

Shark Release Ramp Guide for Purse-Seine Vessels

December 2025

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For bycatch mitigation in tuna purse-seine fisheries, this document contains instructions for fishers to construct ramps for shark release, including design variations customized for the vessel.

Introduction

Bycatch from fisheries severely impacts endangered, threatened, and protected marine species like sea turtles, sharks, and mobulid rays due to their low reproductive potential and slow recovery rates.

Considering the decline of their populations (Pacoureau et al., 2021, Juan-Jorda et al., 2022), several shark and all mobula ray species have been added to CITES listings and are considered threatened or endangered under conservation laws, highlighting the urgency of reducing bycatch mortality.

Moreover, Oceanic whitetip shark (*Carcharhinus longimanus*), scalloped hammerhead shark (*Sphyrna lewini*), and the giant manta ray (*Manta birostris*) are listed as threatened (some are even considered endangered, depending on the region) under the ESA, for which initiatives to reduce the interaction and mortality to protect and conserve these species should be developed and promoted.

Effective release protocols already exist for dolphins, whale sharks, and sea turtles bycaught by tuna purse seiners, improving their survival when promptly and properly released (Hall and Roman, 2013; Escalle et al., 2016; Poisson et al., 2014; Bourjea et al., 2014). However, for elasmobranchs (sharks and rays), current release practices are outdated (Poisson et al., 2012; 2014), leading to high post-release mortality.

Studies show survival rates of only 15%–20% for sharks that are encircled and brought onboard under existing practices, but this could increase to ~45% with updated handling and safe release protocols. This survival rate (i.e., 15% to 45%) corresponds to the combination of two factors: (i) 30%–60% of the sharks arriving on the deck are alive, and (ii) 50%–70% of these live sharks released from the deck can survive if they are released promptly following best practices.

Therefore, maximizing post-release survival (PRS) requires a quick release process that minimizes the animal's exposure to physiological stressors on the deck, such as air exposure and inadequate handling.


To improve survival rates, new bycatch release devices and modernized best practices for safe handling and release are needed, particularly for elasmobranchs caught by purse seiners.

Shark Release Ramp Purpose

One promising bycatch release device is the shark (or bycatch) release ramp, designed to minimize shark handling time and enhance crew safety during purse seine operations — two fundamental requirements to increase fleet adoption of the mitigation measure, ultimately helping to reduce shark post-release mortality.

These ramps extend from the brail resting point on deck down the starboard's side opening to the water, functioning like inclined "water slides" that allow animals to return to the sea quickly by gravity, without the need for manual handling. By eliminating the need to carry sharks across the deck, ramps reduce handling stress and shorten exposure time, enabling animals to slide smoothly with their bodies fully supported, thus preventing damage to sensitive parts such as gills or internal organs.

Custom-built to match each vessel's main deck characteristics (e.g., shape, size, width), ramp designs have been successfully tested in fleets across the Atlantic, Pacific, and Indian Oceans (Murua et al., 2024). The ramps are lightweight, durable, inexpensive, and practical for storage, making them an effective and easily adoptable solution for most vessels.

 Watch a [brief video](#) of shark release on the ramp.

Shark release ramps also can be integrated with the hopper to facilitate shark release. Hoppers with large trays allow crew members to spread out the brail contents. They can identify bycatch before it falls down towards the lower deck, allowing for quick release of non-target species directly to the release ramp connected to an opening to the sea (Murua et al., 2025).

Hopper designs and placement, as well as the ramp, vary depending on vessel layout and skipper preference. While they can be scaled to deck and brail size, limited space on some purse seiners may hinder installation.

Research shows that both release ramps alone and release ramps integrated with hoppers can increase survival compared to manual release practices, enabling most release events, even with large sharks, to be performed in under two minutes (Murua et al., 2024; 2025). Release ramps are applicable across all purse seine vessels; however, their design needs to be customized to the specific layout and operational characteristics of each vessel.

Release ramps represent a good alternative and a best practice for safe shark handling and release, and tuna RFMOs should encourage ramp adoption in their handling and release guidelines. While many purse-seine companies have voluntarily adopted bycatch release devices and implemented updated safe handling-and-release best practices in recent years, formal support from all RFMOs would help accelerate the wider implementation of such effective tools.

Ramp Materials & Design

Release ramps and release ramps with hoppers must be customized to the needs and characteristics of each type of vessel. Different types of ramps can be constructed depending on the vessel's characteristics, needs, and operational procedures (Figure 1).

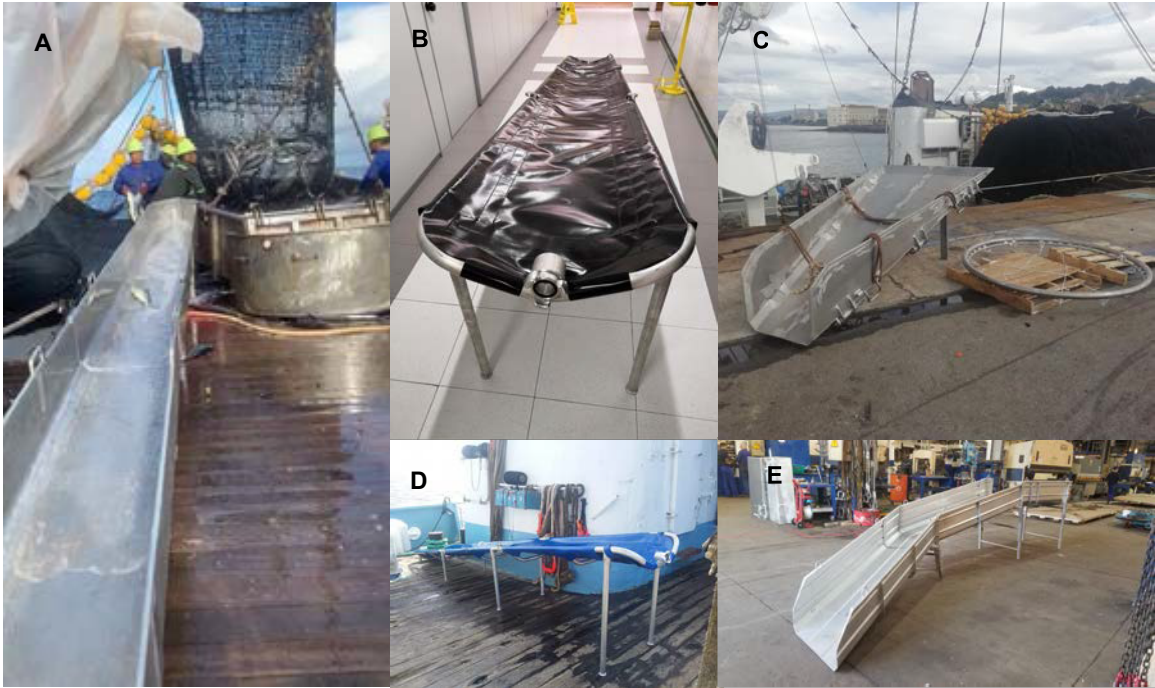


Figure 1. Different type of ramps that can be customized to vessel's characteristics, needs and operational procedures: (A) Release ramp integrated with a hopper, (B and D) portable aluminum and PVC cover release ramps, and (C and E) portable metallic ramps without hopper. Photos: Cape Ferrat (A) and AZTI (B–E)

In general, the ramp system consists of a sliding ramp that directs sharks safely overboard (Figure 1). In the particular case of the ramp system integrated with a hopper, it consists of a hopper tray fitted with a sliding ramp that directs sharks safely overboard (Figure 2).



Figure 2. A release ramp system integrated with a hopper. Photos: Cape Ferrat and ISSF

Both types of ramps are not permanently affixed to the hopper and could be quickly installed and removed during each fishing set, with minimal installation effort required. To enable compact storage when not in use, ramps are mostly built in detachable or foldable sections (Figure 3), which can be easily stored inside the hopper tray (Figure 4).



Figure 3. Detachable or foldable ramp systems, without or with a hopper, not permanently affixed, that can be quickly installed and removed during each fishing set. Photos: Cape Ferrat and ISSF (left), AZTI (right)



Figure 4. Release ramp stored inside the hopper tray. Photo: AZTI

Materials

- Stainless steel or marine-grade aluminum frame and non-slip legs to support the ramp base
- Smooth and structurally robust flooring for the ramp surface

- Side rails to prevent lateral escape
- Smooth edges to avoid abrasions
- Water hose connector point to keep the ramp surface wet and facilitate the sliding of animals during release
- For the ramp with a hopper: Hopper door to prevent sharks from accidentally falling to the lower deck

Construction Instructions

1. Measure hopper tray dimensions on the working deck.
2. Build a stainless steel or aluminum frame to fit hopper dimensions.
3. Construct the ramp at a 20–30° incline to allow smooth sliding by gravity.
4. Include high enough side rails (minimum of 30-35 cm height) along ramp edges.
5. Ensure smoothly welded parts and no sharp edges.
6. Install an open and close door mechanism for the hopper.
7. Test ramp's stability and water drainage to ensure safety and facilitate sliding of animals during release.

Operation Steps

For the ramp alone

1. Position the ramp near the brail resting location before brailing begins.
2. Empty brail and spot sharks for removal.
3. Put the shark on the ramp and allow the sharks to slide directly into the sea with minimal handling.
4. Aim to release sharks quickly, within the first minutes of arrival on deck.

For the hopper with ramp

1. Position the hopper with the ramp before brailing begins.
2. Empty the brail into the hopper and check for sharks among the tuna before opening the hopper door.
3. Guide sharks toward the release ramp.
4. Allow sharks to slide directly into the sea with minimal handling.
5. Aim to release sharks quickly, within the first minutes of arrival on deck.

Best Handling Practices (Do's / Don'ts) When Using Ramps

Do's

- Prioritize the release of sharks visible on top of the brailer/hopper.
- Ensure safety when manually handling sharks, if necessary, to place them on the ramp.
- Release sharks from the brailer/hopper into the ramp; try to prevent them from going to the lower deck.
- Minimize shark time out of the water.

Don'ts

- Do not use gaffs or hooks to move sharks.
- Do not hold sharks by the gills or the tail.
- Do not roll sharks through the power block.
- Do not drag sharks across the deck.
- Do not leave sharks abandoned on deck.

Variations & Vessel Adaptations

- Small vessels without hopper space may use ramp-only systems.
- Most ramps are portable and dismountable/foldable for easy storage.

Step-by-Step Visual Guide

- Installation of the release ramp system with hopper



- Hopper with ramp design



- Crew positioning ramp



- Sharks sliding through the ramp during release to sea



Photos: Cape Ferrat and ISSF

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