



SharkGuard 5

Project update – Key Traceability

February 2024



“An **outcome focussed**, marine technology company that design and manufacture technologies to mitigate environmental issues in commercial fishing.”

Fisheries Scientists

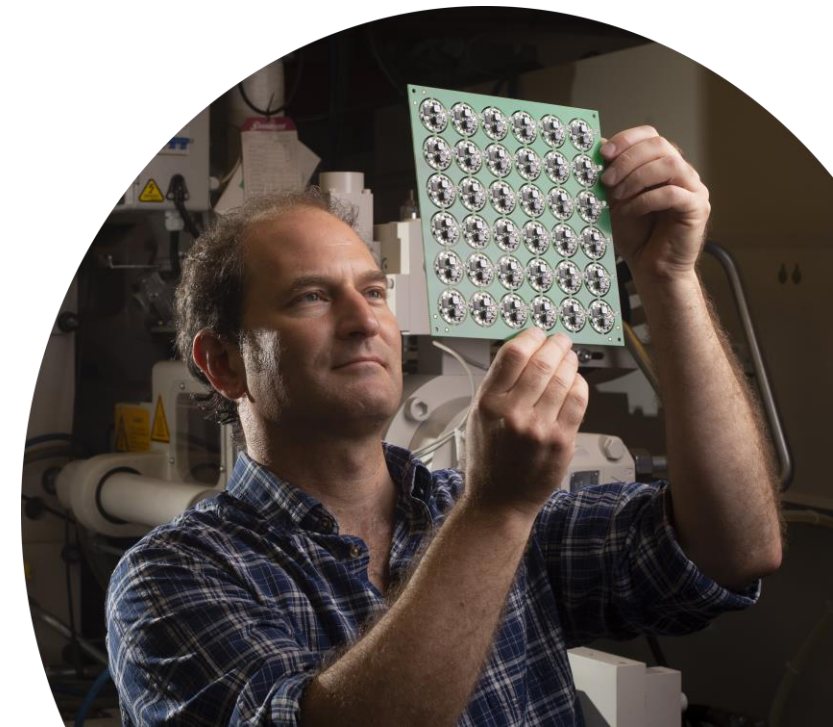
Working with fishermen, fishing representatives, governments, NGOs & universities across the globe

Engineering

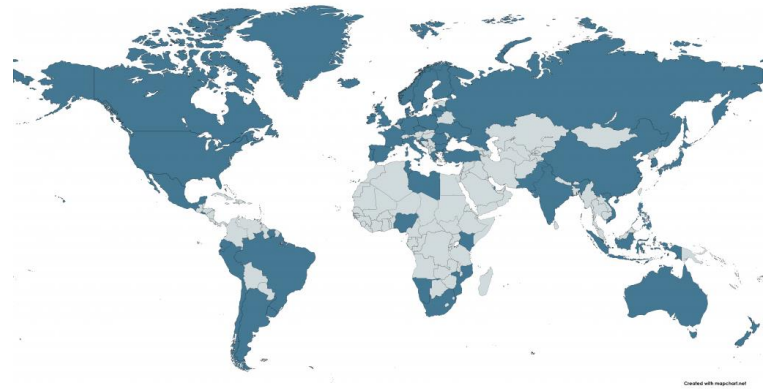
Mechanical/electrical engineering
CAD design
Tooling and Injection moulding

Manufacturing & Sales

Production and assembly
Sales and marketing



WHERE WE WORK



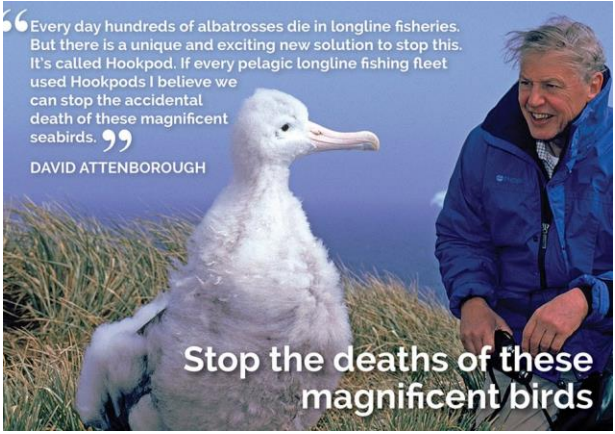
FISHING INDUSTRY & MANAGEMENT



NGO & RESEARCH



ENDORSED



AWARD WINNERS



“A VERY difficult set of criteria to meet.....”

- Tough
- Durable
- Low cost
- No impact
 - Target catch
 - Operationally
 - Ideally, offers the fishers an economic advantage
- To deliver a product that delivers an environmental outcome





www.fishtekmarine.com

SharkGuard MKII

FISHTEK MARINE 



The Problem



**THREE BILLION
HOOKS SET ANNUALLY**

CR



EN



CR

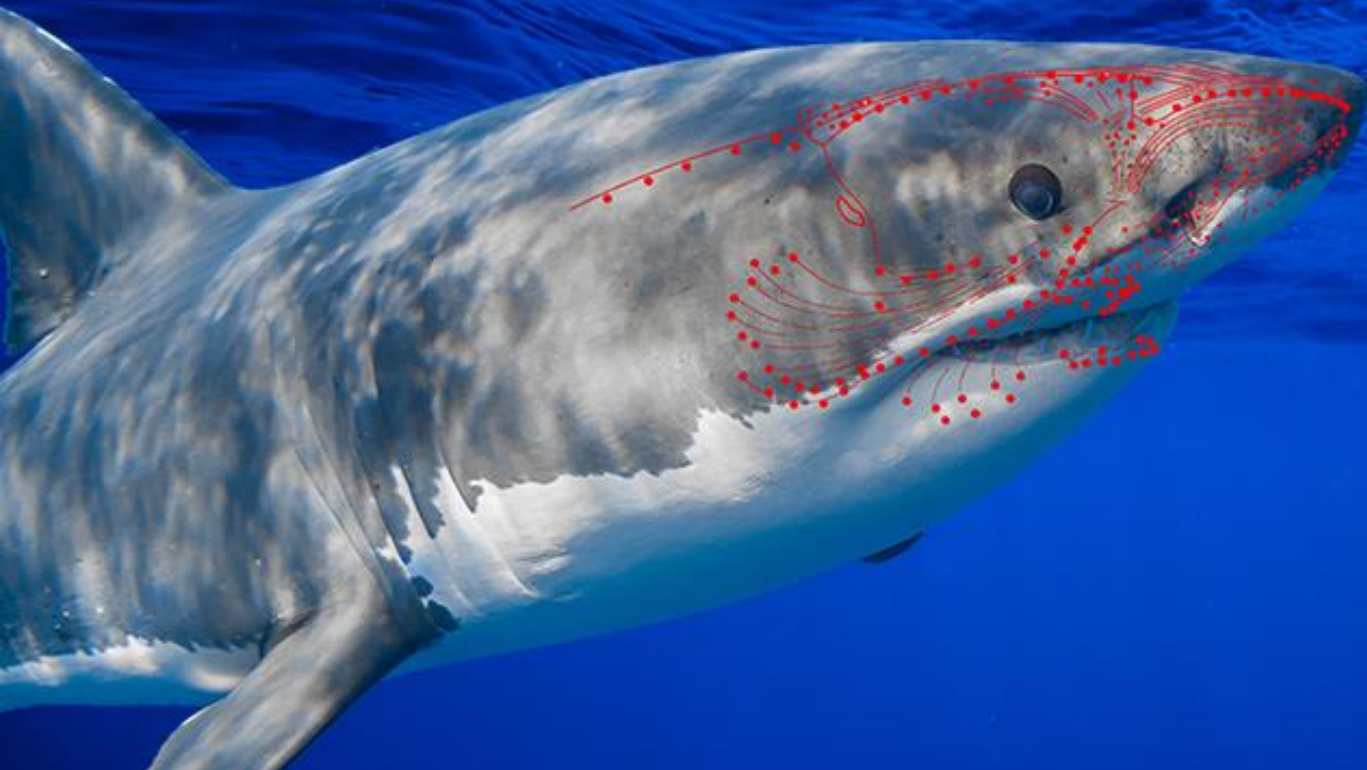


CR



ELASMOBRANCHS AND ELECTRORECEPTION

electroreceptors (sensitive 1/billionth V)



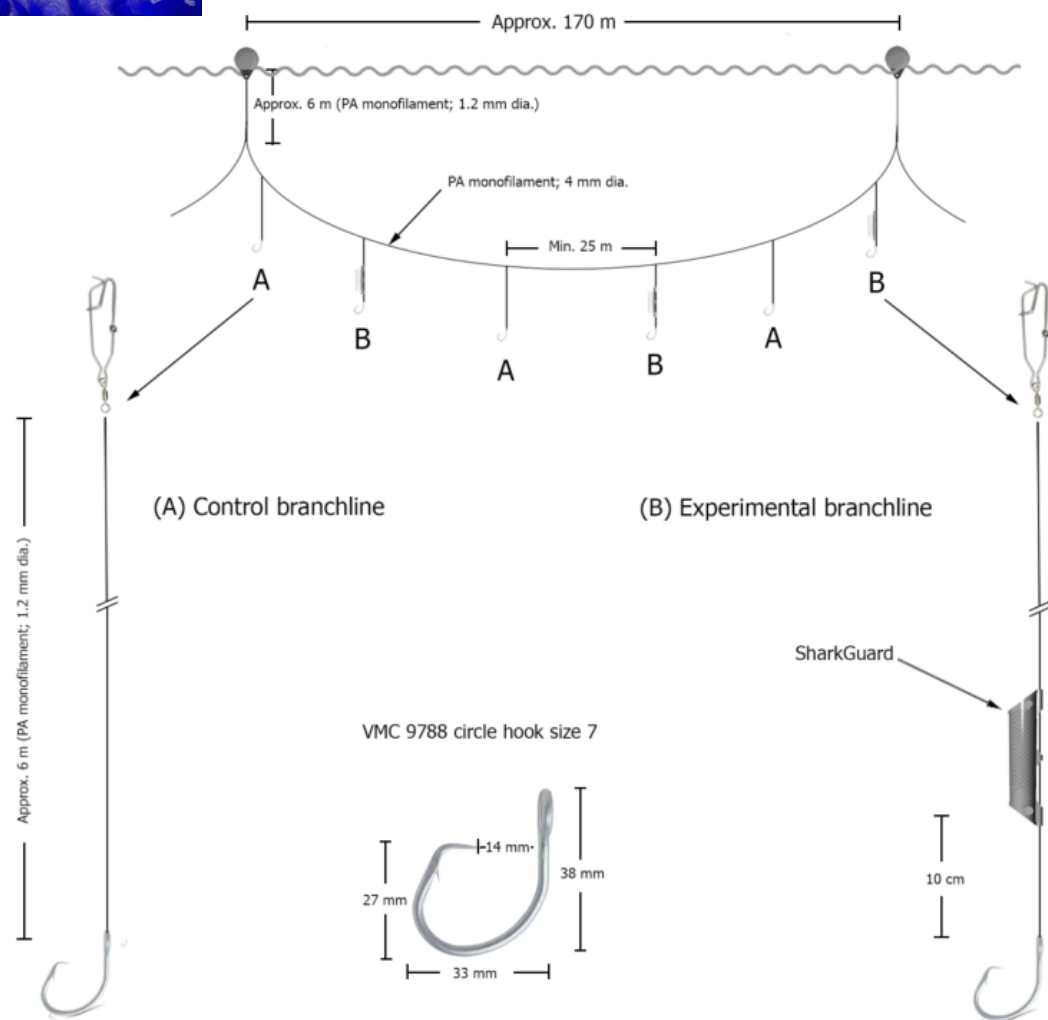
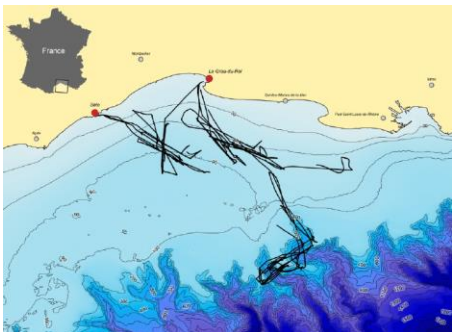
FISHTEK MARINE

A



B



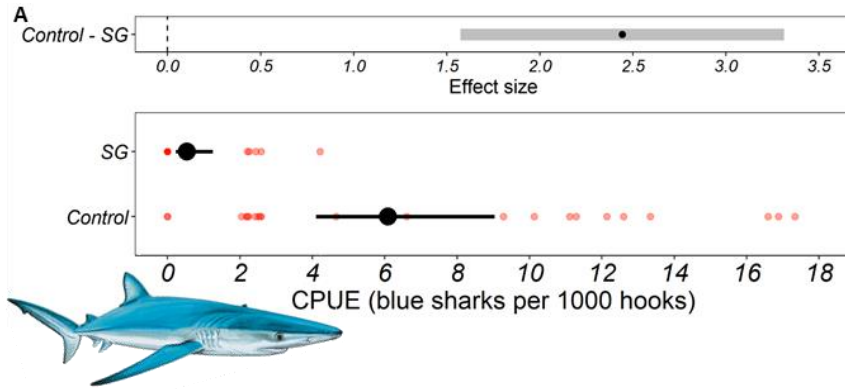




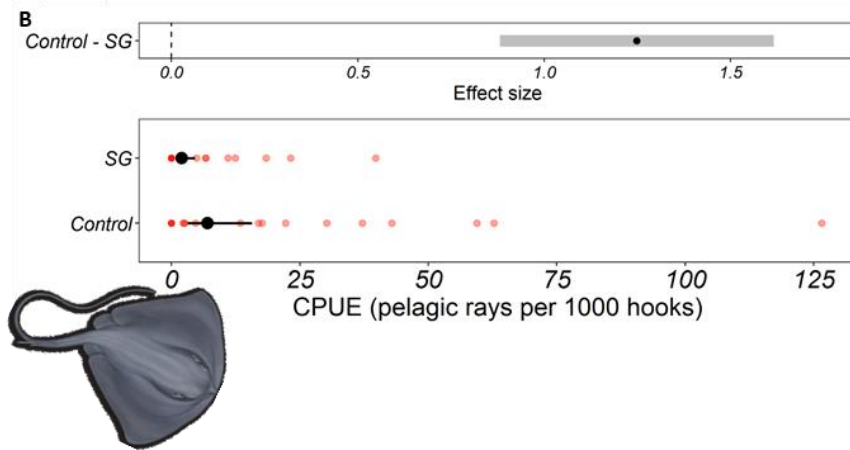


Assessing the efficacy of a novel shark bycatch mitigation device in a tuna longline fishery.

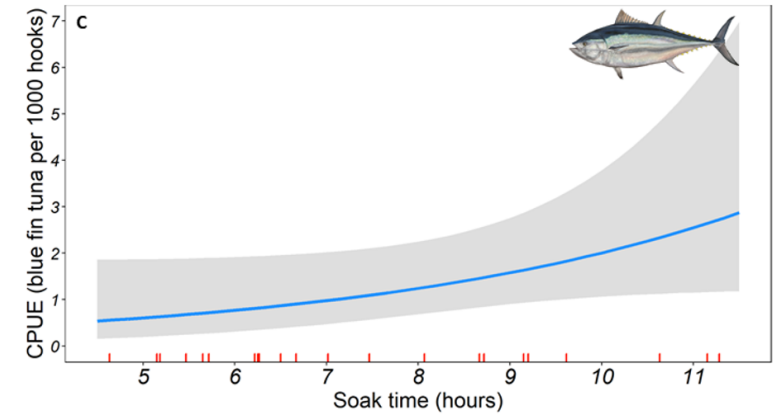
-91% (n=75)**



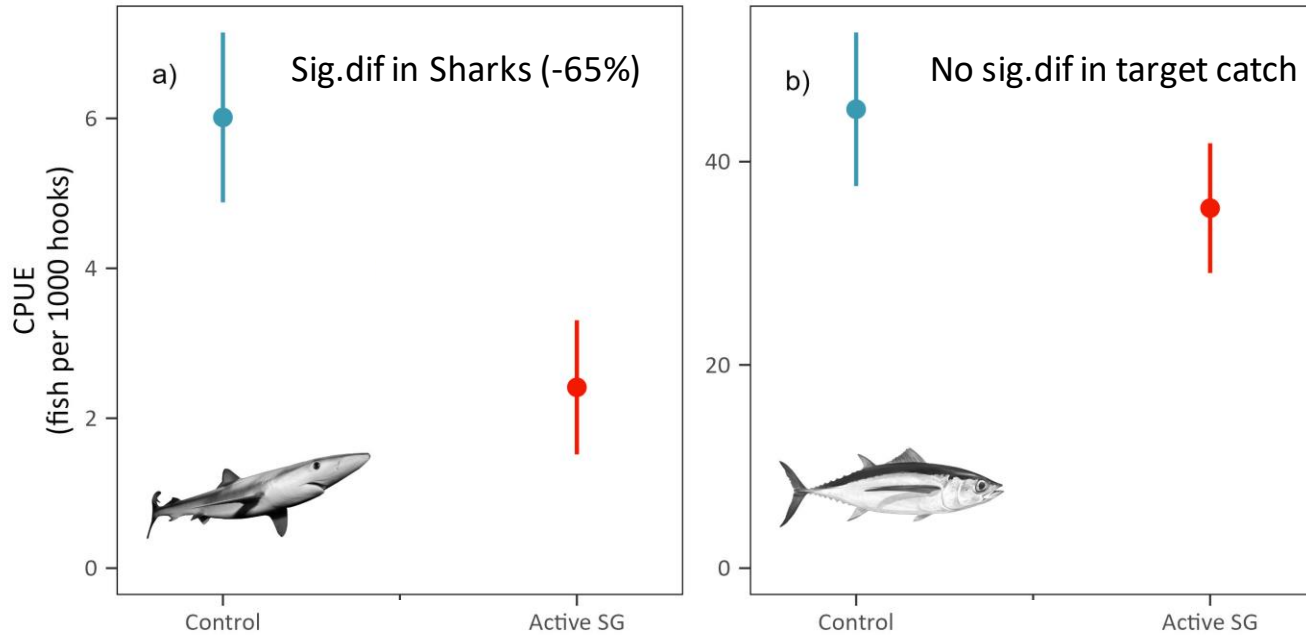
-72% (n=270)**



-40% (n=28)



WP 3 (from 2021/22) & WP1.2 Sea trials



Key findings:

- New Caledonia perfect test ground (result from lit.review)
- Sharks (all species) deterred by SharkGuard (as per France)
- No significant impact of SharkGuard on target species**
- Visually deterred at close proximity to hook (move 80-100cm)
- Potentially reduced depredation**
- In prep. (see WP2)

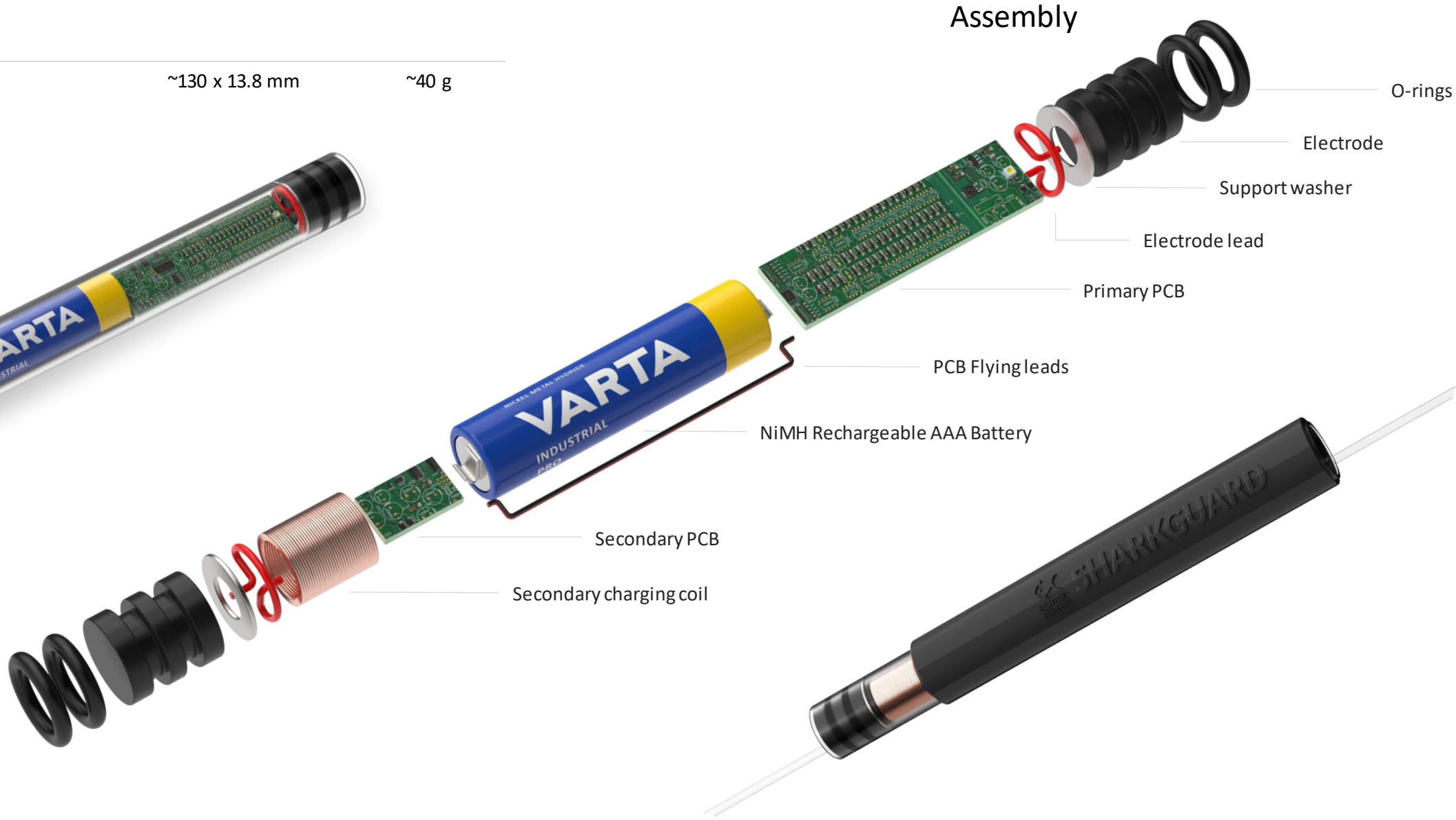


WP 1.1 SharkGuard design

SharkGuard 5

~130 x 13.8 mm

~40 g



WP 1.1 SharkGuard design

Electrode design



Indicator



2-colour LED
(Visible in daylight)



Low battery

Quick orange flashes on removal from water



Charging in progress

Slow green blinking whilst in charging bay



Fully charged

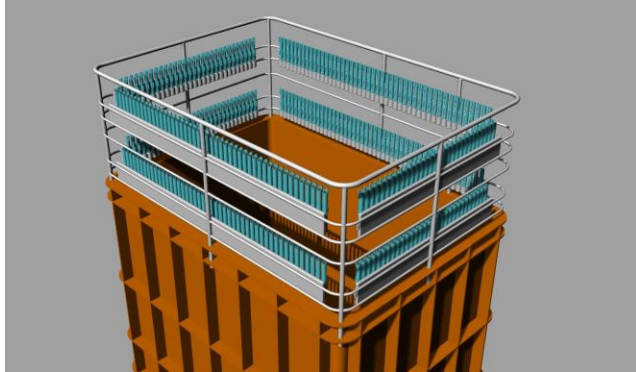
Constant green in charging bay

Durations to be decided

WP 1.1 Bin development

Current development

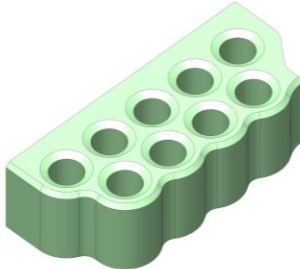
Key features of the charging bin include the following:



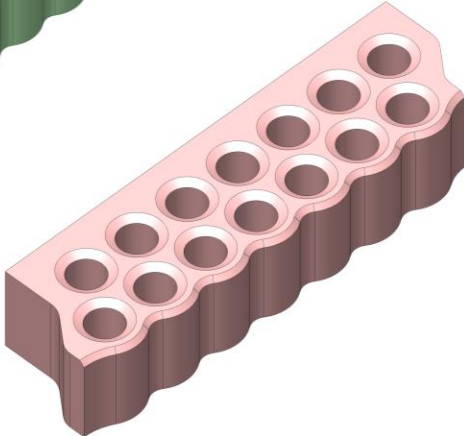
WP 1.1 Bin configuration

There are multiple ways to divide the rows into discrete modules based on common factors. Outlined below is one route to balance module length with the number of variants required. This can be used as a starting point for optimisation.

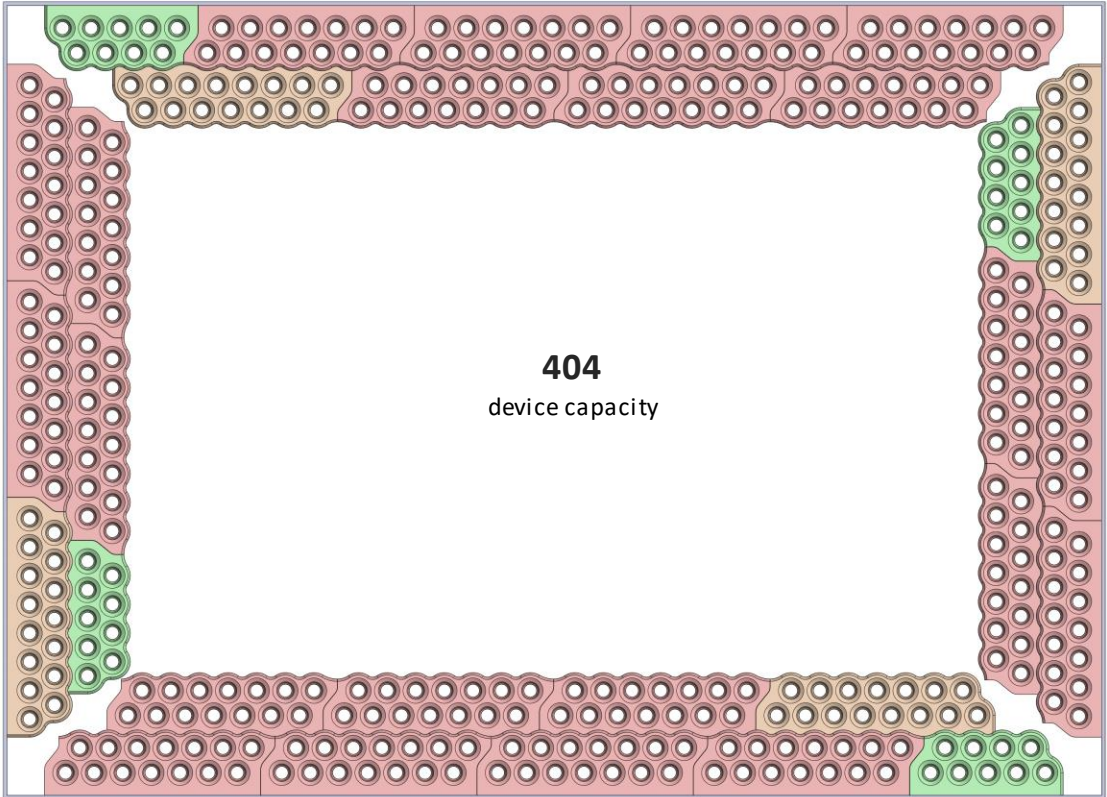
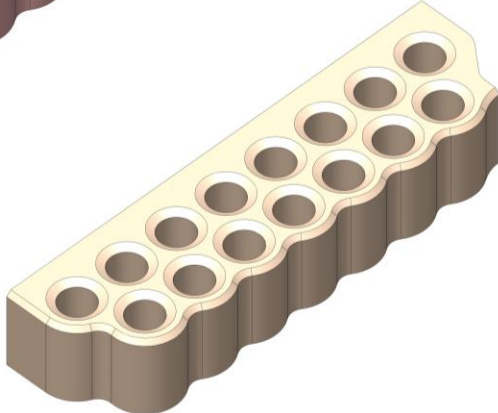
9 bay module
(4off required)



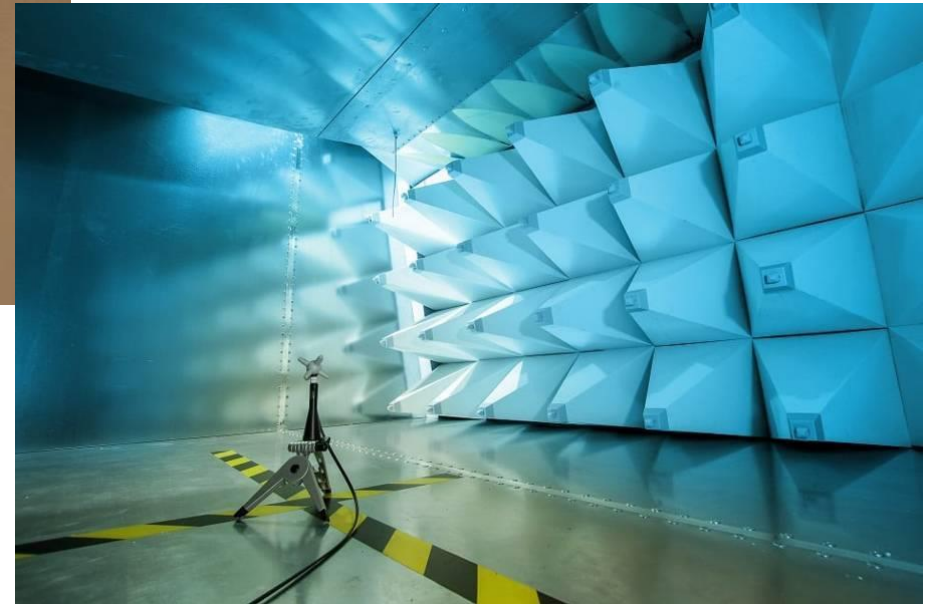
14 bay module
(22off required)



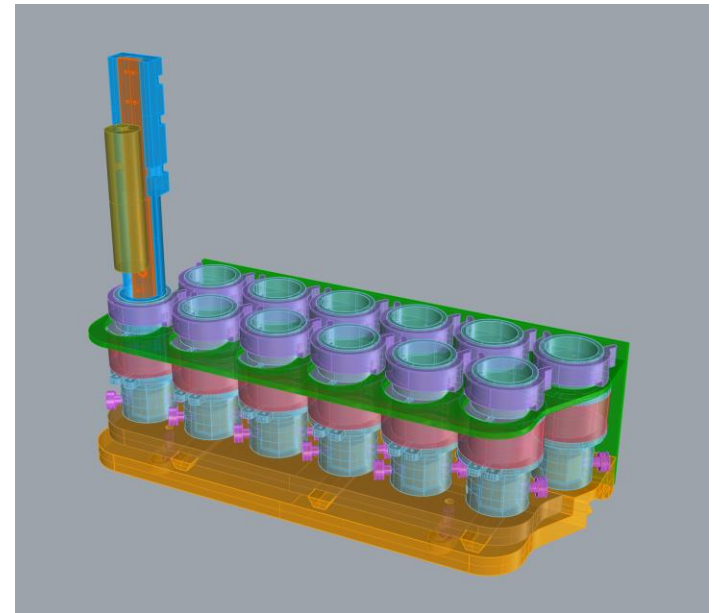
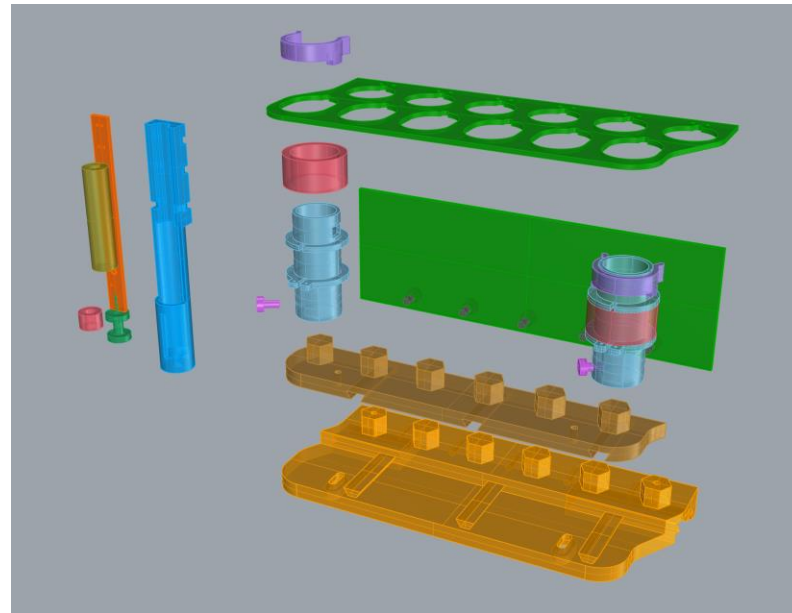
15 bay module
(4off required)



WP 1.1 EMC testing



WP 1.1 Induction Charging



WP 1.1 Line attachment

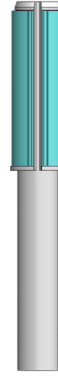
Swivel collar



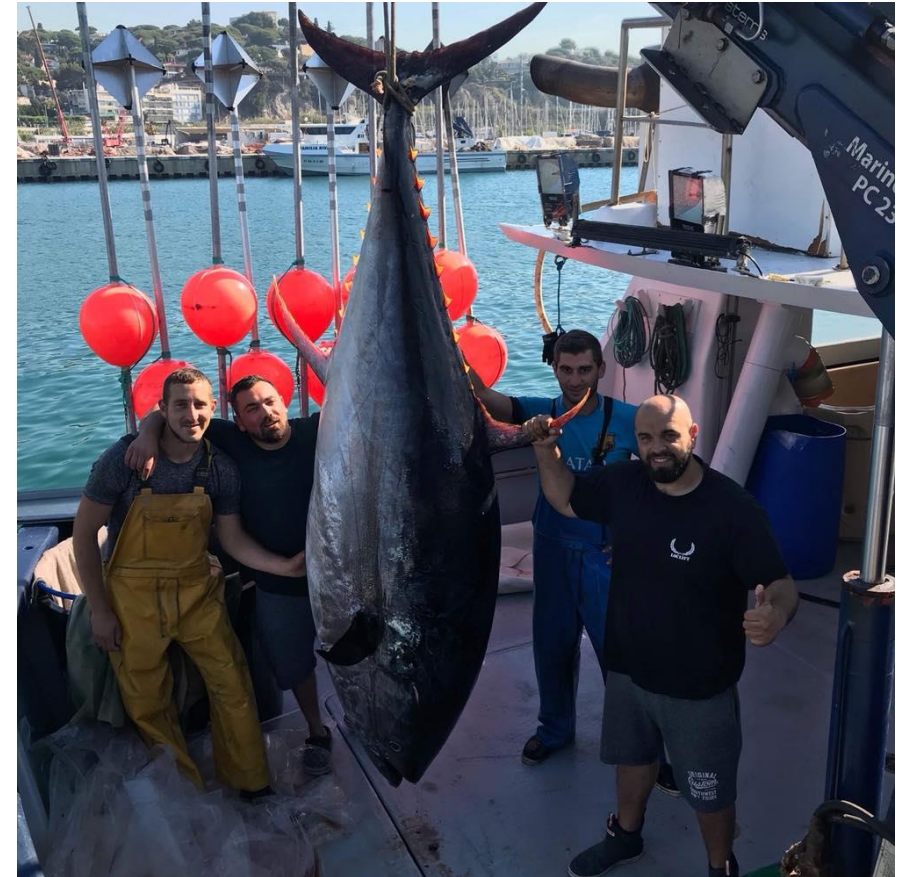
Threaded collar



Pull collar



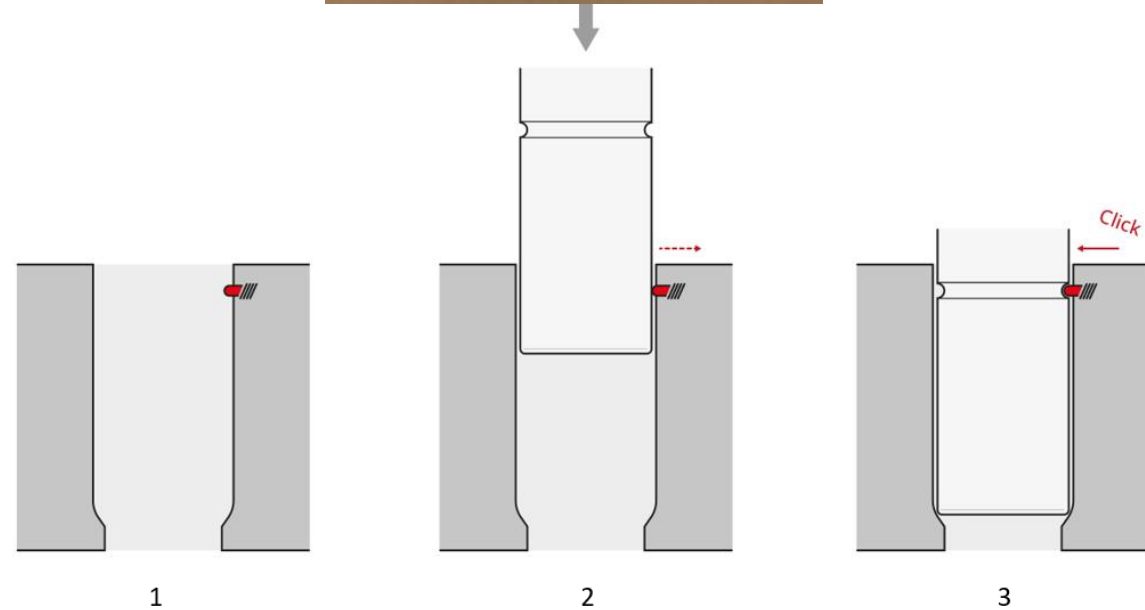
Consultation before commitment!



WP 1.1 Bin function

Current development

The chosen charging configuration can be seen in the images below. The charging bays include through-holes and flush surfaces to minimise dirt traps and allow for easy cleaning.



Each bay will include a retention feature to secure the SharkGuard during charging. It's retention force will be less than the grip force of the device on the line, so that on removing a clip and hook from the rail, the device will lift out of the bay rather than requiring the user to manually remove it. The design of the mechanism will also respect the charging coil and thus avoid metal components.

WP2 PDRA support for technology uptake



University
of Exeter



Global Sustainable Fisheries Initiative



Prof. Brendan Godley (Supervisor)



Dr. Tom Horton (Post Doc.)



Dr. Phil Doherty (Lecturer)



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Bycatch reduction technologies that work for fishermen and the environment