

Reduction of sea turtle mortality in the professional fishing



WORKSHOP:
Best practice per la gestione delle risorse idriche e la tutela dell'ambiente marino: Il contributo dei progetti LIFE

20 ottobre 2015
padiglione expo Venezia,
sala conferenze
via Galileo Ferraris, 5
Venezia

Alessandro Lucchetti
CNR-ISMAR
a.lucchetti@ismar.cnr.it
0039 071 2078828

Reduction of sea turtle mortality in the professional fishing



Progetto di

Con il contributo di



Life12 NAT/IT/957



NATURA 2000



The project TARTALIFE, involving all 15 Italian regions overlooking the Mediterranean Sea, aims at reducing the mortality of *Caretta caretta* and thus contributing to the conservation of the species in the Mediterranean, via 2 main objectives:

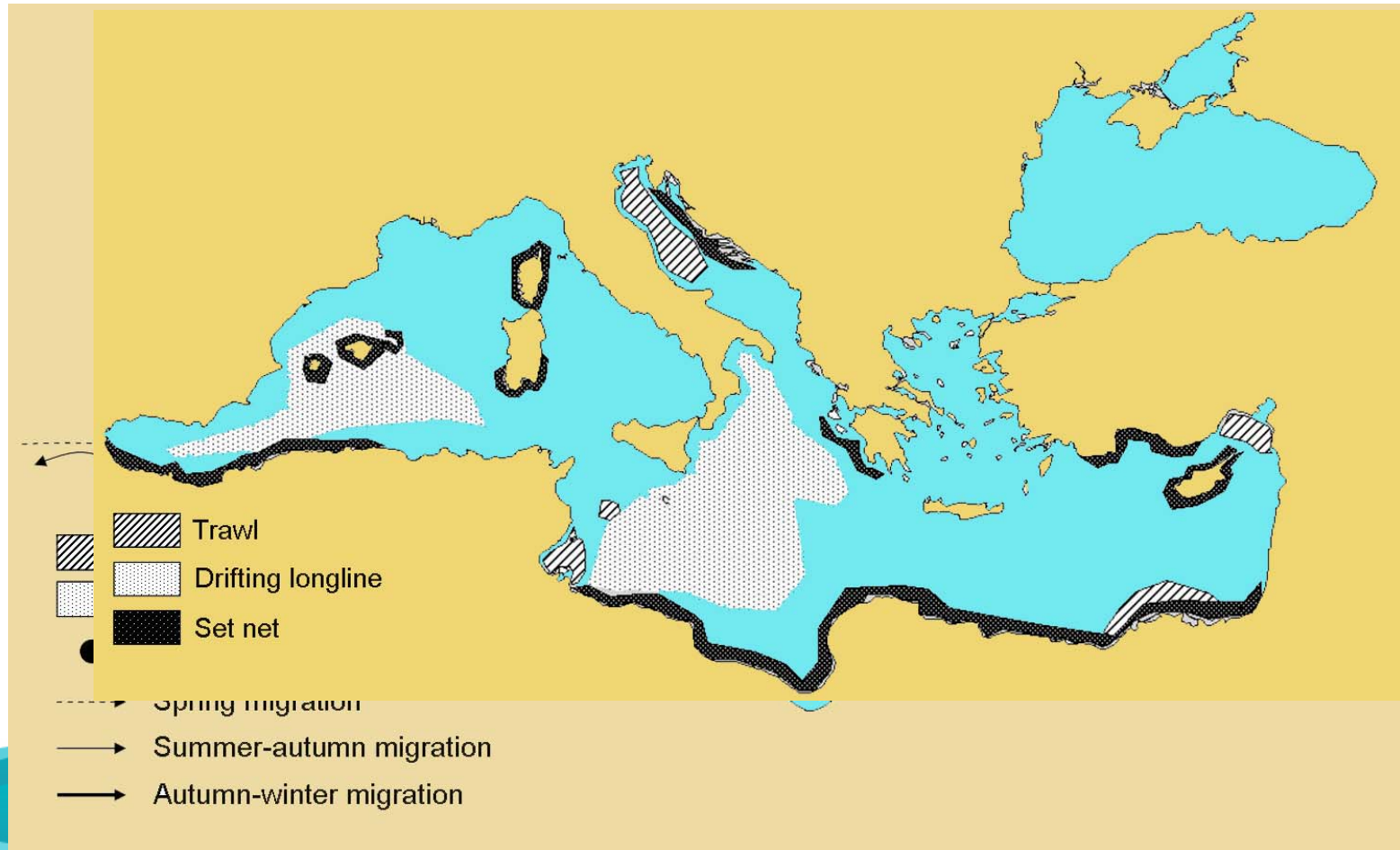
- Reducing bycatches caused by pelagic longline, bottom trawl and fixed nets disseminating circle hooks and TEDs and testing UV and a new type of collapsible pot
- Reducing post-capture mortality, training fishermen and strengthening the Marine turtles First Aid/Rescue Centres

- Knowledge
 - ↳ Identify problems and hotspots
- Define proper actions and tools

Define the baseline

- Review of the available information (biology, migration etc.)
- Bycatch and mortality by fishing gear and area
- Technical properties of fisheries and fishing gears
- Review of the possible actions and solutions

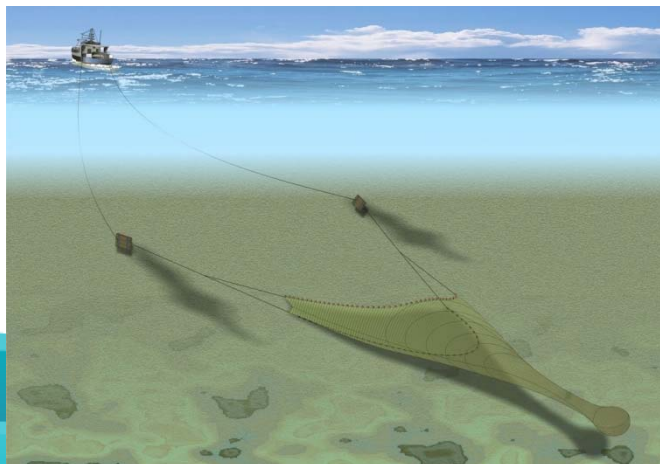
Define the baseline: Biology: satellite, bycatch, stranding ..



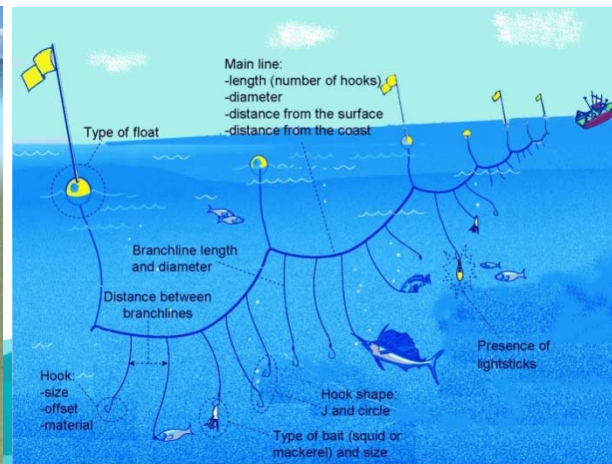
Define the baseline: Fishing gears, Tech. Properties, Bycatch

- The impact of fishing activities is considered as the most important anthropogenic mortality factor for marine turtle populations in the Mediterranean Sea.
- In the Mediterranean, surface longline, driftnet and bottom trawl nets operating in the Mediterranean are the major threats to the survival of this species, even if the impact of fixed gears (gillnets and trammel nets) should be carefully considered.
- Identify technical properties of fishing gears leading to turtle bycatch

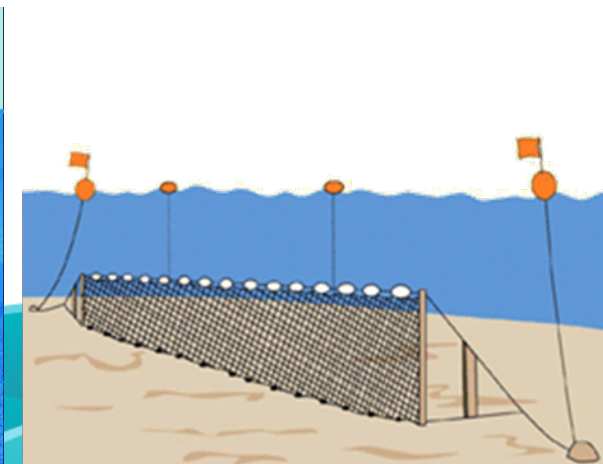
Bottom trawl



Longline



Passive nets



Recent estimates report that fishing activities are responsible to the incidental catch of about 130000 marine turtles every year in the Mediterranean, caused by longline (70000), bottom trawl (40000) and fixed net (ca.23000), with over 40000 estimated deaths; official data do not include all existing boats and underestimate the number of small boats, mainly from North Africa countries: therefore, a more realistic number can be set at 200000 catches and 70000 deaths.

Bottom trawl

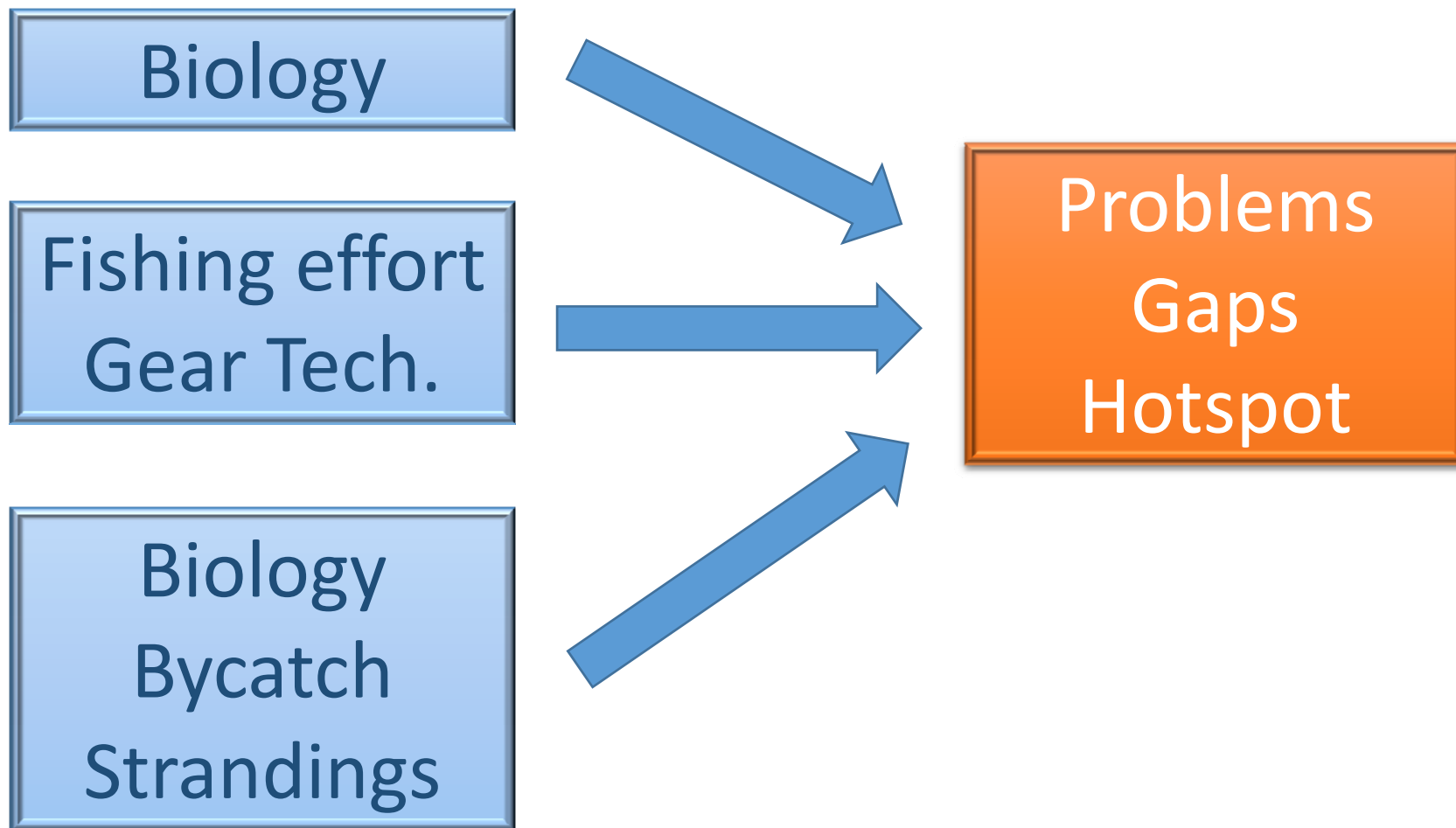


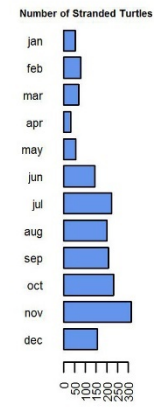
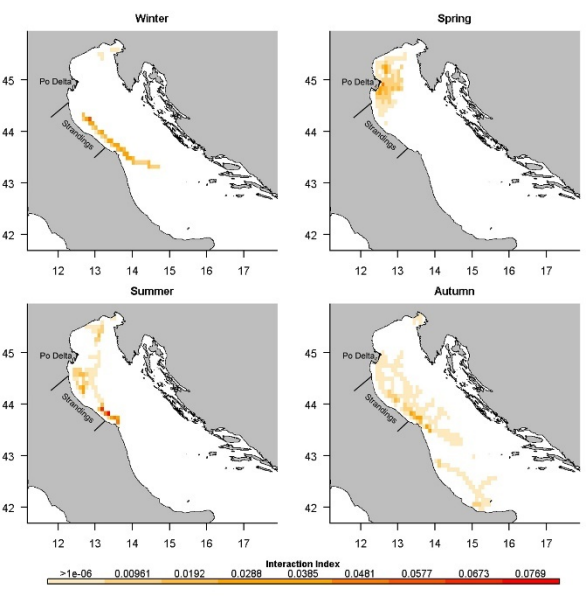
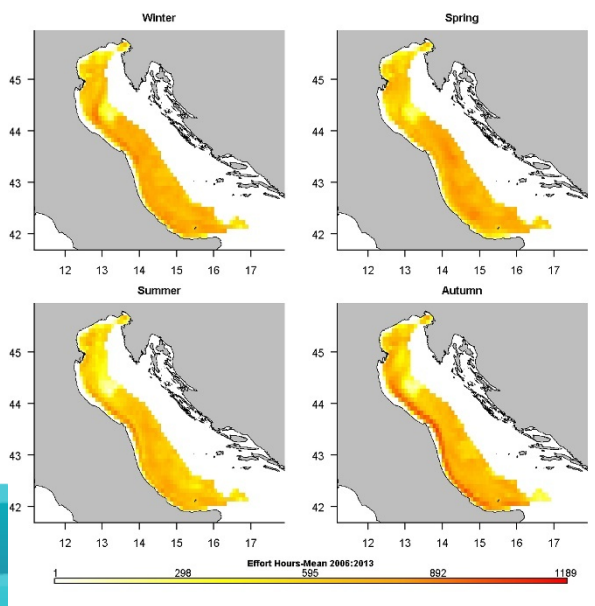
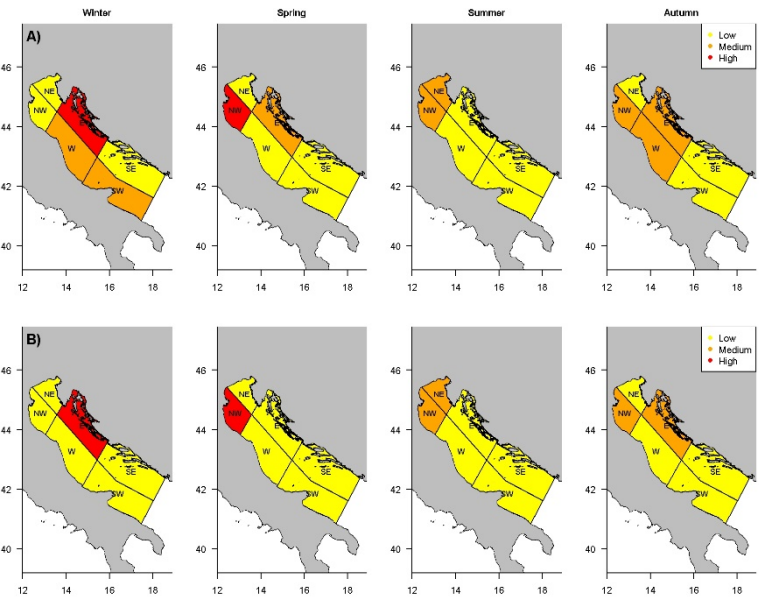
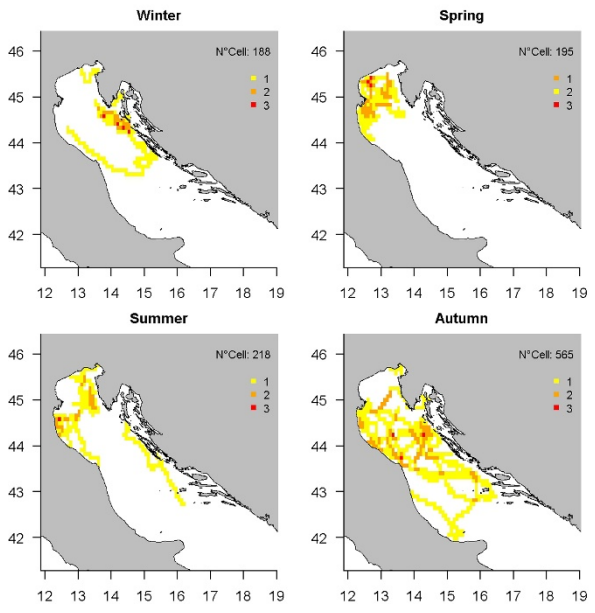
Longline



Passive nets





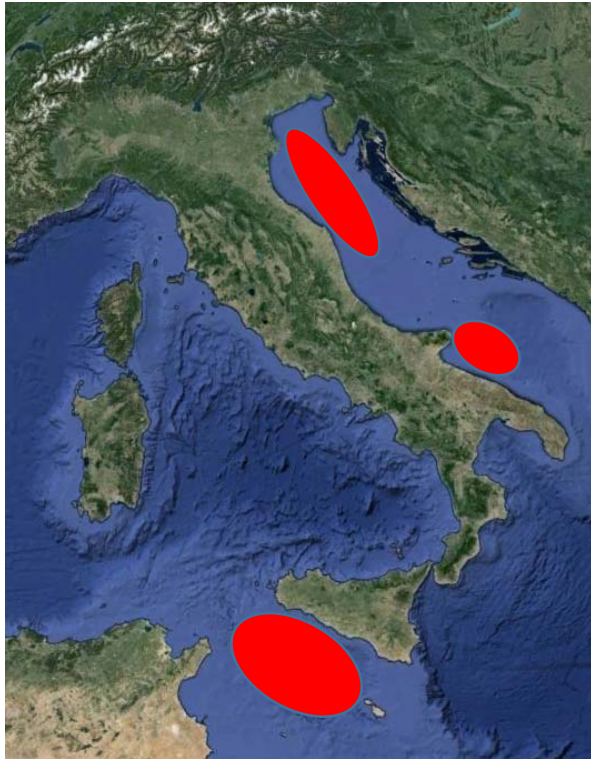


Hotspot?
↓
Area
Gear
Period

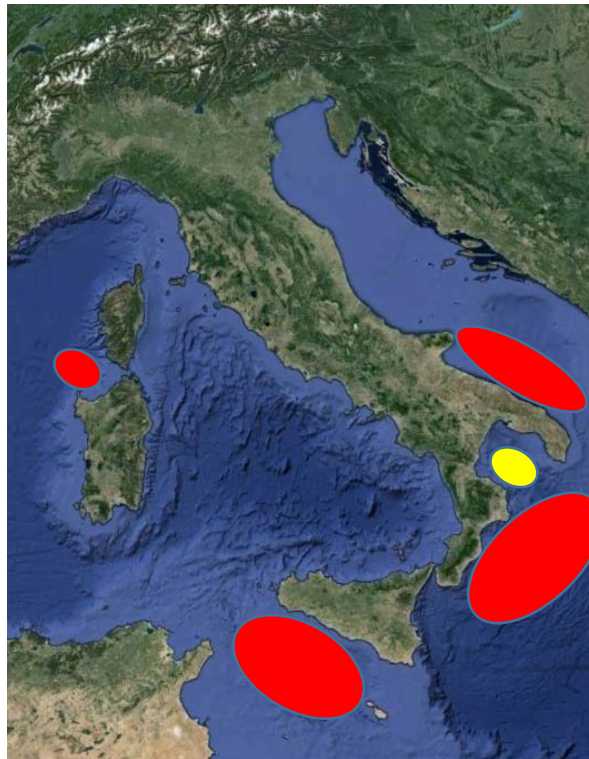
Lucchetti et al., 2015
Ecological Indicators

Hotspot bycatch by area, gear and period:
gears, areas and periods selected for sea trials

Bottom trawls



Longlines



Passive nets

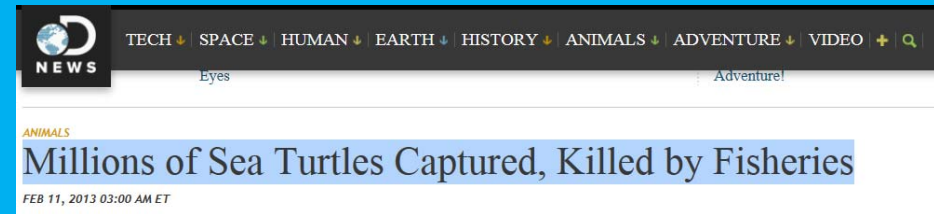


Focus the study where and when there is a bycatch problem

Main problems

- To define the baseline (bycatch, by area, gear, period): database availability, satellite data etc.
- To identify proper measures of mitigation: which measures are more suitable
- Public perception of fishers and bycatch

Until now:
fishermen responsible for
the catch of turtles



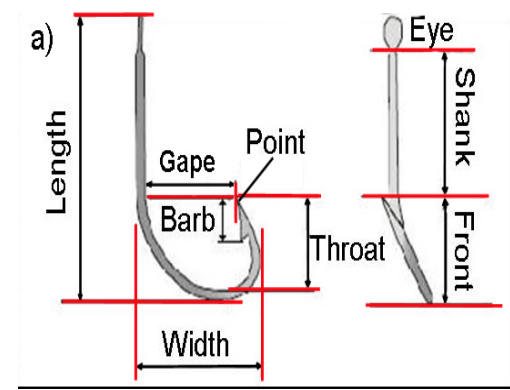
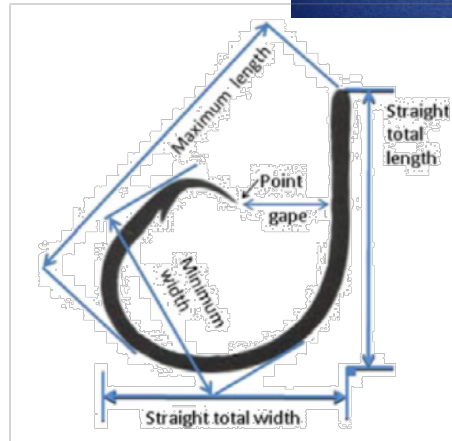
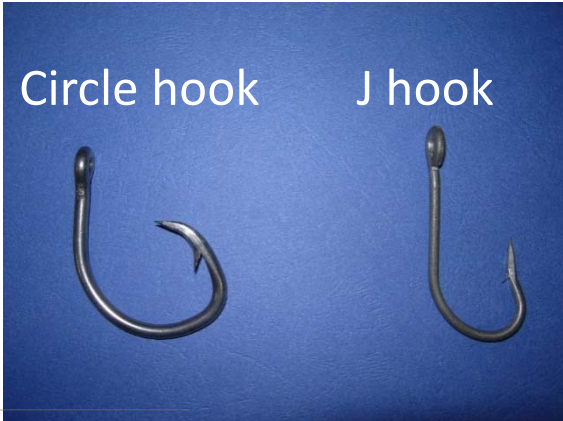
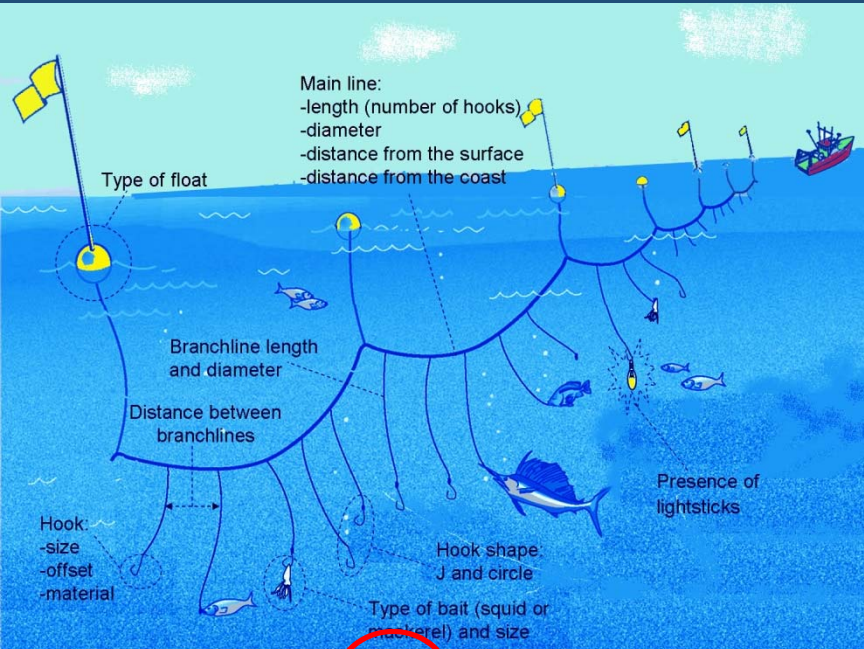
TartaLife:
Fishermen main actors of the
project with the aim of reducing
sea turtle bycatch.
Give responsibility to fishermen



C1: Dissemination of circular hooks in pelagic longline fishing



Good efficiency in reducing bycatch of turtles and throat hooking 18 longlines (1100 hooks each)

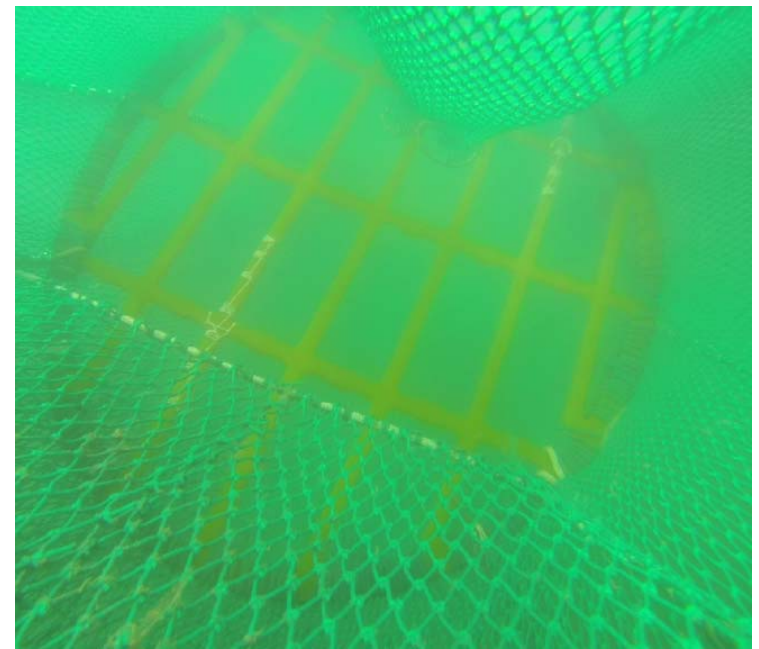
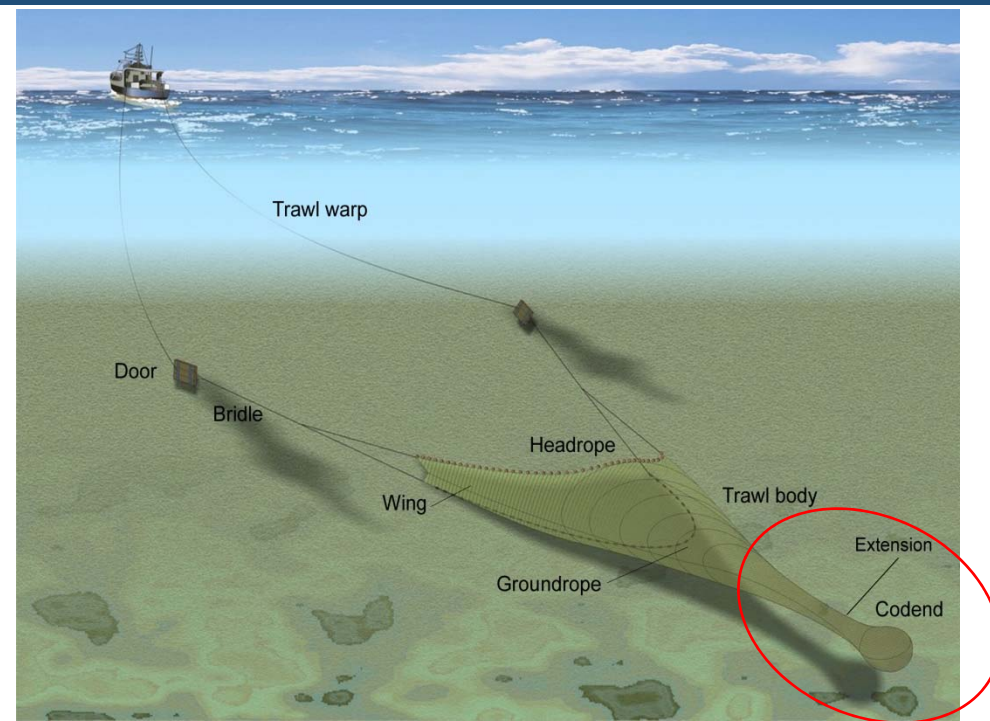


Circle Hook size: 15/0 inox
 J hook size: n. 2
 Branchline length: 9 m
 Distance between branchlines: 35 m

Test solutions that everybody agrees with rather than solutions that everybody dislikes or perceives as a top-down imposition.

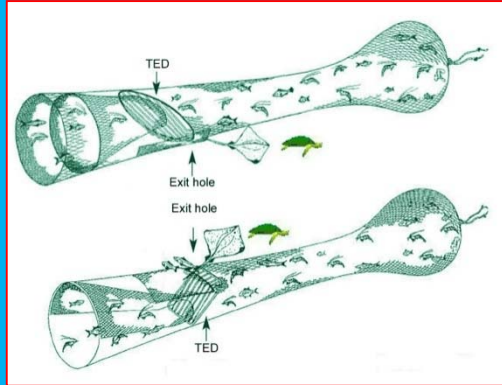
C2: Update and dissemination of Turtles Excluder Devices (TEDs) in bottom trawl fishing

TED is a grid-like device that diverts large objects (including turtles) towards an exit positioned before the codend



TED: Technical issues

Exit hole: up or down



Type: Hard or flexible



Space between bars

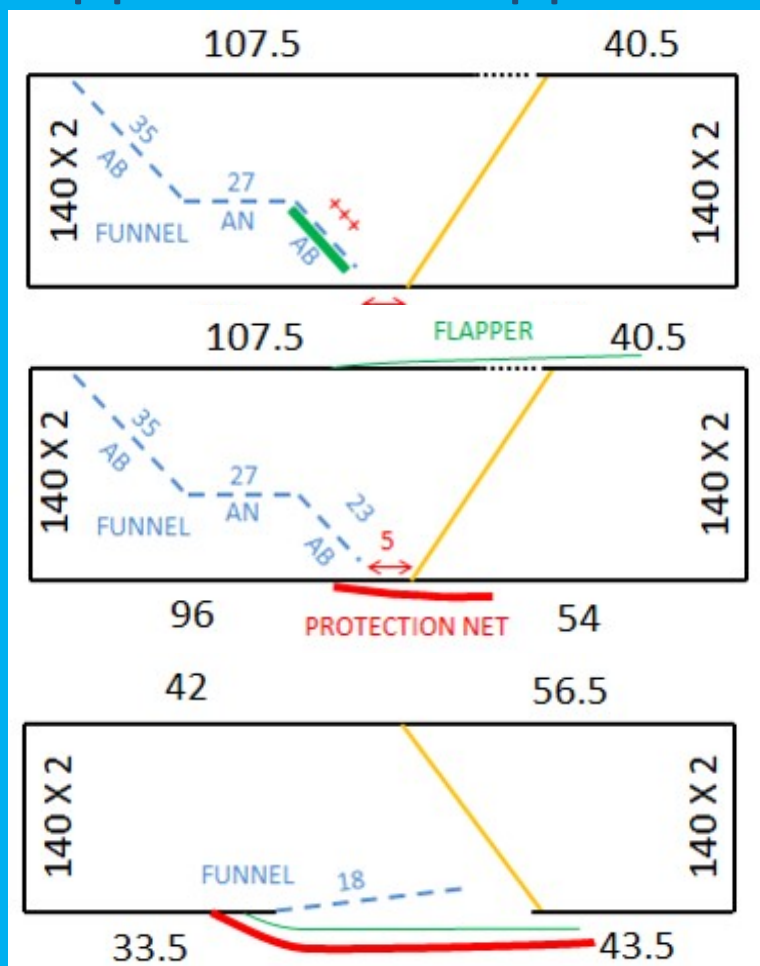


Setting of the grid: angle



TED: Technical issues

Funnel or not funnel?
 Flapper or not flapper?



Influence of TED on the gear performance

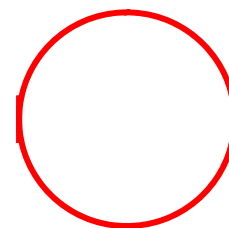
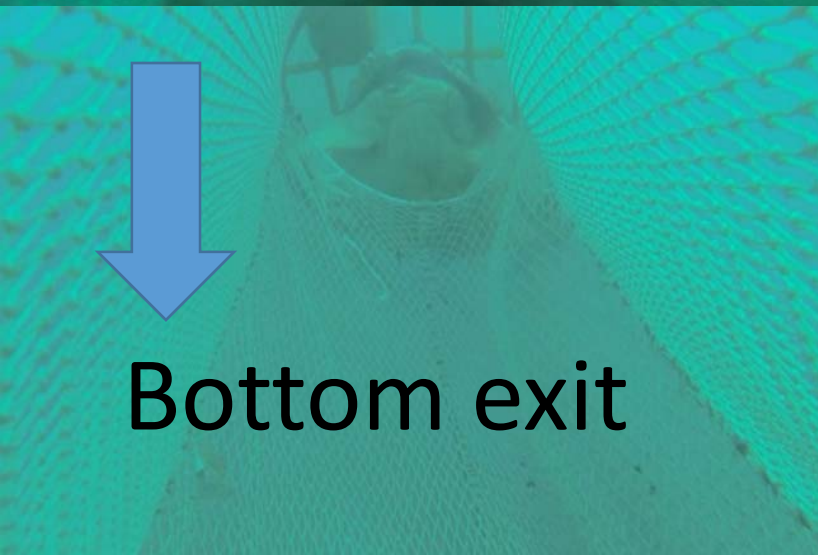


TED: Preliminary results

- No commercial loss
- Effective in reducing marine litter and debris (higher fish quality)
- Effective in reducing sea turtle bycatch

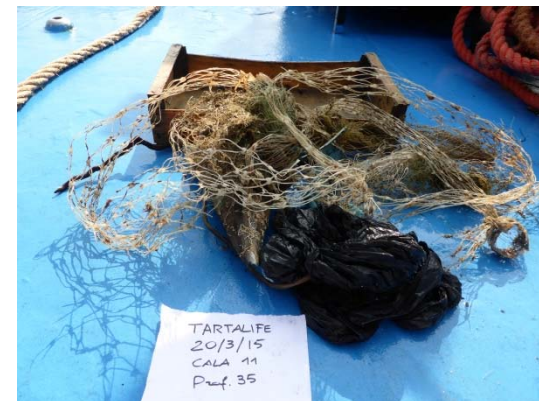
TED: Preliminary results

Effective in reducing sea turtle bycatch



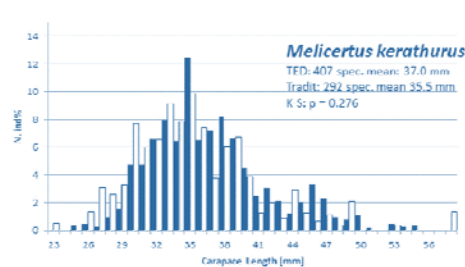
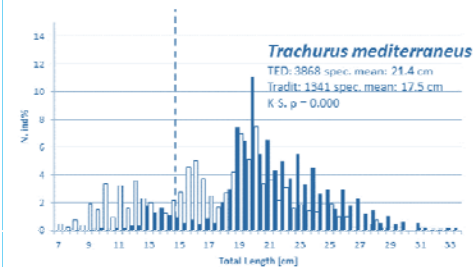
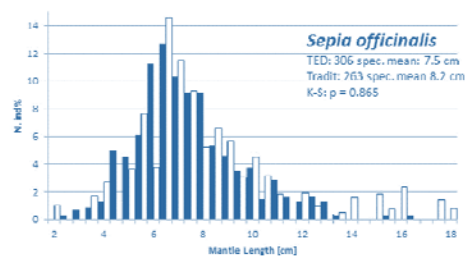
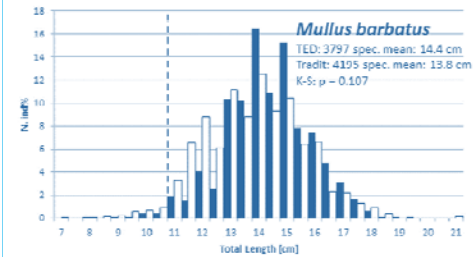
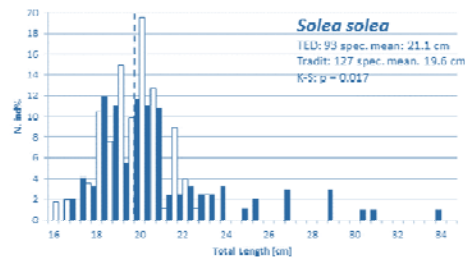
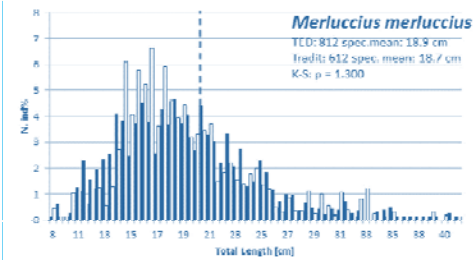
TED: Preliminary results

Effective in reducing marine litter and debris in the catch

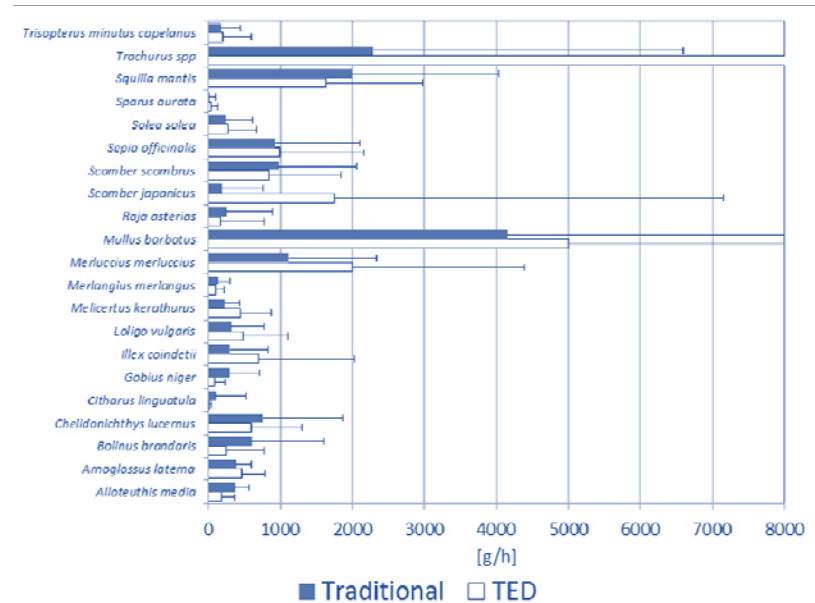


TED: Preliminary results

Effective in reducing marine litter and debris in the catch

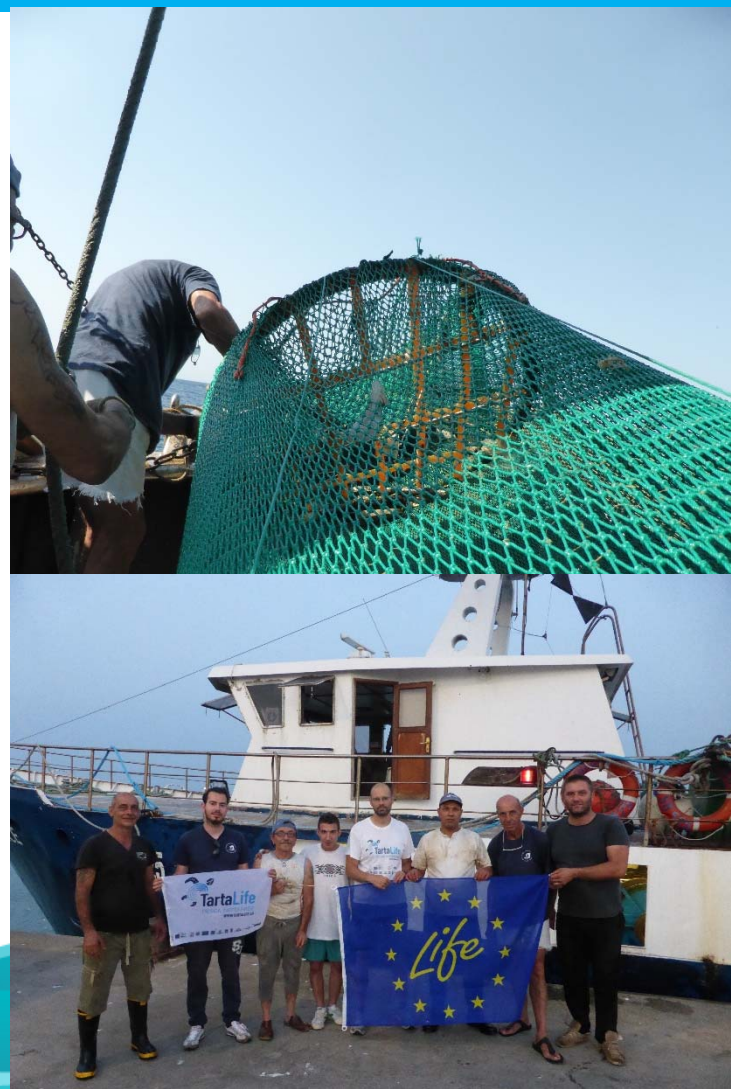


■ TED □ TRADITIONAL



TED: Preliminary results

Effective in reducing marine litter and debris in the catch

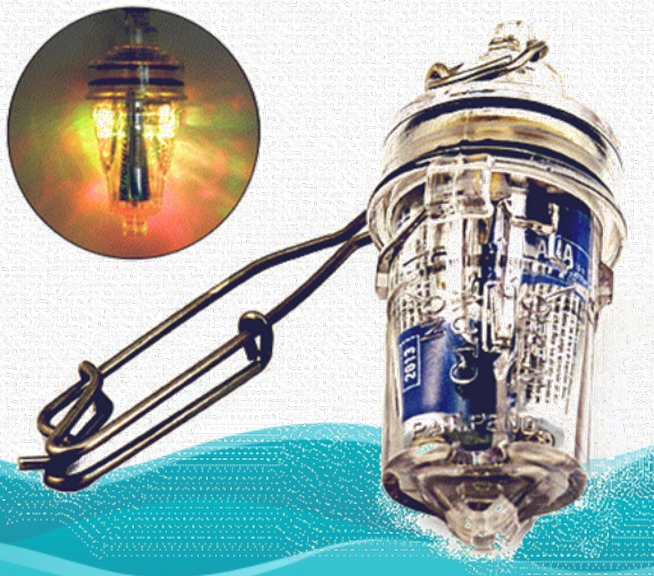


C3: Reduction of incidental catch of sea turtles in the passive nets: setup and dissemination of visual repellents and alternative gears

VISUAL REPELLENTS

The UV-LEDs tested in TARTALIFE are special electronic lights. Similar lights are generally used in longline fisheries.

We illuminated the commercial bottom-set gill net by placing UV LED lights (*Lindgren-Pittman Electralumes*) at 15 m intervals along the net's float line.



ALTERNATIVE GEARS

Fishing with passive nets is the most popular traditional fisheries along the Italian and the Mediterranean coasts. It is the predominant activity of small-scale fisheries. In this regard, the decision to propose an alternative gear to passive nets has fallen on another type of traditional gear: the pot.



Visual cues play important roles in sea turtle foraging behaviour and likely influence their interactions with fishing gear. Altering these cues may be a useful strategy to reduce the incidental catch of sea turtles in various fisheries (Wang *et al.* 2010).

First idea in the project:
Acoustic deterrents



Visual deterrents



Vol. 408: 241–250, 2010
doi: 10.3354/meps08577

MARINE ECOLOGY PROGRESS SERIES
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Published June 3

Developing visual deterrents to reduce sea turtle bycatch in gill net fisheries

John H. Wang^{1,*}, Shara Fisler², Yonat Swimmer³

biology
letters

Developing ultraviolet illumination of gillnets as a method to reduce sea turtle bycatch

John Wang, Joel Barkan, Shara Fisler, Carlos Godinez-Reyes and Yonat Swimmer

Biol. Lett. 2013 **9**, 20130383, published 24 July 2013

Sea turtles are sensitive to ultraviolet (UV) wavelengths. **UV net illumination** may have applications in coastal and pelagic gillnet fisheries to reduce sea turtle bycatch (Wang *et al.* 2013).



PRELIMINARY RESULTS:

(a) Testing net illumination effects on turtle catch rates

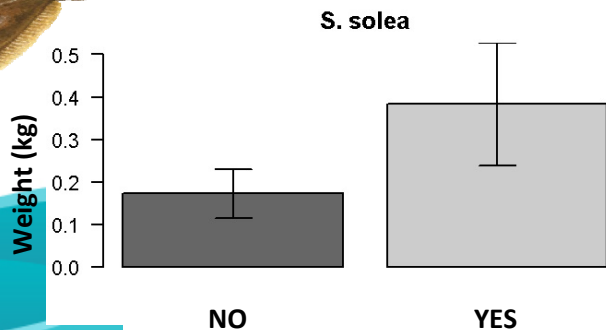
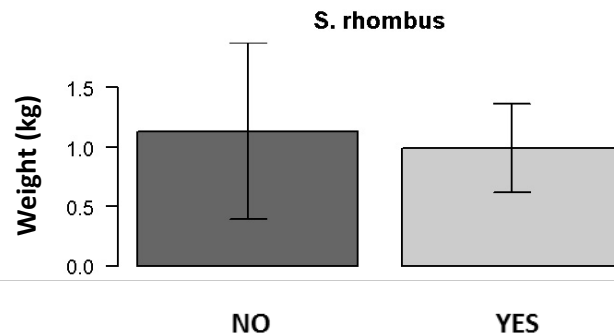
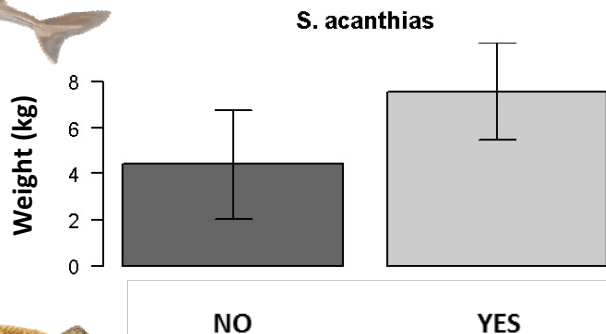
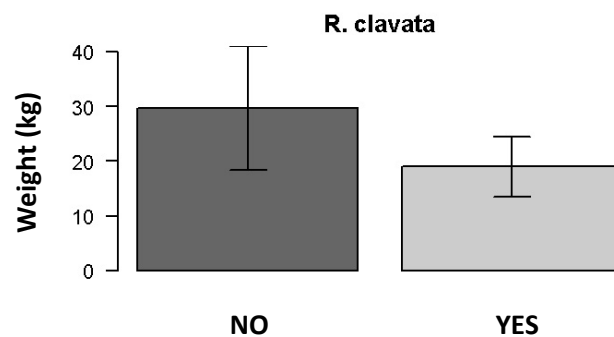
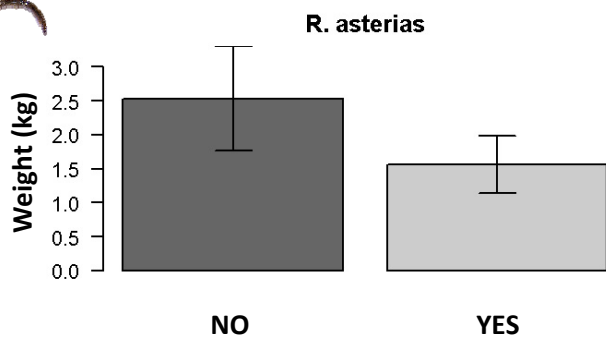


Target species:
Raja clavata

In the presence of LEDs no individual of sea turtle has been caught

PRELIMINARY RESULTS:

(b) Testing net illumination effects on total target fish



In the presence of UV-LEDs it has been a decrease in the quantities of catches of some of the most important target species (*R. clavata*, *R. asterias*). Other species are not affected. More tests are needed (on different 'metier'), to assess the UV-LEDs real effect on fishing performance.

Fishing with passive nets is the most popular traditional fisheries along the Italian and the Mediterranean coasts. It is the predominant activity of small-scale fisheries. In this regard, the decision to propose an alternative gear to passive nets has fallen on another type of traditional gear: the **pot**.

CARAPAX



TRAPULA



New collapsible fish pots already used in other European areas has been tested and adapted to Mediterranean fishing grounds.

PRELIMINARY RESULTS:

- CARAPAX pot seem to be not easy to handle on board of fishing vessels with small dimensions, but, theoretically, it can provide bigger catches in consideration of their dimensions
- TRAPULA pot are easy to handle and it allows to fish on various types of seabed



CARAPAX



Fish pot performance is affected by different factors as:

- the choice of bait
- the fishing grounds
- the target species

TRAPULA



Concrete actions

Awareness campaigns

C4: training of fishermen on how to rescue and deliver first aid to accidentally caught turtles



Awareness campaigns

C4: training of fishermen on how to rescue and deliver first aid to accidentally caught turtles

Video Tutorial



AZIONI DI PRIMO INTERVENTO
IN CASO DI RITROVAMENTO
DI TARTARUGA MARINA IN DIFFICOLTÀ

COME SALVARE UNA TARTARUGA MARINA



Allerta la Capitaneria di Porto o il Centro di Recupero Tartarughe Marine più vicino.



Liberala da reti e lenze con cura, facendo attenzione alla bocca e alle unghie.
Afferrala solo dalle estremità del carapace



Se ha abboccato all'amo, issata a bordo utilizzando il retino. Taglia la lenza più vicino possibile alla bocca e legata ad un pezzo di legno o plastica in modo che non la ingoi.



Se è stata pescata nelle reti, stendila a pancia in giù in un luogo tranquillo su una superficie morbida, sollevando il posteriore di 20-30 cm per far defluire dai polmoni eventuale acqua ingerita.



In estate tienila all'ombra e coprila con un asciugamano bagnato sul carapace.
Copri la testa e gli occhi, ma mai le narici.



In inverno tienila in un luogo caldo e asciutto e coprila con una coperta.
Copri la testa e gli occhi, ma mai le narici.



Prendi nota del luogo e dell'ora del recupero.



Consegnala alla Capitaneria di Porto o Centro di Recupero e riferisci le modalità ed il luogo del ritrovamento

Concrete actions

Awareness campaigns

C4: training of fishermen on how to rescue and deliver first aid to accidentally caught turtles



TED: Preliminary results

C5: strengthening Marine Turtles Rescue Centres (equipment and re-training of staff), setting up a Centre in Lampedusa and first aid points on Emilia Romagna and Marche coasts





project marine turtle rescue centers news and events media contacts

FISHING TARTAFREE

highlight objective reduction of sea turtle mortality in the professional fishing

read article **Adriatico Mediterraneo**
Tartalife meets the Adriatic-Mediterranean Festival
Sea turtle Francesco rescued at Fondazione Cetacea center was released. The Adriatic-Mediterranean festival supported this event.

read article **Great success of Tartaday in Province of Agrigento**
Success of Tartaday in Province of Agrigento (TARTALIFE partners), with a significant

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La liberazione della tartaruga Francesco documentata al TG3 Marche

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Alessandro Lucchetti, coordinatore del progetto TartaLife presenta le attività del progetto a EXPO 2015.

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ABOUT

Il progetto TartaLife (LIFE+2012) si prefigge di ridurre la mortalità della tartaruga marina Caretta caretta indotta dalle attività di pesca professionali
<http://www.tartalife.eu/>

PHOTOS

Tartalife+ added 5 new photos. 2 hrs

Fondazione Cetacea onlus: Grazie al contributo finanziario del progetto europeo TARTALIFE (www.tartalife.eu) la nuova ala di quarantena con le nuove vasche è una realtà che migliorerà la gestione e l'ospedalizzazione degli esemplari di tartaruga marina in cura presso il nostro centro.

Rai Ambiente TG5 Tg2 Tg3 ClassTV greenreport.it MARCA DI NISE HUFFINGTON POST IN COLLABORAZIONE CON IL Gruppo Espresso

How to involve fishermen??

Voluntary?

Mandatory use of Bycatch Reducer Devices (BRDs)?

Economic support for the BRDs purchase?

Eco-labeling of fishery products caught with BRDs?

Recovering licence points, if a point system for serious infringements is applied?



Thank you