INTER-AMERICAN TROPICAL TUNA COMMISSION

SCIENTIFIC ADVISORY COMMITTEE

17TH MEETING

La Jolla, California (USA)

08-12 June 2026

DOCUMENT SAC-17 INF-O

Feasibility study for sample collection to update morphometric relationships and biological samples

Improving data collection for shark fisheries in coastal states of the eastern Pacific Ocean: an update to the IATTC ABNJ-Tuna II project.

An IATTC project in support of the FAO-GEF Project "Sustainable Management of Tuna Fisheries and Biodiversity Conservation in Areas Beyond National Jurisdiction"

Salvador Siu, Omar Santana, Miguel Pérez-Huaripata, Liliana Rendón, Jon López, Dan Ovando and Alexandre Aires-da-Silva

Table of Contents

1. Summary

This study, part of the ABNJ-Tuna II project, has as its main objective to evaluate the feasibility of collecting morphometric data and biological samples from sharks and rays at the main fish landing sites in Ecuador, Mexico, and Peru, with special attention on priority species for the IATTC such as silky sharks (*Carcharhinus falciformis*) and hammerhead sharks (*Sphyrna* spp.). Through a systematic process of identifying and characterizing landing sites, strategic locations were prioritized based on criteria such as landing volume, presence of target species, and logistical feasibility. Sixteen primary and 28 secondary sites were identified in Ecuador, 40 primary sites in Mexico, and 12 primary and 19 secondary sites in Peru, covering between 83% and 92% of national landings in each country. Standardized forms (Forms 0, A, B, and C) were designed and adapted for the collection of data on catch, fishing effort, biometric parameters, and biological samples, including embryos and neonates. Likewise, *in situ* measuring instruments such as ichthyometers with laser technology and specialized scales were tested and optimized to improve the accuracy and efficiency of morphometric and weight data collection. The feasibility of conducting morphometric and biological sampling, including genetic sampling for use in the CKMR methodology, was evaluated considering the type of cut applied to the specimens, the catch composition, and the life stages. Twenty-two sites were identified as suitable for morphometric studies and 17 for biological sampling, although the application of CKMR was initially limited to 11 sites with optimal conditions for obtaining tissue samples from *C. falciformis*. Finally, the regulatory frameworks and administrative procedures required in each country for the collection, handling, and export of biological samples were documented, highlighting the need for specific permits and compliance with national and international regulations such as CITES. The results lay the foundation for a regional fisheries and biological monitoring system that contributes to the conservation and sustainable management of elasmobranchs in the eastern Pacific.

2. Introduction

Updating morphometric relationships and obtaining biological samples from sharks and rays are essential components for better understanding the stock structure, biological parameters, and conservation status of this taxonomic group. To obtain this knowledge, it is essential to have up-to-date information on their biological characteristics and how these vary depending on their ontogenetic stage and the area in which they live and are caught. To this end, this study focused on assessing the feasibility of collecting morphometric and biological samples at the main fish landing sites in Ecuador, Mexico, and Peru. It is important to mention that this study focuses on sharks and rays, especially species considered a priority by the IATTC (see Resolution C-24-05), including, among others, the silky shark (*Carcharhinus falciformis*) and hammerhead sharks (*Sphyrna* spp.).

To this end, the sites with the highest shark fishing activity were identified by combining official data from each country with information obtained directly in the field during the characterization of each site of interest. This process made it possible to identify and prioritize the most relevant sites in each country for morphometric and biological monitoring, ensuring geographic representativeness, coverage of target species, and logistical feasibility.

Based on the forms created in ABNJ-Tuna I, specific forms were designed and adapted in ABNJ-Tuna II to document the dynamics of the fishing fleet, fishing effort, morphometric characteristics, and biological parameters of the specimens landed, including data on embryos and neonates. The methodology incorporated technological innovations such as the use of ichthyometers with and without laser meters, aimed at improving the accuracy and standardization of *in situ* measurements. Likewise, different strategies for measuring and weighing individuals were evaluated under real field conditions, considering the space limitations of the landing sites and the logistics of operation between locations.

Although the ABNJ-Tuna II project is still in the sampling phase, this pilot exercise has made it possible to test, under real conditions, what it would be like to implement broader and more permanent monitoring in the region. The results not only provide a clear idea of what is needed in technical and logistical terms, but also lay the groundwork for a future regional monitoring system that supports the conservation and sustainable management of elasmobranchs in the easter Pacific.

3. Characteristics of the main sampling sites

The identification and characterization of landing sites for monitoring shark catches was carried out through a systematic two-stage process: i) integrating information from multiple official sources and ii) specialized fieldwork. In the first stage, the initial selection of sites was based on a comprehensive analysis of the databases of national fisheries authorities and scientific authorities. It is important to mention that this information was consolidated and shared during the first activity of the project (SAC-16 INF V). The selection criteria included three main variables: the number of vessels historically reported, the volume of landings recorded, and the confirmed presence of the shark species targeted by the study (i.e., silky shark and hammerhead sharks).

This process was complemented by information gathered during the systematic characterization and identification of landing sites (SAC-16 INF-W), which revealed different patterns by country in terms of the distribution and characterization of fishing sites. In Ecuador, out of a total of 643 locations of interest identified, 510 were classified as active fishing sites, where analysis showed that 93% had been historically reported in the national metadata, while the remaining 7% corresponded to new sites with no previous record of documented fishing activity. In Mexico, 737 locations of interest were reported, of which 341 were identified as fishing sites; 66% corresponded to historical sites with documented fishing activity, 33% were classified as potential sites used seasonally, according to the time of year and migratory patterns of target species, and only 1% corresponded to new sites with no previous record. For Peru, 243 locations of interest were identified, of which 177 were categorized as active fishing sites, 47% were considered historical sites, 51% were classified as new sites, and 2% were identified as potential sites with seasonal fishing activity.

The second stage of the process consisted of a detailed characterization of the previously identified shark landing sites. This phase included the development of a structured interview, applied to fishermen and staff (administrative and scientific) from the fisheries authorities of the three participating countries (Appendix 1). The objective of this collaboration was to obtain accurate and up-to-date data for each identified landing site. The analysis process integrated the number of

vessels counted during the mapping phase with shark landing data recorded in official fisheries statistics (SAC-16 INF-W). This integration allowed for the establishment of a hierarchy of sites based on their relative importance for biological monitoring. As a result, 16 primary sites and 28 secondary sites were identified for Ecuador; 40 primary sites for Mexico; and 12 primary sites and 19 secondary sites for Peru (Appendix 2).

During the characterization of sites of interest, information was also recorded on the characteristics of the catch, such as the fishing season for different species, their ontogeny, and the type of cut made to individuals before landing or marketing. This work revealed that the fishing season for certain species depends on the artisanal fishing fleet. For example, in Ecuador, the species caught by coastal vessels (*fibras)* differ mostly from those caught by oceanic *fibras*, including variations in life stage or ontogeny. This coastal fleet mainly catches demersal species such as *Squatina armata* and *Mustelus lunulatus*, with variable presence depending on the region and time of year, with pregnant females being particularly common between April and October. In addition, although less frequently, the presence of juvenile *Sphyrna zygaena* has been reported in Santa Rosa (ID 5364), Chanduy (ID 5380), and Puerto Bolívar (ID 10530, 10531) (Figure 1). Oceanic *fibras*, on the other hand, land pelagic species such as *P. glauca*, *Alopias pelagicus*, *C. falciformis*, *A. superciliosus*, and *Isurus oxyrinchus*, with seasonal and geographical variations in neonates, juveniles, and pregnant females. *Alopias pelagicus* and *C. falciformis* have pregnant females mainly in Santa Rosa (ID 5364) and El Matal (ID 5199, 5200, 5201), while adults of *A. superciliosus* are more abundant in Santa Rosa (ID 5364) from June to December. *Isurus oxyrinchus* is found year-round in Esmeraldas (ID 5074–5077), in Santa Rosa (ID 5364) from July to December, and in Jaramijó (ID 5266) from January to June. It is important to mention that, in Ecuador, species of the genus *Sphyrna* are subject to specific regulations, and their catch, possession, and commercialization are prohibited by the fisheries authority, even as bycatch. Finally, longline mother vessels constantly land pelagic species in Manta (ID 5277) and Jaramijó (5267) throughout the year, including *Prionace glauca*, *A. pelagicus*, *C. falciformis*, *A. superciliosus,* and *I. oxyrinchus* (Figure 2).

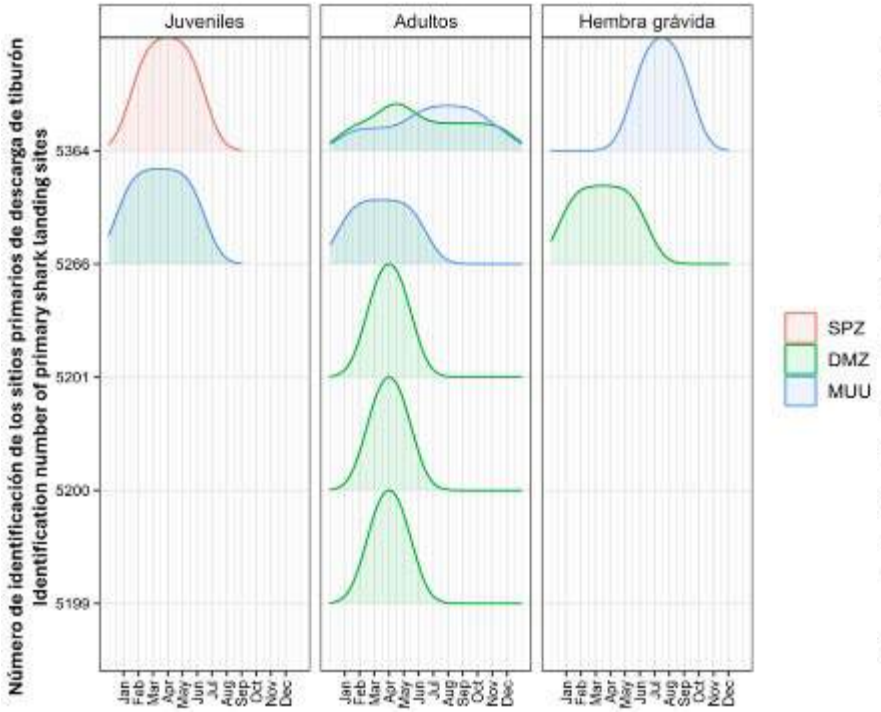


Figure 1. Temporal variation of neonatal, juvenile, adult, and pregnant female sharks at primary sites associated with fishing operations by Ecuadorian coastal *fibras*; the x-axis indicates the months of the year; *the* y-axis indicates the shark landing sites visited; the top of each rectangle indicates the life stages; the color scale indicates the species considered in the analysis, indicated by a line within each rectangle; SPZ = *Sphyrna zygaena*, MUU = *Mustelus lunulatus*, and DMZ = *Squatina armata*.

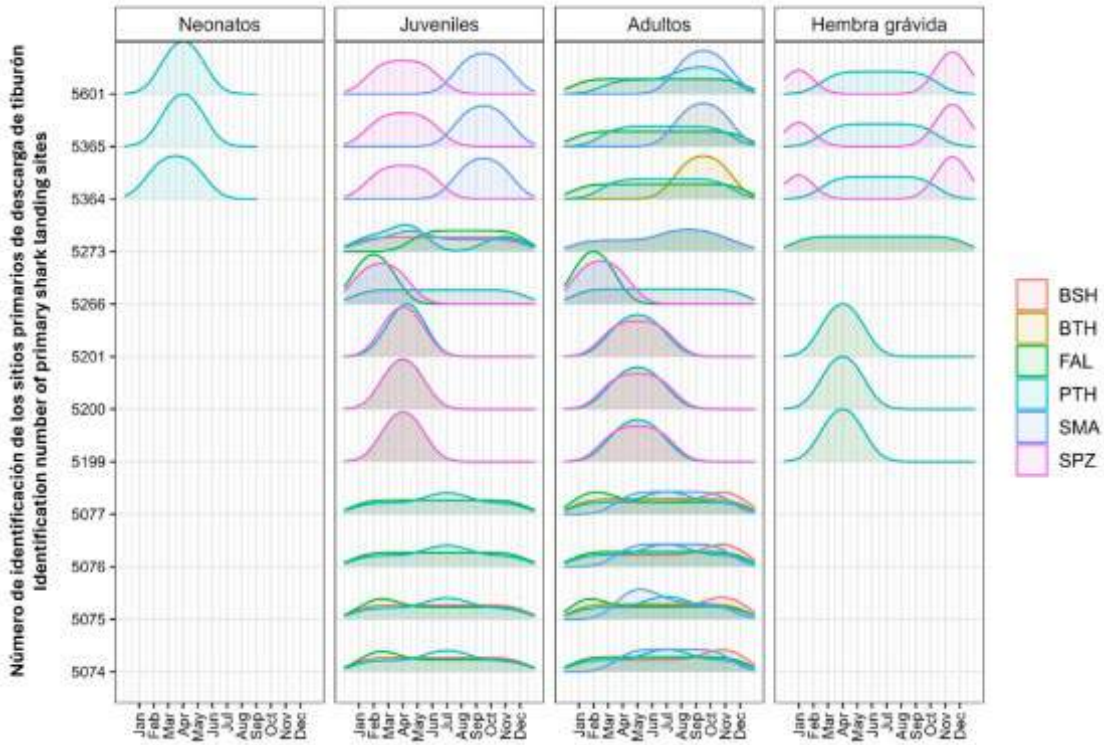


Figure 2. Temporal variation of neonatal, juvenile, adult, and pregnant female sharks at primary sites associated with fishing operations by Ecuadorian oceanic *fibras*; the x-axis indicates the months of the year; *the* y-axis indicates the shark landing sites visited; the top of each rectangle indicates the life stages; the color scale indicates the species considered in the analysis, indicated by a line within each rectangle; PTH = *Alopias pelagicus*, BTH = *A. superciliosus*, FAL = *Carcharhinus falciformis;* SMA = *Isurus oxyrinchus*, BSH = *Prionace glauca*, SPZ = *S. zygaena*

In Mexico, there is a shark closure in the Pacific Ocean that begins on 1 May and ends on 31 July. This makes it difficult to identify natural catch trends during an annual cycle. However, analysis of the recorded data identified a species distribution pattern, with catches of *P. glauca* and *I. oxyrinchus*, in juvenile and adult stages, predominating at landing sites in the northern region, up to the central part of the Baja California peninsula. In this region, only pregnant females of the *Myliobatis californiensis* ray species were documented. On the other hand, in the southern region of the country, from Michoacán to Chiapas, *Sphyrna lewini* and *C. falciformis* were repeatedly documented in all life stages, including pregnant females (Figure 3).

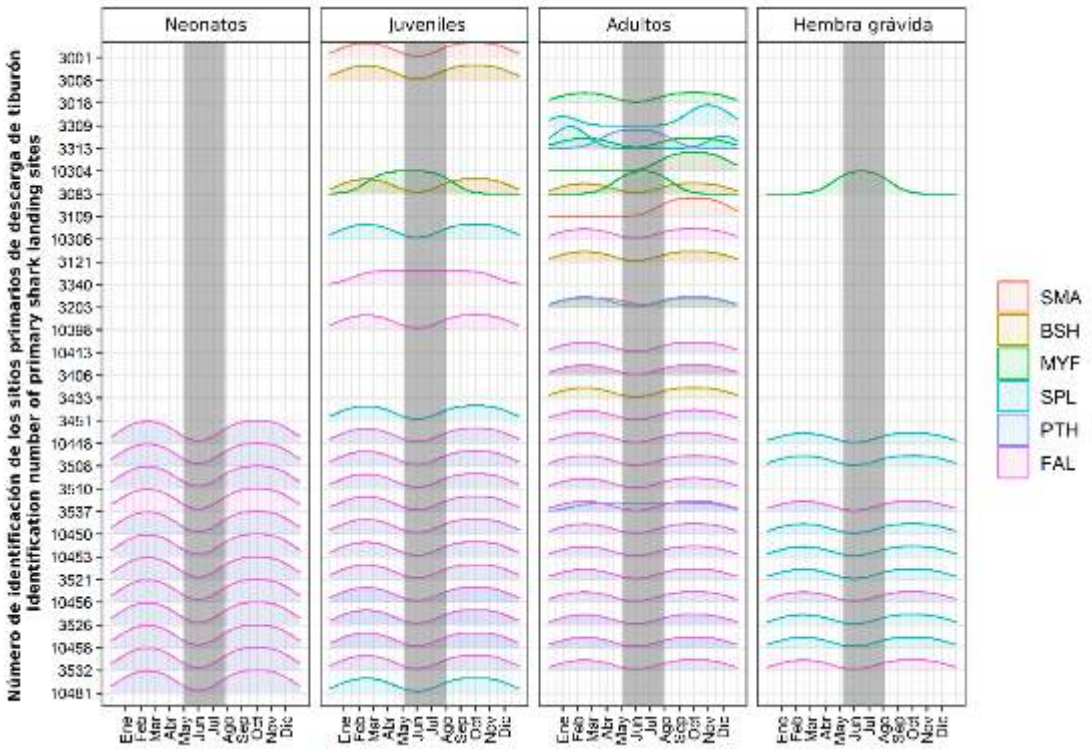


Figure 3. Temporal variation of juvenile, adult, and pregnant female sharks recorded at primary sites, from Mexico's artisanal fleet; the x-axis indicates the months of the year; the y-axis indicates the shark landing sites visited (note the gray-colored closure between May and July); the top of each rectangle indicates the life stages; the color scale indicates the species considered in the analysis, indicated by a line within each rectangle; SMA = *Isurus oxyrinchus*, BSH = *Prionace glauca*, MYF = *Myliobatis californica*, SPL = *Sphyrna lewini*, PTH = *Alopias pelagicus*, and FAL = *Carcharhinus falciformis.*

For Peru, no distinction was made between catches by *bote* and *lancha* vessels, as both fleets cover similar fishing areas. They usually catch (bycatch or target) species such as *P. glauca*, *I. oxyrinchus*, *S. zygaena*, *A. vulpinus, A. pelagicus*, *Myliobatis chilensis*, *Myliobatis peruvianus*, *Mobula mobular*, *Mobula thurstoni*, among others. Meanwhile, *chalanas*, which landed elasmobranchs at some point during the year, mainly land *S. zygaena* (neonates), *Mustelus whitneyi*, *Pseudobatos planiceps* (GUF), *Triakis maculata* (TTM), among others.

The main shark species landed at primary sites in that country (Figure 4) show variable seasonal patterns depending on the type of site, species, and life stage. In this regard, *P. glauca* and *I. oxyrinchus* are caught throughout the year, although in some sites such as Acapulco (ID 7015), Paita (ID 10702), San José (ID 7094), and San Andrés (ID 7200), they predominate between September and March. On the other hand, *S. zygaena*, *A. vulpinus,* and *A. pelagicus* are landed throughout the year, with an increase of *S. zygaena* in March.

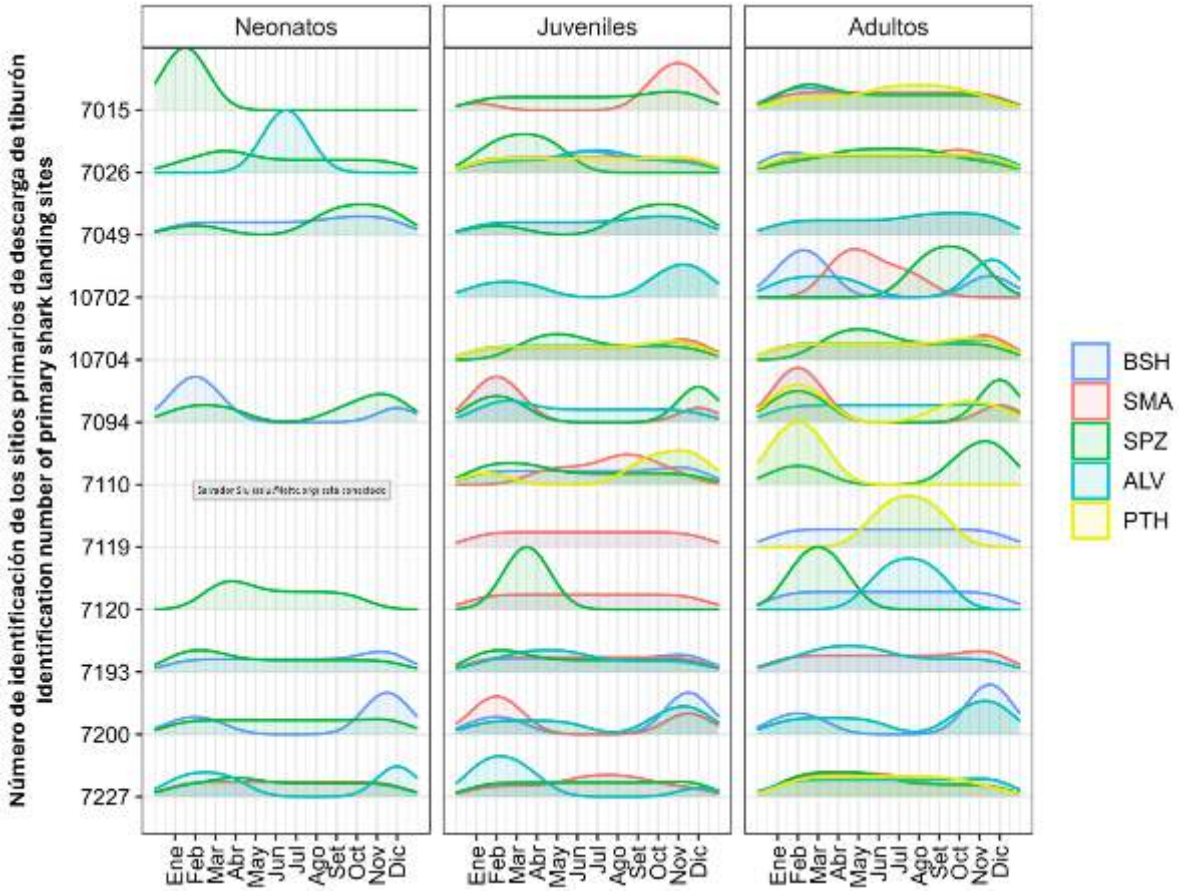


Figure 4. Temporal variation of neonatal, juvenile, and adult sharks at secondary sites, from the artisanal fleet of Peru; the x-axis indicates the months of the year; the y-axis indicates the shark landing sites visited; the top of each rectangle indicates the life stages; the color scale indicates the species considered in the analysis, indicated by a line within each rectangle; BSH = *Prionace glauca*, SMA = *Isurus oxyrinchus*, SPZ = *Sphyrna zygaena*, ALV = *Alopias vulpinus*, and PTH = *Alopias pelagicus*.

An important component during the characterization work was the recording of the different types of cuts that fishermen make to individuals as part of the processing before they are landed or marketed. To this end, the list of different cut options recorded for the main species during ABNJ-Tuna I in Central America (Table 1) was used as a basis. This information is extremely important because, based on the type of cut, the suitability of the site for the implementation of any of the planned sampling (morphometric, genetic, or biological collection) will be determined.

Table 1. Type of cut identified during the ABNJ-Tuna I phase, Central America, 2020-2021; includes the code used, the type of cut, and its general description.

Code	Cut	Description
1	Trunk	Head removed, gutted, and without fins.
2	Headed and gutted	Head removed and gutted, fins naturally attached.
3	Tailed	Only the caudal fin is cut.
4	Trunk, skinned or filleted	Gutted, headed and fins partially cut.
5	Whole gutted	Head and fins have not been cut, but the viscera have been removed.
6	Whole	Not processed.
7	Other	Other type of process.
8	Half	Longitudinal cut, body split in half.

Figure 5. (a) Type of cut made before blue shark (*P. glauca*) landings in Ecuador; (b) type of cut made to a butterfly ray (*Gymnura marmorata*) in Mexico; (c) type of cut made to hammerhead sharks (*Sphyrna zygaena*) in Peru.

In Ecuador, the choice of cut type depends largely on the life stage of the species in both primary and secondary sites (Figure 6). For example, neonates of *P. glauca, C. falciformis*, and *A. pelagicus* arrive whole at Manta (ID 5273) and at the different landing points in Santa Rosa (ID 5364, 5365, 5601). Similarly, pregnant females of these species are also landed whole without any cuts at these sites. In addition, whole specimens of *A. pelagicus* and *A. superciliosus* have been recorded at El Matal (ID 5199, 5200, 5201) and Jaramijó (ID 5266), with a higher occurrence at the latter site. On the other hand, in Esmeraldas (ID 5074, 5075, 5076, 5077), there is a greater presence of juvenile and adult individuals of *C. falciformis* and the other species mentioned above, with headed and gutted cuts, and whole gutted cuts. The latter type of cut predominates especially in *I. oxyrinchus* from oceanic *fibras*, such as those found on longline mother vessels (Figure 6a). At secondary sites, neonates and pregnant females of *P. glauca* and *A. pelagicus* are recorded at La Poza de Manta (ID 5274), and San Mateo (ID 5282). In Súa (ID 5088, 5090, 5092) and Atacames (ID 5082, 5083), trunk-type cuts predominate in juveniles, while in Crucita (ID 5259, 5262, 5263), Puerto López (ID 5306), and Anconcito (ID 5372, 5602, 10523, 10524), whole specimens are landed. In *P. glauca*, *C. falciformis*, and *I. oxyrinchus*, headed and gutted, and whole gutted cuts were common (Figure 6 b).

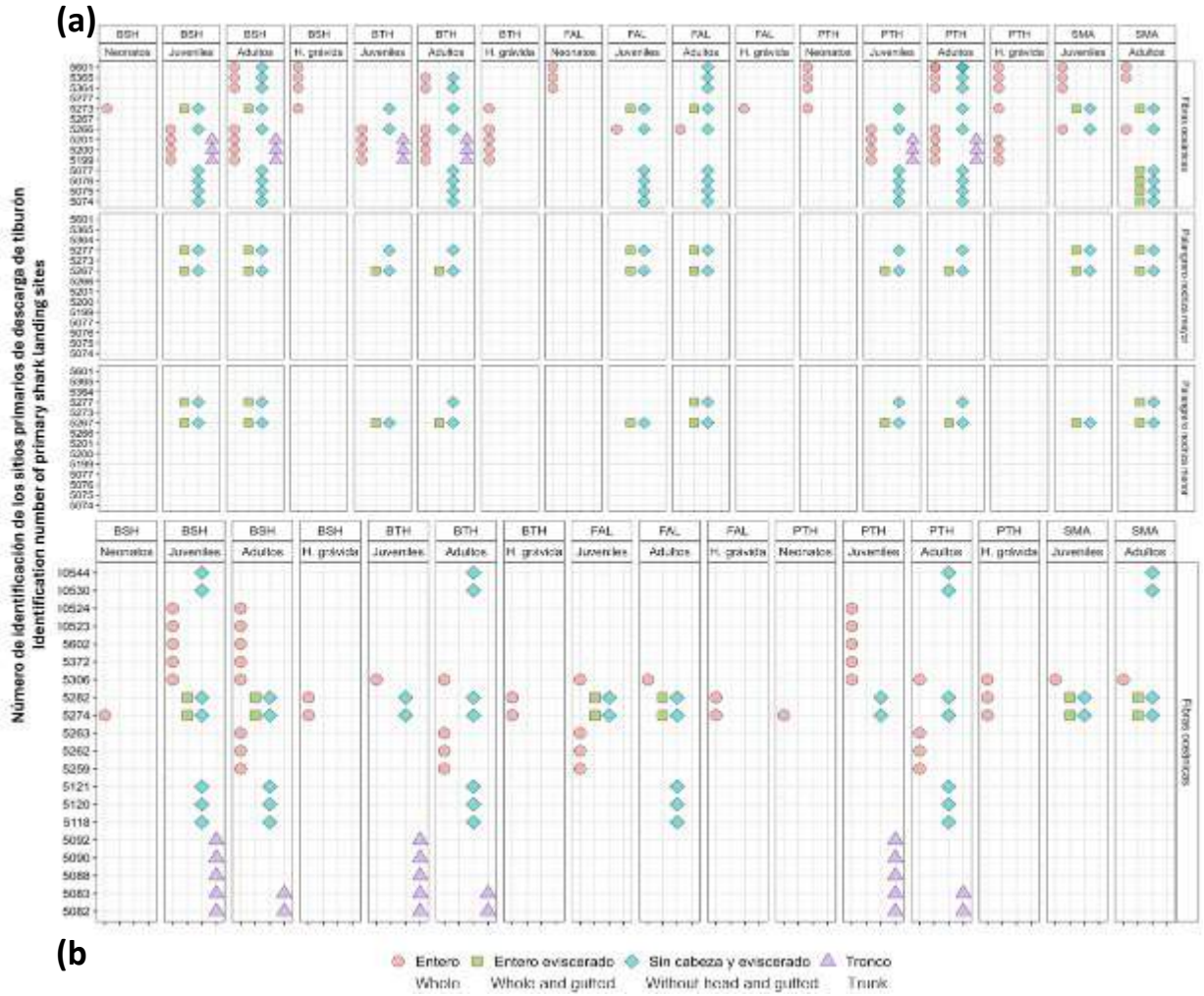


Figure 6. Main shark species landed as neonates, juveniles, adults, and pregnant females, from Ecuador's artisanal fleet and small-scale longline vessels; (a) species recorded at primary shark landing sites; (b) species recorded at secondary landing sites; circles indicate whole individuals, squares indicate whole and gutted individuals, diamonds indicate headed and gutted cuts, triangles indicate trunk cuts; abbreviations indicate pelagic thresher shark *Alopias pelagicus* (PTH), bigeye thresher shark *A. superciliosus* (BTH), silky shark *Carcharhinus falciformis* (FAL), blue shark *Prionace glauca* (BSH), and shortfin mako shark *Isurus oxyrinchus* (SMA).

In Mexico, the type of cut that fishermen make as part of the processing before commercialization will depend on the taxonomic group of the individuals (sharks/rays), and as in Ecuador, the most common cut for sharks is trunk and for rays, headed and gutted (Figure 5). There are multiple variations depending on customs, space on the vessel, size of individuals, etc. However, some fishermen indicated that they land whole sharks and rays when oceanographic conditions are not favorable for fishing maneuvers, or when the individuals caught are completely entangled in the fishing gear.

With regard to sharks, both whole and gutted and headed individuals were observed being landed; due to their size, neonates are landed whole and then filleted in places near the landing areas, which serve as collection or reception centers for the product. For juveniles, mainly in species of considerable size, processing was recorded on the vessel, so individuals are landed in trunk-type cuts (gutted and headed). For rays, both whole and gutted and headed individuals were observed being landed; in both cases, the spine is removed beforehand to avoid accidents during handling (Figure 7).

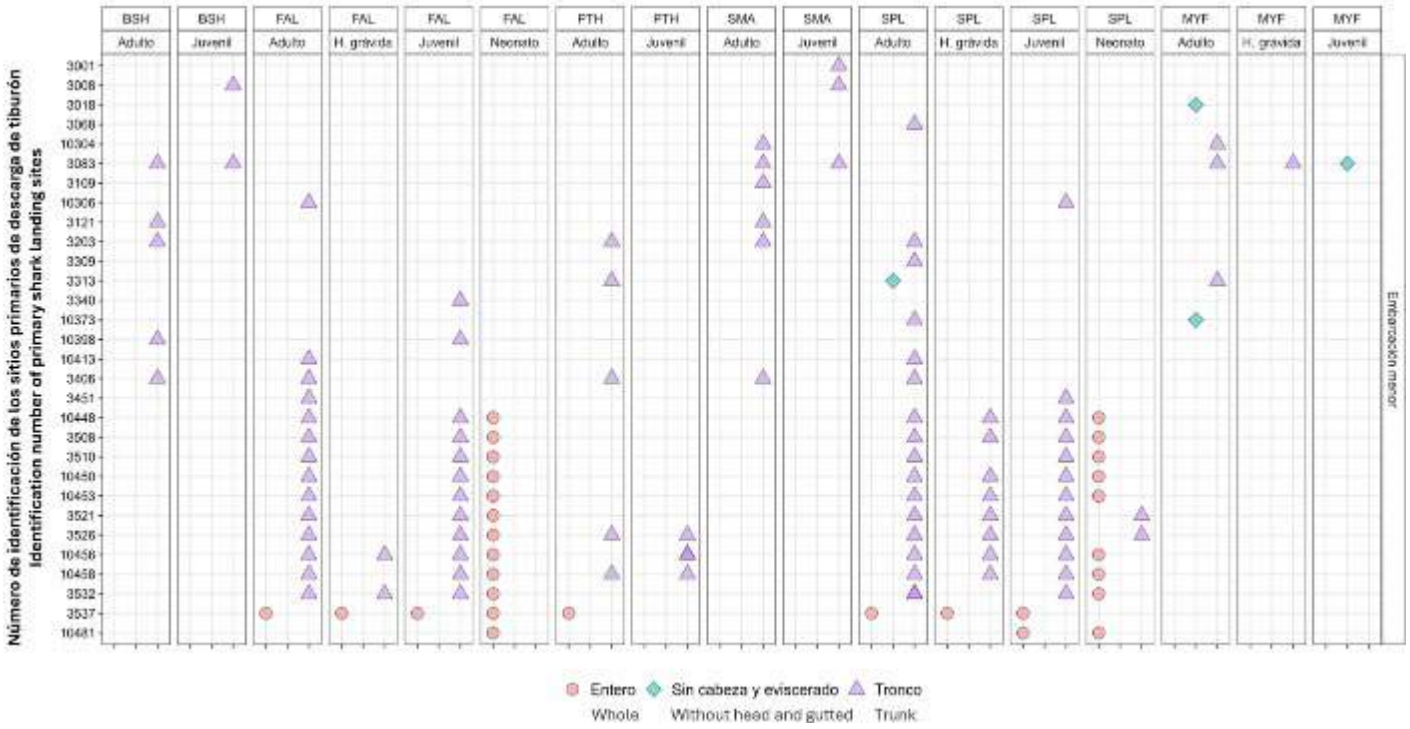


Figure 7. Main shark species landed as neonates, juveniles, adults, and pregnant females, from Mexico's artisanal fleet, recorded at primary sites; circles indicate whole individuals, squares indicate headed and gutted individuals, and diamonds indicate trunk-type cuts; abbreviations indicate pelagic thresher shark *Alopias pelagicus* (PTH), silky shark *Carcharhinus falciformis* (FAL), blue shark *Prionace glauca* (BSH), shortfin mako shark *Izurus oxyrinchus* (SMA), scalloped hammerhead shark *Sphyrna lewini* (SPL), and the eagle ray *Myliobatis californica* (MYF).

In Peru, both at primary and secondary landing sites, sharks may be landed whole or with different kinds of cuts depending on various circumstances, such as the size of the specimen, proximity to the fishing area, the fisherman's habits, and the space available on the vessel, among others. However, most landed sharks are usually headed and gutted at all stages of life (Figure 8 a, b). This allows fishermen to reduce the volume and weight of the catch, to transport more sharks, and in turn reduce the rate of decomposition of the meat for commercialization. For example, vessels such as *botes* and *lanchas* that usually make long fishing trips (more than a week) in Salaverry (ID 7110) and Paita (ID 10702) land headed and gutted sharks, or with trunk-type cuts (Figure 8 a). Meanwhile, in locations where fishing trips are short (less than a week), such as San José (ID 7094), whole specimens of all life stages of *S. zygaena* are usually landed. Similarly, in San Andrés (ID 7200), whole specimens *of P. glauca*, *I. oxyrinchus*, *S. zygaena,* and *A. vulpinus* are landed. Whole or headed and gutted neonates are also landed by *botes* and *chalanas* in Acapulco (ID 7015) and Máncora (ID 7026)

(Figure 8a). It is important to note that it was not possible to collect information on pregnant female sharks due to the type of cut usually employed by fishermen before landing (headed and gutted).

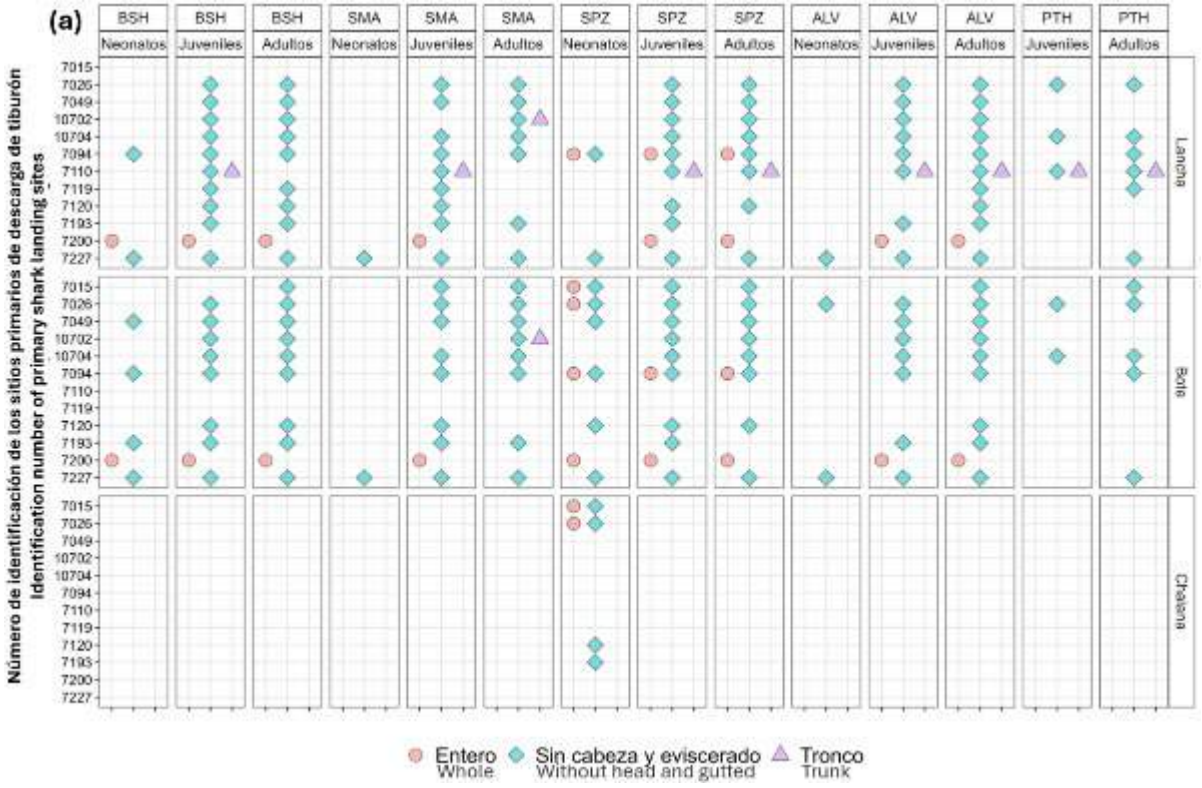


Figure 8. Main shark species landed as neonates, juveniles, adults, and pregnant females, from Peru's artisanal fleet; (a) species recorded at primary sites; (b) species recorded at secondary sites; circles indicate whole individuals, squares indicate whole gutted cuts, diamonds indicate headed and gutted cuts, and triangles indicate trunk-type cuts; abbreviations indicate thresher shark *Alopias vulpinus* (ALV), pelagic thresher shark *A. pelagicus* (PTH), blue shark *Prionace glauca* (BSH), shortfin mako shark *Isurus oxyrinchus* (SMA), and smooth hammerhead shark *Sphyrna zygaena* (SPZ).

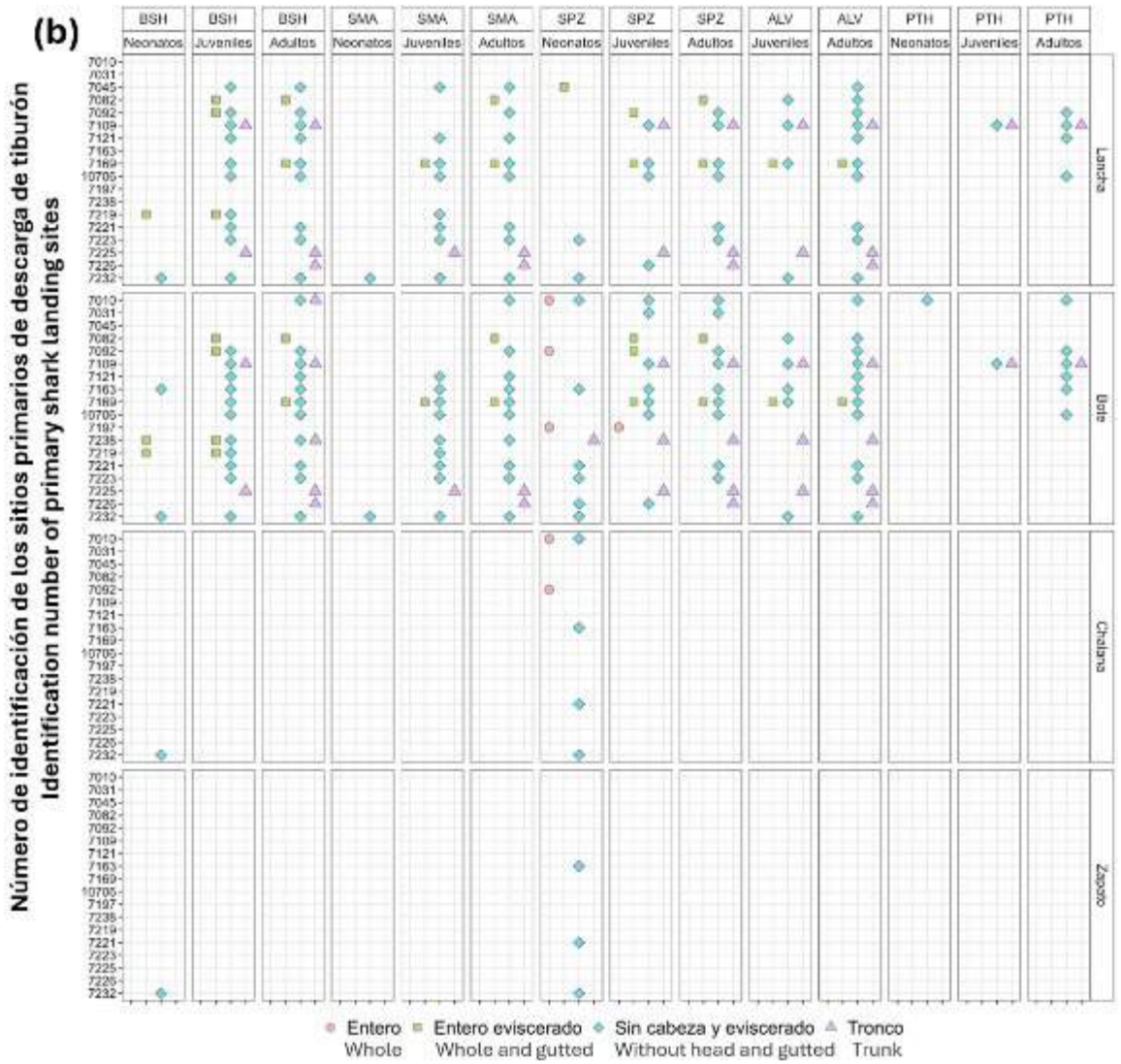


Figure 8 (b). Continued.

From the set of primary sites identified, those of greatest relevance were selected using specific quantitative criteria such as: a) number of operational vessels; b) presence of target species (IATTC priority species; Table 2); c) type of cut made before landing, life stage of the species, and volume of landed catches recorded.

Five strategic fishing localities were selected in Ecuador, which house 12 primary landings, representing 92% of total national shark landings. This was complemented by three fishing localities containing three secondary landings, representing 3% of national landings, ensuring representative geographical coverage. In Mexico, 23 main sites were selected based on the recommendations of IMIPAS technical/scientific staff, site safety, and field observations. This is because the catch volumes shared by CONAPESCA are reported by state and not by landing site. Likewise, the landing sites with the highest number of valid fishing permits reported by CONAPESCA were visited, confirming that many of them are no longer in use but remain valid to avoid cancellation. For Peru, eight primary sites were identified, representing 83% of national shark landings, supplemented by

three secondary sites that contribute an additional 4% of landings, ensuring coverage of 87% of total national landings.

Table 2. List of IATTC priority species considered in the ABNJ-Tuna II project; the alphabetical and numerical FAO codes of the species, the common name, and the scientific name are indicated.

Code	Num. code	Common name	Scientific name
FAL	157	Silky shark	*Carcharhinus falciformis*
OCS	152	Oceanic whitetip shark	*Carcharhinus longimanus*
SPL	310	Scalloped hammerhead shark	*Sphyrna lewini*
SPZ	246	Smooth hammerhead shark	*Sphyrna zygaena*
SPK	241	Great hammerhead	*Sphyrna mokarran*
BTH	306	Bigeye thresher shark	*Alopias superciliosus*
PTH	307	Pelagic thresher shark	*Alopias pelagicus*
ALV	242	Thresher shark	*Alopias vulpinus*
SMA	247	Short fin mako shark	*Isurus oxyrinchus*
BSH	245	Blue shark	*Prionace glauca*
RMO	261	Smoothtail manta	*Mobula thurstoni*
RMM	262	Spinetail devil ray	*Mobula mobular*
RMU	263	Munk's devil ray	*Mobula munkiana*
RMT	264	Chilean devil ray	*Mobula tarapacana*
RMB	265	Giant manta	*Mobula birostris*
RMA	266	Alfred manta	*Mobula alfredi*

The methodology used allows for a logistically viable feasibility study and pilot program for biological and morphometric monitoring, covering the main shark landing sites along the coastline of the three participating countries. This selection of sites is expected to ensure coverage of the target species of the study, providing a basis for systematic monitoring of shark stocks in the region. The integration of historical data with updated field information will ensure the validity and representativeness of the selection, while the quantitative criteria used will allow for the replicability of the methodology in future expansions of the monitoring program.

4. Sampling forms

In order to systematically obtain information on catches, fishing effort, and biological data on sharks, four types of specialized forms were designed to cover the different activities covered by the ABNJ-Tuna II project. This includes, in addition to relevant fishing data (e.g., dynamics of locations of interest, catch, effort), the assessment of feasibility for morphological data sampling and the collection of biological samples (for the purpose of applying and implementing the close-kin mark-recapture (CKMR) genetic methodology. The development of these instruments was based on the forms previously developed for the ABNJ-Tuna I project, incorporating new fields of information and specific methodological adaptations that meet the objectives proposed in the ABNJ-Tuna II phase (Appendix 3).

The sampling forms developed include the characterization form, "Form 0", which records data on the dynamics of the fishing fleet, according to the classification used in each country. In addition, information regarding fishing effort is considered, including the following: a) Number of vessels and their technical characteristics; b) Operational dynamics at the landing site; c) Type of fishing gear used; and d) Average catch per trip according to the type of fishing gear used. The catch sampling form, “Form A”, records information on fishing effort, total catch, and detailed biometric information on the species landed. “Form B” for shark embryo sampling is designed to record specific biometric information on embryos from female sharks at advanced stages of reproductive maturity. Finally, “Form C” for sampling baskets or boxes for neonate sharks records catch data from fisheries specifically targeting neonate sharks that are landed using specialized baskets or boxes (Appendix 3).

Given that each form requires a different completion method, depending on the sampling method used and the life stage of the specimens sampled, a specific user manual was developed (Figure 9a). In addition, a detailed worksheet was developed to ensure that the forms were filled out correctly (Figure 9b). These supplementary documents ensure the standardization of data collection procedures and the consistency of the information recorded by the different sampling teams.

In particular, "Form A" is the main instrument used to record most of the catch data and is divided in six main sections, allowing for comprehensive documentation of fishing activity. The first section corresponds to general sampling information, followed by the section on fishing gear, fishing area, and environmental conditions during the operation. The third section documents the total catch, excluding the landing of shark neonates using specialized baskets or boxes, for which there is a specific form. In addition, this section records specific data on the number of individuals per species and life stage, as well as the type of processing or cut of the specimens at the time of landing. This information is essential for determining the preservation status of the specimens during the landing process and for reducing errors associated with estimating the total weight landed. The fourth section is dedicated to biometrics and biological sampling of the specimens, except for the measurement of embryos from pregnant adult females, for which there is a specific form. The biometrics section allows for detailed documentation of the morphological measurements of the specimens, providing essential data for stock analyses and growth studies of the target species. In addition, it records information on the type of biological samples to be collected (tissue, muscle, vertebrae, liver, stomach contents, etc.) and data necessary for CKMR analysis, such as time of catch and sample quality. The fifth section corresponds to additional observations relevant to subsequent data analysis.

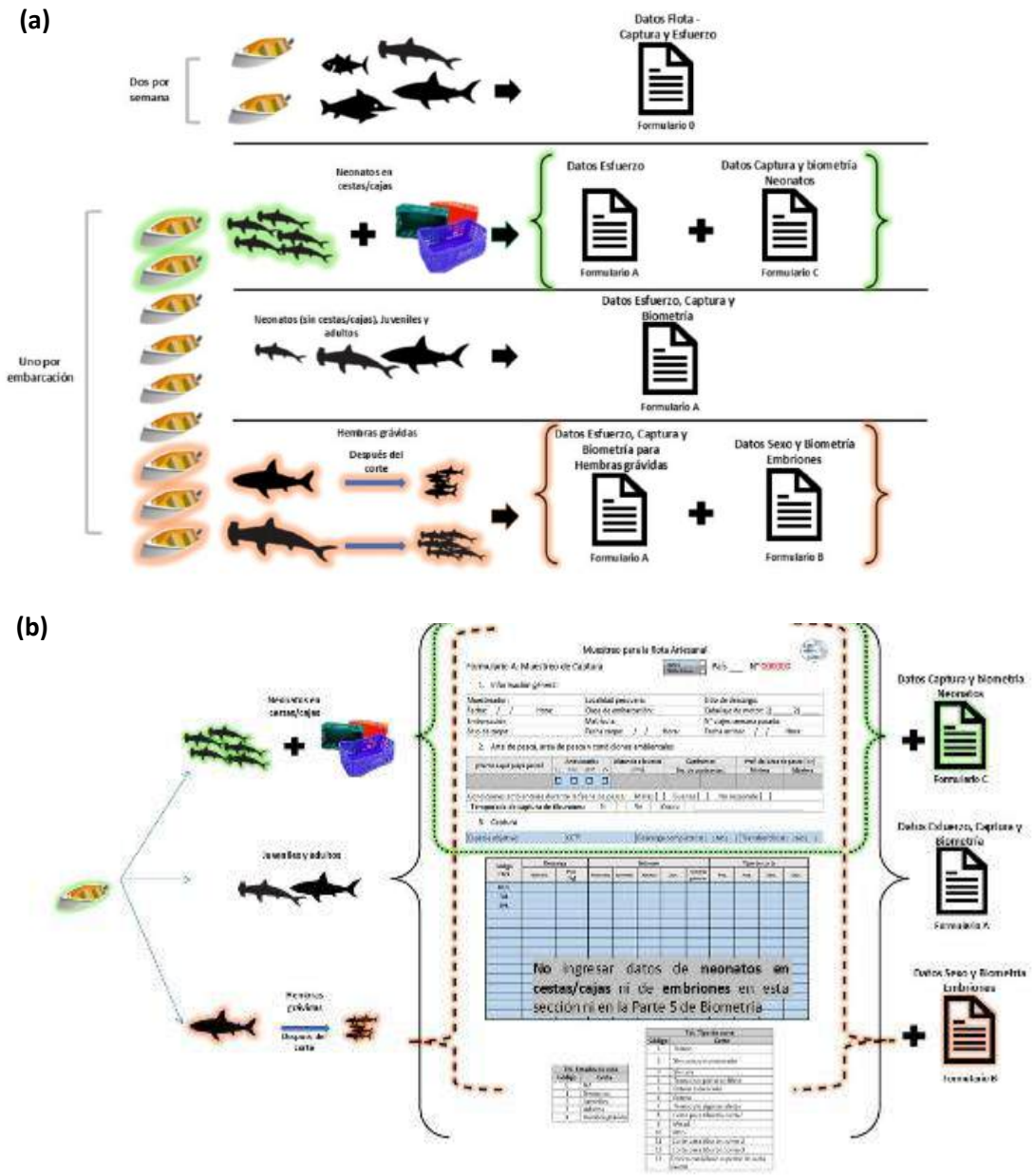


Figure 9. (a) Diagram of the method for using the IATTC shark sampling forms for the ABNJ-Tuna II project; (b) Diagram of instructions for completing the forms, according to the type of landing and the life stage identified in the individuals.

5. Methodology

5.1 Morphometric parameters

The methodology for recording landings has been adapted according to the dynamics of each site (Figure 10). The first stage of sampling begins with recording the landing using "Form A." Once the first three sections have been completed, the specimens are measured. For this purpose, whole or

whole gutted specimens are preferably selected, recording the following morphometric parameters (in centimeters):

- Total length (**LT**) of the shark, when it is landed whole, without any cuts.
- Precaudal or standard length (**LP**)
- Fork length (**LF**)
- Interdorsal length (**LID**) of the shark, when it is landed without its head and tail
- Disc length (**LD**) in rays
- Disc width (**AD**) in rays
- Internal length of the clasper (**LIC**); the most developed clasper should be measured, regardless of maturity status

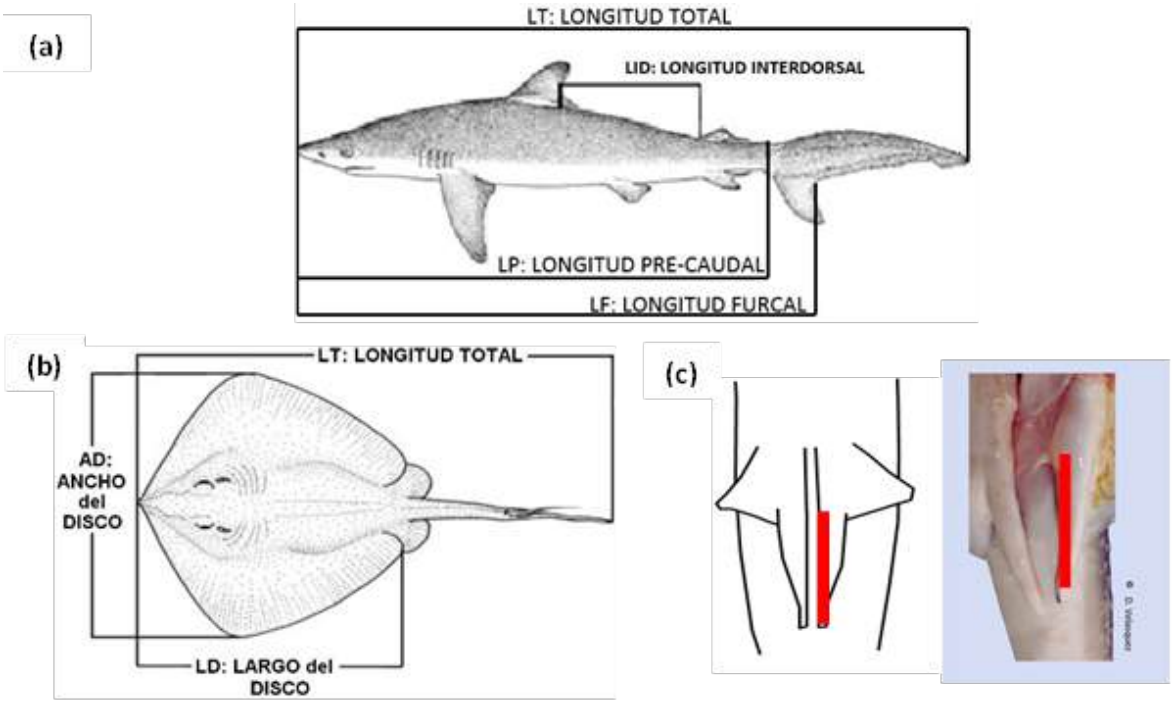


Figure 10. (a) Morphometric measurements recorded for sharks; (b) Morphometric measurements recorded for rays; (c) Measurement of the internal length of the clasper for male sharks and rays.

5.2 Morphometric Sampling

For the recording of morphometric information, the species, sex, and life stage of the individuals are taken into account. There are different instruments for obtaining morphometric measurements, such as a tape measure, an ichthyometer with a laser distance meter. During the ABNJ-Tuna I project, carried out in the coastal states of Central America, the use of an ichthyometer with a laser was tested. Based on this experience, greater accuracy was recorded for collecting the different measurements of individuals (LT, LF, LPC, AD, LD, etc.), so it was used during the fieldwork of ABNJ-Tuna II.

However, if necessary, after an intensive measurement phase for the feasibility stage, additional adjustments and modifications will be made with the main purpose of obtaining more accurate measurements, as well as to ensure practicality when transferring equipment from one landing site to another. The aim is to ensure the standardized collection of morphometric measurements of the different elasmobranch species recorded. These new adjustments will help obtain data efficiently between landing sites, especially those where large species are landed.

The three types of ichthyometers that will be tested during the morphometric sampling phase in ABNJ-Tuna II are described below:

a) Wooden ichthyometer

The first is a non-folding wooden ichthyometer with a clamp consisting of two acrylic arms, one fixed and one movable, and a two-meter graduated ruler (Figure 11). This equipment is commonly used by the IATTC On-Board Observer Program during biometric sampling on tuna purse-seine vessels to obtain morphometric data, mainly from sharks. However, it can also be used with ray species, which are included in the sampling as well (Figure 12).

Figure 11. Recording of the main morphometric measurements in different shark species, using the wooden ichthyometer with a two-meter graduated ruler; measuring equipment used during sampling carried out both on land and onboard small vessels, at the primary landing sites in Ecuador.

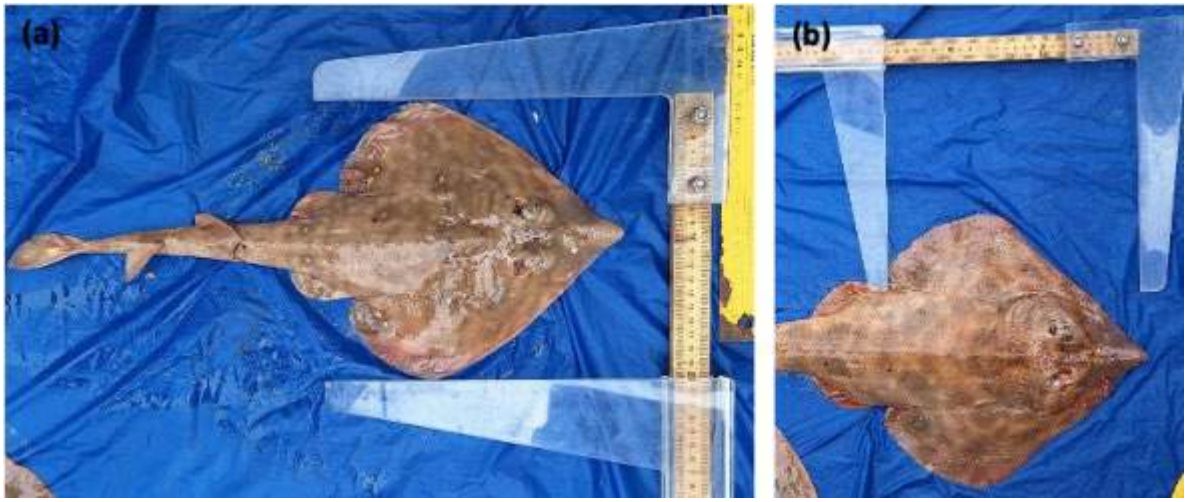


Figure 12. Collection of morphometric measurements in rays, using a non-folding, two-meter wooden ichthyometer; (a) Collection of disc width (AD); (b) Collection of disc length (LD).

Limitations and disadvantages

During the first few months of work using this instrument, three main problems were identified: Lack of space at the landing sites makes it difficult to position the specimen properly and use the ichthyometer to measure juvenile specimens. Furthermore, it can only measure individuals up to 200 cm in length, which makes recording larger specimens difficult. For example, it is hard to obtain the total length of species in the Alopias genus (thresher sharks) due to their extremely long upper caudal lobe. Additionally, the thickness of this species' fins prevents accurate measurement of the fork length because the movable acrylic lifts up and does not reach the notch at the posterior intersection of the caudal fin.

On the other hand, in adult rays (e.g., *Hypanus longus*), the ichthyometer does not completely cover the length or width of the disc. To improve accuracy, it can be placed under the snout or pectoral fins, although this requires assistance due to the size and weight of large individuals (Figure 13).

Figure 13. Collection of disc width measurements in adult specimens of *Hypanus longus*, using a non-folding, two-meter wooden ichthyometer.

Another drawback of this measuring equipment is transferring it from one landing site to another. Due to its length, the graduated ruler is mainly at risk during this process. Additionally, this ichthyometer is used in a wet environment and is in direct contact with organisms, many of which have just been caught. Therefore, it must be washed frequently. This causes the graduations printed on the ruler to fade over time, making it difficult to read the measurements.

Due to these drawbacks, adjustments were made to improve the tool based on the experience gained during ABNJ-Tuna I. The options created in Peru and Mexico are described below.

b) Detachable wooden ichthyometer with laser

The second measuring device is a wooden ichthyometer with a removable, 200-centimeter graduated ruler (two 100-centimeter sections) and a clamp with two aluminum arms (one static and one movable) (Figure 14; Appendix 4). A screw on the back of the first one-meter section connects the rulers, and the second section is screwed into the first, thus completing the two-meter extension (Figure 14a, c).

This ichthyometer uses a laser distance meter installed on a movable arm via a support to take measurements. A block or surface was adapted to the non-movable arm to block the laser signal and take the measurement (Figure 14b).

Figure 14. (a) Two-meter detachable ichthyometer adapted to a laser distance meter for taking morphometric measurements of elasmobranch species in Peru; (b) The red rectangles indicate the receiver and holder where the laser signal is received and where the laser is placed, respectively; (c) Ichthyometer at its full length of 200 cm.

This device is easy to assemble and disassemble because it only has two parts; the first part of the ichthyometer can be used for specimens shorter than one meter (e.g., neonates and juveniles) (Figure 15 a, c). When the second part is attached, specimens longer than one meter can be measured (Figure 15 b).

It is easy to transport due to its low weight (800 g) and useful in environments with limited space, allowing the sampler to work efficiently. To ensure its durability, it was coated with a varnish, which prevents the wood from absorbing moisture from the environment.

Furthermore, this low-cost ichthyometer can be manufactured in coastal countries to collect more accurate morphometric measurements. If a budget for a laser is unavailable, a measuring tape can be incorporated into the central part of the wooden bars. Its effectiveness is being tested at the main elasmobranch landing sites in the Tumbes and Lambayeque regions on the coast of Peru. It has already been used to collect measurements from various species, including sharks and rays, demonstrating its efficiency and ease of use (Figure 15).

Figure 15. Use of the folding ichthyometer with laser meter for sharks and rays in Peru; (a) Disc width of *Myliobatis peruvianus;* (b) Fork length of *Notorynchus cepedianus*; (c) Total length of *Sphyrna zygaena*.

c) Design and manufacture of a detachable aluminum ichthyometer with laser

This ichthyometer was designed to be fully disassembled for easy transport, even on board fishing vessels. It is made of an aluminum-nickel alloy, which makes it very light (600 g) and resistant to corrosion from contact with seawater (Figure 16). In addition, it can be disassembled manually using a system of wing nuts and a single Allen key (Figure 16 b).

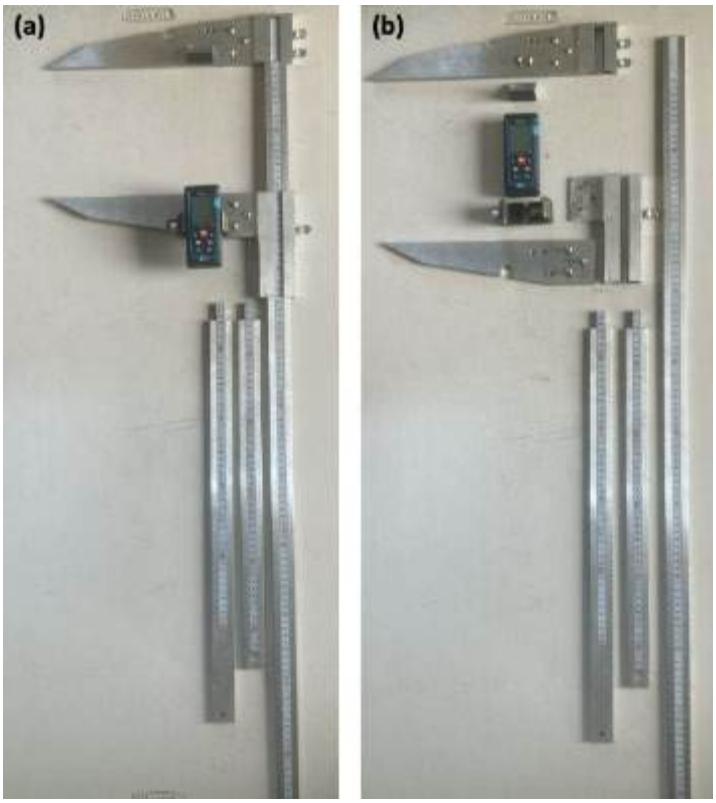


Figure 16. (a) Detachable aluminum-nickel alloy ichthyometer equipped with a laser distance meter; (b) Ichthyometer disassembled for storage or transport.

This ichthyometer was designed based on the anatomy of a common Vernier caliper and recommendations from IATTC staff, mainly for its ability to extend up to 220 cm. This extension system consists of a bar divided into three parts that fit together with millimeter precision. Each bar has a male or female end that must be screwed together transversely when assembled (Figure 17 a). To allow the movable arm of the ichthyometer to pass through the assembly sections unobstructed, the screws that join the bars are convex and fit into concave holes (Figure 17 b).

On the other hand, since the measuring ruler is made up of three sections, technical staff can work with one, two, or three sections depending on the size of the organisms being landed. This gives the staff greater mobility, especially in confined spaces, such as on a vessel.

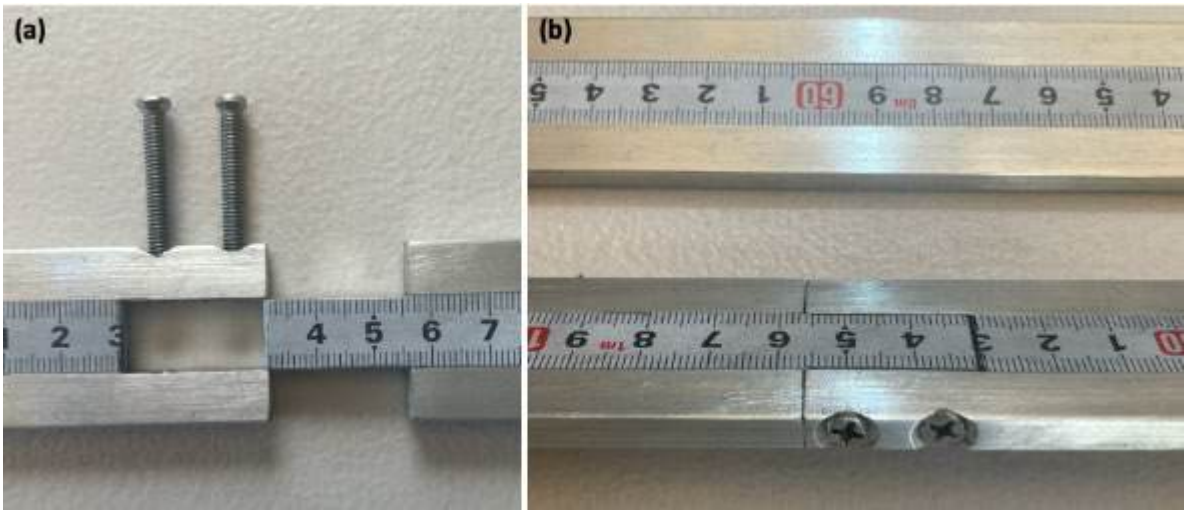


Figure 17. (a) Female/male sections of the bars that make up the measuring ruler; (b) Assembled bars that make up the measuring ruler.

This ichthyometer has an additional feature: a measuring tape to ensure accurate measurements. The tape is located in the center of the bars that make up the measuring ruler. In addition to being resistant to saltwater, the ruler is designed to verify the measurement indicated by the laser. If the laser fails at any time, the technician can continue taking measurements without interruption. Finally, the equipment has anti-skid sections since the staff will most likely be working in extremely wet conditions (Figure 18).

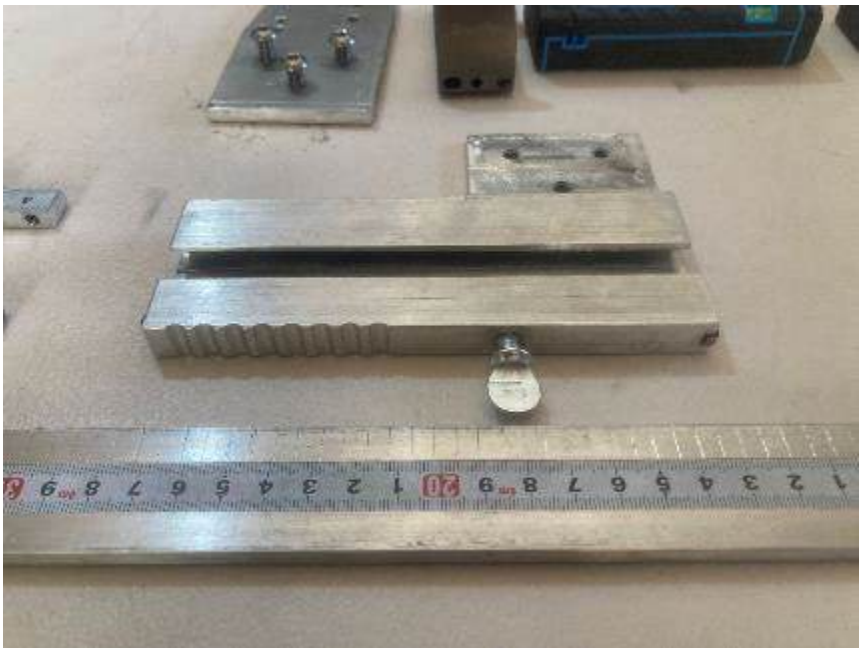


Figure 18. Saltwater-resistant measuring tape and grooves on the handle of the movable arm ensure a good grip during use in extremely wet conditions.

One disadvantage of this device is that its manufacturing requires specialized, precise machinery, meaning construction takes several days and is relatively expensive ($550 USD). This ichthyometer will be tested during sampling work in the Chiapas and Oaxaca regions of Mexico. As part of the field tests, measurements will be collected using both the laser and the measuring ruler. This will allow us to compare the two measurements and verify their accuracy, as well as the functionality of the device.

5.3 Shark weighing

Depending on their size and weight, individuals are weighed using two types of scales. A 300-kg hanging scale is used for larger individuals. The specimen is placed on a portable metal support and hooked to the scale with a sturdy hook. Once the specimen is suspended, wait for the weight to stabilize on the display before reading it. When it is not possible to use a support or tripod due to lack of space, time, or environmental conditions, the specimen is hooked directly to the scale. The sampler then holds the animal manually while trying to keep its body suspended and in a static position to facilitate an accurate weight reading (Figure 19).

Figure 19. (a) 300-kg hanging scale for weighing larger individuals; (b) weighing a juvenile individual using a metal support; (c) manual weighing of a sub-adult individual without a support base at landing sites in Ecuador.

For larger species, a portable, stretcher-type support is used to evenly distribute the animal's weight and avoid physical damage or alterations to its body structure (Figure 20a). First, the support is placed on a flat surface, the scale is turned on, and it is tared to account for the weight of the support. Next, the ropes are lifted from the central hook, and with the help of a second person, the stretcher is carefully moved to the tripod where the scale is installed (Figure 20b).

Figure 20. Use of a reinforced canvas stretcher for weighing juvenile and adult sharks at landing sites of Ecuador's longline mother vessel fleet; (a) Stretcher laid out on the ground prior to use; (b) Specimen being weighed using a hanging scale, with the stretcher as a support to distribute the weight and prevent damage.

This type of stretcher is used when owners or traders do not allow direct weighing due to concerns about handling the specimen. In such cases, it represents a more hygienic and less invasive alternative, as it minimizes direct contact and contamination of the animal. In addition, by keeping the shark extended and stable, the risk of excessive bending of the body is reduced, which helps to preserve the quality of the meat and prevents possible injuries to the vertebral joints.

For smaller individuals, such as newborn sharks, juvenile coastal species, and smaller rays, an electronic scale with a 1-5 kg capacity is used (Figure 21). This type of scale provides greater accuracy for low weights by offering readings in kilograms plus grams. Specimens are placed directly on the scale. In the case of small rays with long tails or difficult-to-handle species, the specimens are placed in clean plastic bags. The weight of the bag is tared before weighing to facilitate handling without compromising measurement accuracy (Figure 21 c).

Figure 21. Weighing specimens with electronic scales with capacities between 3-15 kg for smaller individuals; (a) Weighing a newborn *Carcharhinus falciformis* at a primary landing site in Mexico; (b)

Weighing a juvenile individual on board a small vessel; (c) Weighing of a newborn individual, wrapped in a plastic bag to contain the entire body, on a smaller scale.

In Ecuador, Mexico, and Peru, there are some landing sites that are also used by buyers of landed products, so it is common to have infrastructure such as platform scales (Figure 22). In these cases, sampling technicians must request authorization for their use, which facilitates the recording of the weight of individuals, especially when dealing with large specimens or when landings are abundant and carried out quickly (Figure 22 b).

Figure 22. Weighing adult individuals using a platform scale, using infrastructure provided by fish merchants; (a) Individual weighing of an adult specimen; (b) Group weighing of several specimens during a quick landing.

5.4 Biological Sampling

In addition to the morphometric record and weight by species in Section 4 of Form A, the stage of maturity of the measured specimen was also recorded using the parameters established in the ABNJ-Tuna I project. To ensure correct identification of the life stages of sharks and rays, a three-day training workshop was held in person in Ecuador and virtually in Mexico and Peru. This activity was aimed at technical staff and local coordinators and was coordinated by the ABNJ-Tuna II team in Ecuador, with the support of two national experts from that country (Figure 23).

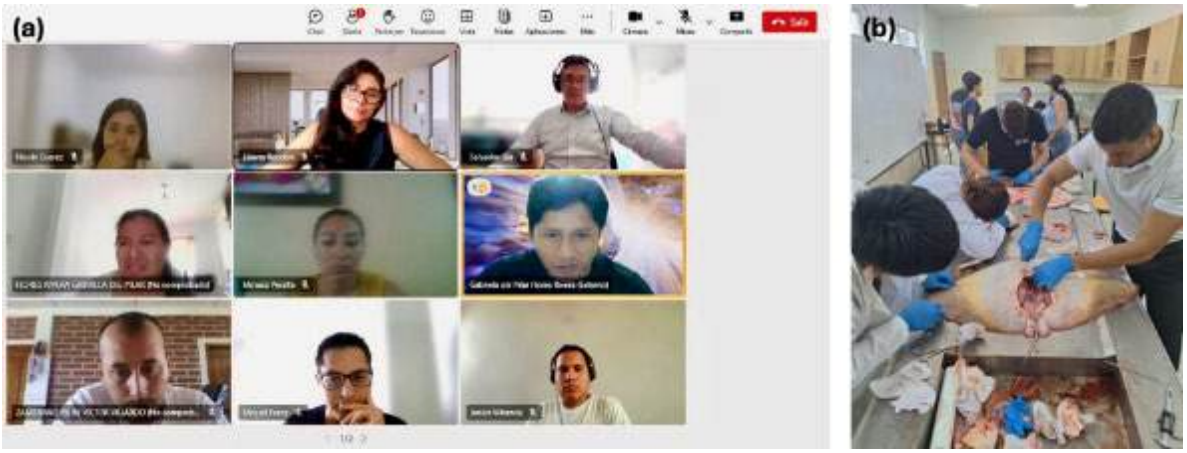


Figure 23. Training provided by instructors from Ecuador specializing in the reproductive biology of elasmobranchs; training aimed at ABNJ-Tuna II regional coordinators and staff; a) Participants during the virtual training; b) Laboratory practices for the identification and extraction of elasmobranch reproductive organs.

In order to obtain a standardized biological sample, a systematic guide or protocol for tissue collection was developed for the technical staff responsible for field sampling in the three participating countries (Appendix 5). Its main purpose is to ensure the standardized collection of various types of samples, seeking to preserve their natural characteristics for as long as possible for subsequent analysis, avoiding degradation and/or contamination as much as possible.

The sampling strategies described in the protocol have been designed based on the operating conditions of artisanal fishing in the coastal zone of the easter Pacific Ocean (EPO), taking into account both the dynamics of the fishing fleet and the oceanographic conditions and infrastructure available at landing sites. The vessels used for catching large shark species are also taken into account.

Furthermore, the document integrates and unifies different protocols previously used by the IATTC for tissue collection and specifies the use of specialized supplies and equipment according to the type of sample. It addresses the collection of biopsies for genetic analysis using the CKMR method, as well as the collection of muscle, stomach, vertebrae, reproductive organs, and embryos. In addition, it details the set of basic materials necessary for sampling activities, including field forms, waterproof labels, waterproof pencils, cutting instruments, storage bags, vials, among others.

Also, as part of the information necessary for CKMR genetic analysis and the collection of diverse biological material (stomach, vertebrae, skin, among others), two additional parameters were incorporated: a) The catch time (hours) elapsed from catch to arrival at the port of landing; and b) The quality of the sample, which indicates the condition of the sample according to previously established criteria (Table 3; Table 4).

Table 3. Codes and description of the quality of samples obtained during the morphometric sampling of the ABNJ-Tuna II project, 2025.

Code	Sample Quality
1	Long time on deck before being stored in cold/ice
2	Short time on deck before being stored in cold/ice
3	The individual was preserved correctly
4	The individual was not preserved correctly
5	Fresh storage without a well and high environmental temperature
6	Fresh storage without a well and low environmental temperature
7	Firm meat and fresh skin
8	Soft meat and dry skin
9	Fisherman did not respond

Table 4. Codes and description of the different types of biological samples that can be extracted from a specimen, following morphometric sampling in the ABNJ-Tuna II project, 2025.

Code	Sample	Description
0	Other	See the comments box
1	Muscle tissue	A sample was taken from the specimen's muscle tissue
2	Vertebra	A sample was taken from the specimen's vertebrae
3	Ovaries	A sample was taken from the specimen's ovaries
4	Intestine	A sample was taken from the specimen's intestinal tract
5	Embryos	Embryos were extracted or measured from the specimen
6	Otoliths	Otoliths were removed from the specimen
7	Skin or scales	Skin or scales were removed from the specimen
8	Teeth	Teeth were removed from the specimen
9	Parasites	Parasites were removed from the specimen
10	Photographs	Photographs were taken of the specimen
11	First dorsal fin	Tissue sample from first dorsal fin
12	Second dorsal fin	Tissue sample from second dorsal fin
13	Pectoral fin (right)	Tissue sample from right pectoral fin
14	Pectoral fin (left)	Tissue sample from left pectoral fin
15	Anal fin	Tissue sample from anal fin
16	Caudal fin (upper lobe)	Tissue sample from upper lobe of the caudal fin
17	Caudal fin (lower lobe)	Tissue sample from lower lobe of the caudal fin

5.5 Identification of sites for biological and morphometric sampling and CKMR analysis

To establish the feasibility of the biological and morphometric sampling study and the CKMR analysis, a detailed analysis was carried out of the data collected during the site characterization phase, filtering the available information according to the following criteria:

a) Type of processing or cutting applied to sharks prior to landing

b) Species and size composition of catches

c) Life stages observed

As a result, 48 main landing sites were identified, of which 36 record the landing of species of interest to the IATTC (see Table 2). Among these, 16 sites land whole individuals, while 9 sites record landings of whole specimens without viscera (Table 5). In summary, morphometric studies are feasible at only 22 sites, and biological studies requiring specific parts of the animal could be carried out at 17 sites.

To assess the feasibility of CKMR analysis, the database was filtered considering the silky shark (*C. falciformis)* as the focal species, as it is the main bycatch species in tuna fisheries in the easter Pacific. Under the morphometric and biological criteria mentioned above, 24 main sites were identified where this species is landed: nine in Ecuador, ten in Mexico, and five in Peru. However, the feasibility of collecting tissue for CKMR purposes (whole or whole gutted individuals) was limited to five sites in Ecuador, five in Mexico, and only one in Peru (Figure 24).

Despite this preliminary identification, there are factors that could limit the effectiveness of biological sampling. Among these is the low probability of recording adult individuals caught near the coast, mainly due to their scarce presence during most part of the year. However, the predominant presence of juvenile specimens at all landing sites during specific periods could provide sufficient information, provided that the individuals sampled are related (e.g., half-siblings). Furthermore, at sites where adults are reported, vessels make long trips, which could compromise the quality of the samples collected. It is therefore essential to assess the feasibility of each site, considering both sampling opportunities and tissue quality, based on the preservation methods used.

Table 5. Sampling sites monitored by sampling technicians in Ecuador, Mexico, and Peru; IATTC priority species recorded per site are indicated, with their FAO code, as well as those priority species landed whole and whole gutted; sites are listed in order of their latitudinal position, from north to south.

Country	Monitored sites ID	IATTC priority elasmobranch species	Priority species landed whole	Priority species landed whole gutted
Ecuador				
	5077	BSH, PTH, FAL, BTH, SMA, SPL		FAL, PTH
	5076	BSH, PTH, FAL, BTH, SMA, SPL		FAL
	5075	BSH, PTH, FAL, BTH, SMA, SPL		FAL
	5074	BSH, FAL, PTH, SPL		
	5200	SPL, SPZ	SPL, SPZ	
	5201	BSH, PTH, FAL, BTH, SMA, SPL	SPL, BTH	BTH, BSH, PTH, FAL, SMA
	5277	BSH, PTH, FAL, BTH, SMA		FAL
	5267	BSH, PTH, FAL, BTH, SMA		BSH, PTH, FAL, BTH, SMA
	5266	BSH, PTH, FAL, BTH, SMA	PTH, BSH	BSH, PTH, FAL, BTH, SMA
	5306	BSH, PTH, BTH, SMA		

	5364	BSH, PTH, FAL, BTH, SMA, SPZ	BSH, BTH, SMA, SPZ	BSH, PTH, FAL, BTH, SMA
Mexico				
	3304	SPL, SPK	SPK	
	3305	SPL	SPL	
	10311			
	3068			
	3313			
	10304			
	3081			
	3083			
	3121			
	3188	BSH, SMA, SPZ	BSH, SMA, SPZ	
	3227			
	3271			
	3289			
	10398	FAL, PTH, SMA, SPZ	FAL, PTH, SMA, SPZ	
	3385	SPL, SPZ		
	10413	BSH, SPL	SPL	
	3406	BSH, FAL, PTH, SMA, SPL		
	10421	BTH, FAL, SPL		
	10423	FAL, SPL		
	3432	BSH, BTH, FAL		
	3445	FAL	FAL	
	3446			
	3452	FAL, SPL	FAL	
	3537	FAL, PTH, SPL	FAL, SPL	
	10456	FAL, PTH		
	10461	FAL	FAL	
	10475			
Peru				
	7010	FAL, RMM, SPZ		
	7015	BSH, FAL, PTH, RMM, RMO, RMU, SPZ	RMM, RMU, SPZ	
	7026	ALV, BSH, BTH, FAL, PTH, RMM, RMO, RMU, SMA, SPZ	RMM	
	7092	SPZ		
	7094	ALV, BSH, FAL, RMM, SPZ	FAL	FAL, SPZ
	7109	ALV, BSH, BTH, FAL, PTH, RMM, RMO, SMA, SPZ	RMM	RMM
	7110	BSH, RMM, SMA		
	10706	BSH, BTH, PTH, SMA, SPZ		
	7193	ALV, BSH, PTH, SMA, SPZ		
	7227	ALV, BSH, PTH, SMA, SPZ		

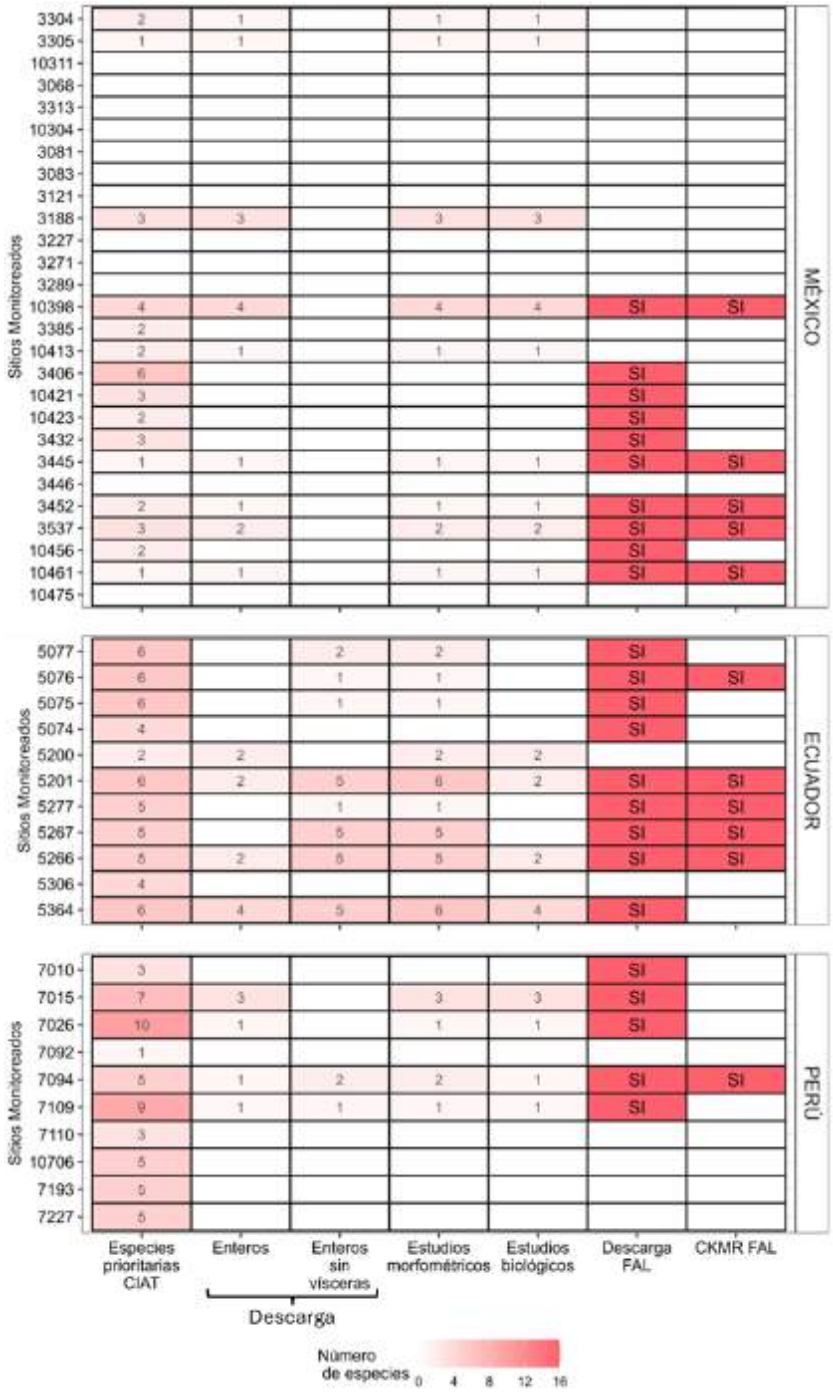


Figure 24. Number of elasmobranch species considered priority species by the IATTC for each monitoring site in Ecuador, Mexico, and Peru; priority species recorded per site, type of cut upon landing, feasibility of morphometric studies, biological studies, *Carcharhinus falciformis* landings, and feasibility of CKMR studies are indicated. The order of the sites is according to their latitudinal position, from north to south; the color scale gradient indicates the number of priority species recorded for the feasibility of morphometric, biological, and CKMR studies for *C. falciformis*.

6. National regulations for procedures for the handling, collection, and export of biological samples from sharks and rays

Ecuador

In Ecuador, the collection, handling, and export of biological samples from elasmobranchs for scientific purposes is regulated by the current constitutional and environmental legal framework. The 2008 Constitution recognizes nature as a subject of rights (Art. 71) and establishes the State's responsibility to conserve and restore ecosystems (Art. 395). These provisions are implemented through the Organic Code of the Environment (COA, for its Spanish acronym), its Regulations, current Ministerial Agreements, and complementary regulations, such as the Unified Text of Secondary Legislation of the Ministry of the Environment (TULSMA), specifically Book IV - Biodiversity, Title II on Research, Collection, and Export of Wild Flora and Fauna. Additionally, these activities must comply with the provisions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) regarding the international trade and movement of protected species.

Activities involving the collection of biological samples for scientific research purposes require a collection permit issued by the Biodiversity Directorate of the Undersecretariat of Natural Heritage of the Ministry of Environment, Water, and Ecological Transition (MAATE). In addition, a technical review of the research plan and related documentation is required (Figure 25). For biological samples from individuals from the Ecuadorian-flagged fishing fleet operating outside the Exclusive Economic Zone (EEZ), a Certificate of Origin from the Sea, issued by the same authority, is also required (Figure 25; Appendix 6a and 6b). Likewise, when activities involve access to genetic resources, it is mandatory to have the corresponding the Framework Agreement for Access to Genetic Resources, also issued by the Biodiversity Directorate.

Both the collection authorization and the framework agreement are managed through the digital platform of the Single Environmental Information System (SUIA)[1] . This system has user manuals[2] that describe the procedures, requirements, and documents necessary for the correct processing of both processes.

[1] SUIA: https://biodiversidad.ambiente.gob.ec/biodiversidad-web/login.xhtml – Registration and access to procedures and authorizations for species collection and access to genetic resources.

[2] User manual for scientific research authorization procedures and the Framework Agreement for Access to Genetic Resources available at: https://biodiversidad.ambiente.gob.ec/biodiversidad-web/reports/manuales.html

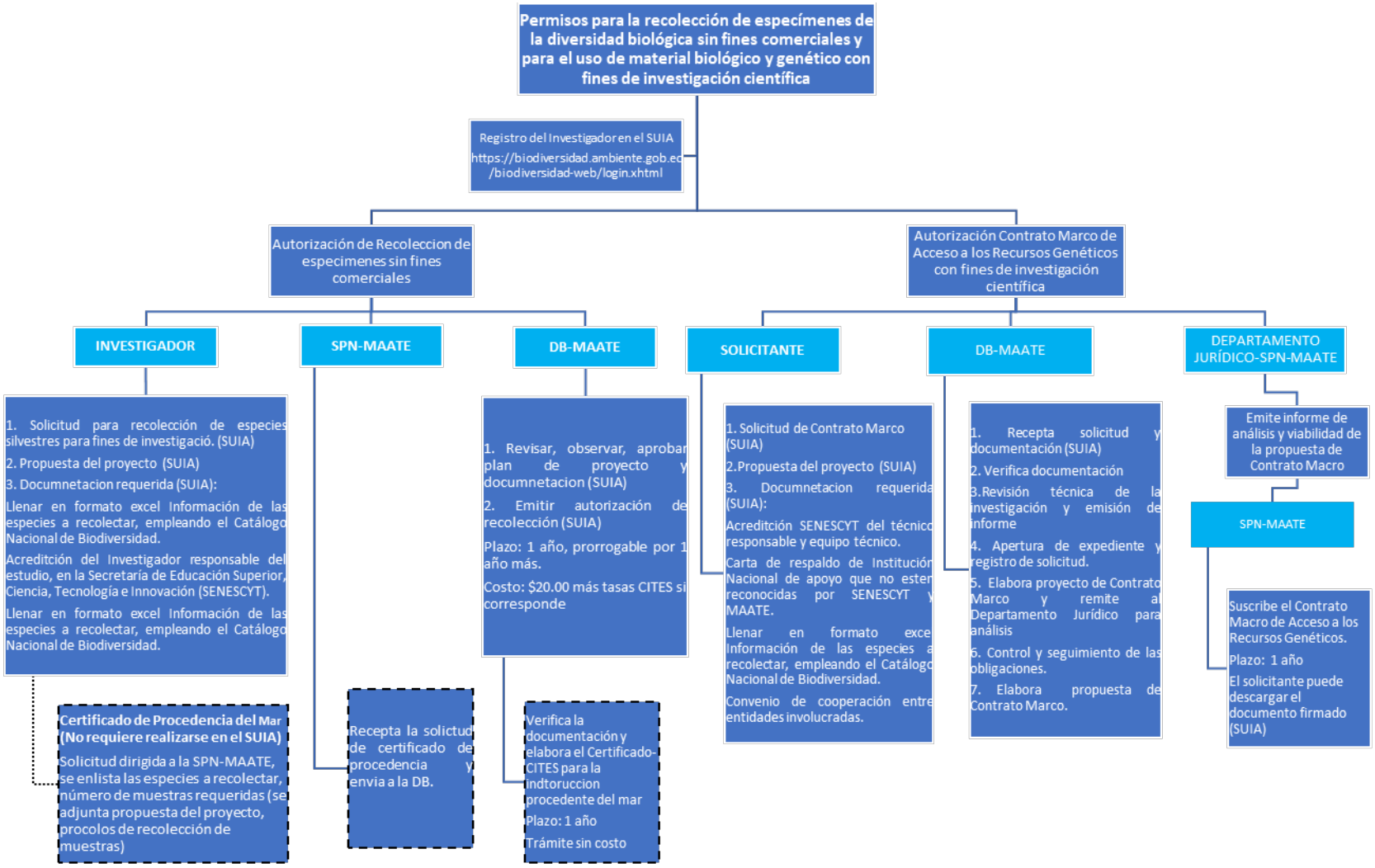


Figure 25. Diagram of the administrative process for authorizing the collection of samples and use of biological and genetic material for research purposes on sharks and rays, in accordance with the requirements established by the Ecuadorian environmental authority.

A Memorandum of Understanding has been signed between the IATTC and the Public Institute for Aquaculture and Fisheries Research (IPIAP) regarding the aforementioned administrative procedure and for the purpose of developing the feasibility study and sampling designs for implementing the close-kin mark-recapture (CKMR) method in *Carcharhinus falciformis*. The memorandum will facilitate obtaining the research permit and framework agreement for accessing genetic resources derived from the project, as well as authorization to export elasmobranch samples for scientific purposes to the IATTC headquarters in the United States.

Furthermore, we have a Certificate of Origin from the Sea for the export of samples collected on board Ecuadorian-flagged purse-seine tuna vessels and the longline "mother vessel" fleet. This document is valid for one year, until 16 June 2026, and is issued by the MAATE office responsible for CITES issues.

Sample export procedure:

For the international transport of biological samples of species included in Appendix II of the CITES Convention, it is mandatory to have the respective CITES export permit. This permit must be processed in person at the Biodiversity Directorate of the Ministry of Environment, Water, and Ecological Transition (MAATE), at its offices located in Quito. In addition, all exports must comply with the sanitary requirements established by AGROCALIDAD, a Ministry of Agriculture and Livestock entity, by obtaining an Animal Health Certificate (Figure 26).

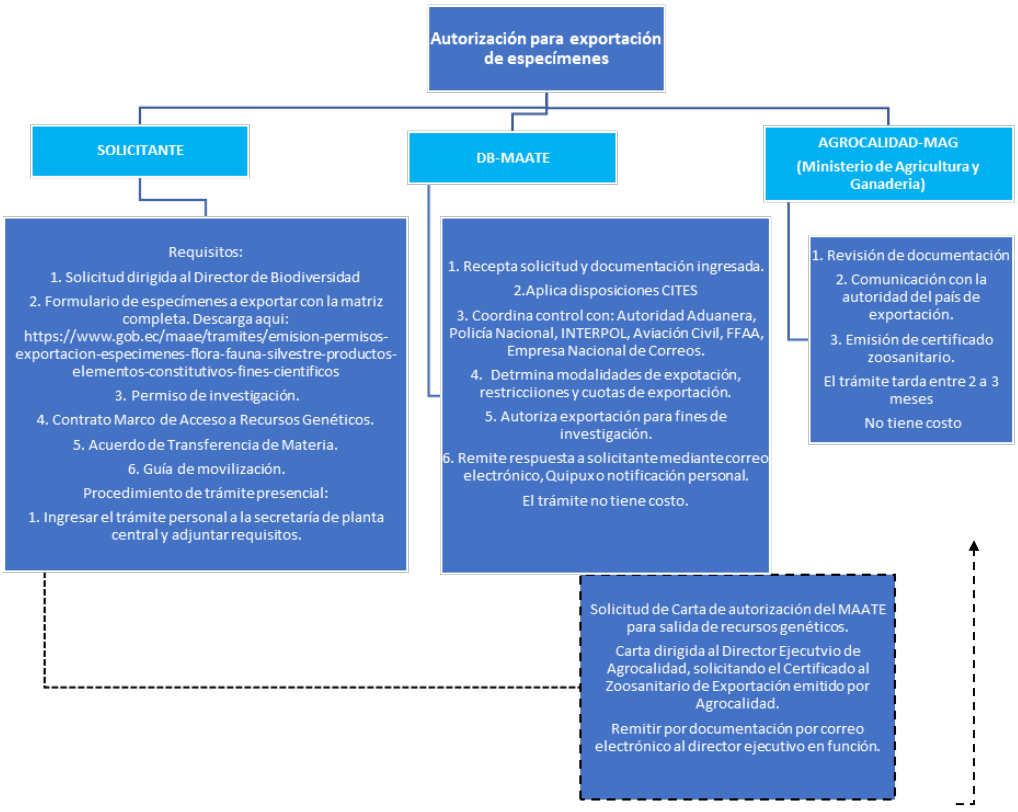


Figure 26. Diagram of the administrative process for the export of biological samples of sharks and rays, in accordance with the requirements established by the Ecuadorian environmental authority.

Sample shipping procedure:

Samples can be shipped via Federal Express (FedEx) in one Biomark cryobox with 100 units and another cryobox with samples preserved in 96% ethanol (100 units). The total weight is estimated to be less than 2 kg. The estimated shipping cost is USD 311.00, with an estimated delivery time of 5 to 6 days.

For this procedure, a Non-infectious Certificate in English is required, issued by a laboratory or the relevant authority in the destination country. Additionally, the commercial invoice must be included and must contain the sender's and recipient's information, as well as a detailed description of the contents of the cryobox.

Mexico

In accordance with current national and international regulations aimed at conserving wild animal species, various procedures exist for obtaining permits to handle, collect, and export biological samples (Appendix 7). No authorization is required to collect biopsies from unprotected marine species landed at official landing sites. However, an invoice of legal origin or a fishing permit issued by the National Commission for Fisheries and Aquaculture is necessary (CONAPESCA). This procedure is carried out in person at the CONAPESCA general offices in Mazatlán, Sinaloa (Figure 27).

For protected species, including sharks and rays listed in the Mexican Official Standard NOM-059-SEMARNAT-2010[3], a scientific collection permit is required from the General Directorate of Wildlife (DGVS) to collect and/or handle individuals in the wild. This procedure is carried out in person at the central offices of the Secretariat of the Environment and Natural Resources (SEMARNAT) in Mexico City. When sending biological samples of species listed in Appendix II of CITES abroad, a CITES export permit is required, which is processed in person at the SEMARNAT facilities in Mexico City (Figure 28).

Sample shipping

When exporting biological samples from Mexico for CKMR analysis, the guidelines established in the *Manual of Procedures for the Import and Export of Wild and Aquatic Flora and Fauna Species, their Products and By-products, as well as for the Import of Forest Products Subject to Regulation by the Secretariat of the Environment, Natural Resources and Fisheries* must be followed (available at: https://www.dof.gob.mx/nota_detalle_popup.php?codigo=4998078).

The procedure includes the following stages:

1. Notification to SEMARNAT of the start of collection or monitoring activities.
2. Collection of samples with the corresponding collection permits.
3. Processing of the biological sample export permit with the General Directorate of Wildlife (DGVS) of SEMARNAT.

[3] https://www.dof.gob.mx/normasOficiales/4254/semarnat/semarnat.htm

4. Obtaining the CITES export permit (when applicable).
5. Processing of the import permit for the destination country (e.g., United States).
6. Verification Registration with PROFEPA.

Subsequently, the samples must be transported by land or shipped by authorized courier companies that guarantee the chain of custody and adequate handling conditions during transport to the processing site. Finally, SEMARNAT must be notified of the export activities (applicable only for CITES permits).

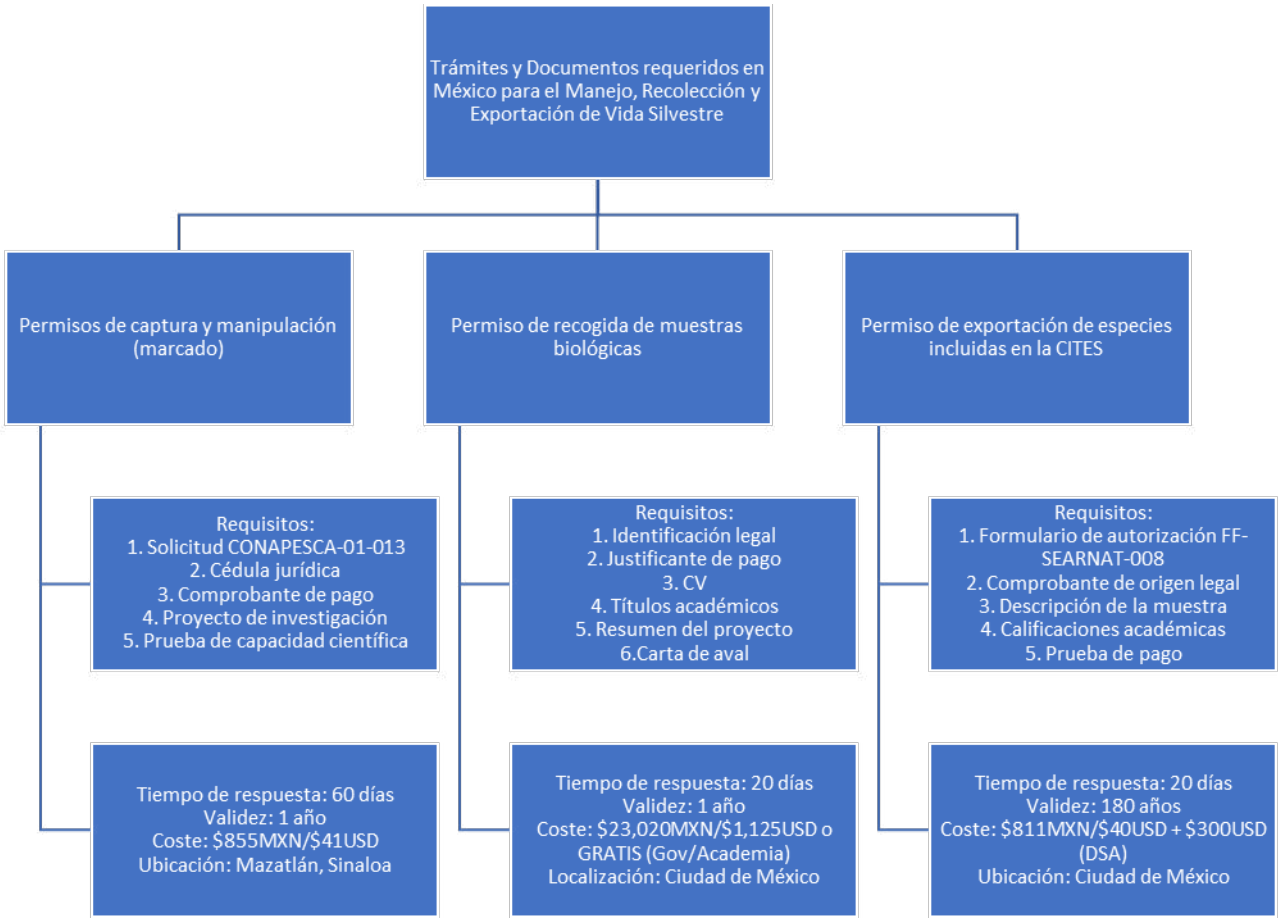


Figure 27. Flow chart of the procedures required by the Mexican national authorities for the handling, collection, and export of biological samples from shark and ray species protected by the Mexican Official Standard NOM-059-SEMARNAT-2010; for species not listed in this standard, only a CITES export permit is required.

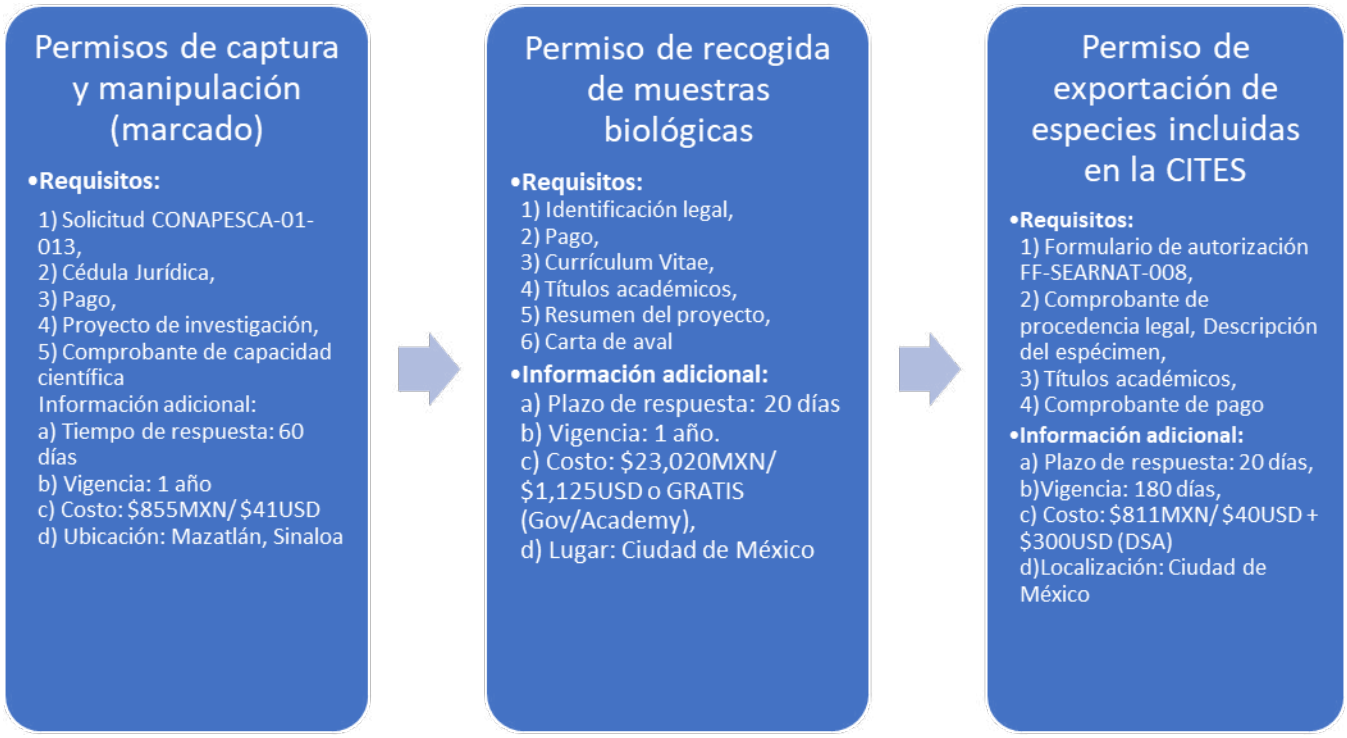


Figure 28. Continued. Sequence of procedures and documents required in Mexico for the handling, collection, and export of biological samples of shark and ray species protected by the Mexican Official Standard NOM-059-SEMARNAT-2010; for species not listed in this standard, only a CITES export permit is required.

Peru

According to Supreme Decree 019-2021-MINAM, issued by the Ministry of the Environment (MINAM), the Ministry of Production (PRODUCE) is the competent national authority for access to genetic resources and their derivatives from hydrobiological species of marine and continental waters, as well as their associated microorganisms, found within the national territory. This includes nationally administered protected natural areas, regional conservation areas, and private conservation areas.

Article 5 on exclusions of Supreme Decree 019-2021-MINAM states that "Basic research related to the identification, delimitation, and classification of species involving the use of molecular tools or other modern tools for taxonomic, systematic, phylogeographic, biogeographic, evolutionary, molecular ecology, and conservation genetics, without commercial purposes, is excluded from the scope of application of the aforementioned Regulation."

In this regard, collecting tissue samples to assess the feasibility of applying the CKMR method within the ABNJ-Tuna II project framework and future IATTC work related to tissue collection for genetic stock assessment purposes would be exempt from the access to genetic resources and derivatives

application process. Nevertheless, an application for access to genetic resources and derivatives must be submitted so that the competent authority can issue a letter of exclusion for the project.

This application must be submitted before collection begins and must include the following documents:

a) Application form (Appendix 8).

b) Research project proposal, in physical or virtual form, according to the format (Appendix 9).

c) Affidavit regarding the use of samples used in the project (Appendix 10).

d) Letter of introduction from the national or foreign institution or organization supporting the project.

All the above documents must be submitted through PRODUCE's online platorm[4] for the issuance of the resolution regarding the exclusion from the application for a permit to access genetic resources and their derivatives (Figure 29).

Procedures after collection[5]

After collection, the "Official health certificate for samples of fishery and aquaculture products with no commercial value for export purposes" must be requested. This certificate is obtained through Single Administrative Procedure Text (TUPA) No. 34, approved by Supreme Decree 025-2015-PRODUCE (Figure 30).

The following requirements must be submitted to do so:

1. Form No. 23, which is the application for an official health certificate for samples of fishery and aquaculture products with no commercial value for export purposes (Appendix 11).
2. Draft label for the sample that identifies and provides information about the samples collected. The label must include items such as ID code, species, date of collection, place of origin, weight, preservative, and collector.
3. Test report[6] issued by an entity supporting the National Authority for Health and Safety in Fisheries and Aquaculture (SANIPES). This report must be provided by an entity listed in the directory available at the following link: https://www.gob.pe/institucion/sanipes/informes-publicaciones/5639394-directorio-de-entidades-de-ensayo.
4. Digital invoice for the sample to be shipped.

All documents must be sent by email to tramitesdoc@sanipes.gob.pe, which will provide a response within two days.

[4] https://vsp.produce.gob.pe/

[5] As of the date of submission of this report, there is no clear answer as to whether TUPA No. 34 is mandatory for the shipment of samples from projects that are excluded from the application for a permit to access genetic resources and their derivatives.

[6] The laboratories recommended by SANIPES do not provide a clear answer regarding their procedure.

It should be noted that, in order to develop the feasibility study and sampling designs for applying the CKMR method in *Carcharhinus falciformis*, an official request was made to the Ministry of Production (PRODUCE) to appoint a technical liaison; a researcher from the Institute of the Sea of Peru (IMARPE) was assigned to this role. Likewise, in compliance with Peruvian regulations for accessing genetic resources, the IATTC formally requested the participation of IMARPE as a national support institution, which was accepted. This designation ensures the necessary technical support for applying for permission to access genetic resources and their derivatives, as well as for subsequently exporting samples for scientific purposes.

Sample shipping

If the shipment is made through FedEx, transporting the cryobox containing 100 muscle tissue samples costs approximately $225.00 USD, with an estimated delivery time of 5 to 6 days. FedEx requires a sworn statement certifying that the samples are not pathogenic or contagious. This statement must be issued by either a doctor or the recipient entity. FedEx also requires a commercial invoice that includes the sender's and recipient's information and a detailed description of the cryobox's contents.

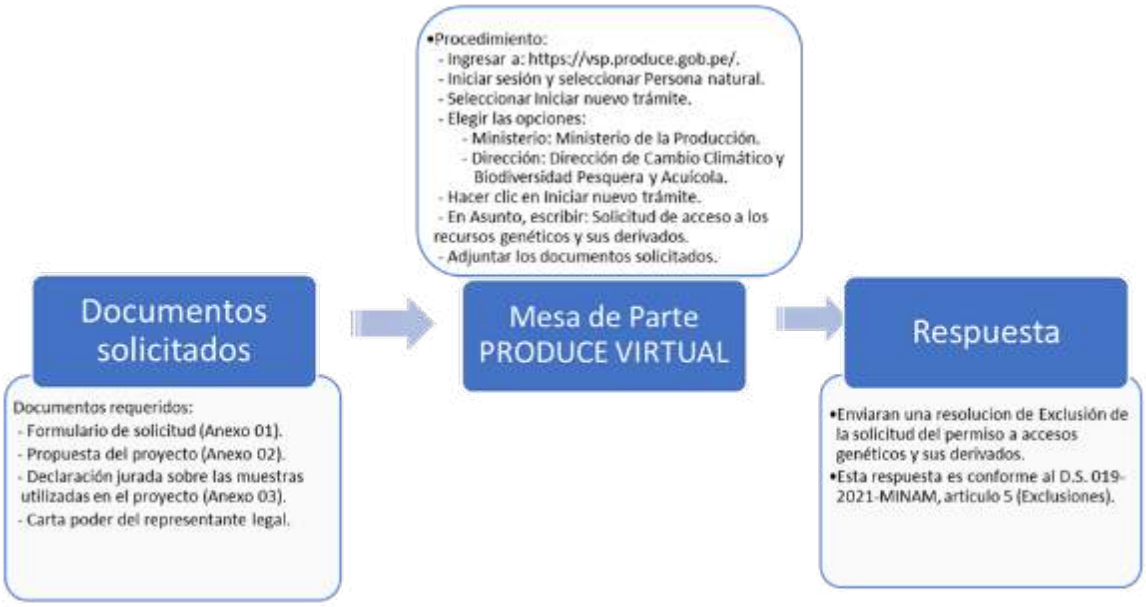


Figure 29. Procedures for requesting access to genetic resources and their derivatives, Ministry of Production, Peru, 2025.

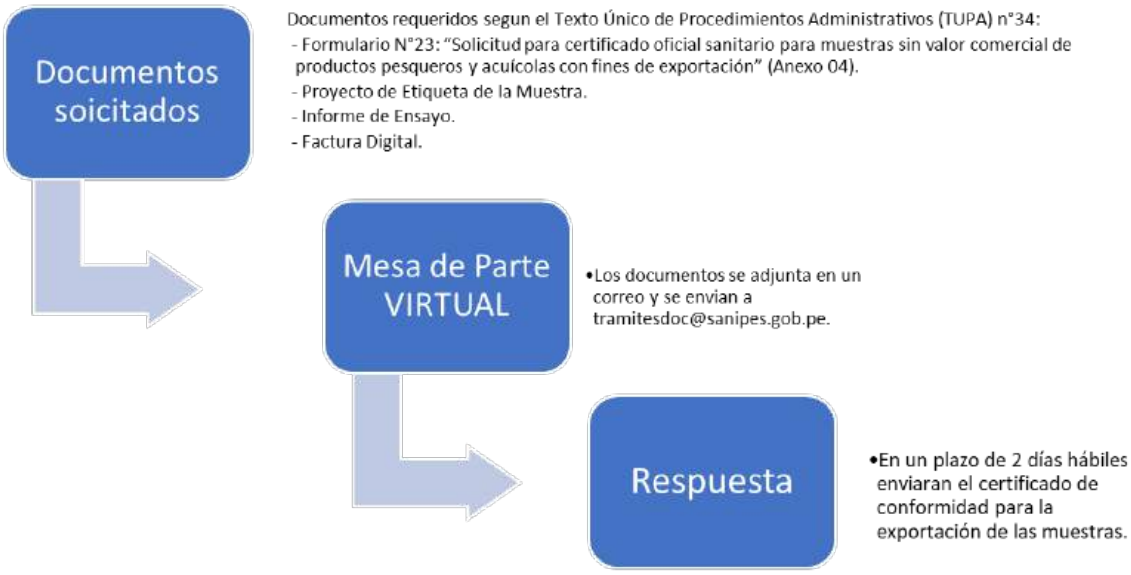


Figure 30. Procedure for obtaining the official health certificate for samples of fishery and aquaculture products with no commercial value for export purposes, Ministry of Production, Peru, 2025.

7. Discussion

- Characteristics of the main sampling sites

The collaboration and participation of the fisheries authorities in each country (SRP in Ecuador; IMIPAS and CONAPESCA in Mexico; IMARPE in Peru) was essential for this activity, as they provided the databases and information needed to select the sampling sites and made field staff from each regional office available for interviews. The information provided made it possible to determine the fishing effort at each site, as well as the species composition of catches and landing volumes by species. During interviews with technical staff in the field, the information was verified, and the relative importance of each site was determined, classifying them as primary or secondary sites. Likewise, the feasibility of sampling was determined based on the site's accessibility and safety for the sampling technician.

Another important component of catch and effort analysis is the type of cut of the individuals as part of the processing before commercialization. During the characterization work in the field, differences in cut types between species and between the three participating countries were recorded. However, these differences consist of certain variations that are related to species, size, fishing gear used, type of vessel, fishing area, and ultimately, the fishermen's habits and customs. Information on the type of cut was recorded at both primary and secondary sites. This information is vital in determining the feasibility of morphometric, biological, and genetic sampling (CKMR), which depends mainly on the availability of whole, complete individuals.

- Sampling forms

The forms used for the ABNJ-Tuna II sampling are based on the ABNJ-Tuna I forms used in Central America. These forms were adjusted to adapt to the terms used in Ecuador, Mexico, and Peru, as well as the characteristics of the different artisanal fishing fleets. The forms were also adapted to the new objectives set for this project.

These adjustments were based on information recorded during the characterization work, including the types of cuts in landed specimens and the fishing gear used at each landing site. In total, four types of forms will be used (Form 0, Form A, Form B, and Form C), which are expected to cover all planned field data collection needs for ABNJ-Tuna II.

The use of these forms has been efficient so far, although certain issues have been detected regarding the space provided for recording individuals in "Form A" at some sites in Ecuador (e.g., Manta and Jaramijó), where landings are abundant. There has been some resistance to using this same form in Mexico because the sampling technicians collaborating in this country belong to IMIPAS, a scientific fisheries authority. Prior to this project, they used their own registration forms and collected different biometric measurements. In Ecuador and Peru, using "Form 0" has been difficult in areas with a large number of vessels or where internal security controls prevent the registration of vessel departures or arrivals. It is important to note that the sampling strategies and forms used in ABNJ-Tuna II may be adjusted to establish a foundation for long-term regional monitoring.

- Methods: sampling parameters, morphometric sampling, shark weighing, biological sampling

One of the main requirements for recording morphometric data is that the individual be landed whole in order to record the main measurements (LT, LID, LP, LF, weight). The goal is to characterize the morphometry by species and obtain correlation indices between the measurements. However, landing whole individuals has economic implications for fishermen due to excess weight and reduced space on board the vessel. Currently, the availability of whole individuals is relatively low, but it is expected that, over time, the necessary records will be obtained to meet the objectives of this task.

To streamline the recording of information during data collection, different types of ichthyometers and scales (some of them equipped with supports) were tested, which were also used in Central America during ABNJ-Tuna I. The goal is to increase the accuracy of recording the size and weight of individuals and reduce the time required to obtain the data. Once the sampling periods in each country are complete, we will evaluate the performance of each piece of equipment, considering practicality (ease of transport and use), cost of acquisition (manufacturing time and/or economic value), and conditions of the landing sites where they were used.

On the other hand, various tissues will be collected that require specialized collection and conservation methods due to their type. For instance, collecting a stomach requires a procedure that preserves the tissue while ensuring the sample is handled and conserved properly. This differs from the collection of vertebral discs, which requires sectioning part of the back but involves very basic packaging and conservation. A basic collection protocol has been developed for the main tissues to be studied in elasmobranchs. The aim is to standardize the procedure and ultimately evaluate its feasibility for future studies.

- Feasibility of morphometric and biological sampling and CKMR analysis

Morphometric and biological sampling and CKMR genetic analysis all require certain conditions to be viable. It is therefore important to identify the sites in each country where species considered a priority by the IATTC (Table 2) are landed, as well as the seasonality and other biological variables (e.g., size, type of cut).

To ensure the feasibility of morphometric sampling, it is essential to select sites where landed individuals are whole and, preferably, not gutted, in order to characterize the morphometry by species and obtain correlation indices between measurements. In the future, this will allow us to estimate total length at sites where the individuals are not landed whole. In the case of biological sampling, site conditions are linked to the landing of whole individuals, which will allow us to determine weights, stages of maturity (analysis of reproductive organs), trophic level from stomach samples, as well as age and growth from the collection of vertebral discs. Therefore, both morphometric and biological information can be correlated for subsequent analyses, such as CKMR, for which it is necessary to estimate or know the age of the sampled individual for optimal application of the methodology and to obtain conclusive results.

To ensure the feasibility of CKMR genetic analysis, it is necessary to obtain samples from the entire size range to produce meaningful results. Samples should be as fresh as possible to avoid cell damage and ensure optimal DNA quality for genetic analysis. This implies that the landing site should be used by artisanal fishing vessels that fish in coastal and oceanic areas and that the fishing areas

are not too far from the coast. Additionally, the samples should not be deteriorated or have lost DNA quality. In this way, it may be feasible to obtain samples from individuals belonging to a wider size spectrum.

It will not be easy to match the conditions for the feasibility of the morphometric and CKMR genetic studies, considering that each participating country is located at a different latitude and experiences different meteorological and oceanographic conditions. Additionally, Mexico has a closure period for elasmobranch fishing from May to July. However, the strategies adopted in ABNJ-Tuna II, such as selecting sites where whole individuals are landed and ensuring accessibility, are aimed at increasing the feasibility of such studies.

- National regulations for the corresponding permits for handling, collection, and export

Depending on the country, collecting and analyzing samples of wild animal species could have legal implications that vary in complexity. This is particularly true for species that are considered at risk or protected by national or international regulations. All species prioritized by the IATTC are listed in Appendix II of CITES. Therefore, for the CKMR genetic analysis of *C. falcifmormis*, a permit must be obtained from the CITES authority of each participating country to export the collected samples to the United States, where the large-scale genetic analysis forming the basis of CKMR will be carried out. However, to obtain such a permit, the samples' legal origin must be verified. Therefore, prior to tissue sampling, the relevant collection and/or research permits must be obtained in accordance with each country's regulations. These procedures have been identified in each participating country, taking into account estimated response times. These measures are intended to ensure that activities related to the collection of samples and the genetic analysis of silky sharks proceed according to the ABNJ-Tuna II project schedule.

Since the sampling stage is ongoing, it is not possible to validate or finalize the applied methodology. For this reason, we plan to evaluate the biological sampling strategies and the export process (CITES permit) once monitoring of landings is complete. Landing monitoring will allow us to develop better biological sampling strategies and improve the export process (CITES permits).

8. Appendices

Appendix 1

Esfuerzo y captura de grandes pelágicos para la flota de embarcaciones de México, Ecuador y Perú.

1. Solicitar a cada participante[1] que ingrese la información según corresponda.

LOIs ID	Número total de embarcaciones Visto en Google Earth		Número total de embarcaciones Registro de la Autoridad Pesquera (*)		Número total de embarcaciones observado durante la visita (*)		Número total de embarcaciones según el pescador (*)		Descargas (marque con una "X" el dato que se tiene)		
	Artesanales	No artesanales	Artesanales	No artesanales	Artesanales	No artesanales	Artesanales	No artesanales	Anual	Mensual	Diario
Distancia promedio del área de pesca (mn)											
(*) La clasificación de las embarcaciones dependerá de la normativa pesquera de cada país.											

2. ¿Cuántos viajes realiza a la semana durante buenas condiciones y malas condiciones? Y ¿Cuánto tiempo (horas) dura la faena de pesca?

LOIsID:_____

Condiciones climáticas	Temporada de pesca o con captura incidental de tiburones						Temporada de NO pesca o sin captura incidental de tiburones					
	Número de viajes por semana/mes			Duración de los viajes [horas] [días]			Número de viajes por semana/mes			Duración de los viajes [horas] [días]		
	MIN	MAX	Típico	MIN	MAX	Típico	MIN	MAX	Típico	MIN	MAX	Típico
Buenas condiciones												
Malas condiciones												

3. De las siguientes especies o grupo de especies, responda las preguntas que se encuentran en cada columna:

ESPECIE			¿Captura la especie?	¿Qué mes [inicia] y [finaliza] la pesca de [especie] durante EL AÑO?			Nombre común de la especie como se conoce en LOIs de descarga	Tipo de corte de la descarga (*)
Nombre científico	COD FAO	Estadio de vida	Si /No	Inicio	Final	Mes de mayor captura		
TIBURONES								
	FAL	Neonatos						
	SPL							
	SPZ							
	SPN							
	CNX							
	FAL	Juveniles						
	SPL							
	SPZ							
	SPN							
	CNX							
	FAL	Adultos						
	SPL							
	SPZ							
	SPN							
	PTH							
	ALV							
	BTH							
	THR							
	FAL	Hembras grávidas						
	SPL							
	SPZ							
	SPN							
RAYAS								
	RMB - Manta gigante							
	RMU - Manta diablo/Móbula							
	MNT - Manta no identificada							
	Especie 1							
	Especie 2							
	Especie 3							
	RANI							
OTROS PECES								
	DOL - Dorado							
(*) Ver Código								

4. ¿Cuántos kilogramos/ libras capturaron de [especie] según arte de pesca por viaje durante la TEMPORADA DE PESCA O CON CAPTURA INCIDENTAL DE TIBURONES?

ESPECIE			¿Cuántos kilogramos [ ] / libras [ ] capturaron de [especie] según arte de pesca por viaje durante la TEMPORADA PESCA O CON CAPTURA INCIDENTAL DE TIBURONES?											
			Mínimo				Máximo				Típico			
Nombre científico	COD FAO	Estadio de vida	LL	GN	LHP	PS	LL	GN	LHP	PS	LL	GN	LHP	PS
TIBURONES														
	FAL	Neonatos												
	SPL													
	SPZ													
	SPN													
	FAL	Juveniles												
	SPL													
	SPZ													
	SPN													
	FAL	Adultos												
	SPL													
	SPZ													
	SPN													
RAYAS														
	RMB													
	RMU													
	MNT													
	Especie 4													
	Especie 5													
	Especie 6													
	RANI													

5. ¿Cuántos kilogramos /libras capturaron de [especie] según arte de pesca por viaje durante la TEMPORADA DE NO PESCA O SIN CAPTURA INCIDENTAL DE TIBURONES?

ESPECIE			¿Cuántos kilogramos [ ] / libras [ ] capturaron de [especie] según arte de pesca por viaje durante la TEMPORADA DE NO PESCA O SIN CAPTURA INCIDENTAL DE TIBURONES?											
			Mínimo				Máximo				Típico			
Nombre científico	COD FAO	Estadio de vida	LL	GN	LHP	PS	LL	GN	LHP	PS	LL	GN	LHP	PS
TIBURONES														
	FAL	Neonatos												
	SPL													
	SPZ													
	SPN													
	FAL	Juveniles												
	SPL													
	SPZ													
	SPN													
	FAL	Adultos												
	SPL													
	SPZ													
	SPN													
RAYAS														
	RMB													
	RMU													
	MNT													
	Especie 4													
	Especie 5													
	Especie 6													
	RANI													

Appendix 2

Table 1. Identification number of the main shark landing sites in Ecuador, Mexico, and Peru.

COUNTRY	PROVINCE / STATE / DEPARTMENT	LOCALITY	SITE ID	SITE NAME	TYPE
Ecuador	Esmeraldas	Esmeraldas	5073	Puerto Pesquero Artesanal Esmeraldas 02	Primary
			5074	Puerto Pesquero Artesanal Esmeraldas 03	Primary
			5075	Puerto Pesquero Artesanal Esmeraldas 04	Primary
			5076	Puerto Pesquero Artesanal Esmeraldas 05	Primary
			5077	Puerto Pesquero Artesanal Esmeraldas 06	Primary
		Atacames	5082	Atacames 01	Secondary
			5083	Atacames 02	Secondary
		Súa	5088	Súa 01	Secondary
			5090	Súa 03	Secondary
			5092	Súa 05	Secondary
		Tonchigue	5097	Tonchigue 02	Secondary
			5099	Tonchigue 04	Secondary
			10511	Tonchigue 01	Secondary
		Muisne	5118	Muisne 04	Secondary
			5120	Muisne 06	Secondary
			5121	Muisne 07	Secondary
	Manabí	Jama	5199	El Matal 01 (Miguelillo)	Primary
			5200	El Matal 02	Primary
			5201	El Matal 03	Primary
			5202	El Matal 04	Primary
		Crucita	5259	Facilidad Pesquera Artesanal Crucita	Secondary
			5262	Los Arenales 03	Secondary
			5263	Balsamaragua	Secondary
			10516	Los Ranchos 02	Secondary
			10517	Los Ranchos 03	Secondary
		Jaramijó	5266	Puerto Pesquero Artesanal Jaramijó 01 (Muelle)	Primary
			5267	Puerto Pesquero Artesanal Jaramijó 02 (Industrial)	Primary
		Manta	5273	Playita Mía	Primary
			5277	Terminal Pesquero Muelle Marginal Manta 01 (APM)	Primary
			5274	La Poza	Secondary
			10520	Las Piñas	Secondary
		San Mateo	5282	San Mateo	Secondary
		Puerto López	5306	Puerto López 03	Secondary
	Santa Elena	Salinas	5364	Facilidad Pesquera Santa Rosa	Primary

COUNTRY	PROVINCE / STATE / DEPARTMENT	LOCALITY	SITE ID	SITE NAME	TYPE
			5365	Santa Rosa 02	Primary
			5601	Santa Rosa 03	Primary
		Anconcito	5372	Anconcito 01	Secondary
			10523	Puerto Pesquero Artesanal Anconcito 01	Secondary
			10524	Puerto Pesquero Artesanal Anconcito 02	Secondary
			5602	Anconcito 02	Secondary
		Chanduy	5380	Puerto Chanduy 01	Secondary
	El Oro	Puerto Bolívar	10530	Muelle Artesanal Puerto Bolívar 03	Secondary
			10531	Muelle Artesanal Puerto Bolívar 04	Secondary
			10544	Cooperativa Simón Bolívar	Secondary
Mexico	Baja California	Playas de Rosarito	3001	Popotla	Primary
		Ensenada	3008	Ensenada	Primary
			3018	Eréndira	Primary
		San Quintín	3068	Bahía de los Ángeles	Primary
			10305	Santa Rosaliita	Primary
			3083	Laguna Manuela	Primary
	Baja California Sur	Mulegé	3102	Bahía Tortugas	Primary
			3109	Puerto Nuevo BCS	Primary
			10306	Santa Rosalía	Primary
			3121	Bahía Asunción	Primary
		Comondú	3202	San lázaro	Primary
			3203	Puerto San Carlos	Primary
	Sonora	Pitiquito	10311	Puerto Libertad	Primary
			3309	El Desemboque de los Seris	Primary
		Hermosillo	3312	Punta Chueca	Primary
			3313	Bahía de Kino	Primary
		San Ignacio Rio Muerto	10321	Bahía de Lobos	Primary
		Huatabampo	3340	Yavaros	Primary
	Sinaloa	Angostura	10373	La Reforma	Primary
		Mazatlán	10398	Isla de la Piedra (Puerto Mazatlán)	Primary
	Nayarit	San Blas	10413	La Nueva U (San Blas)	Primary
		Bahía de Banderas	3406	La Cruz de Huanacaxtle	Primary
	Jalisco	Cihuatlán	10421	Barra de Navidad II	Primary
	Colima	Manzanillo	3433	Muelle Pesquero Fondeport	Primary
	Michoacán	Lázaro Cárdenas	3445	Caleta de Campos	Primary
			3451	Lázaro Cárdenas	Primary

COUNTRY	PROVINCE / STATE / DEPARTMENT	LOCALITY	SITE ID	SITE NAME	TYPE
	Oaxaca	Santiago Pinotepa Nacional	10448	Corralero	Primary
		Salina Cruz	3508	Bahía la Ventosa	Primary
			3510	Salina Cruz	Primary
		Santo Domingo Tehuantepec	10450	Ensenada Chipehua	Primary
		Villa de Tututepec	10453	El Zapotalito	Primary
		Santiago Astata	3521	Ensenada Morro Ayuta	Primary
		San Pedro Mixtepec	10456	Bahía Principal	Primary
		Santa María Huatulco	3526	OAX 11 (Santa Cruz Huatulco)	Primary
		San Pedro Pochutla	10458	Bahía Puerto Ángel	Primary
		Santa María Tonameca	3532	Mazunte	Primary
	Chiapas	Tonalá	3537	Bahía Paredón	Primary
			10470	Boca del Cielo	Primary
		Acapetahua	3551	Ranchería La Lupe	Primary
		Tapachula	10482	Puerto Madero	Primary
Peru	Tumbes	Zorritos	7010	Zorritos 01	Secondary
		Acapulco	7015	Acapulco 03	Primary
	Piura	Máncora	7026	Máncora 01	Primary
		El Ñuro	7031	El Ñuro 02	Secondary
		Paita	7045	Paita 01	Secondary
			10702	Paita 03	Secondary
			7049	Paita 06	Primary
		Constante	7069	Constante 02	Secondary
		Parachique	7082	Parachique 05	Secondary
		Playa blanca	10704	Playa blanca 01	Primary
	Lambayaque	San José	7092	San José 01	Secondary
			7094	San José 03	Primary
	La Libertad	Salaverry	7109	Salaverry 02	Secondary
			7110	Salaverry 03	Primary
	Ancash	Chimbote	7119	Chimbote 01	Primary
			7120	Chimbote 02	Primary
			7121	Chimbote 03	Secondary
	Lima	Huacho	7163	Huacho 03	Secondary

COUNTRY	PROVINCE / STATE / DEPARTMENT	LOCALITY	SITE ID	SITE NAME	TYPE
		Chancay	7169	Chancay 05	Secondary
		Ancón	10706	Ancón 02	Secondary
		Pucusana	7193	Pucusana 01	Primary
	Ica	Tambo de mora	7197	Tambo de mora 02	Secondary
		San Andrés	7200	San Andrés 02	Primary
	Arequipa	Atico	7219	Atico 01	Secondary
		La planchada	7221	La planchada 01	Secondary
		Quilca	7223	Quilca 01	Secondary
		Matarani	7225	Matarani 01	Secondary
			7226	Matarani 02	Secondary
		La punta	7238	La punta	Secondary
	Moquegua	Ilo	7227	Ilo 01	Primary
	Tacna	Morro sama	7232	Morro sama 02	Secondary

Appendix 3

a) Form 0

Formulario 0: Caracterización

No. Formulario A: _____ **No. Muestreo:** _____

MuestreadorID: _____ LocalidadID: _____ SitioID: _____ Fecha: _____

Parte 1. F l o t a : Ingrese los datos en referencia a la flota presente en el sitio de descarga a muestrear y aledaños.

No.	Clase Embarcación ID	Número total de embarcaciones Conteo en Campo		Arribo de las embarcaciones		Zarpe de las embarcaciones	
		Inicio	Fin	No obs	obs	No obs	obs
1							
2							
3							
4							
5							

Parte 2. C a p t u r a y E s f u e r z o : Ingreso de los datos de las características de la flota y promedio de captura (año anterior) en el mismo mes que realiza el muestreo, por tipo de arte de pesca.

No.	Clase embarcación ID	Caballaje de motor		Rango Eslora (m)		Embarcaciones activas (#)				Promedio horas de pesca				Promedio de captura de tiburón (kg)				Promedio de captura de atún (kg)				Promedio de captura de picudos (kg)				Promedio de captura de dorado (kg)			
		mín.	máx.	mín.	máx.	LL	GN	LHP	PS	LL	GN	LHP	PS	LL	GN	LHP	PS	LL	GN	LHP	PS	LL	GN	LHP	PS	LL	GN	LHP	PS
1																													
2																													
3																													
4																													
5																													

Parte 3. Observaciones:

No. Formulario A: _____ **No. Muestreo:** _____

Parte 4. Arte de Pesca: Ingrese las características del arte de pesca Palangre y Red agallera.

Clase Embarcación ID: _____

Tipo de Palangre:		Carnada:	1.		(%)	2.		(%)	3.		(%)		Reinal de acero:	SÍ [ ] NO [ ]	
Promedio de lances:		Estado:	V	F	C	A	V	F	C	A	V	F	C	A	N° de anzuelos por lance:	
Método de operación																

Descripción de los Anzuelos			
Características	Anz I	Anz II	Anz III
Tipo de anzuelo			
Tamaño del anzuelo			
Tipo de material			
Tipo de punta			
Fabricante			

ID	Carnada
0	Otra carnada
107	Atún
170	Pez No Identificado
178	Calamar
255	Arenques, sardinas
269	Rayas, mantas
280	Tiburón
590	Camarones Peneidos

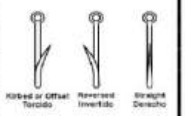
ID	Estado de la carnada	
1	V	Viva
2	F	Fresca
3	C	Congelada
4	A	Artificial

ID	Tipo de Anzuelo
1	Circular
2	Recto o tipo "J"
3	Anzuelo de atún
4	Media garra de águila

ID	Tipo de material
1	Carbón-Acero
2	Acero Inoxidable
3	Hierro Galvanizado

ID	Método de operación
1	Superficie
2	Media Agua
3	Fondo

ID	Tipo de Punta
1	Torcido
2	Invertido
3	Derecho



Clase Embarcación ID: _____

RED AGALLERA	Promedio de lances:	Longitud: m	Alto: m	Luz de malla: _____|_____|_____ pulgadas	Método de operación (*)

(*) Utilizar los códigos de método de operación (ID) especificados en la sección correspondiente al arte de palangre de este formulario.

Parte 5. Observaciones:

b) Form A

Muestreo para la flota Artesanal

Formulario A: Muestreo de Captura — Captura / CEMM y Biológico — País ___ — N° 000000

1. Información general

Muestreador:	Localidad pesquera:	Sitio de descarga:
Fecha: / / Hora:	Clase de embarcación:	Caballaje de motor: 1) ____ 2) ____
Embarcación:	Matrícula:	N° viajes semana pasada:
Sitio de zarpe:	Fecha zarpe: / / Hora:	Fecha arribo: / / Hora:

2. Arte de pesca, área de pesca y condiciones ambientales

¿Frente a qué playa pescó?	Artes usados				Distancia a la costa [mn]	Cuadrantes		Prof. del área de pesca [bz] (*)	
	LL	GN	LHP	PS		No. de cuadrantes:		Mínima	Máxima
	☐	☐	☐	☐					

Condiciones ambientales durante la faena de pesca: Malas [ ] Buenas [ ] No responde [ ]

Temporada de captura de tiburones: Si | No | Otros: _____

3. Captura

Especie objetivo:	CCT[1]:	Descarga completa: SI [ ] NO [ ]	Transbordo: SI [ ] NO [ ]

Código FAO	Descarga		Número					Tipo de corte			
	Número	Peso [Kg]	Neonatos	Juveniles	Adultos	Desc.	Hembras grávidas	Neo.	Juve.	Adul.	Desc.
DOL											
FAL											
SPL											
FAL											

Tbl. Estadio de vida	
Código	Evida
0	NA
1	Neonatos
2	Juveniles
3	Adultos
4	Hembra grávida

Tbl. Tipo de Corte	
Código	Corte
1	Tronco
2	Sin cabeza y eviscerado
3	Sin cola
4	Tronco sin piel o en filete
5	Entero eviscerado
6	Entero
7	Tronco sin algunas aletas
8	Corte para tiburón zorro-1
9	Mitad
10	Otro
11	Corte para tiburón zorro-2
12	Corte para tiburón zorro-3
13	Tronco con lóbulo superior de aleta caudal

[1] Calificación de la captura total (CCT): 1: muy mala – 2: mala – 3: normal – 4: buena – 5: muy buena.

(*) Campo opcional

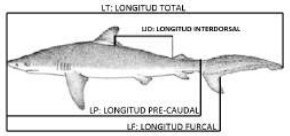
v2

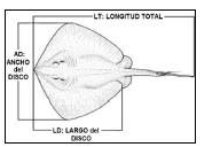
Muestreo para la flota Artesanal

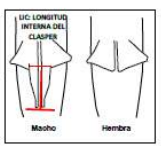
4. Biometría

N°	Cód. FAO	Sexo [M] [H]	Estadio de vida	Longitud					Peso Total	Peso incluye:			Peso Cortado	Estadio madurez	Tiempo de captura	Calidad de muestra	Muestras
				LT/LD	LP/AD	LF	LID	LIC	[kg]	Víscera	Cabeza	Aletas					
01		[ ] [ ]															
02		[ ] [ ]															
03		[ ] [ ]															
04		[ ] [ ]															
05		[ ] [ ]															
06		[ ] [ ]															
07		[ ] [ ]															
08		[ ] [ ]															
09		[ ] [ ]															
10		[ ] [ ]															
11		[ ] [ ]															
12		[ ] [ ]															
13		[ ] [ ]															
14		[ ] [ ]															
15		[ ] [ ]															
16		[ ] [ ]															
17		[ ] [ ]															
18		[ ] [ ]															
19		[ ] [ ]															
20		[ ] [ ]															

5. Observaciones







Tbl Calidad de la muestra	
Código	CalidadMues
1	El tiempo en cubierta es larga antes de ser almacenado en frio/hielo
2	El tiempo en cubierta es corto antes de ser almacenado en frio/hielo
3	La conservación del individuo fue correcta
4	La conservación del individuo no fue correcta
5	Conservación en fresco sin bodega y temperatura ambiental alta
6	Conservación en fresco sin bodega y temperatura ambiental baja
7	Textura de la carne firme y piel fresca
8	Textura de la carne suave y piel seca
9	Pescador no respondió

Tbl. Muestras		
Código	Muestras	Descripción
0	Otros	Ver el recuadro de observaciones
1	Tejido de muscular	Al espécimen le fueron extraídas muestras de tejido muscular
2	Vertebra	Al espécimen le fue extraída una muestra de vértebras
3	Ovarios	Al espécimen le fue extraída una muestra de ovarios
4	Intestino	Al espécimen le fue extraída una muestra del tracto intestinal
5	Embriones	Al espécimen le fueron extraídos o medidos embriones
6	Otolitos	Al espécimen le fueron extraídos otolitos
7	Piel o escamas	Al espécimen le fueron extraídos piel o escamas
8	Dientes	Al espécimen le fueron extraídos dientes
9	Parásitos	Al espécimen le fueron extraídos parásitos
10	Fotografías	Al espécimen le fueron realizadas fotografías

c) Form B

Formulario B: Muestreo de embriones de tiburón

1. Datos de Embriones País: _____ Muestreador: _______ Número de Formulario: ___________

N° de individuo:			Etapa de desarrollo:			Total Embriones: _______ [M] [H]			N° de individuo:			Etapa de desarrollo:			Total Embriones: _______ [M] [H]		
N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD
01	[ ][ ]		11	[ ][ ]		21	[ ][ ]		01	[ ][ ]		11	[ ][ ]		21	[ ][ ]	
02	[ ][ ]		12	[ ][ ]		22	[ ][ ]		02	[ ][ ]		12	[ ][ ]		22	[ ][ ]	
03	[ ][ ]		13	[ ][ ]		23	[ ][ ]		03	[ ][ ]		13	[ ][ ]		23	[ ][ ]	
04	[ ][ ]		14	[ ][ ]		24	[ ][ ]		04	[ ][ ]		14	[ ][ ]		24	[ ][ ]	
05	[ ][ ]		15	[ ][ ]		25	[ ][ ]		05	[ ][ ]		15	[ ][ ]		25	[ ][ ]	
06	[ ][ ]		16	[ ][ ]		26	[ ][ ]		06	[ ][ ]		16	[ ][ ]		26	[ ][ ]	
07	[ ][ ]		17	[ ][ ]		27	[ ][ ]		07	[ ][ ]		17	[ ][ ]		27	[ ][ ]	
08	[ ][ ]		18	[ ][ ]		28	[ ][ ]		08	[ ][ ]		18	[ ][ ]		28	[ ][ ]	
09	[ ][ ]		19	[ ][ ]		29	[ ][ ]		09	[ ][ ]		19	[ ][ ]		29	[ ][ ]	
10	[ ][ ]		20	[ ][ ]		30	[ ][ ]		10	[ ][ ]		20	[ ][ ]		30	[ ][ ]	

N° de individuo:			Etapa de desarrollo:			Total Embriones: _______ [M] [H]			N° de individuo:			Etapa de desarrollo:			Total Embriones: _______ [M] [H]		
N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD	N°	Sexo [M] [H]	LT/AD
01	[ ][ ]		11	[ ][ ]		21	[ ][ ]		01	[ ][ ]		11	[ ][ ]		21	[ ][ ]	
02	[ ][ ]		12	[ ][ ]		22	[ ][ ]		02	[ ][ ]		12	[ ][ ]		22	[ ][ ]	
03	[ ][ ]		13	[ ][ ]		23	[ ][ ]		03	[ ][ ]		13	[ ][ ]		23	[ ][ ]	
04	[ ][ ]		14	[ ][ ]		24	[ ][ ]		04	[ ][ ]		14	[ ][ ]		24	[ ][ ]	
05	[ ][ ]		15	[ ][ ]		25	[ ][ ]		05	[ ][ ]		15	[ ][ ]		25	[ ][ ]	
06	[ ][ ]		16	[ ][ ]		26	[ ][ ]		06	[ ][ ]		16	[ ][ ]		26	[ ][ ]	
07	[ ][ ]		17	[ ][ ]		27	[ ][ ]		07	[ ][ ]		17	[ ][ ]		27	[ ][ ]	
08	[ ][ ]		18	[ ][ ]		28	[ ][ ]		08	[ ][ ]		18	[ ][ ]		28	[ ][ ]	
09	[ ][ ]		19	[ ][ ]		29	[ ][ ]		09	[ ][ ]		19	[ ][ ]		29	[ ][ ]	
10	[ ][ ]		20	[ ][ ]		30	[ ][ ]		10	[ ][ ]		20	[ ][ ]		30	[ ][ ]	

2. Observaciones

____

____

____

v2

d) Form C

Formulario C: Muestreo de cestas o cajas para neonatos de tiburón

País: _____ Muestreador: ______ Número de Formulario: ________

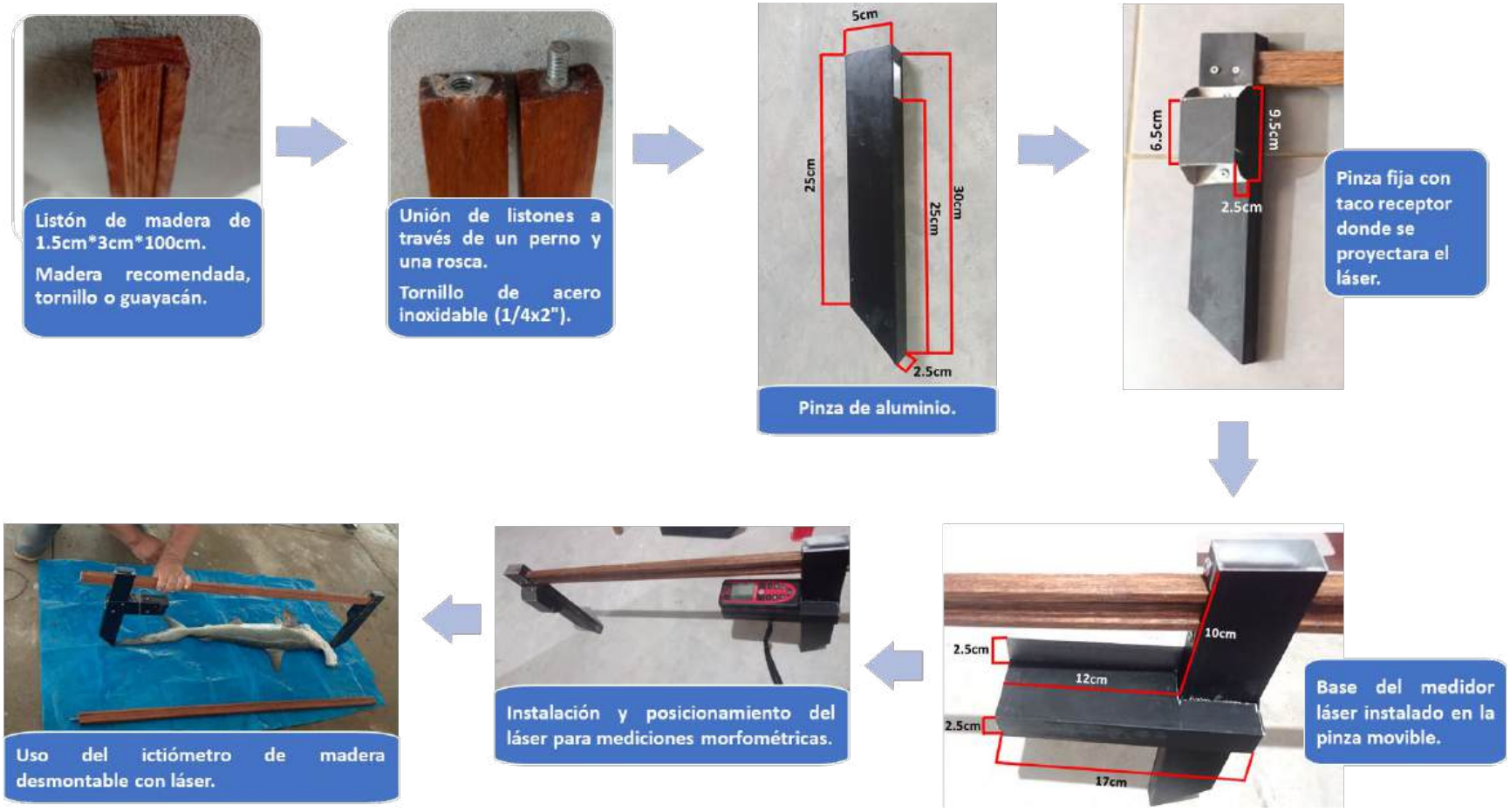
N° Cesta	Cantidad de cestas o cajas	N° Esp. encon-tradas	Peso total [kg]	Tipo de corte[1]	Especies (Código FAO)[2]	Número			Promedio LID		
						[M]	[H]	[Des]	[M]	[H]	[Des]

[1] 1. Tronco; 2. Eviscerado y sin cabeza; 3. Sin cola; 4. Tronco sin piel o en filete; 5. Entero eviscerado; 6. Entero; 7. Otro; 8. Mitad.

[2] Especies comunes en el desembarque: *A. pelagicus* (PTH), *Alopias vulpinus* (ALV), *A. superciliosus* (BTH), *Carcharhinus falciformis* (FAL), *I. oxyrinchus* (SMA), *P. glauca* (BSH), *Sphyrna lewini* (SPL), *S. zygaena* (SPZ) *v2*

Appendix 4

Diagram of the detachable wooden ichthyometer with laser used for morphometric measurements of elasmobranchs at the main landing sites on the coast of Peru.



Appendix 5

COMISIÓN INTERAMERICANA DEL ATÚN TROPICAL

Piloto de muestreo biológico de las capturas de tiburones de las pesquerías artesanales en Ecuador, México y Perú.

Protocolo para la colecta biológica de tejidos de tiburones y rayas: Procedimientos adaptados al muestreo de las descargas de embarcaciones artesanales

8901 La Jolla Shores Drive
La Jolla, California 92037
EE. UU.
www.iattc.org

Protocolo dirigido al personal técnico, con objetivos de colecta de muestras biológicas como: músculo, vértebras, contenido estomacal, etc. Las estrategias de muestreo plasmadas en este documento están basadas en las características y dinámica de la flota pesquera artesanal, distribuida a lo largo de la zona costera del Océano Pacífico Oriental (OPO). Por último, este protocolo es la unificación de distintos documentos enfocados a la colecta de tejidos biológicos y que han sido utilizados como referencia por la CIAT.

Texto: Omar Santana y Mónica Peralta (México)
Miguel Pérez-Huaripata (Perú)
Liliana Rendón (Ecuador)

Revisión: Salvador Siu

Appendix 6

Appendix 6a. Application letter format for obtaining the Certificate of Origin from the Sea, applicable to the Ecuadorian-flagged fishing fleet operating outside the Exclusive Economic Zone (EEZ).

20 de mayo de 2025
Ref.: 0233-545

Ing. Glenda Givabel Ortega Sánchez
Subsecretaria de Patrimonio Natural
Ministerio del Ambiente, Agua y
Transición Ecológica
Quito, Ecuador

Asunto: Solicitud de Certificado de Procedencia del Mar con fines de investigación científica-CIAT para tiburones.

Tengo el agrado de dirigirme a usted el alcance a mi carta ref.: 0168-545, fechada el 16 de abril de 2025, referida a la consideración y endoso por parte del Comité Científico Asesor de la CIAT, en su 15ª reunión, en junio de 2024, de diversos proyectos de investigación dirigidos a mejorar la identificación de especies asociadas a la pesquería de atún en el Océano Pacífico Oriental (OPO).

Entre esos proyectos (ver documento SAC-15-INF-E.a), quisiera destacar los siguientes #:

- **Proyecto B.1.a:** *Resolviendo desafíos en la gestión pesquera mediante herramientas genómicas aplicadas e inteligencia artificial"*, cuyo objetivo es fortalecer las capacidades de identificación taxonómica y apoyar los procesos de evaluación pesquera mediante herramientas innovadoras y basadas en inteligencia artificial y genómica.
- **Proyecto C.4.c:** Desarrollo de estudios de viabilidad y diseño de metodologías de muestreo, incluyendo técnicas de *marcado-recaptura de parientes cercanos (CKMR)*, con el fin de implementar nuevos enfoques para el análisis y evaluación poblacional de tiburones y actualizar relaciones morfométricas clave.
- **Proyectos F.3.a y C.4.c:** Enfocados en la recolección sistemática de muestras biológicas de las principales especies capturadas en la pesquería de atún, con el propósito de generar información que sustente decisiones de manejo más efectivas, basadas en el ecosistema.

Todos estos proyectos tienen como objetivo desarrollar herramientas científicas avanzadas, basadas en un programa de muestreo que incluye la colecta de muestras biológicas, que permitan mejorar el conocimiento técnico y el manejo de especies prioritarias de tiburones contempladas por la CIAT, en el marco de la resolución (C-24-03) y de las recomendaciones del personal científico (e.g., SAC-15-09; SAC-15-10; SAC-15-13).

8901 La Jolla Shores Drive, La Jolla CA 92037-1509, USA – www.iattc.org
Tel: (858) 546-7100 – Fax: (858) 546-7133

En concordancia con los planes de trabajo de los proyectos mencionados, se tiene prevista la recolección de muestras biológicas de tiburones y otros condrictios prioritarios (tejido, piel, vértebras, estómago, entre otros), aplicando los protocolos técnicos establecidos, detallados en los Apéndices correspondientes a los Proyectos **B.1.a**, **C.4.c** y **F.3.a**.

En este contexto, se ha definido el siguiente número de muestras a recolectar por especie de interés:

Tabla 1. Cantidad de muestras por recolectar por especie de tiburón

Código	Cód. num.	Nombre común	Nombre científico	Cantidad de muestras máximas
FAL	157	Tiburón sedoso	*Carcharhinus falciformis*	1000
OCS	152	Tiburón punta blanca oceánico	*Carcharhinus longimanus*	1000
SPL	310	Cornuda común	*Sphyrna lewini*	1000
SPZ	246	Cornuda cruz	*Sphyrna zygaena*	1000
SPK	241	Cornuda gigante	*Sphyrna mokarran*	1000
BTH	306	Zorro ojón	*Alopias superciliosus*	1000
PTH	307	Zorro pelágico	*Alopias pelagicus*	1000
ALV	242	Tiburón zorro punto	*Alopias vulpinus*	1000
SMA	247	Mako de aleta corta	*Isurus oxyrinchus*	1000
BSH	245	Tiburon azul	*Prionace glauca*	1000
RMO	261	Manta diablo	*Mobula thurstoni*	1000
RMM	262	Manta de aguijón	*Mobula mobular*	1000
RMU	263	Manta de Munk	*Mobula munkiana*	1000
RMT	264	Manta cornuda	*Mobula tarapacana*	1000
RMB	265	Manta voladora	*Mobula birostris*	1000
RMA	266	Manta de Alfred	*Mobula alfredi*	1000

Las actividades de muestreo serán ejecutadas por los técnicos de campo del Proyecto *"Ordenación Sustentable de Pesquerías Atuneras y Conservación de la Biodiversidad en Áreas Más Allá de la Jurisdicción Nacional (ABNJ Parte 2)"*. La recolección de muestras se realizará tanto a partir de individuos provenientes de la flota palangrera "nodriza" de pequeña escala, como por observadores científicos a bordo de buques atuneros cerqueros de los programas nacionales y del programa regional de observadores de la CIAT.

Por lo anterior, y en el marco de las disposiciones aplicables, se solicita atentamente la emisión del Certificado de Procedencia del Mar con fines de investigación científica para tiburones, que respalde el uso de estas muestras para los propósitos establecidos. Como parte de este proceso, adjuntamos la lista de buques atuneros clase 6 y la lista de observadores a bordo del programa de la CIAT que estarán colaborando para este proyecto.

Sin otro particular, y agradeciendo de antemano su atención, me despido cordialmente.

Atentamente,

Appendix 6b. Certificate of Origin from the Sea, issued by the Biodiversity Directorate of the Undersecretariat of Natural Heritage of the MAATE, applicable to the Ecuadorian-flagged fishing fleet operating outside the Exclusive Economic Zone (EEZ).

CONVENCIÓN SOBRE EL COMERCIO INTERNACIONAL DE ENARCIES AMENAZADAS DE FAUNA Y FLORA SILVESTRES

PERMISO/CERTIFICADO No. 25EC000013X — ORIGINAL

☐ EXPORTACIÓN ☐ REEXPORTACIÓN ☐ IMPORTACIÓN ☑ OTRO: Introducción procedente del mar

2. Válido hasta el: 16 de junio de 2026

3. Armador o Representante Legal (nombre y dirección): Arnulfo Franco, Director, Comisión Interamericana del Atún Tropical (CIAT), 8901 La Jolla Shores Drive, La Jolla, CA 92037, USA. 3a. País de introducción: ECUADOR

4. Exportador/reexportador (nombre, dirección y país): INTRODUCCIÓN PROCEDENTE DEL MAR. Firma del solicitante

5. Condiciones especiales: Este documento no autoriza la exportación de los especímenes introducidos, para lo cual se deberá solicitar las autorizaciones correspondientes.

6. Nombre, dirección, sello/timbre nacional y país de la Autoridad Administrativa: VICTOR CHOCHO SANCHEZ, Dirección de Biodiversidad, Ministerio del Ambiente, Agua y Transición Ecológica, Calle Madrid 1159 y Andalucía, Quito - Ecuador

8a. Propósito de la transacción: S. 8b. Estampilla de seguridad No.: Válido sin estampilla

	7./8. Nombre científico y común	9. Descripción de los especímenes	10. Apéndice y origen	11. No. De especímenes	11a. Total introducido/cupo
A	Carcharhinus falciformis Tiburón sedoso	Muestras científicas sin fines comerciales (SPE)	II X	1000 NAR	xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
B	7./8. Nombre científico y común Carcharhinus longimanus Tiburón punta blanca oceánico	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
C	7./8. Nombre científico y común Sphyrna lewini Cornuda común	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
D	7./8. Nombre científico y común Sphyrna zygaena Cornuda cruz	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
E	7./8. Nombre científico y común Sphyrna mokarran Cornuda gigante	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
F	7./8. Nombre científico y común Alopias superciliosus Zorro ojón	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
G	7./8. Nombre científico y común Alopias pelagicus Zorro pelágico	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
	7./8. Nombre científico y común Alopias vulpinus Tiburón zorro pelón	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx

CONVENCIÓN SOBRE EL COMERCIO INTERNACIONAL DE ENARCIES AMENAZADAS DE FAUNA Y FLORA SILVESTRES

PERMISO/CERTIFICADO No. 25EC000013X — ORIGINAL

☐ EXPORTACIÓN ☐ REEXPORTACIÓN ☐ IMPORTACIÓN ☑ OTRO: Introducción procedente del mar

2. Válido hasta el: 16 de junio de 2026

	7./8. Nombre científico y común	9. Descripción de los especímenes	10. Apéndice y origen	11. No. De especímenes	11a. Total introducido/cupo
I	Isurus oxyrinchus Mako de aleta corta	Muestras científicas sin fines comerciales (SPE)	II X	1000 NAR	xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
J	7./8. Nombre científico y común Prionace glauca Tiburón azul	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
K	7./8. Nombre científico y común Mobula thurstoni Manta diablo	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
L	7./8. Nombre científico y común Mobula mobular Manta de aguijón	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
M	7./8. Nombre científico y común Mobula munidiana Manta de Munk	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
N	7./8. Nombre científico y común Mobula kuhlii Manta cornuda	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
O	7./8. Nombre científico y común Mobula birostris Manta voladora	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1000 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx
P	7./8. Nombre científico y común Mobula alfredi Manta de Alfred	9. Descripción de los especímenes Muestras científicas sin fines comerciales (SPE)	10. Apéndice y origen II X	11. No. De especímenes 1020 NAR	11a. Total introducido/cupo xxxxxxxxxx
	12. País de Origen * Permiso No.		12a. País de la última reexportación	Certificado No. / Fecha	12b. No. del establecimiento ** o fecha de adquisición ***
	xxxxxxxxxx xxxxxxxxxx		xxxxxxxxxx	xxxxxxxxxx / xxxxxxxxxx	xxxxxxxxxx

* País en el que los especímenes fueron recolectados en la naturaleza, criados cautivamente o reproducidos artificialmente (Solo para reexportación)
** Solamente para los especímenes de eNAP/Sitios incluidos en el Apéndice I criados en cautividad o reproducidos artificialmente con fines comerciales
*** Para los especímenes preconvención

13. Permiso/certificado expedido por: VICTOR CHOCHO SANCHEZ

Distrito Metropolitano de Quito, Ecuador — Lugar

lunes, 16 de junio de 2025 — Fecha de elaboración

Estampilla de seguridad, firma y sello oficial

14. Aprobación de la introducción: Ministerio del Ambiente, Agua y Transición Ecológica.

15. Conocimiento de embarque/permiso de pesca:

Certificado Nro.: No aplica
Matrícula Nro.: No aplica
Permiso de Pesca: No aplica

Appendix 7

PROCEDURES AND DOCUMENTS REQUIRED IN MEXICO FOR THE HANDLING, COLLECTION, AND EXPORT OF PROTECTED WILD SPECIES FROM MEXICO

(a) PERMIT REQUIRED FOR THE CAPTURE AND HANDLING (TAGGING) OF WILD MARINE SPECIES: Fishing PermitCONAPESCA-01-013
Link: https://catalogonacional.gob.mx/FichaTramite?traHomoclave=CONAPESCA-01-013

Requirements for domestic applicants:

1. Original application form CONAPESCA-01-013
2. Original document certifying legal identity (e.g., birth certificate)
3. Original proof of payment for the issuance of the permit
4. Scientific research project that includes:
    - Name of the person in charge
    - Objectives and practical application of the results
    - Participants, materials, vessels and equipment to be used
    - Operations schedule, locations, and operating depths
    - List of species to be studied and number of samples to be collected
5. Evidence of the scientific and technical capacity of the person in charge (e.g., degrees and curriculum vitae)

Requirements for foreign applicants:

1. Original application form CONAPESCA-01-013
2. Original document certifying legal identity (e.g., birth certificate)
3. Original proof of payment for the issuance of the permit
4. Scientific research project, with the same details as indicated above
5. Evidence of the scientific and technical capacity of the person in charge (e.g., degrees and curriculum vitae)
6. Application form for scientific research permits in Mexico, issued by the Secretariat of Foreign Affairs

Response time: 60 business days
Validity: 1 year
Cost: $855.00 MXN (approximately $43 USD)
Location: National Commission for Fisheries and Aquaculture (CONAPESCA), General Directorate of Fisheries and Aquaculture Management, Mazatlán, Sinaloa
Note: Applications are only accepted in person and by the applicant.

(b) PERMIT FOR THE HANDLING AND/OR COLLECTION OF BIOLOGICAL SAMPLES FROM PROTECTED WILD SPECIES: Wildlife Scientific Collection License for Educational Purposes
Link: https://catalogonacional.gob.mx/FichaTramite?traHomoclave=SEMARNAT-08-049-B

Requirements for national and foreign applicants:

1. Documentation proving the applicant's identity
2. Proof of payment for the procedure
3. Personal resume
4. Copies of academic degrees
5. Executive summary of the project, including:
    - Title, introduction, background, and objectives
    - Work areas and Protected Natural Areas concerned
    - Detailed map of work areas
    - Expected results and their applications
    - References cited, individuals and institutions involved
    - Start and end dates of the collection, and schedule of activities
6. Letter of endorsement from a Mexican institution assuming joint responsibility for the collector

Response time: 20 business days
Validity: 1 year
Cost: $23,020.00 MXN (approximately USD $1,169). Payment exemption for applications through academic or government institutions.
Note: Scientific collectors working under agreements with the federal government or Mexican institutions, as well as Mexican researchers registered in the National System of Researchers, are exempt from paying this fee.
Location: Citizen Contact Space of the General Directorate of Wildlife (DGVS), Mexico City.
Note: Documents must be submitted in person by the applicant, by appointment.

(c) PERMIT FOR THE EXPORT OF BIOLOGICAL MATERIAL FROM SPECIES INCLUDED IN CITES: Authorization, Permit, or Certificate for the Import, Export, or Re-export of Wildlife Specimens, Parts, and Derivatives
Note: For tissues from species listed in NOM-029 or NOM-059, this permit cannot be processed without the authorization derived from a scientific collection permit (Permit 2).
Link: https://www.gob.mx/tramites/ficha/autorizacion-permiso-o-certificado-de-importacion-exportacion-o-reexportacion-de-ejemplares-partes-y-derivados-de-la-vida-silvestre/SEMARNAT426

Requirements for national and foreign applicants:

1. Authorization form for the import, export, or re-export of wildlife specimens, parts, or derivatives (FF - SEMARNAT – 008)
2. Valid official identification for individuals or legal representatives
3. Documentation proving the legal origin of the specimens, parts, or derivatives (e.g., invoices, sales receipts, or authorizations for use)
4. List and description of specimens, parts, or derivatives, including:

    - Scientific name, common name, country of origin, and quantity
    - Unit of measurement (e.g., pieces, heads, square meters)
5. Proof of payment (link to the e-cinco form)

Response time: 20 business days
Validity: 180 days
Cost: $811.00 MXN (approximately $40 USD) plus travel expenses to Mexico City (approximately $300 USD for two nights).
Location: Citizen Contact Space of the General Directorate of Wildlife (DGVS), Mexico City.
Note: Documents must be submitted in person by the applicant, by appointment.

Appendix 8

ANEXO N° 1 SOLICITUD DE ACCESO A LOS RECURSOS GENÉTICOS Y SUS DERIVADOS	
DIRECTOR (A) GENERAL Director(a) General de Asuntos Ambientales Pesqueros y Acuícolas **MINISTERIO DE LA PRODUCCIÓN**	
1. IDENTIFICACIÓN DEL USUARIO	
Nombre completo o Razón social	Nacionalidad
Tipo de Documento de identidad (*La identidad de los personas naturales o representantes legales de nacionalidad extranjera deberá acreditarse con carné de extranjería o pasaporte)*	N° de documento
Domicilio legal *(incluir distrito, provincia y departamento, de ser el caso)*	País
Teléfono / Celular	Correo electrónico
N° de Partida Registral de la Vigencia de Poder *(En caso de ser persona jurídica) En el caso de personas jurídicas domiciliadas en el extranjero se deberá presentar el certificado de inscripción en los Registros Públicos del poder del representante legal otorgado en el extranjero*	
*** REPRESENTANTE LEGAL** ☐ No aplica	
Nombre completo	Nacionalidad
Tipo de documento de identidad	N° de documento
Domicilio legal *(incluir distrito, provincia y departamento, de ser el caso)*	País
Teléfono / Celular	Correo electrónico
2. MODALIDAD DE ACCESO QUE SOLICITA	
a. Autorización de acceso a los recursos genéticos y/o sus derivados sin fines comerciales	☐
b. Contrato de acceso a los recursos genéticos y/o sus derivados con fines comerciales	☐
3. TÍTULO DEL PROYECTO	
4. IDENTIFICACIÓN DEL RESPONSABLE DEL PROYECTO ☐ Mismo usuario	
Nombre completo	Nacionalidad
Tipo de documento de identidad	N° de documento
Domicilio legal *(incluir distrito, provincia y departamento, de ser el caso)*	País

Teléfono / Celular	Correo electrónico

5. IDENTIFICACIÓN DEL PROVEEDOR DEL RECURSO BIOLÓGICO QUE CONTIENE EL RECURSO GENÉTICO Y SUS DERIVADOS

Tipo	☐ Persona natural ☐ Pueblo Indígena ☐ Otros ☐ Persona jurídica ☐ Comunidad Campesina

Nombre o Razón social	Nacionalidad
Tipo de Documento de identidad	N° de documento
Domicilio legal *(incluir distrito, provincia y departamento, de ser el caso)*	País
Teléfono / Celular	Correo electrónico

6. TIPO DE MUESTRA

(Anexar tabla si el número de especies excede en 10)

Nombre científico de la especie	Nombre común de la especie	Lugar de procedencia	Número de certificado de procedencia (*Cuando las solicitudes sean dirigidas al SERNANP y se cuente previamente con la autorización para la colecta*)	Tipo de muestra *(tallo, semillas, sangre, plasma, pelos, otros)*

7. IDENTIFICACIÓN DE LA INSTITUCIÓN NACIONAL DE APOYO *(Solo en caso de usuarios extranjeros)*

☐ No aplica

Nombre de la institución *(Incluir la unidad orgánica responsable, de ser el caso)*	Número de RUC
Domicilio legal *(incluir distrito, provincia y departamento, de ser el caso)*	
Teléfono / Celular	Correo electrónico institucional

*** REPRESENTANTE LEGAL**

Nombre completo	Nacionalidad
Tipo de documento de identidad	N° de documento

8. PERIODO DE DURACIÓN O VIGENCIA DEL ACCESO A LOS RECURSOS GENÉTICOS Y/O SUS DERIVADOS (*Acorde con el cronograma de trabajo)*

(meses/años)

9. IDENTIFICACIÓN DEL PROVEEDOR DEL COMPONENTE INTANGIBLE O CONOCIMIENTO COLECTIVO O TRADICIONAL ASOCIADO ☐ No aplica	
Uso del conocimiento individual	☐
Uso del conocimiento colectivo o tradicional asociado	☐
Nombre completo/ Razón social/ Pueblo indígena/ Comunidad nativa o campesina	
Tipo de Documento de identidad	N° de documento
Domicilio legal *(incluir distrito, provincia y departamento, de ser el caso)*	N° de Partida Registral
Teléfono / Celular	Correo electrónico
*** REPRESENTANTE LEGAL** ☐ No aplica	
Nombre completo	Nacionalidad
Tipo de documento de identidad	N° de documento

Declaro bajo juramento no tener antecedentes penales ni judiciales, gozar de buena salud física y mental y no tener inhabilitación administrativa con el Estado.

Asimismo, declaro bajo juramento que toda la información consignada en el presente documento es veraz, y que los documentos presentados son auténticos, en caso incumpla lo declarado en la presente, me someteré a las medidas y sanciones administrativas y legales que correspondan conforme a lo señalado en el TUO de la Ley N° 27444, Ley del Procedimiento Administrativo General y el Reglamento de Acceso a Recursos Genéticos y sus Derivados , sin perjuicio de las responsabilidades administrativas, civiles o penales a que hubiera lugar.

Finalmente, autorizo, se sirva notificarme al correo electrónico señalado, cualquier acto o documento que se origine como parte del trámite de mi solicitud, conforme a lo dispuesto por el TUO de la Ley N° 27444.

NOMBRE COMPLETO DEL USUARIO Y FIRMA
NÚMERO DE DOCUMENTO DE IDENTIDAD

Appendix 9

ANEXO N° 2
PROPUESTA DE PROYECTO DE INVESTIGACIÓN

1. TÍTULO DEL PROYECTO

2. RESPONSABLE Y GRUPO DE TRABAJO

RESPONSABLE DEL PROYECTO

Nombre completo	Institución	Etapas en que participa	Funciones a realizar en el Proyecto

GRUPO DE TRABAJO

Nombre completo	Institución	Cargo en el Proyecto	Etapas en que participa	Funciones a realizar dentro de cada etapa

3. ÁREA O LUGARES DE COLECTA DEL MATERIAL BIOLÓGICO PARA EL ACCESO

Punto de muestreo	Especie	Departamento	Provincia	Localidad/Distrito	Coordenadas en UTM *Si la colecta es en ANP, los lugares en coordenadas UTM, serán de acuerdo a la zonificación de cada ANP (Datum WGS84) e indicando la zona (17, 18 o 19)*

4. IDENTIFICACIÓN DEL MATERIAL BIOLÓGICO

IDENTIFICACIÓN TAXONÓMICA DE LA ESPECIE

Si no se conoce la taxonomía de la especie, describirlo al nivel taxonómico más cercano

Muestras biológicas *in situ*: *Anexar tabla si el número de especies excede en 10*

Especie	**Tipo de muestra** *(hoja, semilla, fluido, heces, plasma, pelos etc.)*	**Tamaño de la muestra** *(volumen, peso, etc)*	**Número de muestras**	**Lugar de Procedencia** *(Localidad)*	**Indicar colecta, captura temporal o extracción** *De corresponder*	**Finalidad de la colecta, captura temporal o extracción** *(determinación taxonómica, análisis parasitológico, etc.) De corresponder*
Especie 1						
Especie 2						

Muestras biológicas *ex situ*: *Anexar tabla si el número de especies excede en 10*

Código de la muestra[1]	**Especie**	**Tipo de muestra** *(hoja, semilla, fruto, fluido, heces, sangre, plasma, pelos, etc.)*	**Cantidad**	**Lugar de Procedencia** *(Localidad)*	**Centro de Conservación *ex situ***	**Permiso de colecta** *(en caso exista)*
	Especie 1					

	Especie 2					

[1]Código Atribuido por el Centro de conservación *ex situ*.

5. LUGAR DE DEPÓSITO DEL MATERIAL BIOLÓGICO (MUESTRAS)

Para especies de flora y fauna silvestre, recursos hidrobiológicos y especies provenientes de Áreas Naturales Protegidas

- En caso de especies de flora y fauna silvestre se debe tener en cuenta el depósito en las Instituciones Científicas Nacionales depositarias de material biológico registradas en SERFOR.
- En caso de especies de flora y fauna silvestre colectadas previamente, se debe adjuntar la constancia de dicho depósito.

6. ANTECEDENTES DEL PROYECTO DE INVESTIGACIÓN

7. JUSTIFICACIÓN DEL PROYECTO DE INVESTIGACIÓN

8. OBJETIVOS

General:

Específico(s):

9. METODOLOGÍA

Aplicada para el cumplimiento de cada uno de los objetivos, incluyendo la prestación de servicios

10. IDENTIFICACIÓN DE LAS ETAPAS Y ACTIVIDADES A DESARROLLAR

Investigación, Bioprospección, Innovación/Producto, Aplicación Industrial, Pre-comercialización y Comercialización

ETAPA DEL PROYECTO	ACTIVIDAD A DESARROLLAR	LUGAR	RESPONSABLE
Investigación	a) Colecta	Universidad 1	
	a) b)	Universidad 2	

11. CRONOGRAMA DE TRABAJO DETALLADO

Considerar todas las etapas del proyecto, incluyendo la presentación del informe final y distribución de beneficios

Actividades	**Tiempo** (Primer año, Segundo año....)					
	Mes 1	**Mes 2**	**Mes 3**	**Mes 4**	**Mes 5**	**Mes 6**
1.						
2.						

12. REFERENCIA BIBLIOGRÁFICA

De acuerdo a criterios internacionales de citación APA (American Psychological Association)

Appendix 10

DECLARACIÓN JURADA CONSIGNANDO LA OBTENCIÓN DE LAS MUESTRAS UTILIZADAS EN EL PROYECTO DE INVESTIGACIÓN _____

Estimados

Señor (a) Director (a) General
Dirección General de Asuntos Ambientales Pesqueros y Acuícolas
MINISTERIO DE LA PRODUCCIÓN

De mi consideración:

Yo, **_____,** identificada con **DNI/RUC N° _____**, *(cargo en la Institución SOLICITANTE)* de acuerdo a las facultades registradas en la partida electrónica Nº _____ de los Registros Públicos de la oficina registral de _____, en el marco de la ejecución del **Proyecto de Investigación _____**; me presento ante su despacho y declaro **BAJO JURAMENTO** lo siguiente:

Que las muestras (nombre científico o categoría taxonómica / otros), proceden de (DPA/terminal pesquero/comunidad) _____ cuyo origen es **(lugar de origen y fecha de recolección o extracción),** lo que imposibilitó la individualización de los pescadores/comercializadores/donantes, con lo cual tampoco ha sido posible obtener el consentimiento fundamentado previo ni suscribirse el contrato accesorio; hecho que se ampara bajo el principio de presunción de veracidad comprendido en el TUO de la Ley Nº 27444.

Atentamente

Ciudad, __ de mes 20XX_

_____
NOMBRE COMPLETO DEL SOLICITANTE Y FIRMA

_____
DPA: Desembarcadero Pesquero Artesanal

Appendix 11

SANIPES	FORMULARIO N° 23 SOLICITUD PARA CERTIFICADO OFICIAL SANITARIO PARA MUESTRAS SIN VALOR COMERCIAL DE PRODUCTOS PESQUEROS Y ACUÍCOLAS CON FINES DE EXPORTACIÓN

Encabezado o logotipo del Solicitante:

Lugar y Fecha:

Señores:

ORGANISMO NACIONAL DE SANIDAD PESQUERA (SANIPES)
DIRECCION DE HABILITACIONES Y CERTIFICACIONES PESQUERAS Y ACUICOLAS

ATENCION: _____
NOMBRE DEL FUNCIONARIO DE LA SUBDIRECCION DE CERTIFICACIONES PESQUERAS Y ACUICOLAS DEL ORGANISMO NACIONAL DE SANIDAD PESQUERA (SANIPES)

REFERENCIA: EXPORTACION DE MUESTRA(S) DE _____
(INDICAR PRODUCTO)

CON DESTINO A _____ CON FINES DE USO TECNICO O ANÁLISIS.

DE NUESTRA CONSIDERACIÓN:

Por medio de la presente solicitamos la emisión del Certificado Sanitario para muestra(s) de ( ) a exportar con los siguientes datos:

1. **Solicitante/Exportador:**
2. **Dirección:**
3. **Producto:**
4. **Productor:**
5. **Dirección del establecimiento productor:**
6. **Cantidad/N° de bultos:**
7. **Tipo de embalaje:**
8. **Peso Bruto:**
9. **Peso Neto:**
10. **País de Destino:**
11. **Puerto de embarque:**
12. **Puerto de destino:**
13. **Medio de transporte:**
14. **Destinatario:**

SANIPES	FORMULARIO N° 23
	SOLICITUD PARA CERTIFICADO OFICIAL SANITARIO PARA MUESTRAS SIN VALOR COMERCIAL DE PRODUCTOS PESQUEROS Y ACUÍCOLAS CON FINES DE EXPORTACIÓN

15. **Fecha estimada de embarque:**

16. **Referencia del embarque:**

_____

(Indicar Orden de Servicio/Orden de lote/ Orden de Trabajo / Hoja de servicio /otros de la entidad de apoyo y número de identificación de la muestra)

17. **Modelo (s) de certificado (s) solicitado(s):**

_____

(Sólo se podrá seleccionar el certificado para muestras de uso técnico o análisis habilitados en la VUCE)

ATENTAMENTE,

_____

FIRMA DEL REPRESENTANTE LEGAL AUTORIZADO

NOMBRE Y N° DE DNI:

NOTA: LA SOLICITUD DEL EXPEDIENTE ES VALIDA PARA UNA SOLA EXPORTACION