

AHi Enterprises Pty Ltd

Oceansmart™ the smarter solution

Smart Tuna Hook™

The Smart Tuna Hook™ is a solution to preventing seabirds and turtles being caught during the setting of Tuna Long-lines. The attached illustration demonstrates how it works.

The system uses a modified tuna long-line hook, circle or Japanese style, which accepts a specially designed shield that disarms the hook once it has been baited.

The steel shield, once attached to the baited hook creates a large 3 dimensional barrier encompassing the hook's point and barb, making it impossible for any seabird or turtle to be hooked, internally or externally.

The shield once attached creates a metal barrier of approximately 65mm in diameter and at least 35mm in depth (depending on the hook size and pattern) to prevent ingestion.

Bait loss during the setting process is known to be as high as 15%. The use of the Smart Tuna Hook system will increase bait retention, increasing productivity and catch, saving time and resources on the fishing grounds, and more than making up for the modest cost of applying the shield to hooks during a setting operation.



The mild steel shield is hydrodynamic, weighs approximately 38gms and once attached increases the sink rate of the baited hook to 0.6 meters per second, also acting to protect the bait from tearing off the hook when it enters the water after being cast from the vessel.

The shield is easily and quickly snapped and held onto the baited hook by a clip that has a specially developed corrodible alloy link. The link causes the shield to be released within 15-20 minutes from the hook after immersion in salt water. The shield sinks to the seafloor where it corrodes within 12 months, leaving no pollution or toxic residue.

A thrust of modern approaches to mitigation of seabird by-catch in pelagic fisheries is the application of weight, usually lead swivels, to branch-lines to increase sink rates and hence bait availability for seabirds. However, adoption of this approach is often not favored by many fishers because of safety concerns over lead swivels injuring crewmembers in 'bite-off' or break off situations during gear retrieval.

The Smart Tuna Hook™ solves this issue by removing the need to have lead swivels on the branch lines, only applying weight when it is needed during the setting of hooks, but ensuring that weights are not on branch lines during retrieval. This increases safety on board because there is no weight, in the form of lead swivels, which can act as a projectile and cause injury or death to the crew when retrieving the long-line. It also means less lead being lost in the ocean environment from lost fishing gear. The benefit to the fishermen is a reduction in costs and an increase in crew safety

The application of the shield to the baited hook is simple requiring no special training, requires minimal time and does not increase the time to set a tuna long-line. This can be viewed at <http://www.oceansmart.com.au/1142/smart-tuna-hook.aspx>.

¹“Using the Smart Tuna Hook from the first time was easy and hassle free, it didn’t take anymore time to set the gear. It was good the way it helped to keep the bait on the hook helping to catch more fish and cast the line out of the hook bins. We would be happy to keep using it to save seabirds & turtles from being caught.” - Captain Cameron Keith and crew.

The key benefits of the Smart Tuna Hook™ are;

Environmental benefits:

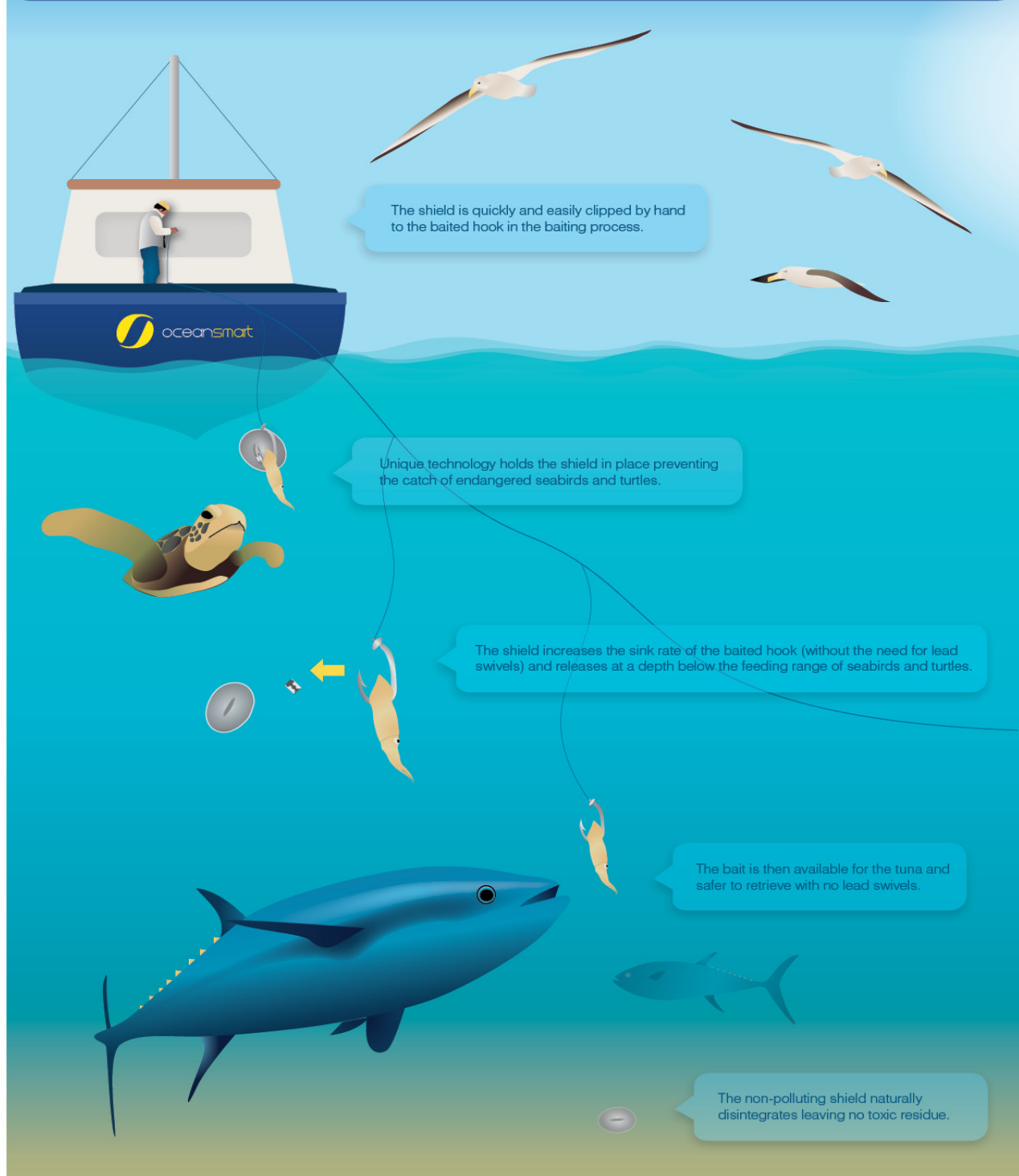
- Reducing sea bird and turtle deaths in long-line fishing
- Uses non-polluting steel and alloy material that complies with MARPOL and leaves no long-term debris or pollution
- Reduces lead in the environment by eliminating the need to use lead swivels

Industry benefits:

- Increases bait retention to increase productivity and profitability
- Is a cost-effective solution
- Is adaptable to any hook pattern
- Is easy to use
- Requires no additional setting time
- Is compact and easily stored
- Improves operational safety by eliminating the need for lead swivels
- Prevents the catch of sea birds and turtles
- Minimal set up costs
- Easily implemented into fishing operations,
- No additional equipment or expertise required

¹ Testimonial from the Captain & crew of the FV Rummage, Great Barrier Reef Tuna Ltd - Long-line vessel.

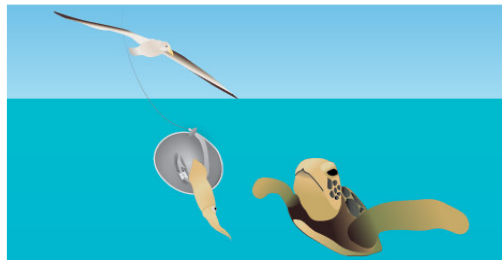
How the smart tunda hook works



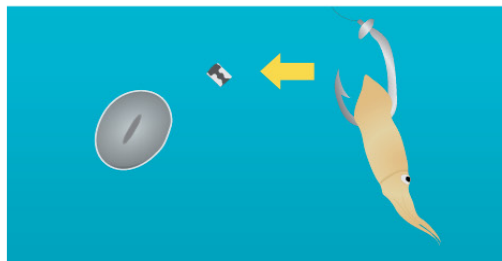
How the smart tundrahook works



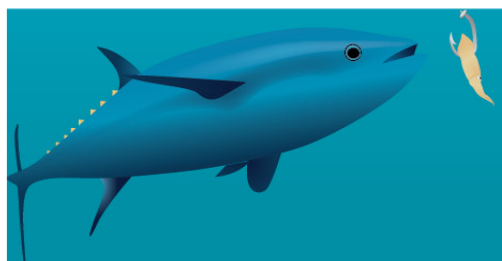
The shield is quickly and easily clipped by hand to the baited hook in the baiting process.



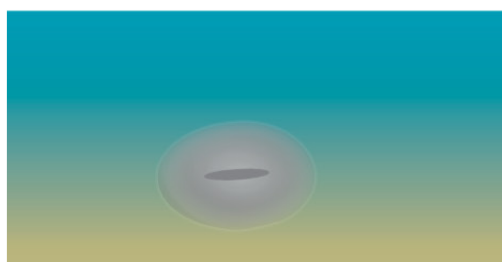
Unique technology holds the shield in place preventing the catch of endangered seabirds and turtles.



The shield increases the sink rate of the baited hook (without the need for lead swivels) and releases at a depth below the feeding range of seabirds and turtles.



The bait is then available for the tuna and safer to retrieve with no lead swivels.



The non-polluting shield naturally disintegrates leaving no toxic residue.