



## HOPPER

A solution from the fishing industry that prevents the bycatch of vulnerable species

### 01\_ **Bycatch, an international concern**

The bycatch of vulnerable species, such as sharks or turtles, is one of the undesired consequences of tuna fishing and can represent up to 2% of the total catch.

These species must be returned to the sea to continue their life cycle and, therefore, the fishing companies must guarantee the reduction of these bycatches as a key element in their commitment to a sustainable activity.

### 02\_ **A land-sea collaboration**

In response to this need and to the international alert, since 2019 AZTI, Bolton Food and Digital Observer Services (Satlink Group) have been designing and developing the Hopper Project, aimed at applying solutions to prevent the mortality of vulnerable species on the high seas as a result of their incidental capture.

In the study, a total of **three tuna purse-vessels from Bolton Food** took part, operating in the Pacific Ocean. The involvement of inspectors, skippers and crew in the design, construction and real implantation of the Hopper on board, in real fishing situations, has been essential for the success of the project.

This successful collaboration has counted on **funding from the Department of Economic Development, Sustainability and the Environment from the Basque Government.**

*Thanks to the hopper with ramp, over 95% of sharks caught incidentally could be released directly from the deck.*



### 03\_ **What does it consist of?**

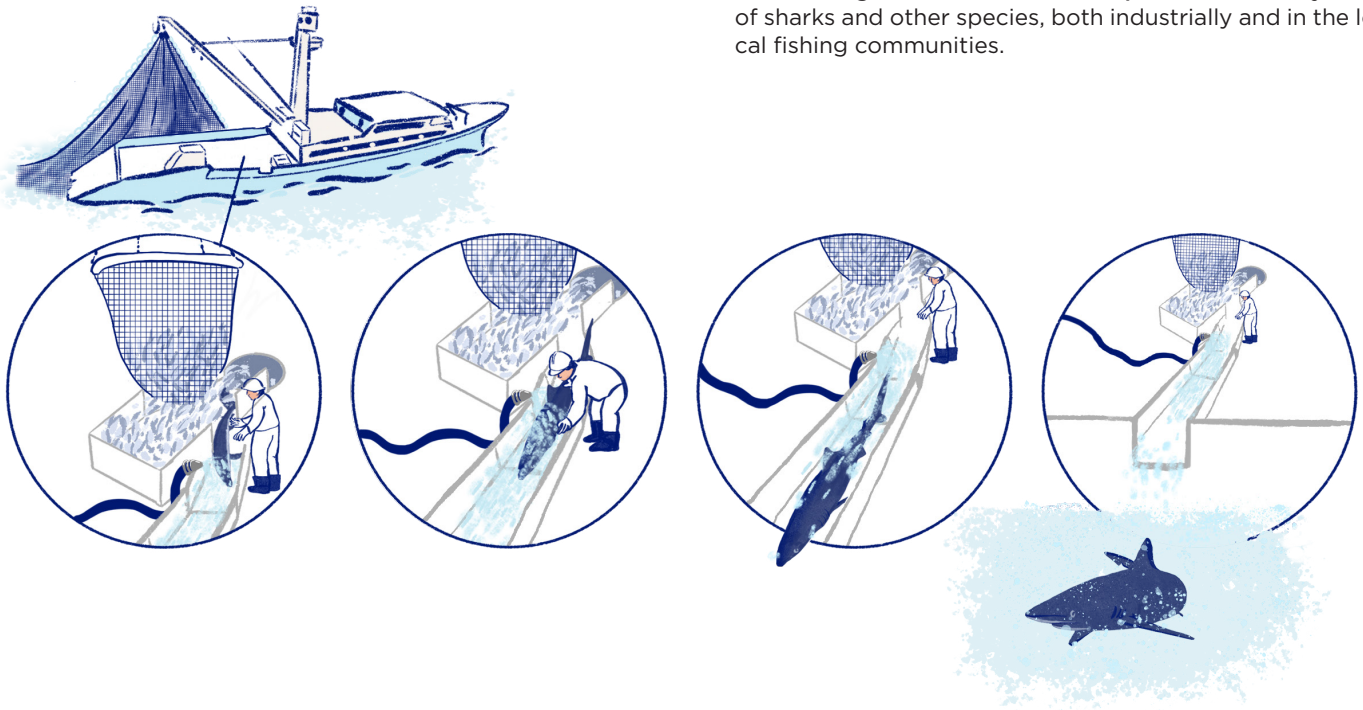
It is a hopper located near the vessels' unloading hatch, onto which the fish are poured and that allows a quick viewing of the non-target species for their removal.

The device has a ramp attached to it, aimed towards the sea, which allows immediate release and minimises interaction between the crew and the species, therefore reducing risks both for the fleet and for the species themselves.

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## A positive impact on the tuna fishing sector

- / The hoppers with ramps **prevent vulnerable species from accidentally moving** from the deck to the tanks, where it is more complicated to release them and their survival ratio is minimal.
- / They have an **innovative design**, as they have some adjacent releasing ramps that go directly to the sea, where the non-target species are deposited, without the need for any handling. This reduces the release time and minimises the animals' stress levels, a key element to promote their survival.
- / The hopper **improves the fleet's safety conditions**, as it limits the risk of accidents by reducing the handling of potentially dangerous species such as large sharks.
- / It does not slow down the brailing manoeuvre; therefore **there are no unnecessary losses of time** that can determine the quality of the tuna.



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## A scalable project

One of the strong points of the development and application of the Hopper is its versatility, as it adapts perfectly to the global tuna chain:

- / It can be used on all the oceans. **It can be applied to any tuna purse-vessel**, regardless of the fishing grounds or the ocean where the vessel is working.
- / It can span **all sizes** of tuna purse-seiners and it can also be used on non-industrial fishing boats and coasters.
- / The **design is very simple**. It does not require cutting edge technical knowledge; it just needs the device to be adapted to each vessel using basic manpower.
- / The **materials used are very common**, both on board the vessel and on land: stainless steel and aluminium.
- / The **installation cost is minimum** and its real impact on the ocean is very high:

Public-private funding programmes can be promoted for its installation on non-industrial vessels.

It promotes the creation of multidisciplinary groups for its implantation: scientists, NGO, government agents, enterprise.

It creates local employment and therefore, it helps the development of the fishing communities.

- / Its **maintenance is minimal** and its resistance to marine corrosion is maximum.
- / It is a **detachable piece of equipment**. It can be easily removed if necessary and it can be stored conveniently on board or on land during halts, overall repairs, navigation without fishing, etc.
- / It **creates a global awareness of the problem of the bycatch** of sharks and other species, both industrially and in the local fishing communities.