based on the available information, the measures in place (e.g., authorized hooks, closed season, closed census) are being implemented successfully, and bycatch of non-target species are kept are low levels. The UoA catches of each of the tropical tuna species are almost negligible at EPO stock level. However, there might be an issue of non-compliance with the bigeye tuna catch limit in Ecuador when the catches of the LL-TBS are included. Overall, the SG100 for this UoA is considered met.		
d	Shark finning			
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.
	Met?	NA	NA	NA
Rationale		There are shark species among the primary components impacted by the UoA. This SI is not applicable		
e	Review of alternative measures			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main primary species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all primary species, and they are implemented, as appropriate.
	Met?	NA	NA	NA
Rationale		The only primary species caught by the UoA are tropical tunas. These are highly valuable species which are caught in low volumes. There is no incentive for discarding and, as far as the team is aware, there are no discards. Thus, this SI is not applicable.		
Draft scoring range		≥80		
Information gap indicator		Information sufficient to score PI		

PI 2.1.3 – Primary species information

PI 2.1.3		Information on the nature and extent of primary species is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage primary species		
Scoring issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impact on main primary species			
	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main primary species.	Some quantitative information is available and is adequate to assess the impact of the UoA on the main primary species with respect to status. OR If RBF is used to score PI 2.1.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main primary species.	Quantitative information is available and is adequate to assess with a high degree of certainty the impact of the UoA on main primary species with respect to status.
	Met?	Yes	Yes	Yes
Rationale		Data is collected and reported as part of the operations, in addition, landings are reviewed by inspectors to get the Certificate of Monitoring and Control of Fisheries Landing (CMCDP). All potential primary species impacted by the UoA would have commercial value and there is no incentive for underreporting or discarding at sea. Thus, the team considers that the available data sources are adequate to assess with a high degree of certainty that the UoA is not impacting on any main primary component.		
b	Information adequacy for assessment of impact on minor primary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor primary species with respect to status.
	Met?			Yes
Rationale		Vessels catch records are mandatory and landings shall be inspected by officials in order to get the Certificate of Monitoring and Control of Fisheries Landing (CMCDP). Based on the information available, only minor primary species are impacted by the UoA, considering that there is no incentive for underreporting or discarding at sea. It is considered that this SG 100 is met.		
c	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage main primary species.	Information is adequate to support a partial strategy to manage main primary species.	Information is adequate to support a strategy to manage all primary species and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Yes	Yes	Yes
Rationale		The available data sources seem adequate to assess with a high degree of certainty that the UoA is not impacting on any main primary component. Landing data confirm that only low volumes of these species are caught using.		
Draft scoring range		≥80		
Information gap indicator		Information sufficient to score PI		

PI 2.2.1 – Secondary species outcome

PI 2.2.1		The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Scoring issue		SG 60	SG 80	SG 100
a	Direct effects			
	Guide post	<p>Main secondary species are likely to be above biologically based limits.</p> <p>OR</p> <p>If below biologically based limits, there are measures in place expected to ensure that the UoA does not hinder recovery and rebuilding.</p>	<p>Main secondary species are highly likely to be above biologically based limits.</p> <p>OR</p> <p>If below biologically based limits, there is either evidence of recovery or a demonstrably effective partial strategy in place such that the UoA does not hinder recovery and rebuilding.</p> <p>AND</p> <p>Where catches of a main secondary species outside of biological limits are considerable, there is either evidence of recovery or a, demonstrably effective strategy in place between those MSC UoAs that have considerable catches of the species, to ensure that they collectively do not hinder recovery and rebuilding.</p>	<p>There is a high degree of certainty that main secondary species are above biologically based limits.</p>
	Met?	<p>Blue shark: Yes</p> <p>Pelagic thresher shark: Yes Pacific blue marlin: Yes</p> <p>South EPO swordfish: Yes</p> <p>Flying jumbo squid: Yes</p>	<p>Blue shark: No</p> <p>Pelagic thresher shark: No</p> <p>Pacific blue marlin: Yes South EPO swordfish: Yes Flying jumbo squid: Yes</p>	<p>Blue shark: No</p> <p>Pelagic thresher shark: No</p> <p>Pacific blue marlin: Yes</p> <p>South EPO swordfish: No</p> <p>Flying jumbo squid: Yes</p>

PI 2.2.1	The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit		
Rationale	<p>Based on the information available, five species can be considered 'main' secondary components: blue shark, pelagic thresher shark, Pacific blue marlin, South EPO swordfish and Flying jumbo squid . The information available for each one of the species was evaluated to score as described below:</p> <p>Blue (<i>Prionace glauca</i>) & Pelagic thresher shark (<i>Alopias pelagicus</i>) Based on the results of the Ecological Assessment for the Sustainable Impacts of Fisheries (EASI-Fish) used by Griffith's et al (2022), that quantify the vulnerability of 32 species of bycatch to the cumulative impacts of multiple fisheries in the EPO. The estimates classified as "most vulnerable" blue and pelagic thresher shark. Considering that F values in 2019 were assessed as F2019/F40% = 4,526 (±1,623), while SBR2019/SBR40% = 0,111 (±0,134); and for the pelagic thresher shark F2019/F40% = 1,903 (±0,084), while SBR2019/SBR40%= 0,446 (±0,037). It was considered that both sharks were likely to be above biologically based limits. In addition, considering that landing data show that level of bycatches of all non-targeted species had remained at low levels (both species averaging ~4% of the total volume landed by the UoA between 2013 and 2021). However, the status of the assessed stocks is not above their biological limits, so SG80 was not met.</p> <p>Pacific blue marlin (<i>Makaira nigricans</i>) The most recent assessment of the status (IATTC, 2022) indicated that stock biomass of blue marlin in the Pacific was 17% above SSBMSY, while fishing mortality was 50% of FMSY. Neither overfished nor subject to overfishing. However, there has been a recent increasing trend on landings, so it is not possible to confirm with a high degree of certainty that the stock is above PRI.</p> <p>South Pacific swordfish (<i>Xiphias gladius</i>) Minte-Vera et al. (2022) conducted assessments on the species considering different structures of the stock in the Pacific. The results found that the stock was above the limit references, such as the equilibrium point for tropical tunas (S0.5R0), or the dynamic reference point of 20% unfished biomass. However, it was found that the stock was approaching to the target reference point of 40% unfished biomass, so the uncertainty remained at a level of SG80.</p> <p>Flying jumbo squid (<i>Dosidicus gigas</i>) Roa-Ureta and Wiff (2022) indicate that the biomass dynamics of the stock in the region were driven by environmental cycles connected to the ENSO. Most recent harvest rates during warm, ENSO years as well during cold, normal periods, have been well below the sustainable harvest rates of each period. According to Roa Ureta and Wiff (2022), this result combined with high escapement biomass at the end of the last season in the time series (2020) indicates that the stock is not over-fished and not undergoing over-fishing. SG80 are met.</p>		
b	Minor secondary species stock status		
	Guide post		Minor secondary species are highly likely to be above biologically based limits. OR If below biologically based limits', there is evidence that the UoA does not hinder the recovery and rebuilding of secondary species
Met?		Striped marlin: Yes Shark species (14 spp.): No Ray species (2 spp.) & bony fish (13 spp.): RBF needed	

PI 2.2.1	The UoA aims to maintain secondary species above a biologically based limit and does not hinder recovery of secondary species if they are below a biological based limit	
Rationale	<p>Several minor secondary species were found to be impacted by the UoA, biologically based limits are available for some of these species, derived either from analytical stock assessment (i.e., striped marlin) or using empirical approaches such as ecological risk assessments (shark species). However, for the remaining components (Pompano dolphinfish, wahoo, black skipjack, striped bonito, black marlin, Indo-Pacific sailfish, short bill spearfish, escolar, pelagic stingray, longtail stingray.) there are no reference points available, so they are considered as Data Deficient (DD)</p> <p>EPO Striped marlin (<i>Kajikia audax</i>) The last full assessment of striped marlin was conducted in 2008, using Stock Synthesis, and later updated with data through October 2010 (IATCC, 2022) it was reported that the stock was not overfished; overfishing was not occurring; and the spawning stock biomass was above the level that would support MSY. More recently, average catches during 2016–2020 (1,735 t) were at about half the estimated MSY level in 2010. If fishing effort and catches continue at the 2010 level (2,129 t), it is expected that the biomass of the stock will continue to increase over the near term (IATTC, 2022). According to IATTC (2022), efforts continue to obtain reliable catch data from all fisheries. Until the data are available and updated, and a review of the status of striped marlin in the EPO is completed, the IATTC recommends that, as a precautionary measure, fishing effort by fisheries that take the majority of the striped marlin catch in the EPO not be increased. Average annual catches for the period 2013-2022, with a peak to 133t in 2016, based on these SG100 is met.</p> <p>Shark species Griffith et al (2022) quantified the vulnerability of bycatch species to the cumulative impacts of multiple fisheries in the EPO. Estimates of a proxy for fishing mortality (F2019) and the spawning stock biomass per recruit (SBR2019) in 2019 exceeded biological reference points (F40% and SBR40%) for 20 species, classifying them as “most vulnerable”, including bigeye thresher shark (<i>Alopias superciliosus</i>), bull shark (<i>C.leuca</i>), blacktip shark (<i>C.limbatus</i>), whitenose shark (<i>Nasolamia velox</i>), lemon shark (<i>Negaprion brevirostris</i>), shortfin mako shark (<i>Isurus oxyrinchus</i>), bigeye sand tiger shark (<i>Odontaspis noronhai</i>), Crocodile shark (<i>Pseudocarcharias kamoharai</i>), Tope shark (<i>Galeorhinus galeus</i>). Based the information available, SG60 is not met by the minor secondary shark species impacted by the UoA.</p> <p>Data deficient species: Bony fish and ray species Since there are no biologically based limits established and the status remain unknown for the rest of the minor species all can be classified as Data Deficient species, and RBF shall be triggered for assessing their status against this SI. However, PF4.1.4 allows the team to avoid conducting RBF on ‘minor’ species when evaluating PI2.1.1 or 2.2.1 as far as final PI score is adjusted downward according to clause PF5.3.2. Due to the high number of different species to be assessed as minor secondary species the assessment team decided to take this option. Therefore, in accordance with PF5.3.2.1 the final PI score shall not be greater than 80.</p>	
Draft scoring range	60-79	
Information gap indicator	More information sought: Quantitative information of the volume of each of the bait used is needed.	
Data-deficient? (Risk-Based Framework needed)	No	

PI 2.2.2 – Secondary species management strategy

PI 2.2.2		There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch					
Scoring issue		SG 60		SG 80		SG 100	
a	Management strategy in place						
	Guide post	There are measures in place, if necessary, which are expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a partial strategy in place, if necessary, for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be above biologically based limits or to ensure that the UoA does not hinder their recovery.	There is a strategy in place for the UoA for managing main and minor secondary species.			
	Met?	Squid Bait: Yes All other species: Yes	Squid Bait species: Yes All other species: Yes	Squid Bait species: No All other species: No			
Rationale		<p>Squid species The SPRFMO issued in 2020 a Conservation and Management Measure (CMM) on the Management of the Jumbo flying squid (CMM 18-2020). This CMM states that only vessels duly authorized shall participate in the fishery for jumbo squid, and sets some data collection and reporting requirements to improve the knowledge of the fishing effort on this species, and also sets monitoring and control requirements (including observer coverage). At the national level, fishing operations and catches are recorded, so fishing operations for bait species are also recorded. SG60 is met.</p> <p>All other species (30spp.) There are in place some management measures affecting all non-target species caught by the UoA, e.g., data reporting obligations (mandatory logbooks, observer program in place, and inspections at port to obtain the landing certificate. In addition, shark lines are prohibited and the use of steel leaders is also prohibited at national level since 2007. The country developed its first National Action Plan for sharks' management and conservation (PAN-EC) in 2013, valid for a period of 5 years. The IATTC Resolution-19-08 states that each CPC shall ensure that at least 5% of the fishing effort made by its longline fishing vessels greater than 20m length carries a scientific observer. Finally, the IATTC performs analytical stock assessments for the blue marlin and swordfish (sometimes in collaboration with other RFMOs), and also a comprehensive risk assessment for 32 shark species, including the blue shark and the pelagic thresher shark. Based on the above, it can be considered that there is a strategy in place for managing main species, thus SG80 is met.</p>					
b	Management strategy evaluation						
	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/species).	There is some objective basis for confidence that the measures/partial strategy will work, based on some information directly about the UoA and/or species involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or species involved.			
	Met?	Bait species (5 spp): Yes Other species (28 species): Yes	Bait species (5 spp): No Other species (28 species): No	Bait species (5 spp): No Other species (28 species): No			
Rationale		<p>The available information on the ratio volume of bait used/UoA landings indicates that the volume is kept at low levels (between 7 and 20 tons of bait). Similarly, the current measures and data available for catch composition indicated that it is likely to work has low levels of bycatch.</p> <p>However, the fishery still impacts on several shark species are not in a good condition, as shown in Griffiths et al. (2022) as well as the status of some of the bait species. More information is needed to have more objective basis of confidence. This SG meets only SG60.</p>					
c	Management strategy implementation						
	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) .			
	Met?		Bait species (5 spp): Nos All other species (28 spp): No	Bait species (5 spp): Nos All other species (28 spp): No			
Rationale		Evidence that the fleet is accurately recording the volume of bait species purchased and bycatch species is not comprehensive. There is a need to confirm this with more data, for this reason this SG at 80 were not met.					
d	Shark finning						
	Guide post	It is likely that shark finning is not taking place.	It is highly likely that shark finning is not taking place.	There is a high degree of certainty that shark finning is not taking place.			
	Met?	Yes	Yes	No			
Rationale		Shark finning is prohibited at national level as well as internationally. To monitor this, the Vice Ministry of Aquaculture and Fisheries, has a permanent monitoring system, currently carried out by 273 fisheries inspectors at the national level, assigned to the different ports, recording the target catch, incidental catch, catch volumes and other data of interest such as vessel data, departure and arrival dates. Regarding sharks, inspectors confirm that sharks with fins attached are offloaded. Only after this check, the CMCDP is issued, and this is the enabling document for the issuance of the Shark Bycatch Mobilization (GMPIT). The Monitoring Certificate and the					

PI 2.2.2	There is a strategy in place for managing secondary species that is designed to maintain or to not hinder rebuilding of secondary species and the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of unwanted catch			
	Mobilization Guide are mandatory documents to transport and market the product internally or externally. In addition, and despite, the low observer coverage (>20%), the Executive Decree 486/2007 requires that all shark landings are with fins naturally attached. The MSC recognizes that this type of policy is the most rigorous approach to ensuring that shark finning is not occurring (GSA2.4.5-2.4.7), based on this is it highly likely that shark finning is not taking place, but more evidence is required to achieve SG100.			
e	Review of alternative measures to minimise mortality of unwanted catch			
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of main secondary species and they are implemented as appropriate.	There is a biennial review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of unwanted catch of all secondary species, and they are implemented, as appropriate.
	Met?	NA	NA	NA
Rationale	Blue and pelagic thresher sharks, as well as blue marlin and swordfish are highly valuable species which are caught in low volumes. There is no incentive for discarding and, as far as the team is aware, there are no discards. Thus, this SI is not applicable.			
Draft scoring range	60-79			
Information gap indicator	More information sought			

PI 2.2.3 – Secondary species information

PI 2.2.3		Information on the nature and amount of secondary species taken is adequate to determine the risk posed by the UoA and the effectiveness of the strategy to manage secondary species		
Scoring issue		SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts on main secondary species			
	Guide post	Qualitative information is adequate to estimate the impact of the UoA on the main secondary species with respect to status. OR If RBF is used to score PI 2.2.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for main secondary species.	Some quantitative information is available and adequate to assess the impact of the UoA on main secondary species with respect to status. OR If RBF is used to score PI 2.2.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for main secondary species.	Quantitative information is available and adequate to assess with a high degree of certainty the impact of the UoA on main secondary species with respect to status.
	Met?	Yes	Yes	No
Rationale		Onboard observer's records show that all the species that are considered secondary main species have an important commercial value and there is no incentive for underreporting or discarding at sea. IATTC uses the quantitative information to monitor the status of these species so, SG80 requirements are met. However, more information is required to have a higher degree of confidence of the impacts on these species' status.		
b	Information adequacy for assessment of impacts on minor secondary species			
	Guide post			Some quantitative information is adequate to estimate the impact of the UoA on minor secondary species with respect to status.
	Met?			No
Rationale		Just qualitative information of the volume bait used by the fleet are available (SRP. 2023). In addition, excepting flying jumbo squid, the status of the other bait species its unknown. Thus, SG100 is not met.		
c	Information adequacy for management strategy			
	Guide post	Information is adequate to support measures to manage main secondary species.	Information is adequate to support a partial strategy to manage main secondary species.	Information is adequate to support a strategy to manage all secondary species, and evaluate with a high degree of certainty whether the strategy is achieving its objective .
	Met?	Yes	Yes	No
Rationale		General available data (i.e., landing data collected by the inspectors, observers' data, and the IATTC assessments) can be considered enough to adequately support the management of main secondary species. However, more data needs to be generated to effectively confirm that management of all secondary species is achieving its objective.		
Draft scoring range		60-79		
Information gap indicator		Information sufficient to score PI		

PI 2.3.1 – ETP species outcome

PI 2.3.1		The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species		
Scoring issue		SG 60	SG 80	SG 100
a	Effects of the UoA on population/stock within national or international limits, where applicable			
	Guide post	Where national and/or international requirements set limits for ETP species, the effects of the UoA on the population/ stock are known and likely to be within these limits.	Where national and/or international requirements set limits for ETP species, the combined effects of the MSC UoAs on the population /stock are known and highly likely to be within these limits.	Where national and/or international requirements set limits for ETP species, there is a high degree of certainty that the combined effects of the MSC UoAs are within these limits.
	Met?	Yes	No	No
Rationale		Based on the data available, at least 13 ETP species were found to interact with the UoA based (5 marine turtles and 8 shark and ray species). With the only exception of the silky shark (<i>C.falciformis</i>), retention on board of any of those species is prohibited by national and international regulations and all incidental interactions shall be returned to the sea and reported (see ETP section for more details). However, there is no limit to the incidental interactions and therefore this SI is Not Applicable to any of the other ETPs considered in this assessment. For Silky shark, the IATTC Resolution C-21-06 and the Ministerial Agreement MPCEIP-SRP 2022-0002-A, set limits to the catches of silky sharks. Data from landings recorded between 2013 and 2022 (except for 2018 and 2019 which were not available), confirmed that silky shark accounted for a range of <0,0 and 2,3% of the total annual catches (in weight). In addition, observers' data showed that the annual contribution of silky between 2017 and 2021 ranged between 0 and 0,07%. All these sets of data indicate that it is likely that the UoA meets the legal requirements and it is likely that the fishery (LL-Dol and LL-TBS) is achieving the national requirements. However, considering that there are some requirements to record all discards and bycatches in the logbook, which to be lacking and the reduced coverage on hooks within the fishery (<1%, reported in the fishery PCDR 2024), the SG80 is not met.		
b	Direct effects			
	Guide post	Known direct effects of the UoA are likely to not hinder recovery of ETP species.	Direct effects of the UoA are highly likely to not hinder recovery of ETP species.	There is a high degree of confidence that there are no significant detrimental direct effects of the UoA on ETP species.
	Met?	Yes	Yes	No
Rationale		Among the ETP species considered within the evaluation are eight species of sharks and rays, turtles (five species), seabirds and marine mammals. Overall, the species of sharks presented low ratios within the catches (e.g., Smooth hammerhead shark and the Pacific eagle ray ratios were 0.2 kg). A recent assessment of the vulnerability of sharks caught in pelagic fisheries in the Eastern Pacific Ocean (Griffiths et al, 2022) classified all protected shark species as 'most vulnerable'. Considering the limited coverage of observers which compromises the representativeness of the observations and makes it impossible for the data collected to be scaled to the fleet level, especially in the case of species with very low interaction frequencies, as it the case for the protected sharks. Based on these constraints from the observers' data, the impact of the UoA on the protected sharks cannot be analytically determined, and should be considered as Data Deficient ETP components to be assessed using the RBF. In relation to turtles, although regular interactions with turtles are being recorded by the observers (MPCEIP, 2022c), the frequency of interactions is low, with an average of 0.13 for every 1000 individuals of dolphinfish caught. Green turtle (<i>Chelonia mydas</i>) accounted for 62% of the interactions, followed by the olive ridley turtle (<i>Lepidochelys olivacea</i>) (35%) and loggerhead (<i>Caretta caretta</i>) (3%). On previous year data, olive ridley turtle was the species that accounted for more of the interactions (67%), followed by green turtle (31%). Considering sea turtles life characteristics that make them extremely vulnerable to low levels of catch, and the fact that the number of interactions per observed number of hooks fished is not available, the impact of the UoA on marine turtles cannot be analytically determined, and should be all considered as Data Deficient ETP components that shall be assessed using the RBF. It is unclear if seabird interactions are reported by the observers on board. Overall, qualitative data was reported within the PCDR (2024) and states that interactions are non-existent. However, bycatch in longline fisheries is considered one of the main threats for the conservation of albatrosses and petrels (Jimenez et al. 2012). The authors reported that the combined impact of the longline fleets operating in the Southwestern Atlantic could be sufficiently high to account for many of the observed declines in the populations of 3 species of albatrosses, long-lived and low fecundity species, that are extremely vulnerable (Lewison et al 2004). Since, no detailed data on the interactions is available, and more detailed evidence is needed, this PI achieves a maximum level of SG80 for seabirds. Similarly, to seabirds, no interactions with marine mammals have ever been reported by the observers on board. The low observer coverage compromises the representativeness of the lack of observations, especially in the case of species with very low interaction frequencies, as would be the case of marine mammals. Based on these constraints from the observers' data, the team considers that only SG80 is met for marine mammals.		
c	Indirect effects			
	Guide post		Indirect effects have been considered for the UoA and are thought to be highly likely to not create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental indirect effects of the UoA on ETP species.
	Met?		No	No

PI 2.3.1	The UoA meets national and international requirements for the protection of ETP species The UoA does not hinder recovery of ETP species	
Rationale	Based on available data, it is unclear if indirect effects on ETP species have been considered for the UoA. SG80 is not met	
Draft scoring range	60-79	
Information gap indicator	Information sufficient to score PI	
Data-deficient? (Risk-Based Framework needed)	Yes	

PI 2.3.2 – ETP species management strategy

PI 2.3.2	<p>The UoA has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"> • Meet national and international requirements. • Ensure the UoA does not hinder recovery of ETP species. <p>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species</p>			
Scoring issue	SG 60	SG 80	SG 100	
a	Management strategy in place (national and international requirements)			
	Guide post	There are measures in place that minimise the UoA-related mortality of ETP species, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species.	There is a comprehensive strategy in place for managing the UoA's impact on ETP species, including measures to minimise mortality, which is designed to achieve above national and international requirements for the protection of ETP species.
	Met?	Yes	Yes	No
Rationale	<p>As part of the East Tropical Pacific Marine Corridor (CMAR), Ecuador participates in the promotion and conservation of marine resources (León Cabrera, 2018). In addition, the creation of a MPA corridor in the country aims to ensure the habitat for threatened marine species such as sharks, manta rays, turtles and whales. One of the measures in place that applies to all the fleet is the use of logbooks, that include detailed records of all bycatch, discards, and interactions with marine mammals and seabirds (LODAP, article No. 162 and General Regulation, article No.225). Including species within Appendix II of CITES to curb international trade. In relation to measures from the IATTC, shark lines and steel leaders are prohibited. In addition, shark finning is prohibited and national legislation mandates that all incidental interactions shall be recorded. Overall, there are measures that can be considered as a strategy to manage the UoA's impact on ETP species. This, include measures to minimise mortality, which is designed to be highly likely to achieve national and international requirements for the protection of silky shark. Thus, SG80 is met.</p>			
b	Management strategy in place (alternative)			
	Guide post	There are measures in place that are expected to ensure the UoA does not hinder the recovery of ETP species.	There is a strategy in place that is expected to ensure the UoA does not hinder the recovery of ETP species.	There is a comprehensive strategy in place for managing ETP species, to ensure the UoA does not hinder the recovery of ETP species.
	Met?	N/A	N/A	N/A
c	Management strategy evaluation			
	Guide post	The measures are considered likely to work , based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/species).	There is an objective basis for confidence that the measures/strategy will work, based on information directly about the fishery and/or the species involved.	The strategy/comprehensive strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.
	Met?	Yes	No	No
Rationale	<p>National and international regulations for Silky sharks recognise that this is an interim limit on which to base conservation and management measures. The IATTC C21-06 specified that at the subsequent meetings of the IATTC in 2023, the scientific staff shall present to the SAC an analysis of the unloading, observer, and long-term sampling program data on the catches of sharks in the fisheries in central America with which they shall also recommend any improvement of the resolution. Based on this, the SG60 is met.</p> <p>In relation to the other protected sharks: The strategy previously described is consistent with similar strategies adopted in other fisheries. In addition, landing and observers' data confirm that the longlines are highly selective gear and interactions with protected sharks occur at a low frequency rate.</p> <p>Similarly, for sea turtles, the strategy in place is consistent with similar strategies adopted in other fisheries. In addition, observers' data confirms that the gear is highly selective and interactions occur at a very low frequency rate. Thus, SG60 is met.</p> <p>Regarding, seabirds, the measures in place are also consistent with similar strategies adopted in other fisheries. Thus, SG60 is met. Which is similar to the case of interactions with marine mammals, where interactions have been reported as non-existent, but more evidence is needed to back up this statement.</p>			
d	Management strategy implementation			
	Guide post		There is some evidence that the measures/strategy is being implemented successfully.	There is clear evidence that the strategy/comprehensive strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) or (b) .
	Met?		No	No
Rationale	<p>Silky sharks</p> <p>Both landings and observers' data indicate that the rate of bycatches of silky sharks when using LL-DOL is well below he limits set at international and national levels. It is important to remark that these sets of data are previous to the adoption of these catch limits, so there was not incentive for underreporting.</p>			

PI 2.3.2	<p>The UoA has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"> • Meet national and international requirements. • Ensure the UoA does not hinder recovery of ETP species. <p>Also, the UoA regularly reviews and implements measures, as appropriate, to minimise the mortality of ETP species</p>		
	<p>All other protected sharks Data shown in table 7.3.1.3 show that no landings have occurred after a shark species has been prohibited. The presence of observers on board and the mandatory presence of inspectors during offloading should discourage the retention on board or shark finning of any protected shark species. However, as far as the team is aware, the obligation to record all discards and bycatches in the logbook (Article 225, Ex-.Dec 362/2022) is not being followed, and not all their landings are subject to inspection.</p> <p>Turtles As far as the team is aware, the obligation to record all incidental interactions with turtles, seabirds and marine mammals in the logbook (Article 225, Ex-.Dec 362/2022) is not being followed. IATTC C19-04 requires employing at least one of the following mitigation measures: i. Use only large circle hooks, ii. Use only finfish for bait, OR, iii. Another mitigation measure to reduce sea turtle bycatch that has been approved by the Commission. A proposal for such a measure shall be submitted to the Bycatch Working Group at its meeting in the year prior to desired implementation, for review and potential recommendation to the Scientific Advisory Committee (SAC) and approval of the Commission. The use of J-hooks is authorised in Ecuador (Agreement 070/2011), and the Humbolt squid is the most commonly used bait species. Thus, the UoA is not applying neither (i) nor (ii) and, as far as the team is aware Ecuador has not submitted another mitigation measure to the BYC.</p> <p>Seabirds As far as the team is aware, the obligation to record all incidental interactions with turtles, seabirds and marine mammals in the logbook (Article 225, Ex-.Dec 362/2022) is not being followed. The fact that observers have not recorded a single interaction with seabirds during the period 2017-2021 differs from what is expected in a surface longline fishery practiced in such a large area and suggests that the recording of interactions of birds by observers may not be performing correctly.</p> <p>Marine mammals As far as the team is aware, the obligation to record all incidental interactions with turtles, seabirds and marine mammals in the logbook (Article 225, Ex-.Dec 362/2022) is not being followed. The fact that observers have not recorded a single interaction with marine mammals during the period 2017-2021 differs from what is expected in a surface longline fishery practiced in such a large area and suggests that the recording of interactions of marine mammals by observers may not be performing correctly</p>		
e	Review of alternative measures to minimise mortality of ETP species		
	Guide post	There is a review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species.	There is a regular review of the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species and they are implemented as appropriate.
Met?	Yes	Yes	No
Rationale	<p>All protected sharks At IATTC level, first the BYC and now the EBWG compiles data from the CPCs on a regular basis and shall review the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species, such as all protected shark species listed in table 7.3.1.7. The EBWG is now a permanent WG a regular schedule of meetings. In Ecuador, the first PAN-EC was reviewed in 2019 in order to design the new PAT-EC for the period 2020-2024. Most of the regulations on the conservation for protected sharks have been elaborate and passed recently, both at international level and national level. This can be considered as a result of a review process that emphasized the need to adopt stricter regulations to minimize mortality caused by fishing. Thus, SG60 and SG80 are met.</p> <p>Turtles At IATTC level, first the BYC and now the EBWG compiles data from the CPCs on a regular basis and shall review the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of ETP species, such as marine turtles listed in table 7.3.1.7. In 2019 the IATTC issued a new Resolution on the conservation for marine turtles (C-04-07). This Regulation superseded a previous Resolution from 2004 on a 3-year program to mitigate the impact of fishing on turtles. At a national level, Ecuador reviewed its first PNCTM in 2020 and elaborated a new one for the period 2021-2030. Thus, SG60 and SG80 are met.</p> <p>Seabirds and Marine mammals At IATTC level, first the BYC and now the EBWG compiles data from the CPCs on a regular basis and shall review the potential effectiveness and practicality of alternative measures to minimise UoA-related mortality of seabirds and marine mammals impacted by fisheries targeting tuna and tuna-like species within the Convention Area, including surface longline fisheries. The results and conclusions can be extrapolated to the assessed fishery. The only IATTC Resolution on the mitigation of the impacts on seabirds (C-11-02) dates from 2011, and the Ecuadorian fleet using surface longline does not comply with the use of mitigation measures included in that regulation. Ecuador signed and ratified ACAP and elaborated a National Plan of the Conservation of Albatrosses and Petrels in 2007. Thus, SG60 and SG80 are met.</p>		
Draft scoring range	60-79		
Information gap indicator	More information sought		

PI 2.3.3 – ETP species information

PI 2.3.3	Relevant information is collected to support the management of UoA impacts on ETP species, including: <ul style="list-style-type: none"> • Information for the development of the management strategy; • Information to assess the effectiveness of the management strategy; and • Information to determine the outcome status of ETP species 		
Scoring issue	SG 60	SG 80	SG 100
a	Information adequacy for assessment of impacts		
	Guide post Qualitative information is adequate to estimate the UoA related mortality on ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Qualitative information is adequate to estimate productivity and susceptibility attributes for ETP species.	Some quantitative information is adequate to assess the UoA related mortality and impact and to determine whether the UoA may be a threat to protection and recovery of the ETP species. OR If RBF is used to score PI 2.3.1 for the UoA: Some quantitative information is adequate to assess productivity and susceptibility attributes for ETP species.	Quantitative information is available to assess with a high degree of certainty the magnitude of UoA-related impacts, mortalities and injuries and the consequences for the status of ETP species.
Met?	Yes	No	No
Rationale	<p>The impact of the UoA on all ETP species cannot be analytically determined (with the only exception of silky shark) and RBF should be triggered to assess their status against that SI.</p> <p>Silky shark: Griffiths et al (2022) classified most of shark species as 'most vulnerable'. Also, Lennert-Cody et al (2022) updated stock status indicators for this species in the EPO. In the case of the silky shark a national regulation passed in 2022 allows longline fisheries to retain incidentally caught individuals if they account ≤ 20% of the total catches (in weight) per fishing trip. Since this threshold is well above the historical bycatches of this species in this fishery, landing data is considered as a reliable data source to assess the impact of this fishery on this species. Besides, there are also data from observers on board. In both cases, there are available records going back in time to 2013, SG60 is met.</p> <p>For other protected sharks, information to assess productivity attributes on the shark species is available at different open data sources. Besides, recent assessment of the vulnerability of sharks caught in pelagic fisheries in the Eastern Pacific Ocean is also available (Griffiths et al, 2022).</p> <p>The fishery dependent to assess susceptibility is collected mainly in through: - Information generated by the fishing vessels and the data collected by the observers. Based on these sources, there are available records going back in time to 2013, so SG60 is met.</p> <p>Turtles: The assessments on the status of the marine turtles can be used to assess the productivity attributes. As well as the maps generated using VMS data and the interactions recorded by the observers on board the UoA can be used to assess the susceptibility attributes. Thus, SG60 is met.</p> <p>Seabirds and marine mammals: According to qualitative information, there are no interactions of the fishery with neither seabirds nor mammals. SG60 is met. However, the lack of any interaction recorded in a span of 5 years, suggests that the recording of interactions of birds by observers may not be performing correctly. For instance, a project run Apeco in Peru identified that birds were attracted to the lights of the longliners targeting dolphinfish and collide with the vessels. SG80 is not met</p>		
b	Information adequacy for management strategy		
	Guide post Information is adequate to support measures to manage the impacts on ETP species.	Information is adequate to measure trends and support a strategy to manage impacts on ETP species.	Information is adequate to support a comprehensive strategy to manage impacts, minimise mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.
Met?	No	No	No
Rationale	<p>Based on the data available, record all bycatches, discards and interactions with birds, turtles and mammals in the logbook is mandatory (Article 225, Ex- Dec 362/2022), however, it may not been followed. On the PCDR, some discrepancies between the sources consulted to estimate observer coverage were found. Evidence showed that observer coverage to be below 1% of total hooks used. This compromises the representativeness of the observations, in particular with species with low rates of interactions, such as ETP species.</p> <p>Besides, observers' data do not provide the number of interactions per observed number of hooks fished, and do not provide the fate of the interactions (alive/dead). This information is key to be able to extrapolate from the observations the total impact of the fleet, as well as to evaluate the post-release survival rates. It is also key to evaluate the implementation and effectiveness of good practices for handling on board and for the release of species that are included in many of the regulations. While in the case of seabirds and marine mammals the lack of any interaction recorded in a span of 5 years, suggests that the recording of interactions of birds by observers may not be performing correctly. Based on this evidence, observers data may not be adequate to support the measures adopted for the conservation of the ETP. Thus, SG60 is not met.</p>		
Draft scoring range	<60		
Information gap indicator	Information sufficient to score PI		

PI 2.4.1 – Habitats outcome

PI 2.4.1		The UoA does not cause serious or irreversible harm to habitat structure and function, considered on the basis of the area covered by the governance body(s) responsible for fisheries management in the area(s) where the UoA operates		
Scoring issue		SG 60	SG 80	SG 100
a	Commonly encountered habitat status			
	Guide post	The UoA is unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	The UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.	There is evidence that the UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm.
	Met?	Yes	Yes	No
Rationale		The mahi fishery developed with surface longline, takes place between the 6 to 13 m depth (Martínez-Ortiz & Zúñiga-Flores, 2012; Martínez-Ortiz et al., 2015), the epipelagic habitat is the commonly encountered habitat. This habitat suffers of eutrophication and hazardous substances, as well as by natural and human-induced changes in climate (HELCOM, 2018). The fishery, however, has limited to no impact on these characteristics besides the fishing gear losses. Overall, it is highly unlikely that the fishery will reduce the structure and function of the pelagic habitat to a point where there is serious or irreversible damage. Hence, meeting SG80.		
b	VME habitat status			
	Guide post	The UoA is unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	The UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	There is evidence that the UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.
	Met?	NA	NA	NA
Rationale		Based on the operational procedures of the fishery, neither the seabed nor any VMEs are encountered. This SI does not apply to the fishery.		
c	Minor habitat status			
	Guide post			There is evidence that the UoA is highly unlikely to reduce structure and function of the minor habitats to a point where there would be serious or irreversible harm.
	Met?			No
Rationale		Minor habitats are those that do not fall within the classification of Commonly Encountered Habitats or VMEs, in order to score at the level of SG100, a management strategy should be in place even for gears that do not regularly contact benthic habitats since gear loss or unexpected seafloor impacts could occur (Box GSA7). Since no information is being collected regarding this issue, this SI does not reach SG100.		
Draft scoring range		≥80		
Information gap indicator		Information sufficient to score PI		
Data-deficient? (Risk-Based Framework needed)		No		

PI 2.4.2 – Habitats management strategy

PI 2.4.2		There is a strategy in place that is designed to ensure the UoA does not pose a risk of serious or irreversible harm to the habitats		
Scoring issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of all MSC UoAs/non-MSC fisheries on habitats.
	Met?	Yes	Yes	No
Rationale		Considering the fishery's nature, the gear has no known interaction with the bottom (except perhaps in cases of gear loss). In general, there seems that there is no need for specific measures alone or as part of a partial strategy might not be necessary. However, periodic assessments to inform about lost-gear impacts, of the level of impact on "main" habitats and to determine the level of gear loss, and the potential impacts of these losses. Overall, a score to the SG80 is met.		
b	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/habitats).	There is some objective basis for confidence that the measures/partial strategy will work, based on information directly about the UoA and/or habitats involved.	Testing supports high confidence that the partial strategy/strategy will work, based on information directly about the UoA and/or habitats involved.
	Met?	Yes	Yes	No
Rationale		The mandatory reporting of logbooks and satellite monitoring (VMS) allows continuous monitoring. Based on available evidence, these measures provided objective evidence that these are working. However, a full strategy with evidence of limited to no impacts on habitats is not available. So only SG80 is met.		
c	Management strategy implementation			
	Guide post		There is some quantitative evidence that the measures/partial strategy is being implemented successfully.	There is clear quantitative evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective, as outlined in scoring issue (a).
	Met?		Yes	No
Rationale		As stated in Sla, no measures or partial strategy are required, therefore this SG80 is met. But in the absence of a full strategy, SG100 is not met		
d	Compliance with management requirements and other MSC UoAs'/non-MSC fisheries' measures to protect VMEs			
	Guide post	There is qualitative evidence that the UoA complies with its management requirements to protect VMEs.	There is some quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	There is clear quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.
	Met?	NA	NA	NA
Rationale		As mentioned in PI 2.4.1, the fishery takes place only in the epipelagic habitat where there are no VMEs. Therefore, as there are no management requirements to protect VMEs, this SI is not relevant.		
Draft scoring range		≥80		
Information gap indicator		Information sufficient to score PI		

PI 2.4.3 – Habitats information

PI 2.4.3		Information is adequate to determine the risk posed to the habitat by the UoA and the effectiveness of the strategy to manage impacts on the habitat		
Scoring issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	The types and distribution of the main habitats are broadly understood . OR If CSA is used to score PI 2.4.1 for the UoA: Qualitative information is adequate to estimate the types and distribution of the main habitats.	The nature, distribution and vulnerability of the main habitats in the UoA area are known at a level of detail relevant to the scale and intensity of the UoA. OR If CSA is used to score PI 2.4.1 for the UoA: Some quantitative information is available and is adequate to estimate the types and distribution of the main habitats.	The distribution of all habitats is known over their range, with particular attention to the occurrence of vulnerable habitats.
	Met?	Yes	Yes	No
Rationale		Fishing activities are developed in regions that are well characterized by Heileman, 2009 and Heileman et al., 2009. A general description of the offshore pelagic ecosystem of the tropical and subtropical Pacific Ocean, and the oceanographic conditions in the Eastern Pacific Ocean mostly regarding their effects on tuna fisheries are available (IATTC, 2013; 2015; 2019b). Finally, Jiménez – Santistevan (2008) also characterized the equatorial Pacific Ocean between the Galapagos Islands and continental Ecuador. Overall, the main habitat is broadly understood, and considering that there are no vulnerable habitats in the pelagic ecosystem that could be damaged or impacted by the fishing gear, SG80 is also met.		
b	Information adequacy for assessment of impacts			
	Guide post	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear. OR If CSA is used to score PI 2.4.1 for the UoA: Qualitative information is adequate to estimate the consequence and spatial attributes of the main habitats.	Information is adequate to allow for identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. OR If CSA is used to score PI 2.4.1 for the UoA: Some quantitative information is available and is adequate to estimate the consequence and spatial attributes of the main habitats.	The physical impacts of the gear on all habitats have been quantified fully.
	Met?	Yes	Yes	No
Rationale		Due to the nature of the gear used by the UoA allows to confirm that the seabed is not impacted. In addition, taking into account that pelagic habitat's function is mostly determined by their chemical properties (Raymond, 2011), information about the fishery impact on the habitat comes from knowing the fishing methodology and from inferring logically that it does not alter the characteristics of the water column. Therefore, information is adequate to allow for identification of the main impacts of the UoAs on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. SG 80 are met.		
c	Monitoring			
	Guide post		Adequate information continues to be collected to detect any increase in risk to the main habitats.	Changes in all habitat distributions over time are measured.
	Met?		Yes	No
Rationale		The fishery spatial distribution information is collected through the use of satellite data collected by the DIRNEA (National Directorate of Aquatic Spaces). The information allows to define the distribution of the fishing effort, as well as details on catch composition, where managers analysed and monitor and detect changes. In addition, the IATTC considers ecosystem issues on management decisions, with the goal of evaluating the Commission's ecosystem approaches to fisheries, through current tools available to assess the state of the ecosystem (IATTC, 2019b). However, there is not a formal strategy that monitors the impacts of gear loss on benthic habitats, and no information is being collected regarding this issue. Only SG80 is met.		
Draft scoring range		≥80		
Information gap indicator				

PI 2.5.1 – Ecosystem outcome

PI 2.5.1		The UoA does not cause serious or irreversible harm to the key elements underlying ecosystem structure and function		
Scoring issue		SG 60	SG 80	SG 100
a	Ecosystem status			
	Guide post	The UoA is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be serious or irreversible harm.	The UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be serious or irreversible harm.	There is evidence that the UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be serious or irreversible harm.
	Met?	Yes	No	No
Rationale		<p>The available data confirms that the fishery does not impact abiotic elements, while the impacts on key elements of the ecosystem (retained species, bycatch, threatened and protected species and habitats) have already been considered separately in other PIs. However, based on the nature of the fishery, a number of ecosystem elements might be disrupted, including trophic relationships, size composition, biodiversity, and species distribution. The elements considered of primary importance and to be most likely threatened by the longline fishery is the trophic structure.</p> <p>In addition, as the Eastern Tropical Pacific Ocean shows wasp-waist-like structure (i.e., combination of top-down and bottom-up controls by a few abundant short-lived species occupying intermediate trophic levels), fisheries of top predators (such as tunas and billfishes or mahi mahi) that prey upon wasp-waist species could have implications in the pelagic system mechanisms when the biomasses of these particular functional groups are altered (Griffiths et al., 2013). However, the fishery shows a relatively high selectivity, therefore, it is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. However, more information and evidence are needed to have a higher level of confidence that it is unlikely to disrupt the elements.</p>		
Draft scoring range		60-79		
Information gap indicator		More information sought		
Data-deficient? (Risk-Based Framework needed)		No		

PI 2.5.2 – Ecosystem management strategy

PI 2.5.2		There are measures in place to ensure the UoA does not pose a risk of serious or irreversible harm to ecosystem structure and function		
Scoring issue		SG 60	SG 80	SG 100
a	Management strategy in place			
	Guide post	There are measures in place, if necessary which take into account the potential impacts of the UoA on key elements of the ecosystem.	There is a partial strategy in place, if necessary, which takes into account available information and is expected to restrain impacts of the UoA on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.	There is a strategy that consists of a plan , in place which contains measures to address all main impacts of the UoA on the ecosystem, and at least some of these measures are in place.
	Met?	Yes	Yes	No
Rationale		Ecuador is part of the East Tropical Pacific Marine Corridor (CMAR), a regional framework that facilitates the development and integral management of the corridor that is compatible with national policies and laws (León Cabrera, 2018). In addition, a new protected area in Galapagos called the Hermandad Marine Reserve with an area of 60,000 km2 was adopted in 2022. This MPA complements the existing Galapagos Marine Reserve and connects it with the Cocos Island MPA in Costa Rica. This corridor aims to ensure a safe migratory route for many threatened marine species such as sharks, manta rays, turtles and whales. Legislation in place (Agreement 031 from October 8, 2004) states that only thin surface longline (doradero) with hook type “J” of size number 4 or 5, or circular hook of size number 14 or 15 is allowed to prevent incidental catches as much as possible. Finally, Ecuador has specific legislation and management measures to protect sea turtles (Ministerial Agreement 212) and sharks (Executive Decree 486 and 902). Finally, even though no cetaceans have been reported to have interactions with the UoA, the Ministerial Agreement 196 protects cetaceans stating that all species of whales present in territorial waters are considered protected by the State; and any activity that threatens the life of these marine mammals is prohibited. Based on this, at least a partial strategy that takes into account available information and is expected to restrain impacts of the UoA on the ecosystem it's in place. SG80 is met.		
b	Management strategy evaluation			
	Guide post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar UoAs/ ecosystems).	There is some objective basis for confidence that the measures/ partial strategy will work, based on some information directly about the UoA and/or the ecosystem involved.	Testing supports high confidence that the partial strategy/ strategy will work, based on information directly about the UoA and/or ecosystem involved.
	Met?	Yes	No	No
Rationale		The measures adopted in Ecuador were tested through a preliminary MSE exercise and proved that alternative closures and openings have similar general effects on SBR and total yield (Valero et al. 2016). In addition, landing data has shown that are mostly comprised by target species, and gear characteristics ensure that the impact on benthic habitats is restricted to the potential impact of gear loss (which is negligible). Based on the available information, the current measures are considered likely to work. However, the fishery impacts on top predators may have top-down trophic implications and current understanding of the potential impacts are limited, so much detailed is needed.		
c	Management strategy implementation			
	Guide post		There is some evidence that the measures/partial strategy is being implemented successfully .	There is clear evidence that the partial strategy/strategy is being implemented successfully and is achieving its objective as set out in scoring issue (a) .
	Met?		No	No
Rationale		The implementation of management measures on bait and ETP species have shown limited real impacts. For example, data required on bycatch and interactions with ETP species in fish logs is not completed or subject to inspection. In addition, evidence of the use of mitigation measures for reducing mortality of sea turtles detailed is not available. For these reasons SF80 is not met.		
Draft scoring range		60-79		
Information gap indicator		More information sought		

PI 2.5.3 – Ecosystem information

PI 2.5.3		There is adequate knowledge of the impacts of the UoA on the ecosystem		
Scoring issue		SG 60	SG 80	SG 100
a	Information quality			
	Guide post	Information is adequate to identify the key elements of the ecosystem.	Information is adequate to broadly understand the key elements of the ecosystem.	
	Met?	Yes	Yes	
Rationale		In general, the main/key elements of the pelagic ecosystem in the Eastern Pacific Ocean are identified and understood. These include the main components of the trophic structure. Studies on the diet and the feeding habits of <i>C. hippurus</i> in the Northern Pacific Ocean, Atlantic Ocean and Mediterranean Sea (Massuti et al., 1998; Oxenford & Hunte, 1999; Castriota et al., 2007; Tripp-Valdez et al., 2015), as well as in the Pacific coast of Ecuador specifically (Varela et al., 2016) have been conducted. Therefore, information is adequate to broadly understand the key elements of the ecosystem. Thus, meeting SG80		
b	Investigation of UoA impacts			
	Guide post	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, but have not been investigated in detail.	Main impacts of the UoA on these key ecosystem elements can be inferred from existing information, and some have been investigated in detail .	Main interactions between the UoA and these ecosystem elements can be inferred from existing information, and have been investigated in detail .
	Met?	Yes	Yes	No
Rationale		Main interactions of the fishery and the key ecosystem elements can be inferred from existing information and have been investigated in detail both in the Pacific coast of Ecuador and in other places of the world. Based on this the SG 80 is met. However, not all interactions have been investigated in detailed and therefore SG100 is not met.		
c	Understanding of component functions			
	Guide post		The main functions of the components (i.e., P1 target species, primary, secondary and ETP species and Habitats) in the ecosystem are known .	The impacts of the UoA on P1 target species, primary, secondary and ETP species and Habitats are identified and the main functions of these components in the ecosystem are understood .
	Met?		Yes	No
Rationale		The main functions of the components (i.e., target species, associated and ETP species and Habitats) in the pelagic ecosystem in the eastern tropical Pacific Ocean are known. Therefore, SG80 is met. Similarly, some of the impacts on some of these elements have not assessed longline fleet is limited (IATTC, 2019b), but are not understood well enough.		
d	Information relevance			
	Guide post		Adequate information is available on the impacts of the UoA on these components to allow some of the main consequences for the ecosystem to be inferred.	Adequate information is available on the impacts of the UoA on the components and elements to allow the main consequences for the ecosystem to be inferred.
	Met?		Yes	No
Rationale		Enough information on the impacts of the UoA on key components is available and allows to inferred some of the main consequences for the ecosystem. In addition, some studies on the interactions between the UoA and specific ecosystem elements have been conducted (Largacha et al. 2005; Hall, 2007; Read, 2007; Mug et al., 2008; Andraka et al., 2013; MAE, 2014; Martínez–Ortiz et al., 2016; Varela et al., 2016). In addition, a model hypothesis of the eastern tropical Pacific Ocean pelagic ecosystem was carried out. However, better detailed information on retained and discarded bycatch species is needed.		
e	Monitoring			
	Guide post		Adequate data continue to be collected to detect any increase in risk level.	Information is adequate to support the development of strategies to manage ecosystem impacts.
	Met?		No	No
Rationale		The amount of information available is not considered adequate to support measures to manage the impact on ETP species, considering the fact that although there is an obligation to record all bycatches, discards and interactions with birds, turtles and mammals in the logbook, it seems that is not happening. In addition, observer coverage is thought to be below 1% of total hooks and there seems to be an incomplete coverage on information coming from the smaller skiffs. For these reasons SG60 is not met.		
Draft scoring range		60-79		
Information gap indicator		Information sufficient to score PI		

7.6. Principle 3

7.6.1. Principle 3 background

The jurisdictional categories that apply in this assessment for the target species are straddling stocks ('SSS') and highly migratory species ('HMS'), and, therefore, it is a UoA subject to international cooperation to manage the target stock. In the Pacific Ocean, dolphinfish are targeted by longline fleets and caught incidentally by purse seine and longline fleets targeting tuna in waters managed by the IATTC.

Peru and Ecuador are the two main countries catching this species in the indicated area, accounting for 98% of the total catches (IATTC, 2022, page 3). The table below shows the IATTC data for dolphinfish catches in Peru and Ecuador from 2011 to 2021. The fishing gears reported are purse seine and longline. The table shows that from 2011 to 2013, Ecuador accounted for about 33-38% of the total catches. While from 2014 onwards, Peruvian catches account for 94-96% of the total catches. However, catches reported by Peru in 2020 and 2021 are anomalous, probably due to COVID-19.

As dolphinfish are a highly migratory species, Regional Fisheries Management Organisations (RFMO) should normally consider its management at the international level. The IATTC has jurisdiction over the eastern Pacific Ocean but has yet to formally recognize dolphinfish as a species under its responsibility, and to date, it has yet to adopt any managerial decision on this stock. There have been several discussions at the IATTC Commission level regarding the inclusion of dolphinfish in the RFMO jurisdiction for research and management. In the 100th Meeting (1-5 August 2022), Members recognized the importance of dorado as an EPO species and that dorado caught "in association with tuna fisheries" is covered by the Commission. It was also noted, however, that Dorado is seen as different from other stocks the IATTC manages because the primary fishing impact on the species is from Dorado-directed fisheries, largely within exclusive economic zones of CPCs (IATTC, 2022). In the 101st Meeting (7-11 August 2023), there was an attempt to recognize dolphinfish as a tuna-like species, which would have fallen automatically under the IATTC jurisdiction. However, not all IATTC members accepted the position, and thus, dolphinfish management continues to be outside the IATTC auspice (IATTC staff pers. com., 2023).

Nevertheless, an agreement was reached to develop research for the management of dorado (Resolution C-23-09). In the past, IATTC has provided scientific support to compile catch information and assess the status of the Southeast Pacific dolphinfish stock at the request of Peru and Ecuador. In this context, IATTC facilitated collaborative regional research that resulted in three annual regional workshops on dolphinfish from 2014 to 2016. IATTC has also performed stock assessments (Aires-da-Silva et al., 2016) and an exploratory Management Strategy Evaluation for dolphinfish (Valero et al., 2016; IATTC, 2019). The recently agreed Resolution C-23-09 committees IATTC to collate and review Dorado catches from all members and non-members to update the 2016 assessment and the management recommendations for the CPCs by 2026 (subject to the availability of funds and resources).

Ecuador's Constitution of 2008 provides the legal foundations for managing its fisheries. Article 14 declares that preserving the environment and conserving ecosystems are in the public interest. Article 395 declares, "The State will ensure a sustainable model of development, environmentally balanced and respectful of cultural diversity, which preserves biodiversity and the natural regeneration of ecosystems, and ensures that the needs of present and future generations are met." This article and article 396 also affect the precautionary approach in natural resource management. Article 281 states: "Food sovereignty constitutes a strategic objective and an obligation of the state to ensure that individuals, communities, peoples, and nationalities achieve the self-sufficiency of healthy and culturally appropriate foods permanently. The Organic Law for the Development of Aquaculture and Fisheries (Ley Orgánica para el Desarrollo de la Acuicultura y Pesca, Registro- LODAP) approved by Official Register No. 187 on April 21, 2020, constitutes the overarching legal framework to establish the legal regime for the development of aquaculture and fishing activities in all their phases of extraction, harvesting, reproduction, breeding, cultivation, cultivation, processing, storage, distribution, internal and external commercialization, and related activities such as the promotion of the production of healthy food, the protection, conservation, research, exploitation, and use of hydrobiological resources and their ecosystems through the application of the ecosystem fishing approach in such a way as to achieve sustainable and sustainable development that guarantees access to food in harmony with the principles and rights established in the Constitution of the Republic, and respecting traditional and ancestral knowledge and forms of production.

The General Regulation of the Organic Law for the Development of Aquaculture and Fisheries (Reglamento General a la Ley Orgánica para el Desarrollo de la Acuicultura y Pesca) approved by the Executive Decree N° 362, on February 25, 2022, provides the guidelines for compliance and correct application of the LODAP in the country, which has as its governing body the Advisory Council on Aquaculture and Fisheries (see Fisheries Management Institutions section), as an instance of non-binding technical advice, responsible for the monitoring, surveillance and evaluation of public policies in aquaculture and fisheries, as well as promoting and encouraging dialogue between public and private actors in

matters of competence. The General regulation also considers the implementation of roundtable dialogues as an instrument of information sharing and participatory decision-making.

The most relevant Ecuadorian regulations applicable to the assessed fishery are listed below:

- Ministerial Agreement No. 407 of October 12, 2011. (Defines guidelines established for mother-ship vessels).
- Ministerial Agreement No. 070 of May 19, 2011. (Establishes the closed season, permissibility limits during the closed season, minimum size, among other management measures).
- National Action Plan for the Conservation and Management of the Dolphinfinch Resource in Ecuador (PAN Dorado, Plan de Acción Nacional para la Conservación y el Manejo del Recurso Dorado en Ecuador). No. MPCEIP-SRP-2021-0145-A

The Ministerial Agreement No. 023 of February 14, 2011, established the NAP 2011-2016 as a tool that provided guidelines for Dolphinfinch conservation, management, and eco-certification. The design of the National Action Plan (hereinafter "PAN Dorado") was made through a participatory process with the active participation of the following organizations: FENACOPEC¹¹, WWF, ASOEXPEBLA¹², IPIAP¹³, IATTC, EPESPO¹⁴, 16 artisanal fishermen's cooperatives, and 1 artisanal fishing association. The participatory process included national workshops and consultation meetings. During the participatory process, the group identified issues related to the Dolphinfinch fishery and established objectives for the fishery. It structured the following lines of action: i) Management, governance, and financial sustainability; ii) Control and surveillance; iii) Education, capacity building, and communication; iv) monitoring and research; and v) Reduction of bycatch.

To achieve the objectives of the PAN Dorado, several Ministerial Agreements related to direct management measures were implemented, such as establishing minimum sizes, closed seasons, characteristics of fishing gear and authorized vessels, and implementing an observer program. An advisory council of the dolphinfinch (Consejo Consultivo del Recurso Dorado - CCRD) was created to discuss the decision-making system. The Advisory Council was created within the framework of the General Regulations of the Advisory Councils of the Ministry of Agriculture and Livestock (Executive Decree No. 3609, March 20, 2003), which establishes the guidelines for the operation and competence of the Advisory Councils. It establishes that these are spaces for dialogue and instruments of consultation and agreement between the public and private sectors. It also states that Ministerial Agreements must create Advisory Councils and be renewed annually. On the 14th of August, with the agreement N° MPCEIP-SRP-2023-0182-A, a Participatory Governance System for the Dorado fishery (*Coryphaena hippurus*) resource in Ecuador was implemented. This system aims to enhance governance and sustainability in the Dorado fishery in Ecuador through a participatory and science-based approach, creating an Advisory Council for the Dorado Fishery. One of the key goals of the Advisory Council is to oversee and evaluate the implementation, adherence to actively, and results of the Dorado National Action Plan (PAN Dorado) and additional fisheries management measures. This system includes representatives from the administration, fishermen's organizations, and commercialization representatives.

In addition, Executive Decree No. 3609 states that among its objectives is to advise the fishing sector in reaching internal agreements that make viable and increase the efficiency of the relations between the different actors of the productive chain. However, the LODAP and its general regulation (approved in February 2022) established that the spaces for dialogue and participation for the NAPs must be provided through roundtable dialogue. Between March 2012 and March 2013, two international workshops were organized to evaluate PAN Dorado, and the results of these evaluations led to an update on PAN Dorado (2013 version). The main changes were establishing a budget to implement the actions of the 5 objectives and restructuring the action plan grid where the entities responsible for each activity were eliminated. Therefore, the SRP was responsible for all the activities in the action plan (WWF, 2019).

After the evaluation of 2013, no other evaluation was implemented until 2019, when the implementation of the NAP 2011-2016 was assessed and renewed for 2019-2024. The SPR officially approved the PAN Dorado with agreement No. MPCEIP-SRP-2021-0145-A in June 2021. The renewal process included a participatory process to set the goals and lines of action. The main goal of the current PAN Dorado is to ensure the conservation and sustainable use of dolphinfinch resources through the following components: i) management, government, and financial sustainability; ii) monitoring, control, and surveillance; iii) education, capacity building, and communication, and iv) research and development.

Monitoring, Control, and Surveillance system

The LODAP establishes technical measures to ensure the control and traceability of fishery products, including fish product authorities directly and indirectly involved in fishing. Moreover, it establishes technological mechanisms that allow information sharing between management bodies. According to the LODAP, monitoring, control, and surveillance (MCS), activities must be carried out in all places where fishing and related activities are developed and throughout all the phases of the productive chain of the fishing activity. The Ecuadorian Fisheries Authority must have free access to

the facilities, vessels, docks, and any other premises where the activity is carried out and must have access to the information required to fulfill its attributions.

To ensure the MCS of fishing activities, the LODAP establishes diverse mechanisms such as:

- The implementation of MCS systems.
- Inspections of ports and vessels.
- Technical reports from government institutions such as the IPIAP, on-board observers, and the Satellite Monitoring Center (Centro de Monitoreo Satelital- CMS).
- Fishing logbook, image recording system, and a weighing system.

Moreover, to track, identify and localize industrial and artisanal fishing vessels must have a tracking device that has to be authorized by the National Defense entity, the information about the location of the vessels is managed by the Administration of the Monitoring Center (Administración del Centro de Monitoreo). The Administration of the Monitoring Center can share the tracking information with the IPIAP so they can identify and establish the fishing areas of the artisanal and industrial fleets. Additionally, the Agreement MPCEIP-SRP-2022-0150-A approved on July 13, 2022, establishes the installation and operation of the Satellite Monitoring Device (Dispositivo de Monitoreo Satelital - DMS) for all industrial fishing vessels and mother-ship vessels, regardless of gross registered tonnage (TRB). The fishing logbook can be physical or electronic, in all cases, it shall be filled out daily in a complete, reliable, and timely manner, to be delivered at the time of landing or completion of fishing operations. The logbook must have the general data of the vessel, information of departure and arrival, fishing gear, geographic location, start and end time of each fishing set, estimated catches by species or group of species in tons, kilograms or number of specimens, discard and bycatch, a report of mammals and marine mammals, reptiles, penguins and seabirds with which they have interacted during the fishing operations (LODAP, article No. 162 and General Regulation, article No.225). The use of a fishing logbook is mandatory for the mother-ship vessels. In the case of the mother-ship vessels, all the catches from the fishing unit (comprised of the mother-ship vessel and its fiberglass skiffs) are recorded in the logbook hosted by the mother-ship vessel.

The Ministerial Agreement No. 204 passed in 2011 set a mandatory observer program for all mother-ship vessels over 20 meters long, targeting large pelagics with surface longlines. The minimum observer coverage was set as 10% of fishing trips performed by the mother-ship vessels. In 2021, the Observer Program was updated with the Agreement MPCEIP- SRP- 2021-0208-A approved on September 22, 2021, establishing that this Program must provide a system for random monitoring and real-time data collection on the fishing trips made by fishing vessels using drifting longlines. The monitoring will increase progressively, with 10% of trips observed in 2022, 15% in 2023 and 20% in 2024. On May 06, 2019, IPIAP suggested that the Fisheries Observer Programs should register information about vulnerable species, collect information on the interaction of marine mammals in the different fisheries of Ecuador, and comply with the requirements of international organizations (Statement No. INP- INP-2019-0289-OF). The SRP with MPCEIPSRP-2019-0402-M of May 14, 2019, considers IPIAP's suggestion and establishes that observer programs must collect information on interaction with marine mammals. The actions of the Monitoring, Control, and Surveillance System (MCS) in the ports and landing sites are carried out continuously by the Fisheries Control Directorate (DCP) inspectors, with special emphasis during closed fishing seasons. According to the NAP assessment, the most frequent discharge ports are Esmeralda, Manta, Muisne, Santa Rosa, and Anconcito. There are currently 40 ports where mother-ships are landing dolphinfish (see table below). However, there are up to 256 different landing sites identified along the National coast, and 'pata-pata' fiber-glass skiffs can land in any of them, and there is no authorized time for landings.

Nonetheless, official information on the ports and beaches authorized for unloading should be collected at the site visit. All in situ procedures related to the MCS of fishery resources are applied at the national level to maintain the proper traceability of resources and strengthen the fight against IUU fishing. After inspection, the inspectors from the DCP issue the Fisheries Landing Monitoring and Control Certificate (CMCDP). This document is essential for legalizing the catches, and its issuance must be before any transport by land. To obtain the CMCDP, the inspectors shall require the following documents from the skipper: a) The landing declaration; b) The fishing log, if applicable; c) The ministerial agreement, if applicable; and d) The vessel's fishing permit; set sail, and other permits or documents as appropriate and applicable to the vessel. (Article 238, LODAP)

Bilateral Cooperation

Ecuador and Peru signed in 2014 a Memorandum of Understanding (MoU) on Fisheries and Aquaculture between the Ministry of Production of the Republic of Peru and the Ministry of Agriculture, Livestock, Aquaculture and Fisheries of the Republic of Ecuador, which is still in force today. In addition, the MPCEIP and PRODUCE and their research institutes (IPIAP and IMARPE, respectively) also signed a collaboration agreement to coordinate and ensure the sustainability of the dolphinfish². During the April 29, 2022, presidential meeting, the XIV binational cabinet between Peru and Ecuador signed the Loja Agreement. In point 40 of the agreement, the presidents of both countries committed

² <https://institutospesca.gob.ec/wp-content/uploads/2023/07/Informacion-Convenio-IPIAP-IMARPE.pdf>

to jointly combat illegal, unreported, and unregulated fishing (IUU). They renewed their commitment to work together within the framework of the Working Group on Illegal, Unreported, and Unregulated Fishing of the Permanent Commission for the South Pacific to develop a Regional Action Plan to reduce the impact of this type of fishing and enhance the region's capacity to address it.

Furthermore, they instructed their respective authorities to continue negotiations for the "Memorandum of Understanding" (MoU). Moreover, a plan was developed to implement the Loja Agreement within Axis II, "Productive, Commercial, Investment, and Tourism Affairs." Commitment 1 stipulates that IMARPE and IPIAP will conduct binational research on the selectivity of fishing gear with a reduction in the capture of juvenile species and incidental bycatch and the biology and fishery of dorado/dolphinfish (*Coryphaena hippurus*), among other species.

IATTC

The Republic of Ecuador has been a Contracting Party to the Inter-American Tropical Tuna Commission (IATTC) since 2004, having ratified its membership in May 2021, as well as the Agreement on the International Dolphin Conservation Program (AIDCP), an organization whose fundamental objective is the conservation and management that ensures the long-term sustainability of tuna stocks and other marine resources associated with the tuna fishery in the Eastern Pacific Ocean (EPO). On the other hand, Peru has been a Contracting Party of the IATTC since 2003, having ratified its membership in October 2018. (Legislative Resolution No. 30785). As explained above, the IATTC Scientific staff performed an exploratory stock assessment and MSE in 2016, and the recently adopted Res 23-09 reinforces this role. However, to date, the IATTC has yet to adopt any specific management measure on this stock, and there is a debate inside the IATTC on whether the RFMO should allocate human and financial resources to this species. Some IATTC CPCs questioned the suitability of further work by the IATTC in this fishery, notably given the resources required for the tropical tuna fishery and because dorado catches represent less than 2% of purse-seine bycatch. In comparison, there is a direct longline fishery where only two CPC (Peru and Ecuador) harvest 98% of the catches (IATTC, 2022, page 3).

Fisheries Management Institutions

Ministry of Production, Exterior, Investment and Fisheries (MPCEIP)

Ecuador's fisheries administration has seen significant changes over the past few years. In May 2017, Executive Decree No. 6 separated the Vice-Ministry of Aquaculture and Fisheries from the Ministry of Agriculture, Livestock, Aquaculture and Fisheries to create the Ministry of Aquaculture and Fisheries. Nevertheless, in 2018, by Executive Decree No. 559, the Ministry of Aquaculture and Fisheries was merged with the Ministry of Foreign Trade and Investment, the Ministry of Industry and Productivity, and the Institute for the Promotion of Exports and Foreign Investment, creating the current Ministry of Production, Exterior, Investment and Fisheries (MPCEIP, by its Spanish initials). On January 11th, 2019, Executive Decree No. 636 created the Vice Ministry of Aquaculture and Fisheries. See Figure below.

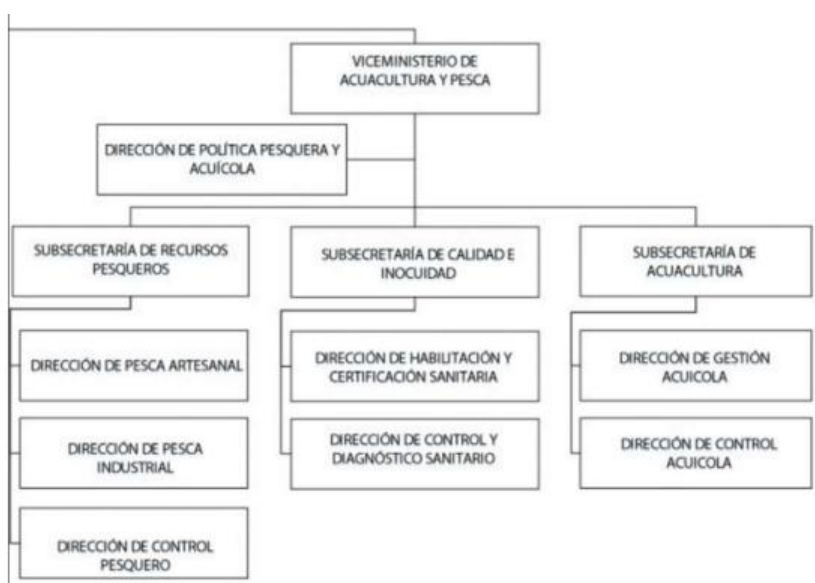


Figure 8- MPCEIP Organization chart. Source: MPCEIP

The Vice Ministry of Aquaculture and Fisheries (Viceministerio de acuicultura y pesca).

It regulates, promotes, and manages fishing and aquaculture activities based on policies, strategies, standards, and technical and legal instrumentation. The Vice Ministry must issue regulations, agreements and resolutions related to

the direction and control of aquaculture activity in the country as well as to coordinate with public and private entities for the development of aquaculture and fishing activities. The most relevant Secretariats and Directorates for the assessed fishery are listed below:

- Under the Secretariat for Quality and Safety (Subsecretaría de Calidad e Inocuidad—SCI), SCI manages regulatory processes of safety regulation, monitoring, and certification related to the quality and safety of hydrobiological products through the implementation of systems, standards, and regulations to guarantee the quality of the production chain of bio aquatic products.
- Fisheries and Aquaculture Policies Directorate (Dirección de Política Pesquera y Acuícola - DPPA). DPPA oversees the design, proposal, and evaluation of management regulations, plans, programs, and national and international cooperation agreements to regulate and promote the activities related to fisheries and aquaculture. To guarantee the sustainable and responsible use of resources in all their phases, the DPPA uses scientific instruments and information.
- Secretariat for Fishery Resources (Subsecretaría de Recursos Pesqueros - SRP). Is responsible for the supervision and implementation of the national fisheries policy, guarantees compliance with fisheries laws and regulations, elaborates fisheries development plans and programs, coordinates the activities of the public and private sectors, manages fisheries financial credit, endorses reports and plans of companies in the fisheries sector, and commissions studies on the activity, management, and development of the fishing sector. Moreover, the SRP establishes actions to prevent, deter, and eliminate illegal, unreported, and unregulated fishing. Additionally, the SRP represents Ecuador in international meetings, including the IATTC. In the case of the dolphinfish fishery, the SRP is in charge of monitoring all landings and also run the observer program. The SRP is composed of the following Divisions:
 - o Fisheries Control Directorate (Dirección de Control Pesquero - DCP). DCP is an affiliate of SRP. Controls fishing activities, implementing monitoring, surveillance, and inspection processes to ensure hydrobiological resources' protection, conservation, and sustainable use. The DCP must execute traceability plans and programs and provide technical information regarding traceability. Carries out confiscations and destruction of fishery products and nets if regulations are not complied. Also, provides knowledge transfer related to fisheries legislation. The DCP has four units: Control and Surveillance, Satellite Surveillance, Observation and Supervision, processing, and analysis.
 - o Artisanal Fisheries Directorate (Dirección de Pesca Artesanal - DPA). Suggests and executes plans, programs, and projects to strengthen the value chain of artisanal fishing activity; provides technical assistance considering regularization strategies, formalization, production, and marketing alternatives to improve the technical and micro-entrepreneurial capacities of fishing actors and their families, contributing to the development of the artisanal fishing sector. Issues permit for artisanal fishermen and vessels, providing capacity building in sustainable fisheries, enterprises, and technologies associated with production, transformation, and processing. Provides legal advice and technical support to management to obtain the legal personality of artisanal fishing organizations to promote associativity in the fishing sector.
 - o Industrial Fisheries Directorate (Dirección de Pesca Industrial - DPI). Regulates industrial fishing activity, issuing permits, providing technical information, legalizing fish catch, ensuring the traceability of fishery products, and complying with internal and external marketing regulations.

National Directorate of Aquatic Spaces (Dirección Nacional de los Espacios Acuáticos - DIRNEA)

Executive decree No. 1111 established the National Directorate of Aquatic Spaces in May 2008 as part of the General Navy Command (Comandancia General de Marina) and depends on the Ministry of Defence. The DIRNEA is the national maritime authority in aquatic spaces. It is responsible for enforcing on-the-water fisheries and satellite monitoring, which it coordinates with SRP.

Advisory Council of Aquaculture and Fisheries (Consejo Consultivo de Acuicultura y Pesca)

Created by the LODAP 2020, it is the non-binding technical advisory body responsible for monitoring, overseeing, and evaluating public policies on aquaculture and fisheries, as well as promoting and promoting dialogue between public and private actors in matters of competition. The Advisory Council shall be chaired by the national aquaculture and fisheries policy governing body. The Advisory Council comprises government officials and representatives of producer organizations, aquaculture, fishermen, marketers, economic agents, and related representatives. Although the body was created, it is still being determined if the members have been elected or if there have been active sessions. The assessment team needed help to get details about this council activities.

Advisory Council of the dolphinfish (Consejo Consultivo del Recurso Dorado- CCRD)

The Ministerial Agreement No. 055, approved on April 16, 2011, established the CCRD as an instrument of consultation between the public and private sectors related to dolphinfish conservation, management, sustainable use, and eco-certification. The confirmation of the CCRD included the SRP as the president of the CCRD, the FENACOPEC and ASOEXPEBLA as representatives of the fisheries sector, WWF and INP as advisors, and other relevant stakeholders could participate in a specific session if the council considered it necessary. However, the CCRD never established statutes or scheduled activities (WWF, 2019). The Advisory Council was recently re-established on August 14th through Agreement No. MPCEIP-SRP-2023-0182-A establishes a Participatory Governance System for the Dorado fishery (*Coryphaena hippurus*). This system includes a Dolphinfish Advisory Council and repeals Ministerial Agreement No. 055. The primary goals of the CCRD are as follows:

- Institutionalize Inclusive Participation: Establish mechanisms for inclusive participation by fishery stakeholders within the legal framework.
- Recommendation on Management Measures: Provide recommendations to the governing body based on a comprehensive review of fishery management measures, considering biological, environmental, social, and economic factors, guided by the best available scientific knowledge.
- Communication of Measures: Ensure transparent communication of measures and recommendations resulting from the consultation and participation process to all relevant stakeholders in the fishery.
- Data and Information: Utilize information from IPIAP, the Dorado National Action Plan (PAN Dorado), and other technical/scientific sources to understand the resource and fishery for advisory purposes.
- Technical Committee Consideration: Encourage the formation of a technical interinstitutional committee responsible for offering continuous or specific advice to the Advisory Council. Monitor and assess the execution, compliance, and outcomes of the Dorado National Action Plan (PAN Dorado) and other fishery management measures. Moreover, the Agreement No. MPCEIP-SRP-2023-0182-A establishes that the CCRD composition includes representatives from artisanal and industrial fishermen, government administration, and individuals from the private sector involved in marketing and processing. Additionally, the involvement of NGOs, civil society organizations, and academia is encouraged.

The SRP representative will preside over the sessions and convene every six months. The consensus reached during these sessions will result in formulating recommendations and considerations, all grounded in technical and scientific reports that are presented and channelled. Furthermore, it is specified that the CCRD Coordinator will monitor any agreements reached during the sessions. This Coordinator will be appointed by the Aquaculture and Fisheries Authority and selected from the officials within the Directorate responsible for hosting the Action Plans.

Institutions or bodies for fisheries research

Ecuador Public Institute of Research of Aquaculture and Fisheries (Instituto Público de Investigación de Acuicultura y Pesca-IPIAP) The IPIAP was created on December 5th, 1960; it has its legal structure, patrimony, and financing resources and is ascribed to the Ministry of Production, Exterior, Investment and Fisheries. The IPIAP aims to provide information and scientific-technological knowledge to guarantee the rational use of hydrobiological resources and their ecosystems, provide management and conservation measures to the competent authorities and contribute to the sustainable development of the fishing and aquaculture sectors. In the case of the dolphinfish fishery, the IPIAP representatives interviewed during the site visit confirmed that they performed a biological sampling (size and sex) on 2 ports (Santa Rosa and Manta). Weight samples cannot be taken because the fish is gutted on board. They cannot perform scientific surveys or regular samplings on board. The SRP shares all landing data with the IPIAP to inform the stock assessment conducted by the IPIAP and IMARPE. Finally, the IPIAP also analyses the ETP data collected from the observers' program run by the SRP. IPIAP and IMARPE have signed a collaboration agreement to share scientific data to complete a new joint assessment for this stock. Besides, binational workshops are held between these two institutions and work on other joint programs for tagging and genetics.

Bilateral cooperation Peru and Ecuador are cooperating at an institutional level in managing the Dolphinfish resource. A Framework Agreement for Technical Cooperation between the IMARPE and the IPIAP was signed on October 30, 2014 and was automatically renewed after five years. Under this agreement, six binational workshops and six virtual workshops for the exchange of experiences on Dolphinfish resources have been held between Ecuador's IPIAP and Peru's IMARPE (2015, 2016, 2017, 2018, 2019, 2020, 2021). The binational workshops aimed to standardize the methodology for collecting information from biological-fishing studies and conduct regional studies. The exchange of information between countries enabled the update of data on the geographical distribution and other biological aspects associated with dolphinfish resources.

Furthermore, the binational workshops enabled the coordination of a joint stock assessment completed in 2021, including management advice (Roa-Ureta et al. 2022) and elaborating a joint study on the genomic characterization of the dolphinfish. These workshops were led by research institutes from Ecuador and Peru (IPIAP and IMARPE, respectively), and several workshops were participated in by MPCEIP and PRODUCE. During 2021, six virtual workshops for the exchange of experiences were held to strengthen capacities and exchange management experiences

between the two countries. These virtual workshops addressed the following topics: management, access to resources, control and surveillance, health and safety, processing and infrastructure, and port management. To continue generating information on the status of the stock of dolphinfish in the South Pacific by the year 2022, IMARPE and the IPIAP presented a stock assessment and genomic study for dolphinfish at the 13th meeting of the Scientific Advisory Committee (SAC) of the IATTC. However, it is important to mention that this study was not carried out directly by the SAC of the Inter-American Tropical Tuna Commission (IATTC).

The IATTC has a scientific staff headed by a Coordinator of Scientific Research who provides scientific information to the SAC. Although it is not a tuna species, in June 2012, during the 83rd Annual Meeting of the IATTC, the parties agreed that the Commission's scientific staff should begin the stock assessment of the dolphinfish resource in the Convention area. During the Fifth Meeting of the IATTC Scientific Advisory Committee (SAC), held on 12-16 May 2014 in La Joya, it was considered appropriate for the IATTC staff to study this species to determine the impact of the fishing activity and recommend appropriate conservation measures if necessary. In this context, the IATTC organized the First Technical Meeting on Dorado on October 14- 16, 2014, in Manta, Ecuador, with the objectives of promoting regional research on the dolphinfish in the EPO; reviewing its status with the knowledge that was available on the species and identifying the scientific data available on it and formulating a plan for future research. In 2015, the 2nd Technical Meeting worked on defining the assumptions about stock structure and identifying potential stock status indicators for the dolphinfish in the eastern Pacific Ocean. The 3rd Meeting, held in 2016, evaluated data requirements and assessment methods for data-restricted to dolphinfish fisheries in the eastern Pacific Ocean.

Moreover, the SAC was involved in the exploratory stock assessment submitted to the 7th meeting of the SAC held in May 2016. As a result, the SAC got involved, and an exploratory stock assessment for the dolphinfish in the SE Pacific Ocean was elaborated and submitted to the 7th SAC meeting held in May 2016. A simplified version of the SS model used for the exploratory assessment (Aires-da-Silva et al. 2016) was used as the operating model for an MSE (Valero et al. 2016). The recently agreed Resolution C-23-09 committees IATTC to collate and review Dorado catches from all members and non-members, to update the 2016 exploratory assessment, and to review the management measures in place and recommendations regarding the HCRs by 2026 (subject to the availability of funds and resource).

South Pacific Regional Fisheries Management Organisation (SPRFMO). Ecuador and Peru are members of the SPRFMO. The South Pacific Regional Fisheries Management Organisation is an inter-governmental organisation that aims to conserve and sustain the use of fishery resources in the South Pacific Ocean. One of the main commercial resources fished by is jumbo flying squid in the Southeast Pacific, which is important for the dolphinfish fishery because the main species for the bait is the Jumbo flying squid. RMFO issued a 2020 Conservation and Management Measure (CMM) on the Management of the Jumbo flying squid (CMM 18-2020).

Institutions of the fishing, trading, and processing industry

White Fish Exporters Association (Asociación de Exportadores de Pesca Blanca – ASOEXPEBLA): represents the white fish exporting companies, and their leading supplier of dolphinfish is the industrial fleet.

National Federation of Fishing Cooperatives from Ecuador (Federación Nacional de Cooperativas Pesqueras del Ecuador-FENACOPEC): represents the artisanal fleet of fiber-glass skiffs dedicated to Dolphinfish fisheries.

Asociación de Producción Pesquera de Armadores de Manta (ASOMAN): represents fiber-glass skiffs and mother-ship vessels dedicated to Dolphinfish fisheries.

Responsible Longline Dolphinfish Fishery Improvement Project (FIP-DPR): represents fiber-glass skiffs and mother-ship vessels and dolphinfish processing companies associated with conducting a fishery improvement project (FIP) for the Ecuadorian longline dolphinfish fishery.

Access rights to the fishery and allocation of fishing opportunities

In Ecuador, the fishing permit is the document the governing body grants that authorizes any fishing vessel to exercise the activity. This is the enabling document to obtain the departure permit issued by the Ecuadorian Navy through the port authorities. The fishing permit details the type of vessel (i.e., artisanal, small, mid-scale, big-scale), the species that can be caught (in the case of surface longlines the permit points to 'large pelagics' as the target -group of- species), the authorized fishing gear, the technical characteristic of the vessel, and the authorized fishing area; this permit must always be on board. Industrial vessels must renew their fishing permits annually, while artisanal vessels are due to renew every two years (LODAP article No. 129). Moreover, mother-ship vessels and fiber-glass skiffs may use thin longlines (LL-DOL), thick longlines (LL-TBS), or mixed longlines at any time, except during the dolphinfish closure period, when the use of LL-DOL is forbidden. The fishing permit can be denied when the fishery is protected, in recovery, or overexploited, when there is no quota available for fishery (in the case of fisheries subject to quota), when the vessel is in an IUU list of the Ministry or RFMO or when the fleet does not comply with the law. Moreover, the fishing permit can be terminated if the vessel is sanctioned for being engaged in IUU or does not comply with the laws and regulations.

Article 183 of the General Regulation of the LODAP (Executive Decree No. 362) states that fiber-glass skiffs will be considered an integral part of the fishing unit and shall be duly registered and associated with the mother ship vessels in the records of the governing body. The LODAP establishes that mother-ship vessels that do not have hydraulic systems or haulers are considered artisanal vessels. However, Article 152 of the General Regulation of the LODAP states that for all legal purposes, all vessels that operate as mother-ship vessels for longlines will be subject to the legal regime applicable to industrial vessels.

Currently, the SRP has a total of 263 inspectors. These inspectors are mainly in charge of monitoring landings at ports along the National coast. Besides, inspections at sea can also be performed in collaboration with the Navy. The SRP shall inspect all landings performed by mother-ship vessels. Nevertheless, in the case of pata-pata' fiber-glass skiffs, the SRP representatives interviewed during the site visit acknowledged that around 40% of the landings performed by skiffs are not inspected. The LODAP (Articles 212 to 214) and its General Regulations establish clear sanction mechanisms and determine the causes of infractions in detail. It determines three types of infractions: minor, medium, and serious, explaining each case in detail and informing the type of sanction corresponding to each case. It also highlights which institutions are involved in the inspection and control process. Fishing sanctions are detailed in the LODAP (Articles 212 to 214) and are classified as minor, serious, and very serious. Penalties shall be imposed according to the following criteria: the seriousness of the infraction, the nature and quantification of the damage, whether it involves fragile, protected, or endangered ecosystems or species, the size, and power of the vessel and quantification of the damage, possibility of restoring the damage, the economic benefit obtained or expected by the alleged offender as a result of his action or omission and the existing mitigating or aggravating factors (Article No. 192, LODAP). Having these items in consideration, the sanctions are imposed. The types of existing sanctions are the following: - Pecuniary sanction or fine, which may consist of fines from one to one thousand five hundred basic unified salaries (SBU); - Confiscation of the hydrobiological species, products or goods obtained in the commission of infractions; - Definitive confiscation of fishing gear or equipment and products or inputs of prohibited use; - Suspension, revocation or non-renewal of authorizations or permits; - Reduction of points by the regulations in force; - Seizure of the fishing vessel; - Temporary closure of the production line or aquaculture or fishing establishment; and, - Loss of incentives (ART- 215 LODAP). Regarding ETP species, it is determined as a severe fishing infraction to intentionally carry out fishing activities in interaction with marine mammals, sea turtles, or whale sharks.

7.6.2. Principle 3 Performance Indicator scores and rationales

PI 3.1.1 – Legal and customary framework

PI 3.1.1		The management system exists within an appropriate and effective legal and/or customary framework which ensures that it: <ul style="list-style-type: none"> • Is capable of delivering sustainability in the UoA(s); • Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and • Incorporates an appropriate dispute resolution framework 		
Scoring issue		SG 60	SG 80	SG 100
a	Compatibility of laws or standards with effective management			
	Guide post	There is an effective national legal system and a framework for cooperation with other parties, where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and organised and effective cooperation with other parties , where necessary, to deliver management outcomes consistent with MSC Principles 1 and 2.	There is an effective national legal system and binding procedures governing cooperation with other parties that deliver management outcomes consistent with MSC Principles 1 and 2.
	Met?	Yes	No	No
Rationale		<p>At the SG60 level for scoring issue (a), the MSC standard advises that the UoA that is subject to international cooperation for management of the stock (should have: a) <i>National and international laws, agreements and policies that govern the actions of authorities and other stakeholders involved in the fishery, AND b) a framework for cooperation with other territories, sub-regional or regional fisheries management organizations OR other bilateral/multilateral arrangements that create the cooperation required to deliver sustainable management under the obligations of UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Article 8. In addition, SA4.3.2.3 details that cooperation "(...) shall at least deliver the intent of UNFSA Article 10 paragraphs relating to: (i) collection, sharing and dissemination of scientific data, (ii) the scientific assessment of stock status and (iii) development of scientific advice"</i>.</p> <p>For the Ecuadorian and Peruvian context, the actions of the authorities and actors involved in managing the UoA are governed by the legal systems in place in each of the two competent countries, as described in the C3 summary section. At a national level (for P2), the Ecuadorian authorities are governed by the national regulations adopted to manage the main primary species (blue shark) impacted by the UoA, and also by the national regulations, IATTC Resolutions and ratified international Agreements (e.g., ACAP, AIDCP) for the conservation of ETP species (protected sharks, turtles, marine mammals, and seabirds).</p>		

PI 3.1.1	<p>The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> • Is capable of delivering sustainability in the UoA(s); • Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and • Incorporates an appropriate dispute resolution framework 			
	<p>At the SG80 level there should be among other topics, an "...effective regional and/or international cooperation creates a comprehensive cooperation under the obligations of UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Article 8..."</p> <p>These national legal systems when applicable corrected, are considered effective to deliver management outcomes consistent with MSC P1 and P2. In agreement with SA 4.3.2.4 of the MSC standard, both Ecuador and Peru are Contracting Party to the Inter-American Tropical Tuna Commission (IATTC), and both have ratified its membership. As dolphinfish is a highly migratory species, its management should normally be considered at international level at Regional Fisheries Management Organisations (RFMO). The IATTC has jurisdiction over the eastern Pacific Ocean but does not yet recognised formally dolphinfish as a species under its responsibility, and to date it has not adopted any managerial decision on this stock. There have been several discussions in the past at the IATTC Commission level regarding the inclusion of dolphinfish in the RFMO jurisdiction for research and management. Some IATTC CPCs questioned the suitability of further work by the IATTC in this fishery, notably in view of the resources required for the tropical tuna fishery and in view of the fact that catches of dorado represent less than 2% of purse-seine bycatch while there is a direct longline fishery where only two CPC (Peru and Ecuador) harvest 98% of the catches (IATTC, 2022, page 3). To cover bridge this gap, Ecuador and Peru signed in 2014 a Memorandum of Understanding on Fisheries and Aquaculture between the Ministry of Production of the Republic of Peru and the Ministry of Agriculture, Livestock, Aquaculture and Fisheries of the Republic of Ecuador. Among the objectives of this MoU are the following: (i) to jointly review the management measures for several fish straddling and highly migratory species, including dolphinfish; (ii) Evaluate fishing permits for vessels of both countries; (iii) coordinate the monitoring and inspection of fishing activities occurring in waters adjacent to the maritime limits of both countries. Another MoU between the research institutes from Ecuador and Peru (IPIAP and IMARPE, respectively) managed to coordinate a joint stock assessment completed in 2021 which also includes management advice (Roa-Ureta et al. 2022). During the April 29, 2022 presidential meeting and the XIV binational cabinet between Peru and Ecuador, the Loja Agreement was signed, wherein at point 40 both nations committed to collectively combat IUU. Additionally, they instructed their respective authorities to continue negotiations for the MoU. Moreover, an implementation plan was outlined for the Loja Agreement within Axis II "Productive, Commercial, Investment, and Tourism Affairs." Commitment 1 highlights that IMARPE and IPIAP will jointly conduct research covering aspects such as the selectivity of fishing gear to minimize juvenile species capture and incidental bycatch, as well as the biology and fishery of dorado/dolphinfish (<i>Coryphaena hippurus</i>), among other species. Based on the above, SG60 is met.</p> <p>SA 4.3.2.2 details that in the case of a UoA subject to international cooperation for management of the stock, at the SG80 level teams shall interpret compatibility with laws and standards as the existence of: a) National and international laws, agreements and policies governing the actions of the authorities and actors involved in managing the UoA, and b) That effective regional and/or international cooperation creates a comprehensive cooperation under the obligations of UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Article 8, c) That cooperation shall at least deliver the intent of UNFSA Article 10 paragraphs relating to the collection, sharing and dissemination of scientific data, the scientific assessment of stock status and development of management advice, the agreement and delivery of management actions consistent with this sustainable management advice, and on monitoring and control, and d) That the flag state of fishery participants in the UoA shall be members of the relevant organization or participants in the arrangement, or agree to apply the conservation and management measures established by the organization or arrangement if such organization or arrangement exists. However, specific and formal adoption of these measures within their jurisdictions.</p> <p>Under the MoU on Fisheries and Aquaculture signed between Ecuador and Peru, six binational workshops and six virtual workshops for the exchange of experiences on Dolphinfish resource have been held (2015, 2016, 2017, 2018, 2019, 2020, 2021). The exchange of information between countries enabled to update data related to the geographical distribution of the landing sites and other biological aspects associated to the dolphinfish. Furthermore, the binational workshops enabled the identification of the necessary data and applicable stock assessment models for this resource at the regional level. IPIAP and IMARPE signed a collaboration agreement to share scientific information, which allowed to inform a joint stock assessment which was completed in 2021. The IPIAP representatives interviewed during the site visit confirm that a new joint stock assessment is scheduled, and that other tagging and genetic programs for the dolphinfish are being run jointly by IPIAP and IMARPE. The management measures implemented by Ecuador and Peru to manage the dolphinfish fishery are mostly of a similar nature, although their specification differ: the fishing season is closed from 1 July – 7 October in Ecuador and from 1 May – 30 September in Peru, minimum size is 80 cm total length in Ecuador and 70 cm fork length in Peru. Peru formalized these measures within a Fisheries Management Regulation (or ROP for its name in Spanish). These measures combined were considered a HCR by the IATTC and tested through a preliminary MSE exercise Valero et al., 2016; IATTC, 2019). Based on the information presented above the team considers that SG80 is met.</p> <p>The SA4.3.4.2 of the MSC standard details that in the case of a UoA subject to international cooperation for management of the stock, at the SG100 level teams shall interpret compatibility with laws and standards as the existence of: a. The existence of national laws, agreements and policies governing the actions of the authorities and actors involved in managing the UoA, b. That binding legislation exists governing comprehensive international cooperation under the obligations of UNCLOS Articles 63(2), 64, 118, 119, and UNFSA Articles 8 and 10, and c. That cooperation under the RFMO/arrangement, and the actions of the RFMO, shall demonstrably and effectively deliver UNFSA Article 10. Neither the MoU signed by Ecuador and Peru signed in 2014, nor the recent Loja Agreement signed in 2022 can be considered as binding legislation. So, SG100 is not met</p>			
b	Resolution of disputes			
	Guide post	The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the UoA.	The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes, which is appropriate to the context of the fishery and has been tested and proven to be effective .
	Met?	Yes	Yes	No

PI 3.1.1	<p>The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> • Is capable of delivering sustainability in the UoA(s); • Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and • Incorporates an appropriate dispute resolution framework 			
Rationale	<p>The Ecuadorian judicial system is governed by statutory law, not by common law or judicial precedents. The General Organic Code of Procedures which came into force in 2016 and instituted a new procedural system for all trial proceedings, except criminal and constitutional matters. The Administrative Organic Code enacted in 2017 and amended on January 21, 2022, aims to regulate the exercise of the administrative function of public sector agencies, through mechanisms of extraordinary appeals and challenges. Likewise, Article 134 establishes that administrative claims and disputes for which no specific procedure is provided, will be resolved through an administrative procedure. Thus, despite there is no mechanism for the resolution of disputes apparent in Ecuador's fisheries laws and related instruments, the Organic Administrative Code is the mechanism through which disputes in Ecuador's fisheries law would be resolved.</p> <p>Perú-Ecuador/IATTC There are no conflict resolution mechanisms at a binational level related to the dolphinfish fishery. Nevertheless, both countries belong to the Andean Community. The Andean Community has a Court of Justice where the parties can settle disputes that cannot be resolved by other administrative or judicial means. Additionally, both countries as members of the IATTC can use the Part VII of the Antigua Convention that establishes a framework for dispute resolution. Several mechanisms exist for dealing with legal disputes at the international level. Although this does not specify a concrete mechanism, it does define an avenue for arriving at a solution in the case of a difference between two or more members of the Commission. Disputes can be dealt with at the IATTC annual meetings of the Parties through consultation and conciliation. Technical disputes might be resolved by an appropriately composed expert or technical panel. As a last step, disputes might be resolved through either the International Court of Justice or the International Tribunal for the Law of the Sea (ITLOS), though this recourse is most likely to be used by states which have ratified the 1995 UN Fish Stocks Agreement (UNFSA). SG60 and 80 are met because the management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes arising within the system which is considered to be effective in dealing with most issues and that is appropriate to the context of the UoA. SG 100 is not met because there is no evidence that the mechanism has been tested and proven to be effective in the context of the fishery.</p>			
c	Respect for rights			
	Guide post	The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.	The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom of people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.
	Met?	Yes	Yes	No
Rationale	<p>At the IATTC level, legal rights of people dependent on fishing for food or livelihood are protected through national interests of Parties to the Convention. The Convention deals with the rights of a State's access to resources rather than individuals. Thus, this SI is assessed only at National level. Ecuador Article 281 of Ecuador's constitution states: "Food sovereignty constitutes a strategic objective and an obligation of the state to ensure that individuals, communities, peoples, and nationalities achieve the self-sufficiency of healthy and culturally appropriate foods on a permanent basis". Furthermore, Ecuador, through the LODAP and its General Regulations, establishes the mechanisms to manage fishing resources, guaranteeing fishermen's access to the activity within a clear and accessible framework. Article 7, paragraph 42 and section II of the LODAP establishes the characteristics of artisanal fishing and indicates the duties of fishermen. Likewise, Article 7, paragraph 46, and Section II of LODAP states the characteristics of industrial fishing. Additionally, the General regulation of the LODAP (article 152 and 183) establishes the characteristics and regulations of the fiberglass skiffs and the mother-ship vessels that fish with longline. Moreover, the participatory processes implemented to design and evaluate the National Action Plans, such as the PAN Dorado, provides opportunity to all stakeholders (including users with customary rights) to express their views and concerns in relation to fisheries management.</p> <p>Moreover, the participatory processes implemented to design and evaluate the National Action Plans, such as the PAN Dorado, provides opportunity to all stakeholders (including users with customary rights and people dependent on fishing for food and livelihood) to point out their views and concerns in relation to fisheries management. SG80 is met there is a management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2. However, despite the provisions in the Laws and regulations, and the participatory mechanisms established, the management system is not formally committed by customary rights. SG100 is not met</p>			
Draft scoring range		60-79		
Information gap indicator		More information sought		

PI 3.1.2 – Consultation, roles, and responsibilities

PI 3.1.2		The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
Scoring issue		SG 60	SG 80	SG 100
a	Roles and responsibilities			
	Guide post	Organisations and individuals involved in the management process have been identified. Functions, roles, and responsibilities are generally understood .	Organisations and individuals involved in the management process have been identified. Functions, roles, and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.	Organisations and individuals involved in the management process have been identified. Functions, roles, and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.
	Met?	Yes	Yes	No
Rationale		<p>Ecuador At national level, the roles and responsibilities of organisations and individuals who are involved in the management process are defined in the LODAP and the Executive Decree 362, including the mechanisms to ensure the necessary interinstitutional coordination. The highest authority in matters of fisheries management in the country is the Vice-Ministry of Aquaculture and Fisheries that is part of the Ministry of Production, Exterior, Investment and Fisheries. The Vice-Ministry regulates, promotes and manages the use of fishing and aquaculture activities, based on policies, strategies, standards and technical and legal instrumentation for this purpose. The Under Secretariat for Fishery Resources (SRP, Spanish acronym) is part of the Vice-Ministry of Aquaculture and Fisheries, and is responsible for the supervision and implementation of the of the national fisheries policy, guarantees compliance with fisheries laws and regulations, elaborates fisheries development plans and programs, coordinates the activities of the public and private sectors, manages fisheries financial credit, endorse reports and plans of companies in the fisheries sector, and commissions studies on the activity, management, and development of the fishing sector. Agreement No. MPCEIP-SRP-2023-0182-A establishes a Participatory Governance System for the Dorado fishery (Coryphaena hippurus). This Agreement includes a Dolphinfish Advisory Council provides all the necessary details about its composition roles and responsibilities. Based on the above the team considers that in Ecuador, organizations and individuals in the management process are clearly identified and its functions, roles and responsibilities are explicitly defined and well understood for KEY areas of responsibility and interaction. Thus, SG60 and SG80 are met. However, the role and responsibility of some bodies created, such as the Advisory Council of the dolphinfish (CCRD) created in 2011 is not clear. For instance, the CCRD never established statutes or scheduled activities (WWF, 2019)</p> <p>International cooperation the IPIAP and the IMARPE worked together under the framework provided by the MoU on Fisheries and Aquaculture signed by the two countries in 2014 (for more details see PI3.1.1(a)). Under this framework MPCEIP and PRODUCE and their research institutes (IPIAP and IMARPE, respectively) are coordinating to ensure the sustainability of the dolphinfish in 2022, the Loja Agreement was signed between the two countries, and a plan has been developed to implement the Loja Agreement. This plan stipulates that IMARPE and IPIAP will conduct binational research on: 1) Selectivity of fishing gear with a reduction in the capture of juvenile species and incidental bycatch. 2) Biology and fishery of dorado/dolphinfish (<i>Coryphaena hippurus</i>), among other species. In 2023 there was a binational meeting between Peruvian and Ecuadorian administrations stating that both countries should have an active participation in IATTC for the update of the assessment of the Dorado/Perico population at the regional level. Also, they agreed a coordination meeting (potentially on April 29, 2024) between working teams from the Vice Ministries of both countries to exchange information on the development and implementation of impact indicators in the Dorado/Perico fishery based on the existing ROP in Peru and a meeting of the delegates, as indicated in the meeting, to review the Memorandum of Understanding on fisheries matters and obtain technical agreement. Besides, at the IATTC level, the recently adopted Resolution 23-09 assigns some immediate actions to be taken by Members (data provision), and the Scientific Advisory Committee (update previous exploratory assessment and MSE). Based on the above, the team considers that an international level organisations and individuals involved in the management process have been identified, and their functions, roles and responsibilities are generally understood. SG60 is met. However, the following limitations lead to consider that SG80 is not met: • While the existing MoU Agreements between Ecuador and Peru explicitly define functions, roles, and responsibilities of IMARPE and the IPIAP in the field of fisheries research and monitoring, this is not the case when it comes to the functions, roles, and responsibilities of the management bodies in relation to achieve effective joint management of the stock. • While recent Resolution 23-09 provides explicitly define functions, roles, and responsibilities of the CPCs (i.e. data collection and reporting) and the Scientific staff (update the stock assessment and review current.</p>		
b	Consultation processes			
	Guide post	The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge , to inform the management system.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge . The management system demonstrates consideration of the information obtained.	The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge . The management system demonstrates consideration of the information and explains how it is used or not used .
	Met?	Yes	Yes	No
Rationale		To date the IATTC has not adopted any specific management measure on this stock and there is a debate open inside the IATTC on whether the RFMO should allocate human and financial resources to this species. Some IATTC CPCs questioned the suitability of further work by the IATTC in this fishery, notably in view of the resources required for the tropical tuna fishery and in view of the fact that catches of dorado represent less than 2% of purse-seine bycatch while there is a direct longline fishery where only two CPC (Peru and Ecuador) harvest 98% of the catches (IATTC, 2022, page 3). Thus, the team considers that, at this stage, the assessed fishery is not under the umbrella of the IATTC in terms of management. Thus, only the National fisheries management systems are assessed in this PI. Ecuador The Organic Law of Transparency and Access to Public Information approved on May 18, 2004, establishes in Article 4, letter "e", that the transparent management of public information must be guaranteed, enabling citizen participation in decision making of		

PI 3.1.2	The management system has effective consultation processes that are open to interested and affected parties. The roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties		
	<p>general interest. The new LODAP passed in 2020, includes the Advisory Council of Aquaculture and Fisheries as part of the fisheries management system (Article 11). This Council is a forum for dialogue, consultation and agreement between the public and private sectors, and its objective is to advise the fishing sector on monitoring and compliance with internal agreements to facilitate efficient relations between the different actors in the production chain. With the approval of the LODAP and its regulations, it is established that the spaces for dialogue and participation for the NAPs are provided through dialogue roundtables. The first PAN Dorado (2011-2016) was developed through a participatory process that involved the main stakeholders related to the fishery. In 2013, a revision of the PAN Dorado was carried out where the objectives and the activity follow up table was adapted. Various stakeholders such as fishermen's organizations, public sector representatives, academia and NGOs also participated in this process. In 2019 a new NAP (2019- 2024) was developed with the participation of the key stakeholders. Based on the above the team considers that SG60 and SG80 are met. However, as far as the team is aware the management system does not provide explanations on how the information collected through consultation is used or not used. SG100 is not met.</p>		
c	Participation		
	Guide post	The consultation process provides opportunity for all interested and affected parties to be involved.	The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.
	Met?	Yes	No
Rationale	<p>To date the IATTC has not adopted any specific management measure on this stock and there is a debate open inside the IATTC on whether the RFMO should allocate human and financial resources to this species. Some IATTC CPCs questioned the suitability of further work by the IATTC in this fishery, notably in view of the resources required for the tropical tuna fishery and in view of the fact that catches of dorado represent less than 2% of purse-seine bycatch while there is a direct longline fishery where only two CPC (Peru and Ecuador) harvest 98% of the catches (IATTC, 2022, page 3). Thus, the team considers that, at this stage, the assessed fishery is not under the umbrella of the IATTC in terms of management. Thus, only the National fisheries management systems are assessed in this PI. Ecuador According to article No. 95 of the Constitution citizens, individually and collectively, will participate as protagonists in decision-making, planning and management of public affairs. Moreover article No. 227 states that the public administration is a service to the community that is governed by the principles of effectiveness, efficiency, quality, hierarchy, decentralization, coordination, participation, planning, transparency and evaluation, coordination, participation, planning, transparency and evaluation. The new LODAP passed in 2020, includes the Advisory Council of Aquaculture and Fisheries as part of the fisheries management system (Article 11). This Council is a forum for dialogue, consultation and agreement between the public and private sectors. As explained in the principle 3 background section, the creation, update and renewal of the NAP-Dolphinfish was made through a participatory process were key stakeholders actively participated. Additionally, The General Regulation of the LODAP in the Chapter II Section I details the possibility of setting up dialogue roundtables for the fishing sector as an instrument for the participation of public-private sectors in decision-making process. Ensuring that the process is participatory, transparent, inclusive, multidisciplinary and scientifically based, for the design, socialization, dissemination of proposals of the National Action Plans of the fishing sector, to guarantee the sustainability of the fishery with responsibility and awareness of all actors.</p> <p>The roundtable dialogue must promote inclusive participation of all stakeholders in the governance of the fishery. It can provide recommendations to the leading agency of national aquaculture and fisheries policy appropriate measures for the management and management of the fishery, considering the biological-fishery, oceanographic, environmental, social and economic status. Every NAP must conform a roundtable dialogue for a period of 5 years. The roundtable dialogue for the NAP is integrated by the following members: • Presided by the head of the governing body of the National aquaculture and fisheries policy or his delegate and will have the casting vote. • Permanent coordinator represented by the Director of Fisheries and Aquaculture Policies or his delegate, the permanent coordinator will oversee the operational functioning of the table. • Director of IPIAP or his delegate, • Representatives of the artisanal fishing sector, Representatives of the extractive industrial fishing sector; and, • Representatives of the industrial fishing processing and marketing sector. Additionally, a rotating secretary will be elected from among the members, who will prepare the report of each session, which will be forwarded to the Advisory Council on Aquaculture and Fisheries. Agreement No. MPCEIP-SRP-2023-0182-A, issued on August 14th, outlines the creation of a Participatory Governance System for the Dorado fishery (Coryphaena hippurus) and the reinstatement of the CCRD. The CCRD is tasked with the responsibility of overseeing and monitoring the implementation, compliance, and results of measures specified in the Dorado National Action Plan (PAN Dorado) and other fisheries management initiatives. Furthermore, it actively promotes the engagement of fishery stakeholders in the decision-making process. Based on the above, the team considers that SG80 is met. In 2019 the NAP was evaluated by an external entity (WWF, 2019) that highlighted that the participation process for the implementation of the NAP was deficient, as it did not involve stakeholders in the process and failed to establish the NAP Advisory Council. As stated, recent Agreement No. MPCEIP-SRP-2023-0182 is addressing this issue. However, since this system has been recently created the team cannot determine if the consultation process provides opportunity and encouragement for all interested and affected parties to be involved and facilitates their effective engagement. Therefore, SG100 is not met.</p>		
Draft scoring range	60-79		
Information gap indicator	Information sufficient		

PI 3.1.3 – Long term objectives

PI 3.1.3		The management policy has clear long-term objectives to guide decision-making that are consistent with the MSC Fisheries Standard, and incorporates the precautionary approach		
Scoring issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach , are implicit within management policy.	Clear long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach , are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach , are explicit within and required by management policy.
	Met?	Yes	No	No
Rationale		<p>To date the IATTC has not adopted any specific management measure on this stock and there is a debate open inside the IATTC on whether the RFMO should allocate human and financial resources to this species. Some IATTC CPCs questioned the suitability of further work by the IATTC in this fishery, notably in view of the resources required for the tropical tuna fishery and in view of the fact that catches of dorado represent less than 2% of purse-seine bycatch while there is a direct longline fishery where only two CPC (Peru and Ecuador) harvest 98% of the catches (IATTC, 2022, page 3). Thus, the team considers that, at this stage, the assessed fishery is not under the umbrella of the IATTC in terms of management. Thus, only the National fisheries management systems are assessed in this PI. Ecuador Article 14 of the Constitution of the Republic of Ecuador establishes "the right of the population to live in a healthy and ecologically balanced environment that guarantees sustainability and good living"; furthermore, "The preservation of the environment, the conservation of ecosystems, biodiversity and the integrity of the country's genetic heritage, the prevention of environmental damage and the recovery of degraded natural spaces are declared to be in the public interest. Article 73 orders the State to apply precautionary and restriction measures for activities that may lead to the extinction of species, the destruction of ecosystems or the permanent alteration of natural cycles. Article 395 recognizes as environmental principles, in paragraph 1, "The State shall guarantee a sustainable model of development, environmentally balanced and respectful of cultural diversity, that conserves biodiversity and the capacity for natural regeneration of ecosystems and ensures the satisfaction of the needs of present and future generations". Finally, the Constitution of the Republic of Ecuador also embraces the precautionary principle in its article 396 and stipulates that the State will adopt the appropriate policies and measures that avoid negative environmental impacts, when there is certainty of damage. In case of doubt about the environmental impact of any action or omission, even if there is no scientific evidence of the damage, the State will adopt protective, effective and timely measures. In Ecuador the LODAP constitutes the overarching legal framework to establish the legal regime for the development of aquaculture and fishing activities in all their phases of extraction, harvesting, reproduction, breeding, cultivation, processing, storage, distribution, internal and external commercialization, and related activities such as the promotion of the production of healthy food; the protection, conservation, research, exploitation and use of hydrobiological resources and their ecosystems, through the application of the ecosystemic fishing approach in such a way as to achieve sustainable and sustainable development that guarantees access to food, in harmony with the principles and rights established in the Constitution of the Republic, and respecting traditional and ancestral knowledge and forms of production.</p> <p>Article 2 of the LOPA indicates that one of its objectives is the protection, conservation, research, exploitation, and use of hydrobiological resources and their ecosystems, through the application of the fishing ecosystem approach in such a way that sustainable development is achieved and sustainable that guarantees access to food, in harmony with established principles and rights in the Constitution of the Republic. Article 4 of the LODAP states that the precautionary approach and the fishing ecosystem approach must be observed, without prejudice to those established in the Constitution of the Republic. Article No. 96 of the LODAP, establishes that fishery management measures will be adopted after a scientific technical report from the IPIAP, and socialization with the fishing sector based on the best scientific evidence available and ancestral knowledge in accordance with the population conditions of the resources and the state of the fisheries. Article 97 sets that for the management of fisheries for hydrobiological resources that are not under the jurisdiction of a regional fisheries management organization, the governing body in coordination with the Public Aquaculture and Fisheries Research Institute, according to the scope of its powers, will establish management plans. in which they must determine at least: (a) Objectives, goals and deadlines in the biological, fishing and socioeconomic spheres; (b) Strategies to achieve the objectives and goals set, among which the management measures and their control mechanisms must be established; (c) Investigation requirements; (d) Consultation mechanisms between the different fishing sectors involved in the fishery; (e) Mechanisms for socialization, dissemination and evaluation of management plans; and, (f) Any other matter that is considered of interest for the fulfilment of the objective of the plan. Finally, Article 141 of the LODAP establishes that the quota shall be fixed according to the available biomass of the respective fishery, based on the scientific-technical reports of the IPIAP subject to the provisions of Management Measures. The quotas may be allocated in proportion to the quota of each vessel, by vessel or groups of vessels, with respect to certain species or groups of species, by zones, time periods, fishing modalities or other criteria that the governing body deems pertinent. However, no TAC (and therefore quotas) has been set for the dolphinfish. AGREEMENT No. MPCEIP-SRP-2021-0194-A, issued on September 1, 2021, establishes the prohibition to increase the carrying capacity expressed in Net Register Tonnage (NRT) or cubic meters (m3) of the Ecuadorian artisanal fishing fleet. With Ministerial Agreement No. 124 issued on April, 17, 2014 states that is forbidden to increase the carrying capacity expressed in NRT or cubic meters (m3) of the Ecuadorian industrial fleet. The National Action Plans consider the need for the best scientific information to make management decisions in each fishery. There are currently 3 Action Plans in place, the dorado fishery plan (PAN Dorado) is one of those. The general objectives of the Action Plans are to establish regulations based on scientific knowledge, to improve the processes of participation and control of the fisheries and to ensure the conservation of the target species and to minimize the impact of the activity on the environment. Based on the above, the team considers that long-term objectives to guide decision-making, consistent with the MSC Fisheries Standard and the precautionary approach, are not only implicit but also explicit within management policy. Thus, SG60 is met. However, as far as the team is aware no clear long-term objectives guiding decision-making (such as those expressed in Article 2 in the Regulation of the Parliament and the European Council N1380/201318) can be found in the management policy. Thus, SG80 is not met</p>		
Draft scoring range		60-79		
Information gap indicator		More information sought		

PI 3.2.1 – Fishery-specific objectives

PI 3.2.1		The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC Principles 1 and 2		
Scoring issue		SG 60	SG 80	SG 100
a	Objectives			
	Guide post	Objectives , which are broadly consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are implicit within the fishery-specific management system.	Short and long-term objectives , which are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are explicit within the fishery-specific management system.	Well-defined and measurable short- and long-term objectives , which are demonstrably consistent with achieving the outcomes expressed by MSC Principles 1 and 2, are explicit within the fishery-specific management system.
	Met?	Yes	Yes	No
Rationale		<p>The fishery-specific management system assessed in this PI is only the Ecuadorian fishery since no Peruvian vessel is included in the UoA, while the MSC P2 is only applicable up to the UoA level. No specific regulations for the dolphinfish fishery have been adopted by the IATTC or under the bilateral agreement signed between Ecuador and Peru, so in relation to P1 this SI will be assessed only for Ecuador. However, since this is also a longline fishery catching tuna and tuna-like species it is subject to all IATTC Resolutions on bycatch species (tunas, tuna-like species, sharks and marine turtles). Ecuador as already stated in PI 3.1.3, the LODAP constitutes the overarching legal National framework in Ecuador. The purpose of this Law is the protection, conservation, research, exploitation and use of hydrobiological resources and their ecosystems, through the application of the fishing ecosystem approach in such a way that sustainable and sustainable development is achieved that guarantees access to food, in harmony with the principles and rights established in the Constitution of the Republic, and respecting traditional and ancestral knowledge and forms of production. The fishery-specific management system consists of the following management measures for the dolphinfish fishery issued by the Undersecretariat for Fisheries and adopted as Ministerial Agreements (only Agreements in force are listed in chronological order): - Agreement 070 of May 19, 2011, which establishes a seasonal closure between July 1 and October 7 of each year; ratifies that the minimum legal landing size is set at 80 cm in total length (a certain percentage of dolphinfish bycatches larger than the minimum legal size are allowed during the seasonal closure -2% in the case of purse seiners, 8% in the case of other fishing gears); ratifies the hook sizes and types allowed for targeting dolphinfish; and establishes several other complementary measures of an administrative nature, and repeals Ministerial Agreements 031 of October 11, 2004 and also Agreement 056 of April 16 2011. - Agreement 407 of October 12, 2011, which in its articles 1 and 3, defines the characteristics of longline fishing vessels, and establishes a maximum number of up to 10 smaller fiber-glass vessels that can be towed by mother ships during the Dorado fishing season. It also sets that at least 10% of the mother-ships shall have observers on board. - Agreement N°MPCEIP-SRP-2021-0145-A June 21, 2021, setting the PAN-Dorado as a tool setting the guidelines for the conservation, management and eco-certification of the dolphinfish. This Agreement repealed the previous Agreement N°023 of February 14, 2011. - Agreement MPCEIP- SRP- 2021-0208-A approved on September 22, 2021, establishing that this Program must provide a system for random monitoring and real-time data collection on the fishing trips made by fishing vessels using drifting longlines. The monitoring will increase progressively, with 10% of trips being observed in 2022, 15% in 2023 and 20% in 2024, establishing that this Program must provide a system for random monitoring and real-time data collection on the fishing trips made by fishing vessels using drifting longlines. The monitoring will increase progressively, with 10% of trips being observed in 2022, 15% in 2023 and 20% in 2024. Agreement MPCEIP-SRP-2022-0150-A approved on July 13, 2022, establishes the installation and operation of the Satellite Monitoring Device (Dispositivo de Monitoreo Satelital – DMS) for all industrial fishing vessels and mother-ship vessels, regardless of gross registered tonnage (TRB). - Agreement N° MPCEIP-SRP-2023-0182-A a Participatory Governance System for the Dorado fishery (coryphaena hippurus) resource in Ecuador was implemented. This Agreement establishes the Mahi Mahi Consultative Council as an instrument of consultation between the public and private sectors related to the resource, to advise the Minister of Agriculture, Livestock, Aquaculture and Fisheries on the formulation of strategies and policies that strengthen the management, sustainable use, production and competitiveness of the productive chain of this marine resource. This Agreement repealed the previous Agreement N°055 of April 16 2011. The latest PAN Dorado for 2019-2024 was officially adopted in 2021 through the Ministerial Agreement No. MPCEIPSRP-2021-0145-A. The PAN will be valid for five years (December 2019 – December 2024), after that, the PAN will be evaluated and updated (as it was already the case in 2018/19). The general goal of the current PAN Dorado is to ensure the conservation and sustainable use of dolphinfish resource, while the specific objectives listed below: 1) Strengthen the regulatory framework through the formulation of evidence-based fisheries measures based on scientific-technical evidence to ensure and implement the sustainable use and conservation sustainable use and conservation of the dorado resource. 2) To guarantee monitoring, control and surveillance for the conservation and sustainable use of dorado resources in Ecuador. 3) Strengthen the technical capacities of key stakeholders and develop an educational program aimed to the fishing communities to strengthen and promote awareness of sustainable fishing and the reduction of bycatch of non-target species. 4) Generate priority scientific information for the management of the resource through the implementation of a Five-Year Plan for the management of the resource. The PAN Dorado includes the adoption of an action plan with specific actions and timelines. This action plan contains a summary of the measures implemented to date and details the actions to be taken and the expected results. The actions designed to achieve the specific objectives were grouped in four components: 1) Management, Governance and financial sustainability 2) Control and Inspection 3) Training, awareness and communication 4) Monitoring and Research The previous PAN included a fifth component aimed to reduce incidental catches.</p> <p>However, this component was removed from the PAN for 2019-2024. A single action aimed to reduce incidental interactions with ETPs was included under the specific objective (4): “to perform studies on the alternate fishing gear to avoid catching turtles”. However, in relation to bycatches of tunas, sharks and protected species (protected sharks, turtles, birds, marine mammals), this fishery is subject to a set of national and international regulations and agreements. HCRs have been adopted for tropical tunas, while in the case of protected species the regulations basically prohibit targeting and retaining on board turtles and protected sharks, which shall be released alive, if possible, to sea. Besides, Ecuador has National Plans for the Conservation for sharks (PAT-Ec) and Sea Turtles (PNCTM) in place since 2013 and 2014, respectively. These national conservation plans include both general and specific objectives, and detail action plans for achieving these objectives. Both Plans have been adopted as national regulations and have gone through a review process after the first 5 years. Finally, Ecuador is also signatory member of binding international Agreements on the conservation of albatrosses and petrels (ACAB). As a result, Ecuador has different regulations dealing with the conservation of protected sharks, turtles</p>		

PI 3.2.1	The fishery-specific management system has clear, specific objectives designed to achieve the outcomes expressed by MSC Principles 1 and 2
	and marine mammals which are aligned with the objectives of these international regulations and Agreements (more details in Principle 3 background section). Based on the above, the team considers that the combination of the Ecuadorian fishery-specific management system (PAN Dorado and related Ministerial Agreements), IATTC Resolutions on tropical tunas, sharks and turtles, and binding international Agreements ensure that short and long-term objectives consistent with achieving the outcomes expressed by MSC's Principles 1 and 2. Thus, SG60 and SG80 are met. However, with the exception of the HCR adopted by the IATTC for the tropical tunas and the increasing observer coverage adopted at the national level, most of these objectives are not well-defined and measurable. For instance, the team considers that the formulation of objectives in PAN-Dorado, PAT-EC and PNTCTM and the scheduling of activities linked to these objectives do not allow evaluation of the level of compliance with the activities. Furthermore, neither the MoU nor the Loja plan provide more in-depth information regarding the fishery's objectives. SG100 is not met.
Draft scoring range	≥80
Information gap indicator	Information sufficient to score PI

PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
Scoring issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guide post	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	Yes	Yes	
Rationale		<p>The decision-making processes assessed in this PI include the ones in place at the Ecuadorian level and those relative to the bilateral cooperation between Ecuador and Peru. Ecuador: The IPIAP is the scientific body that advises the SRP on decision-making and the issuance of dolphinfish management regulations. The IPIAP uses the information from the biological sampling program at ports and landing data to inform the joint stock assessment performed together with the IMARPE. The SRP based on the scientific advice, is responsible for making and applying management decisions for the dolphinfish fishery based on the available data. Several Ministerial Agreements setting management measures have been passed. The Agreements in force: (i) Agreement 070 passed in May 2011 setting the minimum size, the closed season, and the authorized hooks and authorised vessels; (ii) Agreement 407 passed in October 2011 setting the characteristics of the longline vessels and the maximum number of skiffs per mother-ship; (iii) Agreement MPCEIPSRP-2021-0208-A modifying the previous observer program adopted in 2011. Based on the information presented above, SG60 and SG80 are met.</p> <p>Bilateral cooperation between Ecuador and Peru Ecuador and Peru signed in 2014 a Memorandum of Understanding on Fisheries and Aquaculture between the Ministry of Production of the Republic of Peru and the Ministry of Agriculture, Livestock, Aquaculture and Fisheries of the Republic of Ecuador, which still in force today. During the April 29, 2022, the Loja Agreement was signed, wherein at point 40 both nations committed to collectively combat IUU. Additionally, they instructed their respective authorities to continue negotiations for the MoU. Moreover, an implementation plan was outlined for the Loja Agreement highlights that IMARPE and IPIAP will jointly conduct research covering aspects such as the selectivity of fishing gear to minimize juvenile species capture and incidental bycatch, as well as the biology and fishery of dorado/dolphinfish (<i>Coryphaena hippurus</i>), among other species. Under the MoU on Fisheries and Aquaculture signed between Ecuador and Peru, six binational workshops and seven virtual workshops for the exchange of experiences on Dolphinfish resource have been held (2015, 2016, 2017, 2018, 2019, 2020, 2021,2022). The exchange of information between countries enabled to update data related to the geographical distribution of the landing sites and other biological aspects associated to the dolphinfish. Under the framework provided by this MoU the research institutes from Ecuador and Peru (IPIAP and IMARPE, respectively) managed to coordinate a joint stock assessment completed in 2021 which also includes management advice (RoaUreta et al. 2022). Also, joint study on the genomic characterization of the dolphinfish was completed. Information on the observer program and the fishing logbooks has been shared between the two countries aiming to standardize the collected data. Moreover, in July 2023 the Peruvian and Ecuadorian administrations stated that a binational event will be held probably in 2024 to assess the management measures and results of the Dorado/Perico fishery season implemented by both countries. SG60 is met.</p>		
b	Responsiveness of decision-making processes			
	Guide post	Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation, and consultation, in a transparent, timely and adaptive manner, and take some account of the wider implications of decisions.	Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation, and consultation, in a transparent, timely, and adaptive manner, and take account of the wider implications of decisions.	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation, and consultation, in a transparent, timely, and adaptive manner, and take account of the wider implications of decisions.
	Met?	No	No	No
Rationale		<p>The decision-making processes assessed in this PI include the ones in place at the Ecuadorian level and those relative to the bilateral cooperation between Ecuador and Peru. In 2019 Ecuador received a yellow card from the European Union in relation to flaws in the national mechanisms in place to ensure compliance with its international obligations as a flag, port and market state. After the notification of the yellow card, Ecuador established a two-year action plan with three priority areas: IUU fishing, coercive measures and the promotion of the application of international standards. As a result of this process several elements of the MCS system have been updated (for more details see in PI 3.2.3.a). Also, the observer program has been recently reviewed to increase the observer coverage in this fishery. However, the SRP representatives interviewed during the site visit acknowledged that around 40% of the landings performed by the 'pata-pata' fiber-glass skiffs are not inspected. The vessels that do not undergo an inspection cannot possess a Certificate of Fisheries Landing Monitoring and Control issued by inspectors to facilitate their transport and sale. These catches are not reported either since this fleet does not have logbooks on board. This is a serious issue that has not yet been addressed by the decision-making processes. Thus, SG60 is not met</p>		
c	Use of precautionary approach			
	Guide post		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Yes	
Rationale		<p>The decision-making processes assessed in this PI include the ones in place at the Ecuadorian level and those relative to the bilateral cooperation between Ecuador and Peru. Article 4 of the LODAP states that the precautionary approach and the fishing ecosystem approach must be observed, without prejudice to those established in the Constitution of the Republic. Besides, Article No. 96 of the LODAP sets that fishery management measures will be adopted after a scientific technical report from the IPIAP, and socialization with the fishing sector based on the best scientific evidence available and</p>		

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
		ancestral knowledge in accordance with the population conditions of the resources and the state of the fisheries. The latest joint stock assessment (Roa-Ureta et al., 2022) showed that the dolphinfish stock in the Southeast Pacific stock is not overfished and not experiencing overfishing. The combined management measures adopted in Ecuador and Peru were tested through a preliminary MSE exercise and proved that alternative season closures and openings have similar general effects on SBR and total yield (Valero et al. 2016). Besides, the recently adopted Resolution 23-09 includes the commitment that, based on an updated stock assessment, the SAC will update the management recommendations for this fishery.		
d	Accountability and transparency of management system and decision-making process			
	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	Information on the fishery's performance and management action is available on request , and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.	Formal reporting to all interested stakeholders provides comprehensive information on the fishery's performance and management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation, and review activity.
	Met?	Yes	Yes	No
Rationale		The decision-making processes assessed in this PI include the ones in place at the Ecuadorian level and those relative to the bilateral cooperation between Ecuador and Peru. Information about the fishery management mechanisms is on the Ecuadorian Ministry's website. The fishing sector and other stakeholders had the chance to participate in the design and review of the PAN Dorado. The reports of the bilateral meetings held under the MoU are not publicly available. On December 2020, Ecuador signed an agreement with Global Fishing Watch (GFW). By joining the GFW platform, Ecuador facilitates enhanced monitoring of the 1,200 vessels that make up Ecuador's industrial and small-scale fishing fleets. This will help increase accountability for vessels throughout the region and represents a common effort to achieve transparency across the global ocean. Agreement No. MPCEIP-SRP-2023-0182- created a Participatory Governance System for the Dorado fishery and the reinstatement of the CCRD. The CCRD's responsibilities include monitoring and tracking the execution, adherence, and outcomes of measures outlined in the Dorado National Action Plan (PAN Dorado) and other fishery management actions. In addition, the CCRD seeks to establish an inclusive and permanent participation and consultation of stakeholders in the Dorado fishery, integrating technical and scientific information on this fishery. Among the objectives of the CCRD detailed in Article 3 of the Agreement, it is specifically mentioned: "Communicate the measures and recommendations coming from the consultation and participation process to all actors and interested parties in the fishery." Therefore, the Information on the fishery's performance and management action is available on request, and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity. Based on the information presented above, the team considers that SG60 and SG80 are met. However, there is no accessible information about annual fishing effort, percentage of catches, among others and the government's website lacks this information. Moreover, the recent establishment of the CCRD makes it difficult to assess its effectiveness and if it will provide comprehensive information on the fishery's performance and management actions and will describe how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.		
e	Approach to disputes			
	Guide post	Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability of the fishery.	The management system or UoA is attempting to comply in a timely fashion with judicial decisions arising from any legal challenges.	The management system or UoA acts proactively to avoid legal disputes or rapidly implements judicial decisions arising from legal challenges.
	Met?	Yes	Yes	
Rationale		No specific regulations for the dolphinfish fishery have been adopted under the bilateral agreement signed between Ecuador and Peru. Thus, the management authority assessed in this PI is restricted to the Ecuador. Fishing in Ecuador is one of the country's main economic and social activities. For this reason, the Fisheries Administration is constantly working to improve access to resources within a framework of sustainability and with greater participation of the fishing sector, scientists and civil society. The use of participatory for the design and review of the PAN Dorado may have helped to decrease the chances of disrespect or defiance of the law by the stakeholders, and the newly established fishery-specific Advisory Council will work in the same direction. According to the communications received from the client the fishery is not subject to continuing court and the management system is attempting to comply in a timely fashion with judicial decisions that may arise from legal challenges. During the site- visit the SRP informed that there are no legal challenges affecting the fishery and no concerns regarding this issue were raised by other stakeholders. Based on the information presented above the team considers that SG60 and SG80 are met. However, the team does not have sufficient information to positively state that the management system is acting proactively on this regard. SG100 is not met.		
Draft scoring range		<60		
Information gap indicator		Information sufficient to score PI		

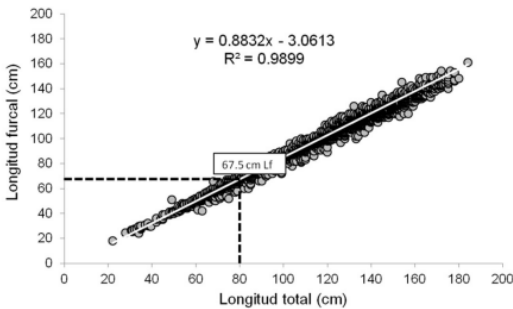
PI 3.2.3 – Compliance and enforcement

PI 3.2.3		Monitoring, control, and surveillance (MCS) mechanisms ensure the management measures in the UoA are enforced and complied with		
Scoring issue		SG 60	SG 80	SG 100
a	MCS system			
	Guide post	Monitoring, control and surveillance mechanisms exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.	A monitoring, control and surveillance system has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.	A comprehensive monitoring, control and surveillance system has been implemented in the fishery and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.
	Met?	Yes	No	No
Rationale		<p>According to the LODAP monitoring, control and surveillance (MCS) activities must be carried out in all places where fishing and related activities are developed and throughout all the phases of the productive chain of the fishing activity. The Ecuadorian Fisheries Authority must have free access to the facilities, vessels, docks and any other premises where the activity is carried out and must have access to the information required for the fulfillment of its attributions. To ensure the MCS of fishing activities, the LODAP establishes diverse mechanisms such as:</p> <p>The implementation of MCS systems. Inspections of ports and vessels. Technical reports from government institutions such as the IPIAP, on-board observers and the Satellite Monitoring Center (Centro de Monitoreo Satelital- CMS). Fishing logbook, image recording system and a weighing system.</p> <p>To track, identify and localize industrial and artisanal fishing vessels must have a tracking devise that has to be authorized by the National Defense entity, the information about the location of the vessels is managed by the Administration of the Monitoring Center (Administración del Centro de Monitoreo). The Administration of the Monitoring Center can share the tracking information with the IPIAP (see Principle 3 background section) so they can identify and establish the fishing areas of the artisanal and industrial fleets. Agreement MPCEIP-SRP-2022-0150 sets that the Satellite Monitoring Device (DMS or VMS in English) is mandatory for all industrial vessels and longline mother-ship vessels. According to the client, all mother-ship vessels have VMS installed.</p> <p>Mother-ships vessels must have a fishing logbook that can be physical or electronic, and it shall be filled out daily in a complete, reliable and timely manner, to be delivered at the time of landing or completion of fishing operations. The logbook must have the general data of the vessel, information of departure and arrival, fishing gear, geographic location, start and end time of each fishing set, estimated catches by species or group of species in tons, kilograms or number of specimens, discard and bycatch, a report of mammals and marine mammals, reptiles, penguins and seabirds with which they have interacted during the fishing operations (LODAP, article No. 162 and General Regulation, article No.225)</p> <p>MPCEIP-SRP-2019-0402-M of May 14, 2019, and accepting the suggestion made by the National Fisheries Institute (IPIAP) approves and provides for the immediate and mandatory implementation of the fishing logbooks worked jointly between the IPIAP and SRP.</p> <p>On the landing sites the SRP through the Directorate of Fisheries Control (DCP) carries out permanent monitoring of hydrobiological resources, applied 365 days a year under the framework of the “Monitoring, Control and Surveillance System (MCS)”. All in situ procedures related to the MCS of fishery resources are applied through the Fisheries Inspectors at the national level, to maintain proper traceability of resources, in addition to strengthening the fight against IUU fishing (MPCEIP, 2021).</p> <p>In 2011 an observer program was implemented (Article No. 10 of Ministerial Agreement No. 407 of October 12, 2011) stating that the program should cover 10% of the active fleet of the longline mother vessels. Therefore, in December 2011 with Ministerial Agreement No. 204 a Single Program of observers for the Ecuadorian longline fleet was created. The program provided a system of random monitoring and real time data collection on 10% of the fleet of mother vessels and the longline fishing vessels that have more than 20 meters of length. In 2021 with the Agreement MPCEIP- SRP- 202, the observation program was updated establishing that it must provide a system for random monitoring and real-time data collection on trips made by fishing vessels using “drifting longline” fishing gear, as well as the fleet of mother-ship vessels. The monitoring will be made progressively, with 10% of trips being observed in 2022, 15% in 2023 and 20% in 2024. Data provided by the SRP confirms that expected levels in 2022 were accomplished (MPCEIP 2023b).</p> <p>In 2019 Ecuador received a yellow card from the European Union over shortcomings in the mechanisms that the country has put in place to ensure compliance with its international obligations as a flag, port and market state. The shortcomings noted by the European Union include:</p> <ul style="list-style-type: none"> • The legal framework in place is outdated and not in line with the international and regional rules applying to the conservation and management of fishing resources. • Law enforcement is hampered by this outdated legal framework, inefficient administrative procedures and a lenient approach towards infringements. As a result, the sanctioning system is neither depriving the offenders from the benefits accruing from IUU fishing, nor deterrent. • There are serious deficiencies in terms of control, notably over the activity of the tuna fishing and processing industries. • After finding that the country’s regulations and procedures to combat IUU fishing do not comply with international and regional standards applicable to the conservation and management of fishery resources. In order to comply with the EU’s observations, the Ecuadorian government has updated the legal framework (LODAP and its general regulations) establishing the application of sanctions with deterrent effect for illegal fishing activities, categorized from minor, serious to very serious, as well as determining a table of fines. 		

PI 3.2.3	Monitoring, control, and surveillance (MCS) mechanisms ensure the management measures in the UoA are enforced and complied with			
	<p>After the notification of the yellow card, Ecuador established a two-year action plan with three priority areas: IUU fishing, coercive measures and the promotion of the application of international standards. The actions taken by the Ecuadorian Government in this regard are summarized below:</p> <ul style="list-style-type: none"> Ecuador has secured the allocation of resources for the next 3 years through the “Comprehensive and Sustainable Strengthening of the Aquaculture and Fisheries Sector” investment project, which will invest a total of \$37.66 million by December 2025. This strategic investment aims to enhance institutional capacities in fishery management, boost productivity and competitiveness, and modernize the technological infrastructure for the Integrated Aquaculture and Fisheries System, Active work on the implementation of Memorandums of Understanding for the exchange of information on IUU fishing and have established mechanisms for ongoing monitoring and communication with the fishing authorities of other states to validate information provided by vessels. Implementation of the AMERP: Ecuador aligns its regulations with the AMERP, acting as a Flag State, Port State, and Coastal State. Ecuador participated in the 4th AMERP Meeting as the First Regional Vice President and will host the 5th Meeting in May 2025 in the city of Manta. Approval of the update of the National Control Plan. Strengthened operational capacity for the identification and application of monetary and complementary sanctions established in the new law through the hiring of officials to address old case backlogs Updated and published information on the fishing fleet, harmonized controls with the EU Regulation 1005/2009. Interoperable processes for import authorization, and the SRP authorization prior to fish imports. Interagency collaboration and response capacity have been reinforced. Contracting of the Integrated Aquaculture and Fisheries System to transition from paper-based administration to an interoperable and auditable system. It is in its final phase before going live, significantly strengthening Ecuador’s capacity to comprehensively monitor the vast volumes of raw materials landed, imported, and processed in the country, with a record of movements throughout the entire value chain. Improvement in the physical and technological facilities of the Satellite Monitoring Center has been observed, along with the implementation of equipment for better monitoring, control, and surveillance. A new Fisheries Law passed in 2020. <p>Thus, SG 60 is met since monitoring, control and surveillance mechanisms exist, and are implemented in the fishery and there is a reasonable expectation that they are effective.</p> <p>In November 2022, the UE sent a delegation for review the yellow card. However, at the time of preparing this report the yellow card has still not been lifted. Article 113 of the LODAP states that DMS (or VMS in English) shall be installed in all artisanal vessels for safety purposes. However, according with the information provided by the client and collected during the site-visit, the fiberglass skiffs did not have the DMS installed. Fishermen consider that the DMS is too expensive and that they cannot afford it, therefore they are negotiating with the administration to receive financial aid to comply with this regulation.</p> <p>All landings performed by mother-ship vessels shall be inspected by the SRP. Nevertheless, in the case of pata-pata’ fiberglass skiffs, the SRP representatives interviewed during the site visit acknowledged that around 40% of the landings performed by skiffs are not inspected. This creates an uncertain situation for landings that do not undergo this inspection. In theory, all fish should have a Certificate of Monitoring and Control of Fisheries Landing issued by inspectors to be transported and sold. The absence of such a certificate can only indicate the possible presence of illegal, unreported, and unregulated (IUU) fishing. Therefore, the monitoring, control and surveillance system that is implemented in the fishery cannot demonstrate an ability to enforce relevant management measures, strategies and/or rules.</p>			
b	Sanctions			
	Guide post	Sanctions to deal with non-compliance exist and there is some evidence that they are applied.	Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.	Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.
	Met?	Yes	No	No
Rationale	<p>The sanctioning regime assessed in this PI is restricted to Ecuador. With the enactment of the LODAP in 2020, the aim is to have an updated legal framework, which considers the application of sanctions and dissuasive infractions. Likewise, the SRP through the Fisheries Control Directorate has established greater control and surveillance at ports and shipping zones. Chapter VI of the LODAP details the sanctioning regime applicable to fishing activities. Infractions as minor (detailed in Article 212), serious (Article 213) and very serious (Article 214). Sanctions shall be imposed according to the following criteria: seriousness of the infraction, the nature and quantification of the damage, whether it involves fragile, protected or endangered ecosystems or species, the size and power of the vessel and quantification of the damage, possibility of restoring the damage, economic benefit obtained or expected by the alleged offender as a result of his action or omission and the existing mitigating or aggravating factors (Article No. 192, LODAP). (see principle 3 background section). Article 215 details the different sanctions that can be imposed in case of incurring infractions: a) Fine which may consist of fines of one to one thousand five hundred unified basic salaries (SBU) b) Confiscation of hydrobiological species, products or goods obtained in the commission of infractions. c) Definitive confiscation of fishing gear or gear and products or inputs of prohibited use. d) Suspension, revocation or non-renewal of authorizations or permits. e) Reduction of points in accordance with current regulations. f) Seizure of the fishing vessel. g) Temporary closure of the production line or aquaculture or fishing establishment. h) Loss of incentives Article 216 details the sanction to Fishing Captains: a) The reduction of points in their fishing licenses b) With a fine equivalent to 10% of the financial penalty imposed on the shipowner. Additionally, it may be imposed: a) Temporary suspension, from carrying out fishing activity, from one to three months in case of committing very serious infractions and from six months to one year, in case of recidivism. b) Definitive suspension in case of total loss of points, as established by the points system in the regulations of this Law. Article 217 details the fines that can be imposed to the artisanal fishers. Infractions committed by people who operate artisanal vessels and natural persons dedicated to artisanal fishing activities will be punished with a fine equivalent to 1 basic wage (SBU) in case of minor infractions, 2-5 SBU in the case of serious infractions, and 6 to 10 SBU in the case of very serious infractions. Sanctions may also be calculated based on the commercial value of the catch involved in the infringement (the value multiplied by 3 in the case of serious infractions and by 5 in the case of very serious</p>			

PI 3.2.3		Monitoring, control, and surveillance (MCS) mechanisms ensure the management measures in the UoA are enforced and complied with		
		<p>infringements), whatever is higher. Article 218 details the sanctions for industrial vessels (they can go up to 1500 in the case of very serious infringements). Article 219 details the suspension of the activity that can be applied to vessels (between 5 and 30 days in the case of the artisanal vessels, and between 5 and 60 days in the case of industrial vessels), while Article 220 details the sanctions to be imposed to fishing companies. According to the Ministerial Agreement 070 the persons who fail to comply with this normative (that regulates closed seasons, permissibility limits during the closed season, minimum size, among other management measures) will be sanctioned by the Director General of Fisheries at the administrative level, who will set aside an administrative file; and in case of guilt, the maximum sanctions established in the Fisheries Law will be applied, including the suspension of the fishing permit. Regarding ETP species, it is determined as a serious fishing infraction to intentionally carry out fishing activities in interaction with marine mammals, sea turtles or whale sharks (LODAP, article No 213, section fishing gear, letter e). After the site visit, and as a request of the team, the SRP prepare a document summarizing all administrative sanctioning files raised between 2020 and 2023 (table PI3.2.2.1) and all the sanctions imposed (table PI3.2.2.2), including the amount of the fines imposed. All the administrative processes initiated finally led to sanctions. The 4 sanctions that they imposed were directed at individuals who were found to be in possession of the resource during the officially designated closed season. The SRP communicated to the team that the operational capacity for the identification and application of monetary and complementary sanctions established in the new law has been strengthened in recent years through the hiring of officials to address old case backlogs</p>		
c	Compliance (information)			
	Guide post	Fishers are generally thought to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.	Some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.	There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.
	Met?	Yes	Yes	No
Rationale		<p>The level of compliance assessed in this PI is restricted to the Ecuadorian fleet. The position of the mother-ship vessels is controlled through the VMS installed on board, they record their catches in logbooks, and all their landings have to be inspected to get the CMCDP. None of the stakeholders interviewed during the site visit raised any serious concern regarding the compliance on these issues in relation to the mother-ship vessels. Additionally, there is an observer Program implemented since 2011. The information shared by the SRP confirms that the observer coverage adopted in the Agreement MPCEIP- SRP- 2021-0208-A passed in 2021 for 2022 was achieved (10% of fishing trips) (MPCEIP, 2023 b). Based on the above the team considers that SG60 and SG80 are met.</p>		
d	Compliance (outcome)			
	Guide post		There is no evidence of systematic non-compliance	
	Met?		No	
Rationale		<p>The systematic non-compliance assessed in this PI is restricted to the Ecuadorian fleet. All relevant stakeholders interviewed during the site visit acknowledged that "pata-pata" fiber-glass skiffs are not complying with the mandatory use of VMS set in Article 113 of the LODAP. Moreover, SRP representatives interviewed during the site visit acknowledged that around 40% of the landings performed by the 'pata-pata' fiber-glass skiffs are not inspected. The vessels that do not undergo an inspection cannot possess a Certificate of Monitoring and Control of Fisheries Landing issued by inspectors to facilitate their transport and sale. The lack of this certificate may suggest the potential existence of illegal, unreported, and unregulated (IUU) fishing activities. Thus, SG80 is not met.</p>		
Draft scoring range		60-79		
Information gap indicator		Information sufficient to score PI		

PI 3.2.4 – Monitoring and Management Performance Evaluation

PI 3.2.4		There is a system for monitoring and evaluating the performance of the fishery-specific management system against its objectives. There is effective and timely review of the fishery-specific management system		
Scoring issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guide post	There are mechanisms in place to evaluate some parts of the fishery-specific management system.	There are mechanisms in place to evaluate key parts of the fishery-specific management system.	There are mechanisms in place to evaluate all parts of the fishery-specific management system.
	Met?	Yes	Yes	No
Rationale		<p>The mechanisms assessed in this PI include the ones in place at the Ecuadorian level and those relative to the bilateral cooperation between Ecuador and Peru. The key management measures for the dolphinfish fishery in Ecuador are minimum size, closed seasons, authorized hooks (all detailed in Agreement 070 passed in 2011), and the technical specs of the fleet (detailed in Agreement 407 passed in 2011). Besides, a mandatory observer program is in place (first adopted in 2011 through Agreement 204, and recently superseded by Agreement MPCEIP-SRP-2022-A). Besides, a National Action Plan for the dolphinfish was first designed and implemented for the period 2011-2016. This PAN was evaluated in 2013 and 2018, and a new PAN has been adopted for the period 2019-2024. The PAN is evaluated every five years, at least. The main goal of the current PAN Dorado is to ensure the conservation and sustainable use of dolphinfish resource, through the following components: i) management, government, and financial sustainability, ii) monitoring, control and surveillance, iii) education, capacity building and communication, and iv) research and development. Thus, the evaluation process of the PAN performed in 2013 and 2019 can be considered as a mechanism to evaluate some parts of the fishery-specific management system. The management measures implemented by Ecuador and Peru to manage the dolphinfish fishery are mostly of a similar nature, although their specification differ: the fishing season is closed from 1 July – 7 October in Ecuador and from 1 May – 30 September in Peru, minimum size is 80 cm total length in Ecuador and 70 cm fork length in Peru (see figure below).</p>  <p>These measures combined were tested through a preliminary MSE exercise (Valero et al. 2016). Besides, the recently adopted Resolution 23-09 includes the commitment that, based on an updated stock assessment, the SAC will update the management recommendations for this fishery. Based on the above the team considers that SG60 and SG80 are met. However, all management measures adopted at the National level remain unchanged since 2011 (with the only exception of the observer program). Despite several bilateral meetings have been organized under the framework of the MoU signed by the two countries in 2014, there is no evidence that those forums have been used as mechanisms to evaluate all parts of the fishery-specific system. Thus, SG100 is not met.</p>		
b	Internal and/or external review			
	Guide post	The fishery-specific management system is subject to occasional internal review.	The fishery-specific management system is subject to regular internal and occasional external review.	The fishery-specific management system is subject to regular internal and external review.
	Met?	Yes	Yes	No
Rationale		<p>The fishery-specific management system assessed in this PI is the one for Ecuador. The PAN DORADO has a periodic internal evaluation every 5 years. Pan Dorado (2011-2016) had a mid-term evaluation that was conducted in 2013 to determine its degree of implementation and effectiveness. It should be noted that the General Regulation of the LODAP establishes the creation of a dialogue roundtable for the PAN Dorado to ensure active participation and follow-up of the actions established in the NAP, but this dialogue space has not been created yet. The final evaluation of the first implementation period (2011-2016) should have been conducted in 2015, however, this evaluation was prepared in 2019 by two Consultants, as part of the consultancy "Evaluation of the National Action Plan for the Management of the Dorado resource in Ecuador (PAN Dorado) and update with strengthened governance arrangements", within the Coastal Fisheries Initiatives Project (CFI), implemented by the United Nations Development Programme (UNDP) and executed by the Vice Ministry of Aquaculture and Fisheries (VAP), Ministry of Environment, Water and Ecological Transition (MAATE), Conservation International (CI) and the World Wildlife Fund (WWF) as executing partners, thanks to funding from the Global Environment Facility (GEF). The mid-term and the final evaluation were done through a participatory process. The participatory process including scientists, the country's fisheries administration, fishermen, and civil society. SG60 and SG80 are met because the PAN Dorado is subject to internal review every 5 years and also occasional external review (as it was the one made in 2019). SG100 is not met since there is not a regular external review established.</p>		
Draft scoring range		≥80		
Information gap indicator		Information sufficient to score PI		

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8. Template information and copyright

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The CAB should delete the table below:

Table 5: Template version control

Version	Date of publication	Description of amendment
1.0	15 August 2011	Date of first release
1.1	31 October 2013	Updated in line with changes to CR v1.3
2.0	08 October 2014	Confirmed background sections (Section 3) as optional (use of 'may' statements) Modified Table 6.3 to create a simplified scoring sheet to be completed in place of full evaluation tables Made amendments to PIs based on Fishery Standard Review changes (e.g. removed original PIs 1.1.2, 3.1.4 and 3.2.4).
2.1	9 October 2017	Inclusion of optional full evaluation tables
3.0	17 December 2018	Release alongside Fisheries Certification Process v2.1
3.1	29 March 2019	Minor document changes for usability
3.2	25 March 2020	Release alongside Fisheries Certification Process v2.2
3.3	26 October 2022	Release alongside Fisheries Certification Process v2.3
3.4	01 May 2023	Added optional vessels list section 5.2.

A controlled document list of MSC program documents is available on the MSC website (<https://www.msc.org/for-business/certification-bodies/supporting-documents>).

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ⁱ <https://fisheryprogress.org/node/17337/actions-progress#overlay=action/17481>