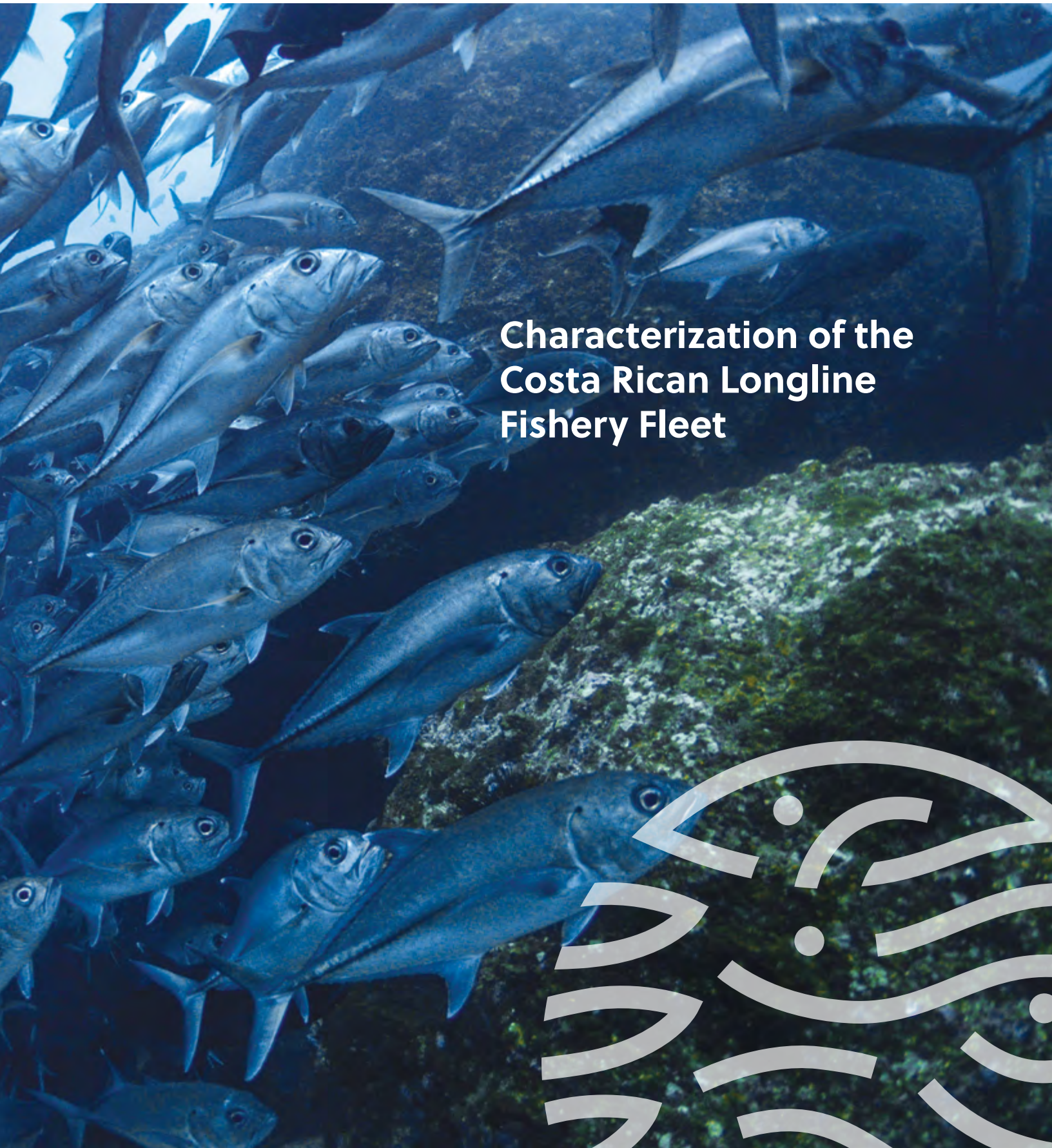
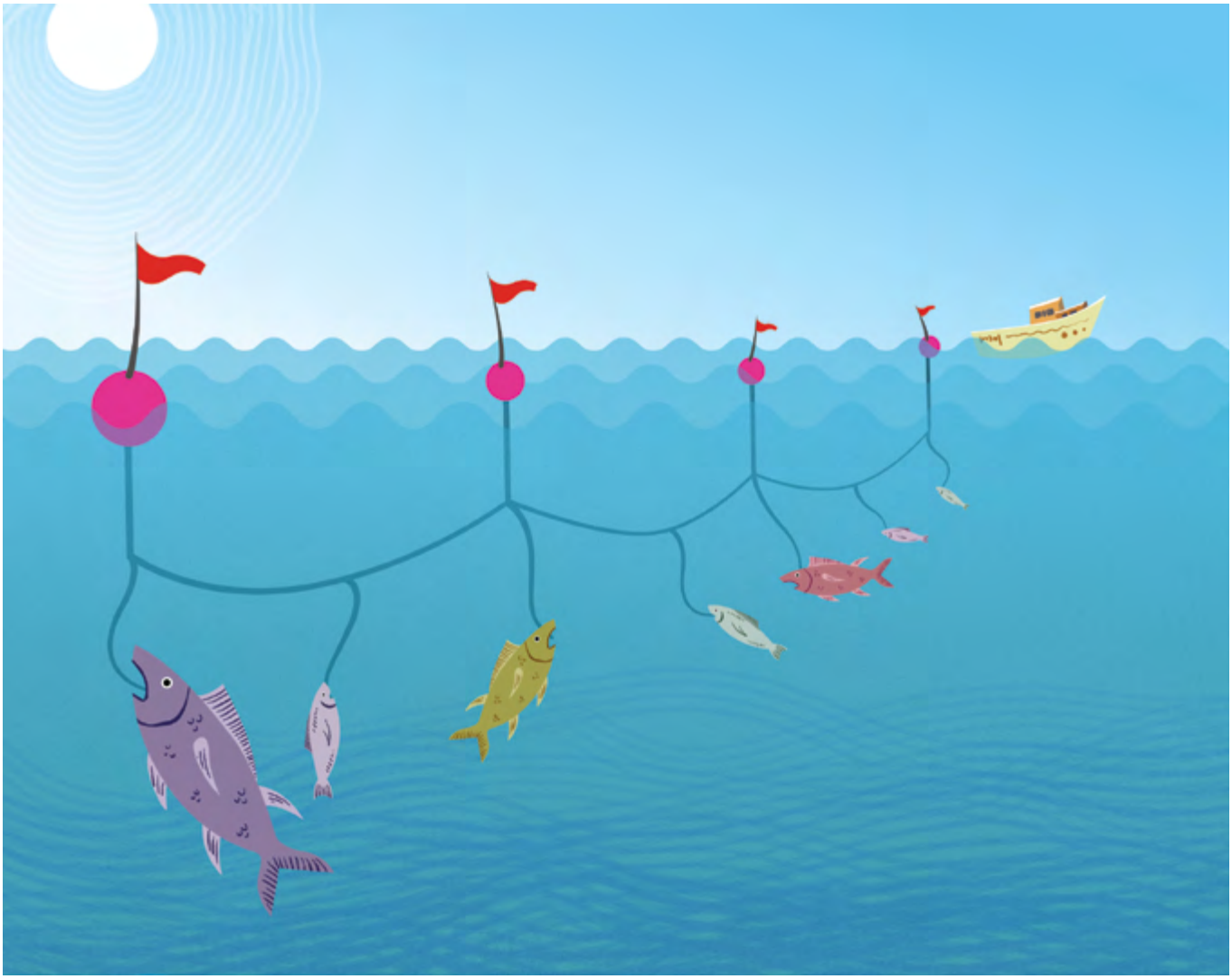


Characterization of the Costa Rican Longline Fishery Fleet



Introduction

The following report synthesizes the results of a research study about the characterization of the commercial longline fleet in Costa Rica. This is valuable information for the fishery management and sustainability processes in Costa Rica, especially for the governmental institutions, the fishing sector, and national and international non-governmental organizations.

Two databases were checked, the Integrated System of Fishing and Aquaculture Services (SISPA) of INCOPESCA[1] and the Maritime Port Management System (SIGEMAP) of MOPT[2], where the following information was retrieved: name, registration number, owner, year of construction, hull material, engine type and horsepower, net and gross capacity, authorized fishing gear, type of freezing, certificate of seaworthiness, type of commercial fishing permit and fishing license status.

General Description

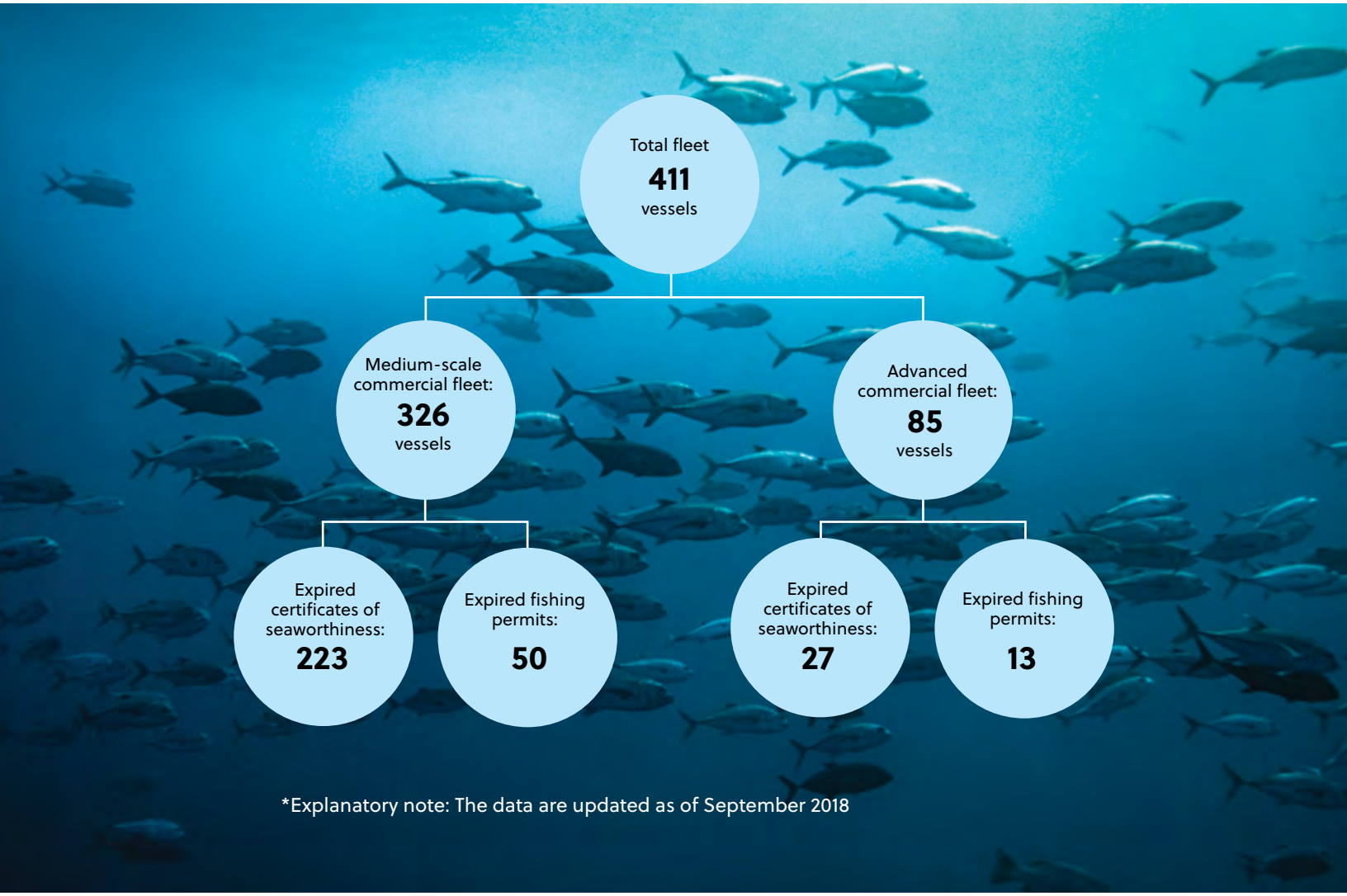
The longline fleet can operate by two commercial fishing licenses granted by INCOPESCA, as established in the Fishing and Aquaculture Law No 8436. Both types of licenses are defined in Article 43 of this law:

Medium-scale: Fishing performed by a physical or juridical person on board a vessel with an autonomy of a maximum of forty nautical miles.

Advanced: Fishing performed by mechanical means by a physical or juridical person, on board a vessel with autonomy superior to forty nautical miles, intended to capture pelagic species with longline and other commercially important species.

1 Instituto Costarricense de Pesca y Acuicultura (Costa Rican Fisheries and Aquaculture Institute)
2 Ministerio de Obras Públicas y Transportes (Ministry of Public Infrastructure and Transport)

As of September 2018, this fishery had 411 registered vessels, which represent about 11 % of the national fleet. The vessels have different update status concerning their permits, as shown in the following figure:



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Ninety-seven percent of the country's longline fleet carries out its fishing in the Pacific, from the following ports:

Location	Number of vessels
Puntarenas (central canton)	**200**
Quepos	**79**
Golfito	**57**
Cuajiniquil	**23**

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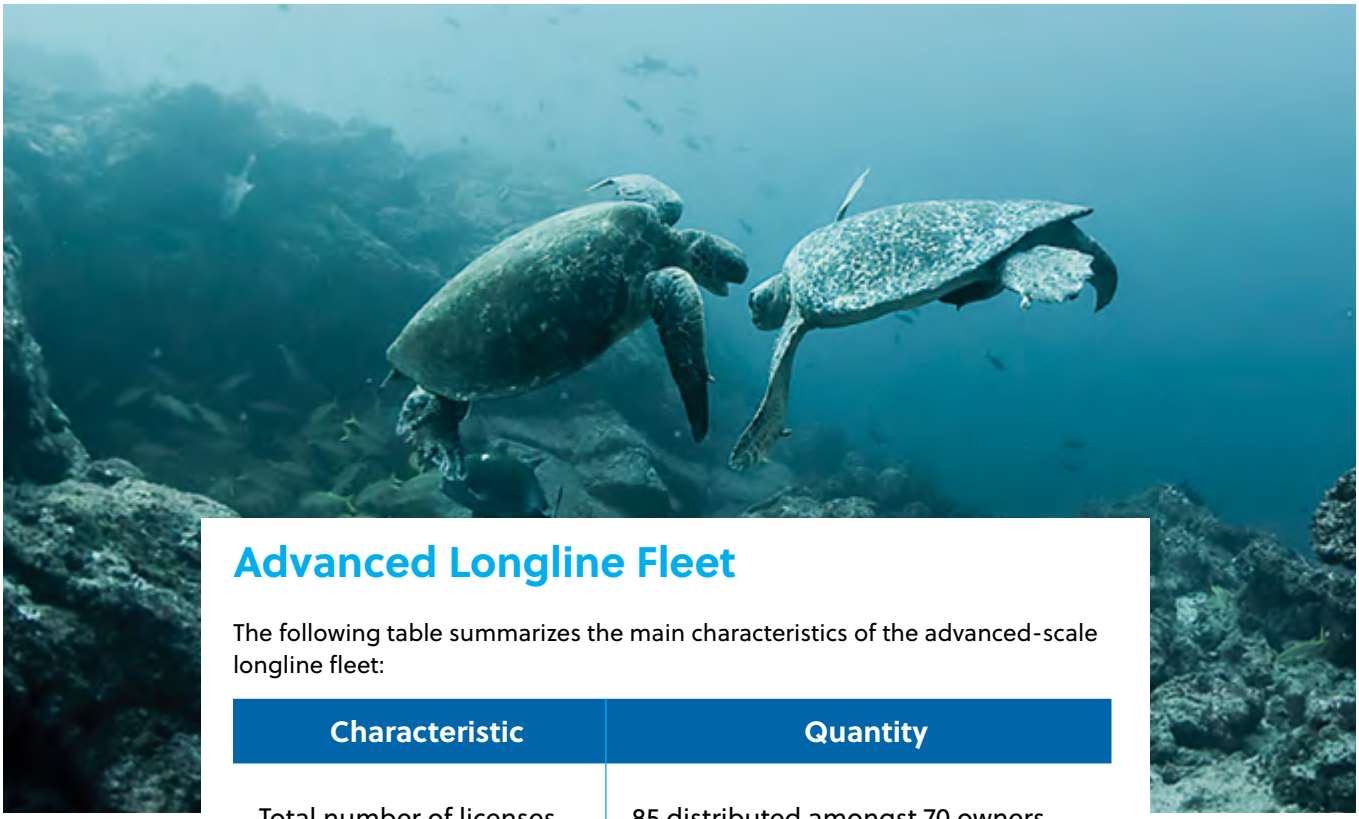
Medium-Scale Longline Fleet

The following table summarizes the main characteristics of the medium-sacale longline fleet:

Characteristic	Quantity
Total number of licenses	326 distributed among 247 owners
License Status	316 active, 6 inactive, 1 to be substituted and 1 with annotations
Length	Between 24 ft and less than 66 ft (7,30-20 m); most between 33 and 49 ft (10- 14,9 m)
Hull materials	Fiberglass, wood, and metal
Motor type	Stationary and diesel-powered
Power	Between 20 and 970 horsepower
Gross Tonnage	Between 5 and 20 MT; most between 10 and 14,9 MT
Fish Storage Capacity	Between 0,17 and 26,6 MT; most between 5 and 9,9 MT
Longline length	The longest is 9 miles (15000 m) with a maximum of 600 hooks every 3280 ft (1000 m)
Crew size per vessel	Between 2 and 6 people; mostly 4
Vessel Monitoring System	88 vessels have it



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Advanced Longline Fleet

The following table summarizes the main characteristics of the advanced-scale longline fleet:

Characteristic	Quantity
Total number of licenses	85 distributed amongst 70 owners
License Status	66 active, 16 inactive, and 2 suspended
Length	Between 19 and 92 ft (8,97 -27,9 m); most between 49 and 65 ft (15 -19,9 m)
Hull materials	Fiberglass, wood, and metal
Motor type	Stationary and diesel-powered
Power	Between 120 and 600 horsepower
Gross Tonnage	Between 5,9 and 113,3 MT; most between 45 and 49,9 MT
Fish Storage Capacity	Between 1,83 and 71,06 MT; most between 5-9,9 and 20-24,9 MT
Longline length	No length limit
Crew size per vessel	Between 4 and 12 people, mostly 5
Vessel Monitoring System	55 vessels have it

UNDERSEA HUNTER

Species that Interact with Longline Fishing

Longline fishing targets bony and cartilaginous fish species traded on domestic and international markets. INCOPESCA groups the species into two categories: scale and sharks.

Scale: This category includes pelagic fish in the Coryphaenidae (mahi-mahi or dolphinfish), Istiophoridae (sailfish and marlin), Scombridae (tuna and wahoo), Xiphiidae (swordfish) families, as well as the demersal Congridae (conger), Lutjanidae (snapper) y Serranidae (comber) families.

Shark: This category includes sharks in the Alopiidae (thresher sharks), Carcharhinidae (blue, gray, bull, dogfish, silky, etc), Lamnidae (mackerel sharks), and Sphyrnidae (hammerhead) families.

Longline fishing in Costa Rica interacts with about 80 marine species belonging to 32 families: bony fish (18 families and 35 species), cartilaginous fish (10 families and 35 species), cetaceans (1 family and 5 species), sea turtles (2 families and 4 species), and seabirds (1 family and 1 species).

Bony fish and sharks with the highest catch per unit effort (# individuals/1000 hooks; CPUE) are:

Bony Fish	CPUE	Sharks	CPUE
Mahi-mahi (*Coryphaena hippurus)*	3,47- 31,4	Silky shark (*Carcharhinus falciformis*)	0,76-25,36
Yellowfin tuna (*Thunnus albacares*)	0,44-3,08	Blue shark (*Prionace glauca*)	0,03-2,2
Indo-Pacífic sailfish (*Istiophorus platypterus*)	0,5-2,85	Thresher sharks (Alopiidae family)	0,01-1,12

Fishing within the CINP and surroundings

Between 2012 and 2017, Cocos Island National Park (CINP) control and surveillance patrols recorded 56 vessels within its maritime limits, of which:

- 55 % had a medium-scale commercial fishing permit; therefore, they could only carry out their fishing operations up to 40 nautical miles.
- 17 % were advanced-scale fleet.
- 28% did not show the type of fishing license in the analyzed databases.

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Conclusions and Recommendations

- It is important to do follow-up research about longline fishing bycatch, as research done in national waters indicate that at least 80 species are captured with this method.
- An effort should be made to report the bycatch of cetacean species with this type of fishing in the country.
- It is recommended to increase the number of vessels with satellite tracking systems to acquire a better understanding of the areas, periods, and fishing efforts.
- It is necessary to implement an onboard observer program to gather information on fishing areas and their temporary use, as well as the catch per unit effort of each species that interacts with this fleet.
- It is recommended to enable access to a digital database on the Hydrobiological Resources Unloading Inspection forms, to provide access to relevant information for fisheries management.

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SINAC (Sistema Nacional de Áreas de Conservación). 2018. Caracterización de la Flota Palangrera en Costa Rica. Área de Conservación Marina Cocos. San José, Costa Rica. 100 p.

Note: The tables and figures were prepared by FAICO, based on information from the study cited above (SINAC, 2018).