



**farnet**  
fisheries areas network



UNIONE EUROPEA

**PO FEAMP**  
ITALIA 2014 | 2020



REGIONE DEL VENETO

# TARTA-TUR PROJECT

«Evaluation of the interaction of marine fisheries and mariculture with the species *Caretta caretta* and *Tursiops truncatus* in the coastal area of the Northern Adriatic district»



<http://www.guestpost.com/it/cagliari-zedda/caretta-caretta-poetto/>



<http://lamialampedusa.blogspot.com/2015/05/lampedusa-dove-osano-le-tartarughe.html>



[https://alertdiver.eu/it\\_IT/articoli/il-dolphin-reef-eilat-in-israele-globalmente-unico](https://alertdiver.eu/it_IT/articoli/il-dolphin-reef-eilat-in-israele-globalmente-unico)



GRUPPOAZIONE COSTIERA  
CHIOGGIA & DELTA DEL PO



# Working group

## Technical – scientific activities

- University of PADOVA, Comparative Biomedicine and Nutrition Department  
Prof. Sandro Mazzariol, Dott.ssa Carlotta Mazzoldi, Dott.ssa Giorgia Corazzola
- AGRITECO s.c.,  
Dott. Alessandro Vendramini, Dott.ssa Laura Cruciani, Dott. Thomas Galvan,  
Dott. Raoul Lazzarini

## Project coordination for Venetian FLAG

Antonio Gottardo, Giancarlo Pegoraro, Paolo Valeri, Cinzia Gozzo

## Project coordination for GAC of Chioggia and Po Delta

Roberto Pizzoli, Andrea Portieri, Alessandra Banin

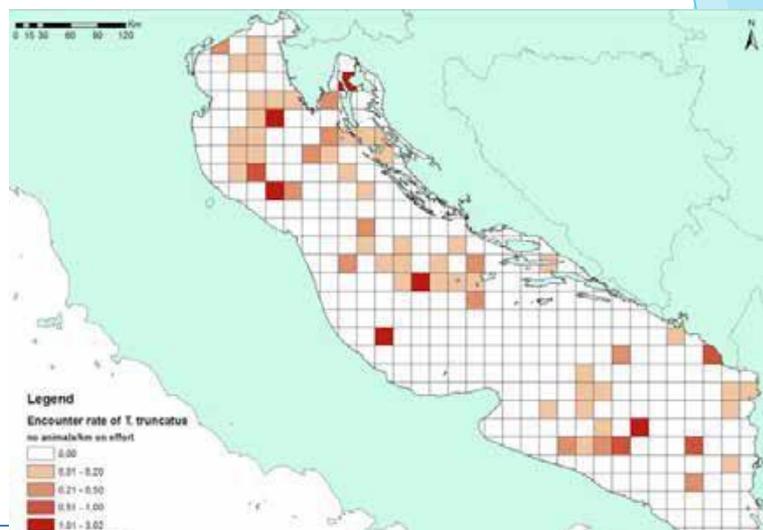
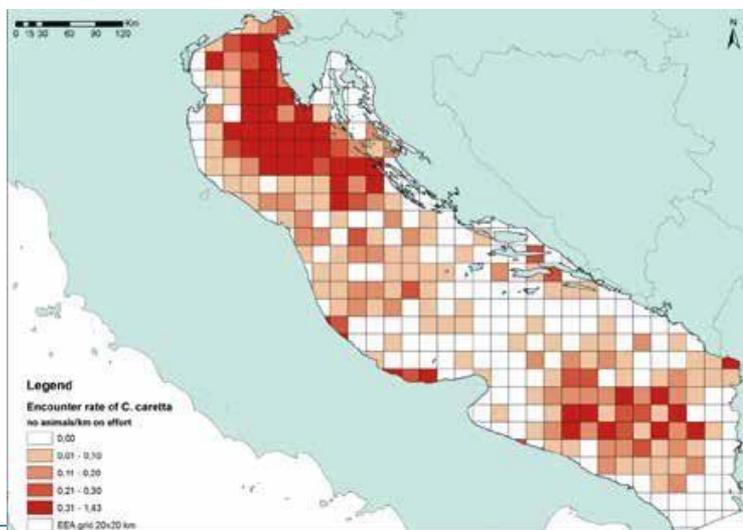
# Submission and approval procedure for the project

- ❑ The project was born from the sharing of the Venetian FLAG and GAC Chioggia and Po Delta of the need for an ANALYSIS OF THE POTENTIAL EFFECTS OF THE INTRODUCTION OF A MARINE SCI in the HIGH ADRIATIC ON THE PRODUCTION SYSTEM OF FISHERY
- ❑ it is a project financed by EMFF (European Maritime and Fisheries Fund)
- ❑ The COOPERATION PROJECT has been defined through a series of meetings between the FLAGs, the Fisheries Associations, the Veneto Region (Environment and Fisheries Departments), with the collaboration of Arpav and the University of Padua (Department of Comparative Biomedicine and Food)
- ❑ On 26 September 2018 the project proposed by the Veneto FLAGs was approved by the Veneto region.

# Step TartaTur

1. Preliminary survey among the stakeholders to define the interaction between fisheries and the protected species and to assess the status of this interaction (UniPD)
2. Socio-economic analysis of the fisheries influenced by the interaction with the protected species (sea turtle and bottlenose dolphin). (Agriteco s.c.)
3. Direct monitoring to evaluate the effective interaction between fishing vessel with sea turtle and bottlenose dolphin. (UniPD)
4. Indirect monitoring to evaluate the presence and the effect of the fisheries on bottlenose dolphins and sea turtle. (UniPD)
5. Creating an operative protocol in case of incidental catch per single species. (UniPD)
6. System to reduce the bycatch of protected species (fisheries and sea turtle; fisheries and bottlenose dolphins). (Agriteco s.c.)
7. Guidelines for a better coexistence between fisheries and protected species. (Agriteco s.c.)
8. Training for the commercial fishermen. (UniPD)
9. Common communication activity to the stakeholders and the fishermen. (Agriteco s.c.)
10. Project management by FLAGS.

# *Caretta caretta* e *Tursiops truncatus*: WHO ARE THEY?



# PROTECTED SPECIES

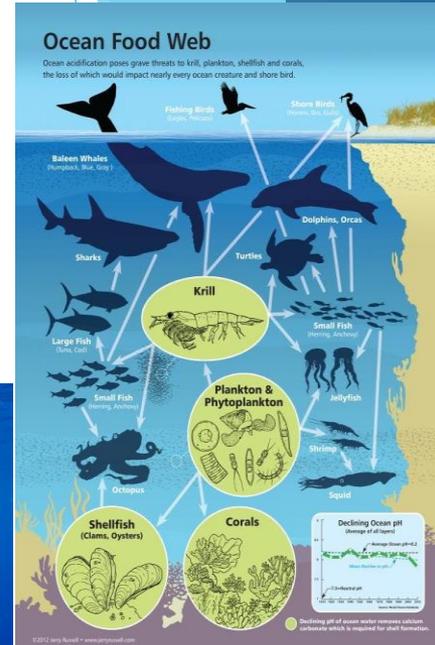
## What do it mean protected?

### PROTECTED BY NATIONAL AND INTERNATIONAL REGULATIONS AND LAWS

- HABITAT DIRECTIVE (Directive No 92/43/EEC)
- REGULATION (EC) No 812/2004 (Measures concerning incidental catches of cetaceans in fisheries)
- HUNTING LAW (LAW No 157 of 11 February 1992)
- Washington Convention (CITES)
- Barcelona Convention (Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean)
- Bern Convention, 1979 (Convention on the Conservation of Wildlife and Natural Habitats)
- Bonn Convention (Conservation of terrestrial, aquatic and airborne migratory species)

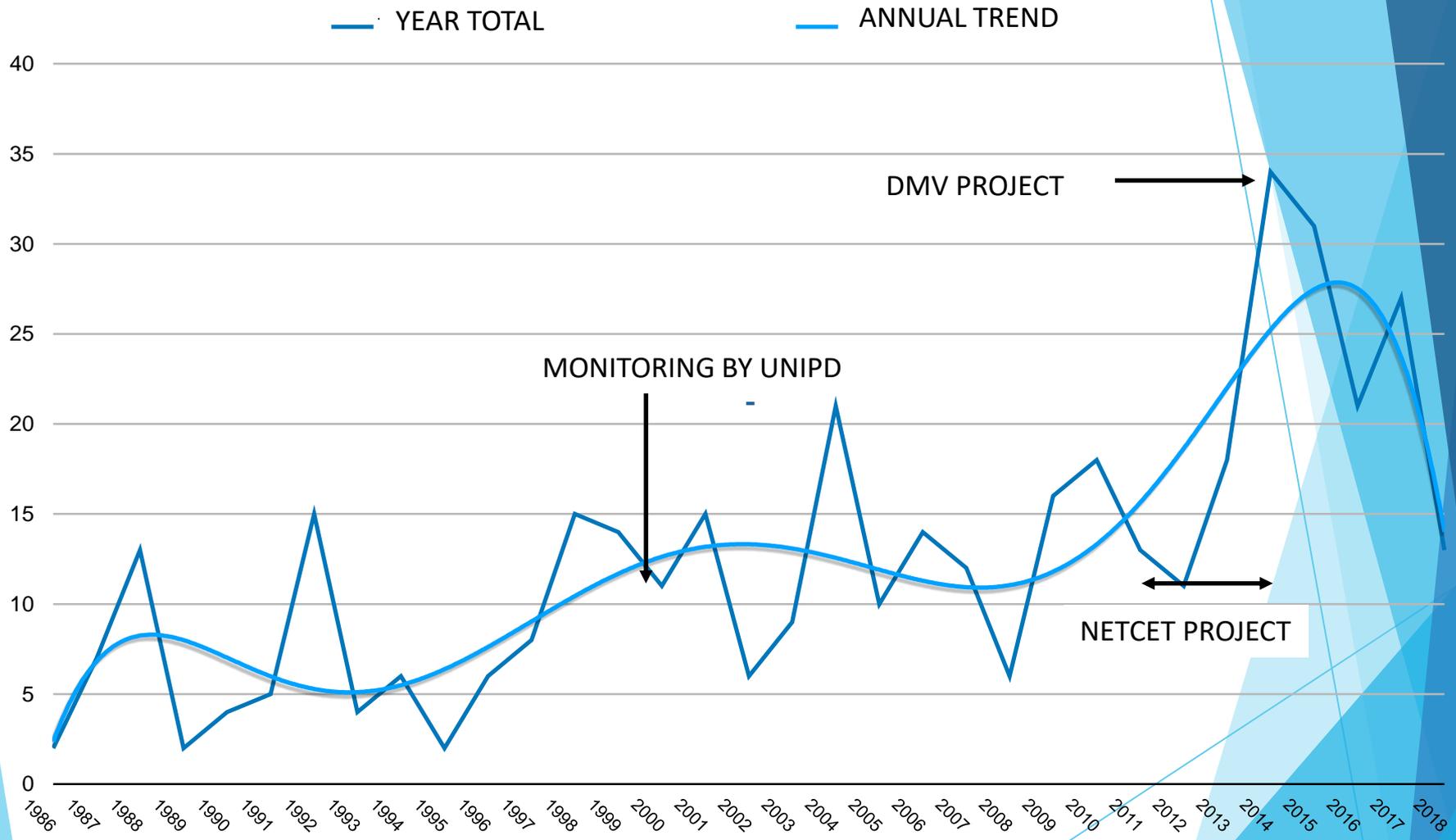
## Why are they protected?

Sea turtles and bottlenose dolphins are part of the marine ecosystem and are important for the maintenance of its balance and for the survival of other marine species!



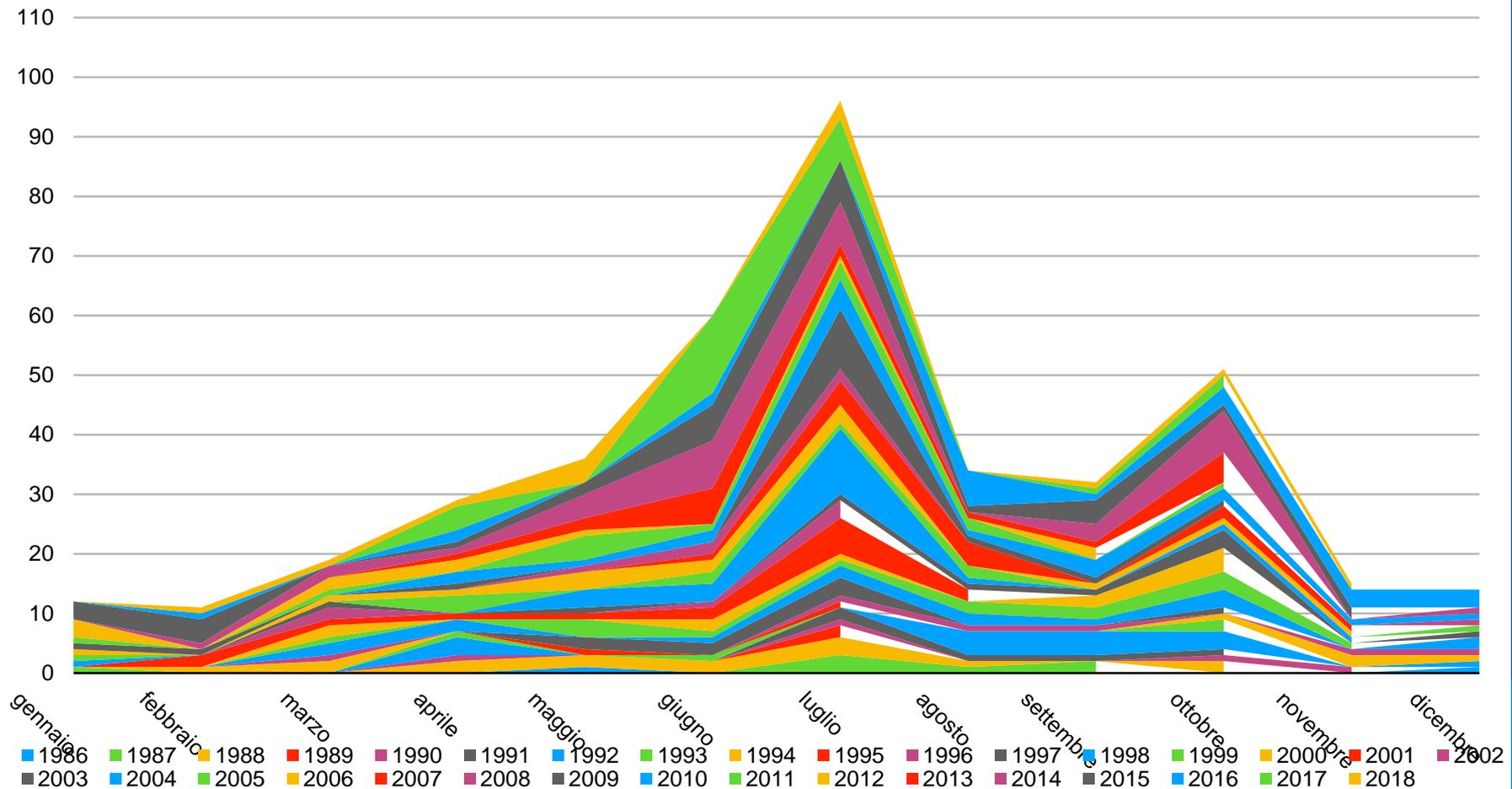
# Basic information for project development

## - CETACEANS STRANDINGS IN NORTH ADRIATIC -



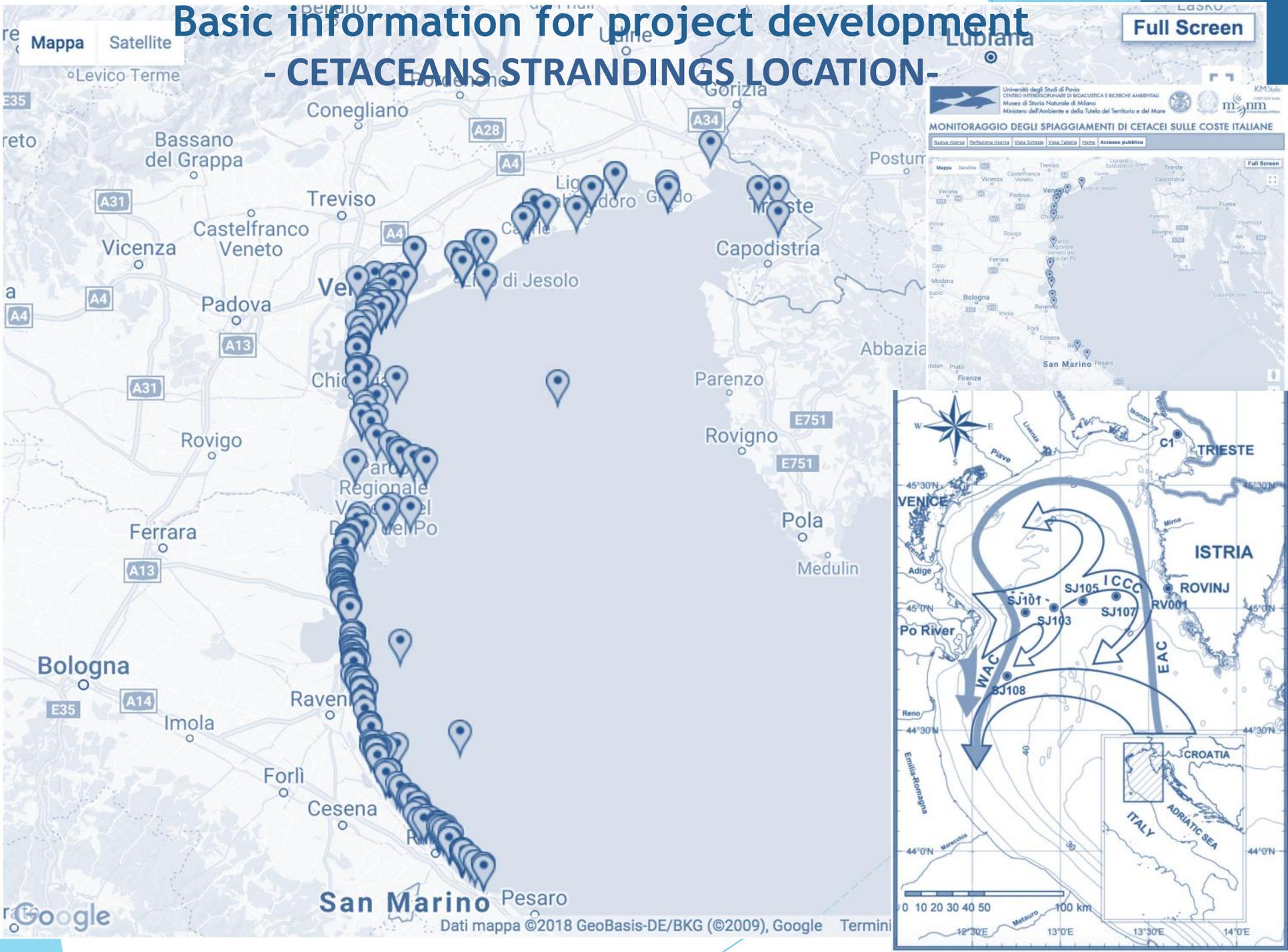
# Basic information for project development

## - MONTHLY CETACEANS STRANDINGS IN NORTH ADRIATIC -



# Basic information for project development - CETACEANS STRANDINGS LOCATION-

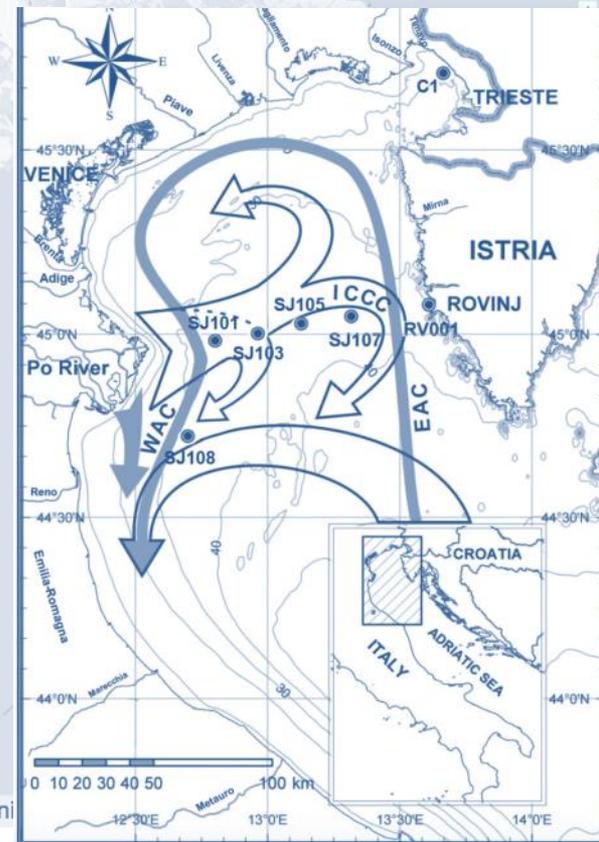
Full Screen



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Ministero dell'Ambiente e della Tutela del Territorio e del Mare

MONITORAGGIO DEGLI SPIAGGIAMENTI DI CETACEI SULLE COSTE ITALIANE

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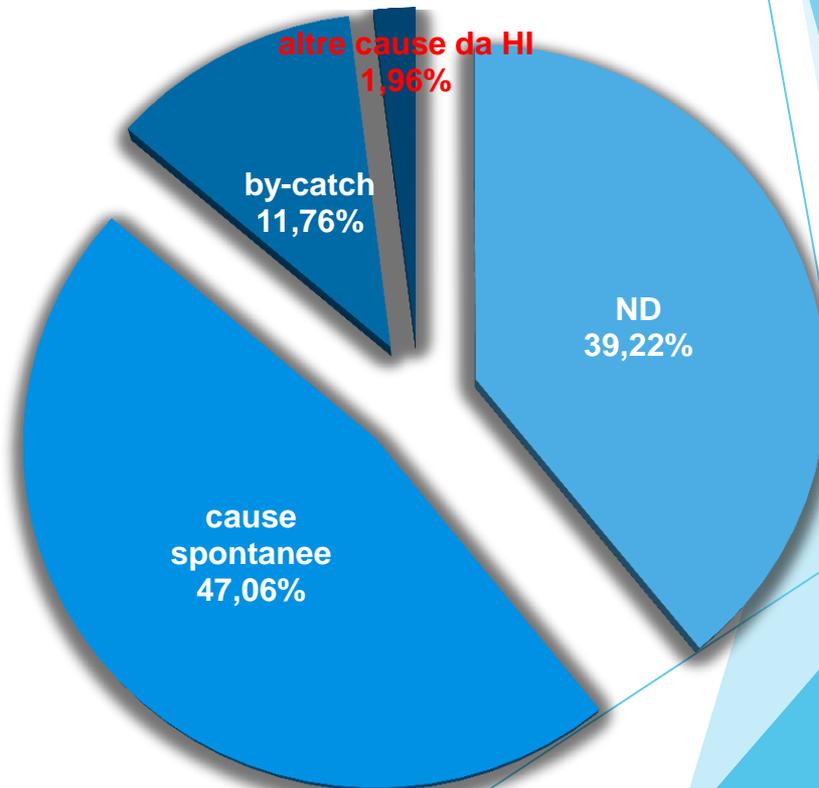
Google

Dati mappa ©2018 GeoBasis-DE/BKG (©2009), Google Termini

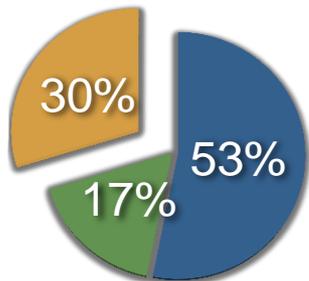
# Basic information for project development

## - Cetaceans causes of death in north adriatic 2012-2018

- ND
- by-catch
- Spontaneous causes
- Other causes by HI



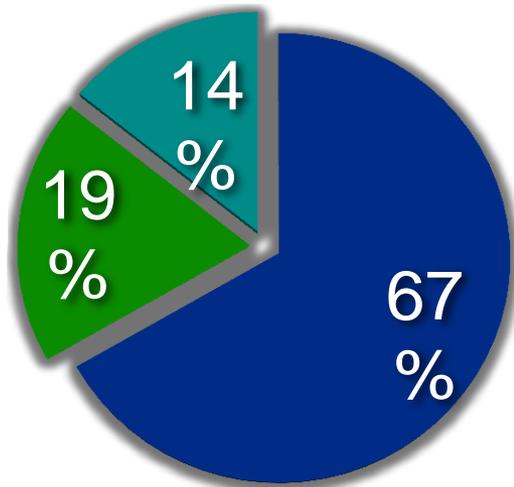
- Spontaneous diseases
- Human induced mortalities
- Non determined



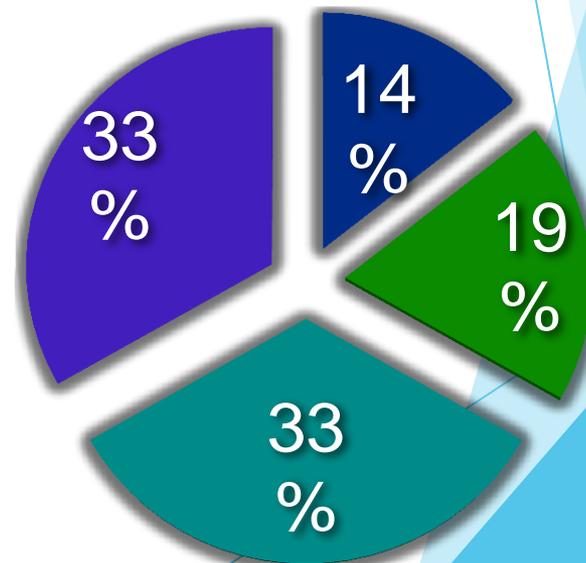
# Basic information for project development

## Human Induced Mortality in Italy 2015

- Pelagos
- Mar Tirreno
- Mar Adriatico
- Mar Ionio

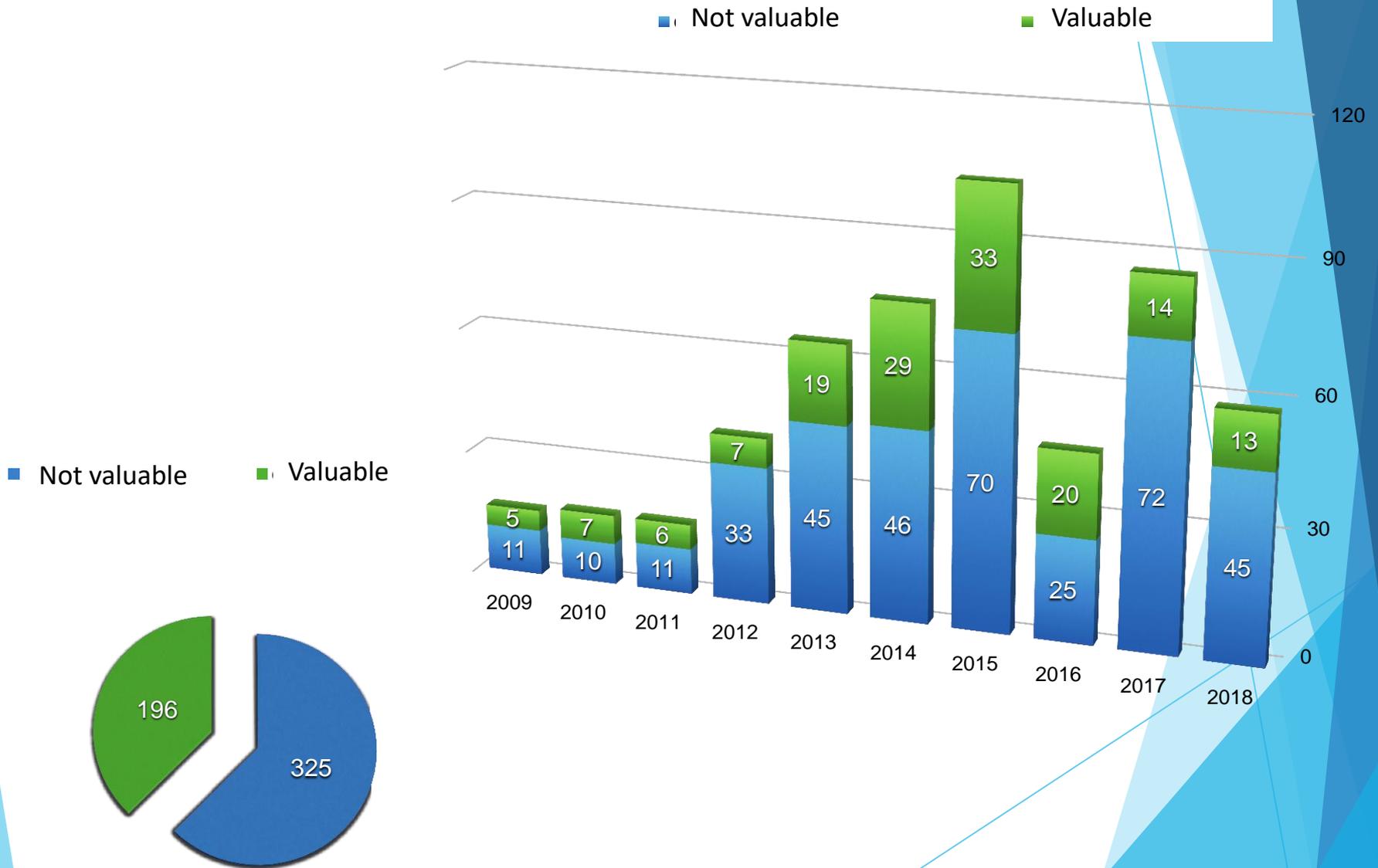


- Fishery interaction
- Fire gun/bit
- Boat trauma



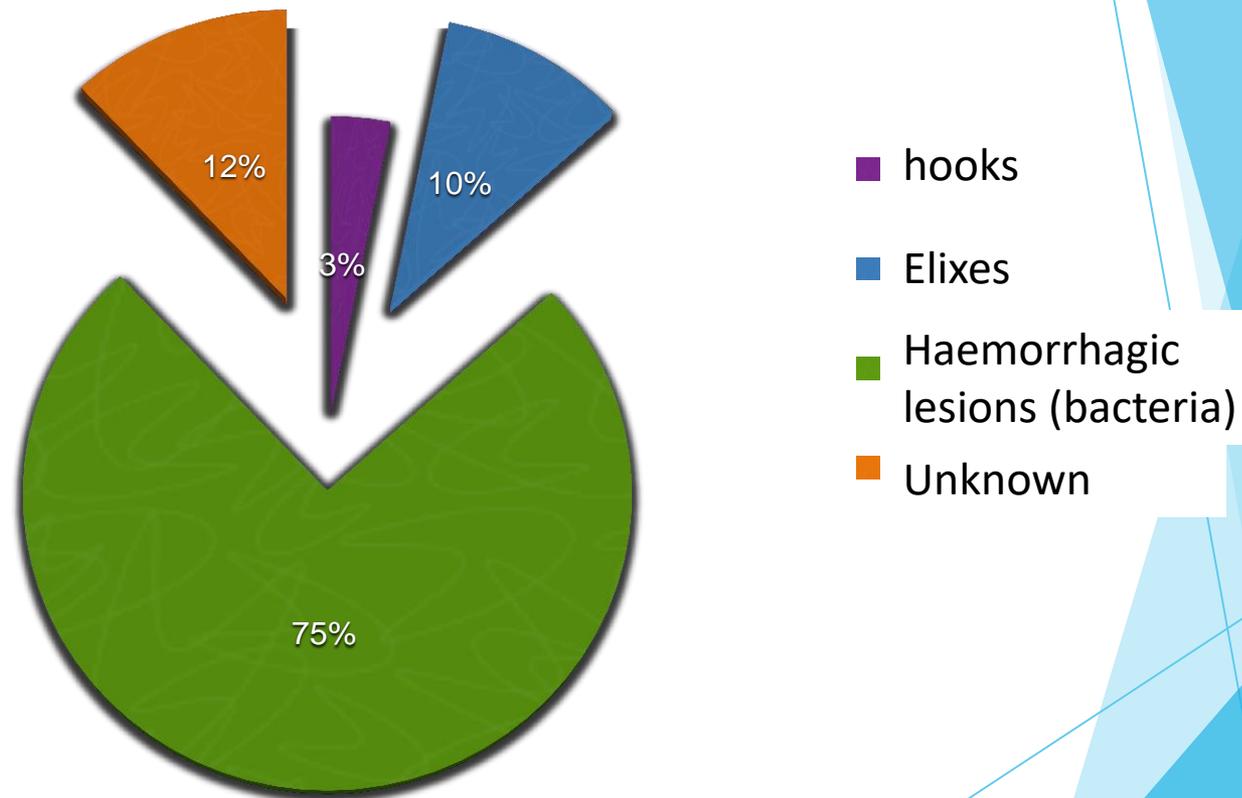
# Basic information for project developemnt

## Turtles stranding in Veneto coast 2009-2017



# Basic information for project developemnt

## Turtles death causes in Veneto coast 2013-2017



# THE PROPOSED SCI AREA BY VENETO REGION



# ACTION 1

Investigation among operators to investigate the problem of interaction between fishing and protected species and assessment of the state of incidence

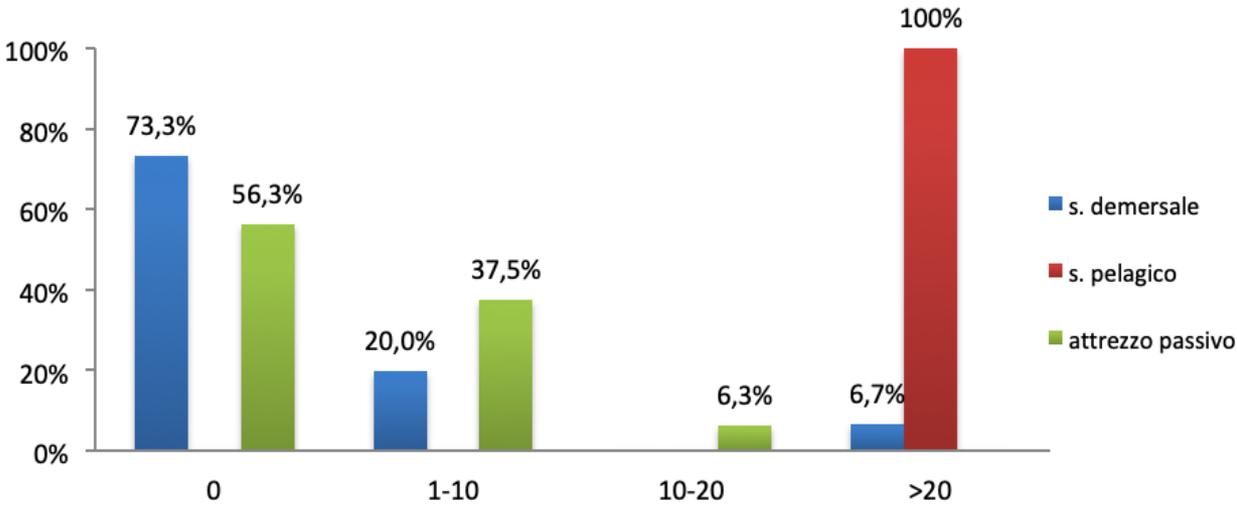
**AIM:** set the problem of interaction between fishing and protected species and assess the state of incidence of the interactions

## **EXECUTION**

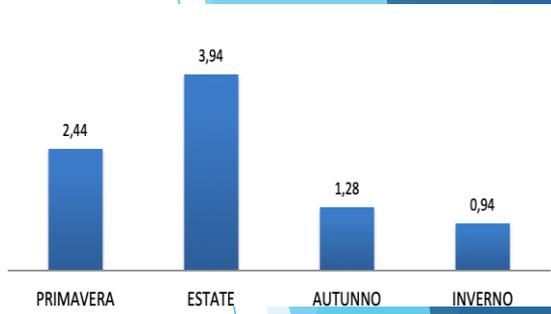
1. **5 MEETINGS** to present the project to the fishermen and to apply for actions 3 and 4.
2. **QUESTIONNAIRES** to obtain the fishermen's point of view about the interaction between fishing and protected species. Interviews were collected for 6% of the fishermen of the Venetian fishing communities (40).

# ACTION 1 – INTERVIEW RESULT

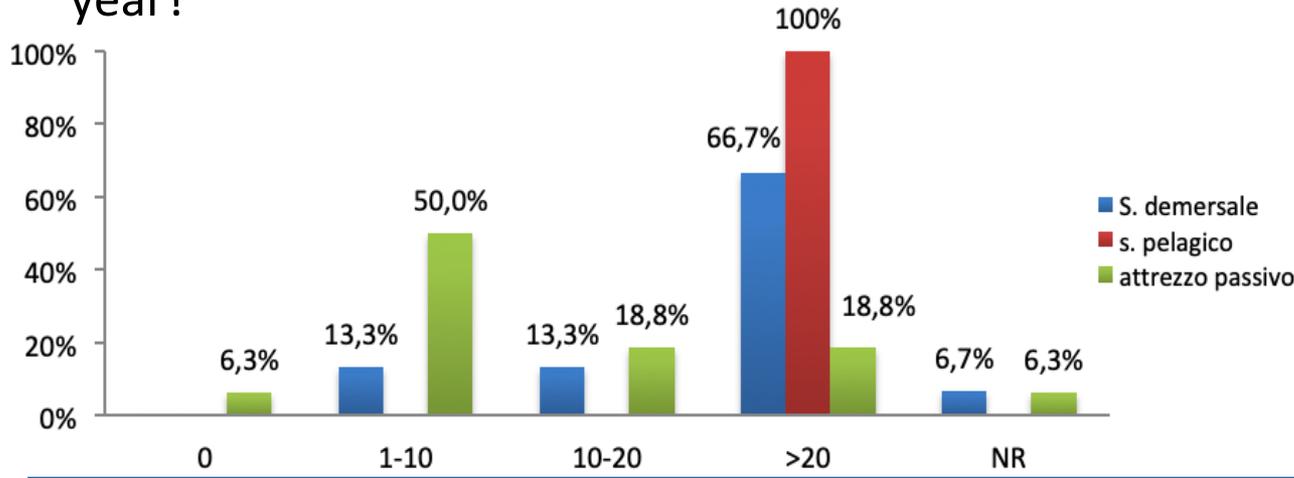
- How many sea turtles spotted through the year?



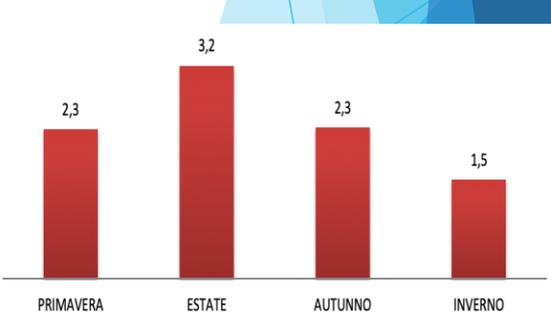
Mostly in spring and summer



- How many bottlenose dolphins spotted through the year?

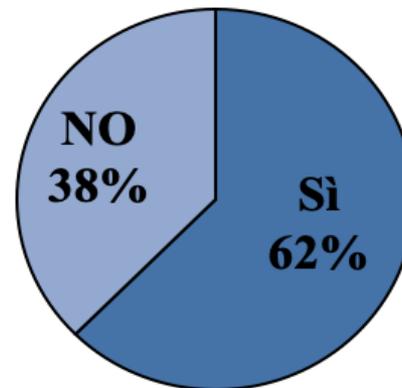


Mostly summer, but also in spring and autumn

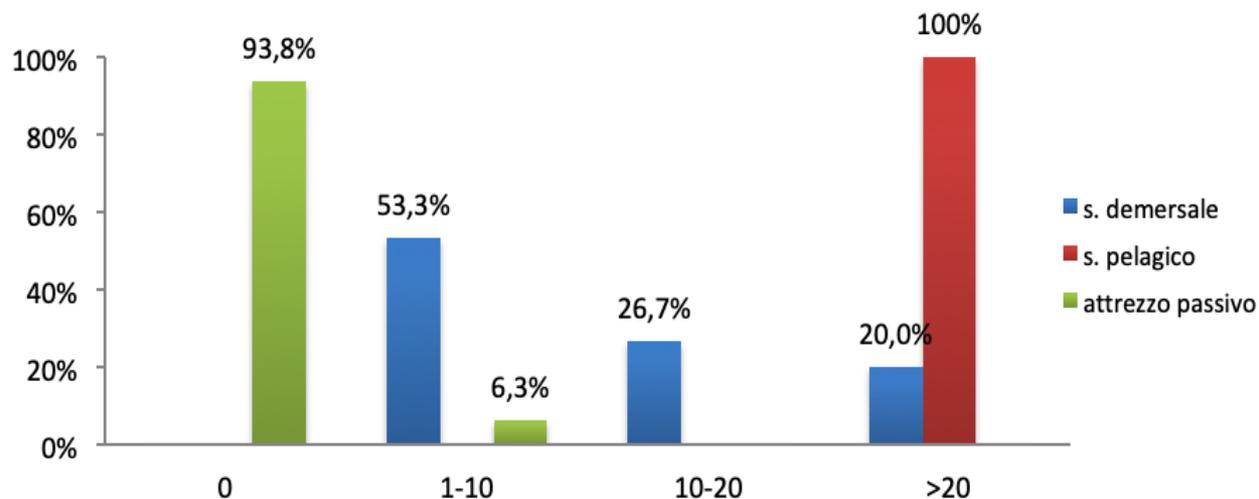


- How many dolphins caught during a year?  
Only 1 fisherman caught a dolphins (trammel net)

- Have you ever caught a sea turtle?



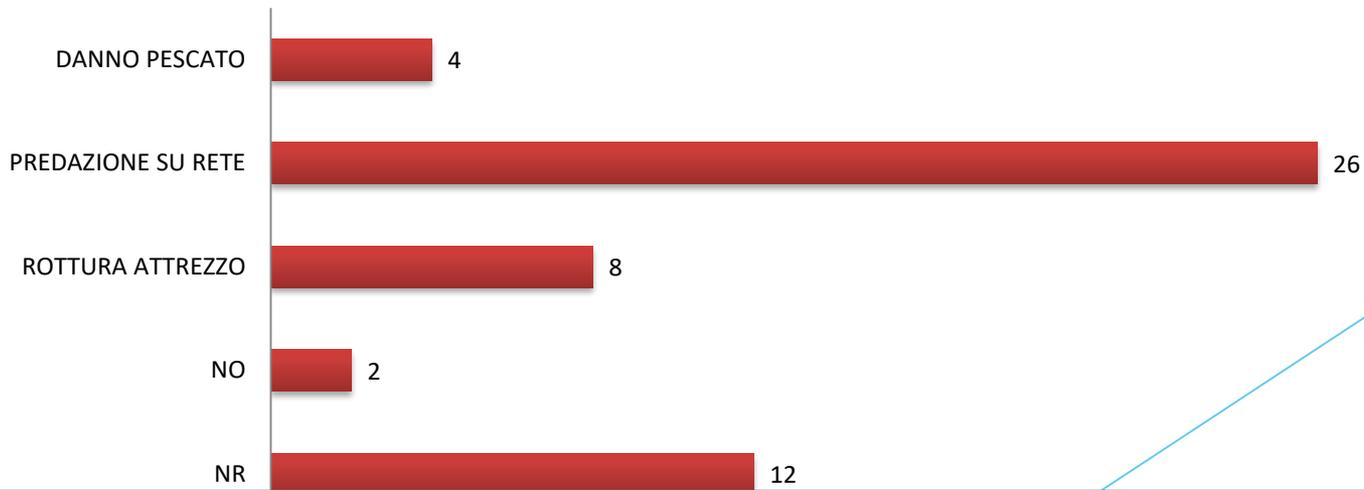
- How many sea turtle accidentally caught during a year?



- Could sea turtles ruin the fishing gear?



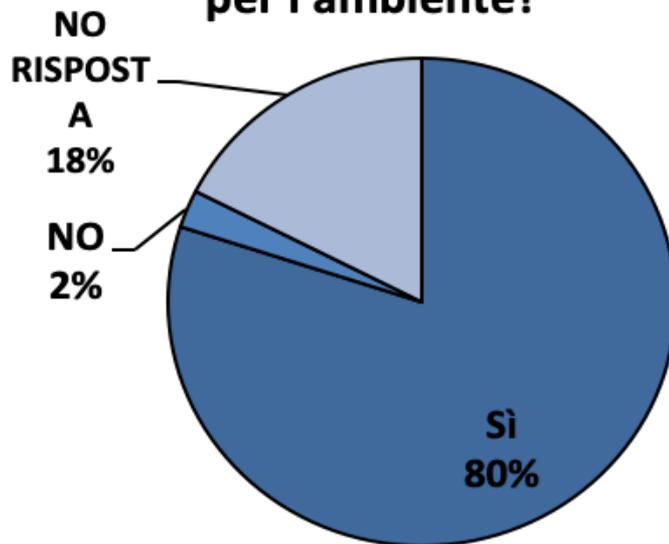
- Could bottlenose dolphins ruin fishing gear?



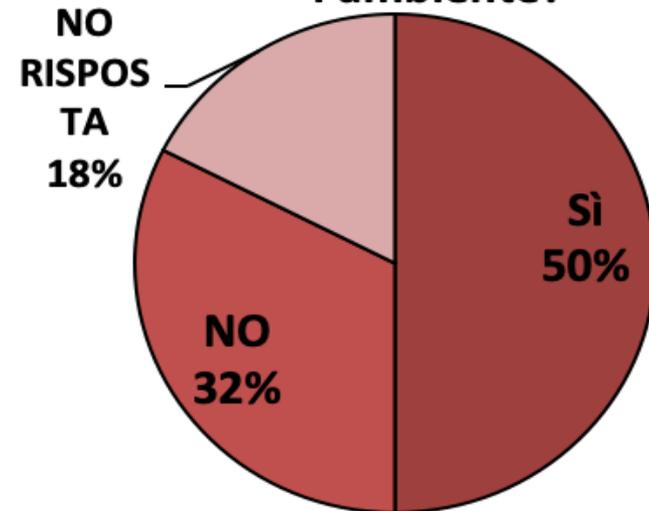
Are sea turtles important for the environment?

Are bottlenose dolphins important for the environment?

**Le tartarughe sono importanti per l'ambiente?**



**I delfini sono importanti per l'ambiente?**

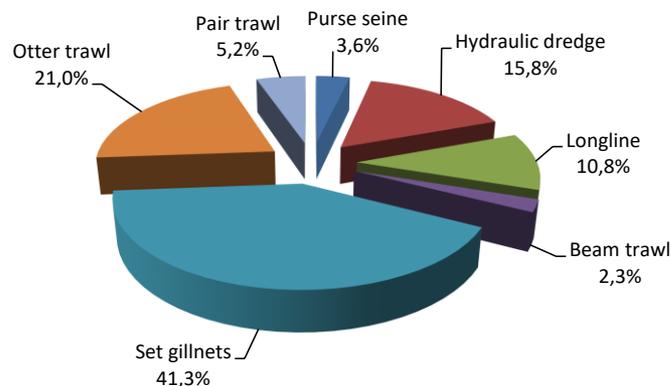


## ACTION 2 - Socio-economic analysis of sea fishing interested by interaction with sea protected species (sea turtles and bottlenose dolphins)

Fishing licences in Veneto subdivided by harbour (June 2018)								
Harbor	Purse seine	Hydraulic dredge	Longline	Beam trawl	Set gillnets	Otter trawl	Pair trawl	Total
BURANO	0	1	1	0	11	2	0	15
CAORLE	13	26	22	1	74	33	0	169
IESOLO	4	10	18	0	44	5	0	81
PELLESTRINA	2	7	0	0	18	3	0	30
VENEZIA	3	42	8	4	56	15	0	128
CHIOGGIA	11	70	25	3	98	106	31	344
PORTO LEVANTE	0	3	22	0	29	0	0	54
PORTO TOLLE	3	3	13	1	45	45	22	132
SCARDOVARI	1	1	3	15	52	8	1	81
<b>Total</b>	<b>37</b>	<b>163</b>	<b>112</b>	<b>24</b>	<b>427</b>	<b>217</b>	<b>54</b>	<b>1.034</b>

In the period 2008-2018 the Veneto fishing fleet recorded a -16% in the number of vessels, with a particular reduction in the trawling sector following the introduction of Regulation (EC) No 1967/2006.

Fishing licences in Veneto subdivided by harbour (June 2018)



## ACTION 2 – FISH MARKET ANALYSIS

Six fish markets are currently operating in Veneto: Caorle, Venice, Chioggia, Porto Viro, Pila Porto Tolle and Scardovari. Venice and Chioggia are mixed markets with trade of local productions and national and foreign productions, while the others are minor and only for local productions.

Produzione dei mercati ittici del Veneto						
Mercati	2017 (ton.)	2008 (ton.)	Var. % 2017/08	2017 (mln. €)	2008 (mln. €)	Var. % 2017/08
Caorle	157,7	600,7	-73,75 %	1,0	2,8	-64,29 %
Chioggia	9.319,7	10.130,6	-8,00 %	22,9	25,0	-8,40 %
Pila-Porto Tolle	7.793,4	8.960,3	-13,02 %	15,4	11,8	+30,51 %
Porto Viro	404,8	451,9	-10,42 %	0,9	1,1	-18,18 %
Scardovari	251,9	478,6	-47,37 %	0,8	1,4	-42,86 %
Venezia	1.295,9	2.591,7	-50,00 %	9,0	13,5	-33,33 %
Totale	19.223,5	23.213,9	-17,20 %	50,1	55,6	-9,89 %

Production: -17.2% on a 10-year basis

Business: -10% on a 10-year basis

Blue fish represents 55% of the total

Decrease in production between -8.0% in Chioggia and -73.7% in Caorle

Decrease in turnover, from -8.2% in Chioggia to -65.3% in Caorle. For Pila-Porto Tolle, on the other hand, there was a net increase of 30.0% in revenues from sales.

## ACTION 2 – business analysis

Imprese di pesca e acquacoltura in Veneto nel 2017								
Tipologia delle imprese	Belluno	Padova	Rovigo	Treviso	Venezia	Verona	Vicenza	Totale
Pesca	0	18	723	2	670	47	0	<b>1.460</b>
Acquacoltura	9	14	1.363	26	172	21	20	<b>1.625</b>
Commercio all'ingrosso di prodotti della pesca freschi	1	10	26	6	71	10	4	<b>128</b>
Commercio all'ingrosso di prodotti della pesca congelati, surgelati, conservati e secchi	0	6	1	6	11	6	4	<b>34</b>
Commercio al dettaglio di pesci, crostacei e molluschi	3	30	11	19	98	15	17	<b>193</b>
Commercio ambulante di pesci, crostacei e molluschi	2	63	19	32	164	14	9	<b>303</b>
Lavorazione e conservazione dei prodotti ittici	0	2	23	1	25	3	2	<b>56</b>
<b>Totale</b>	<b>15</b>	<b>143</b>	<b>2.166</b>	<b>92</b>	<b>1.211</b>	<b>116</b>	<b>56</b>	<b>3.799</b>

The Veneto region, with its 3,799 companies, represents 15.4% of the total enterprises of the ichthyic sector present on the whole national territory.

Compared to the number of fish companies registered in 2009, fishing, retail and itinerant trade of fish products are down, while the rest show an increase ranging from +7.7% of processing companies to +47.8% of those operating in the wholesale trade of frozen fish products.

Stato dell'occupazione nel settore pesca del Veneto			
Settore	n. occupati 2014	n. occupati 2017	var. % 2017/14
Occupati nella pesca	1.744	1.826	+ 4,70 %
Occupati nell'acquacoltura	1.707	1.815	+ 6,33 %
Occupati nella lavorazione	775	850	+ 9,68 %
Occupati nell'ingrosso prodotti freschi	676	875	+ 29,44 %
Occupati nell'ingrosso prodotti lavorati	192	170	- 11,46 %
Occupati nel commercio al dettaglio	676	682	+ 0,89 %
Occupati nel commercio ambulante	761	840	+10,38 %
<b>Totale</b>	<b>6.531</b>	<b>7.058</b>	<b>+ 8,07 %</b>

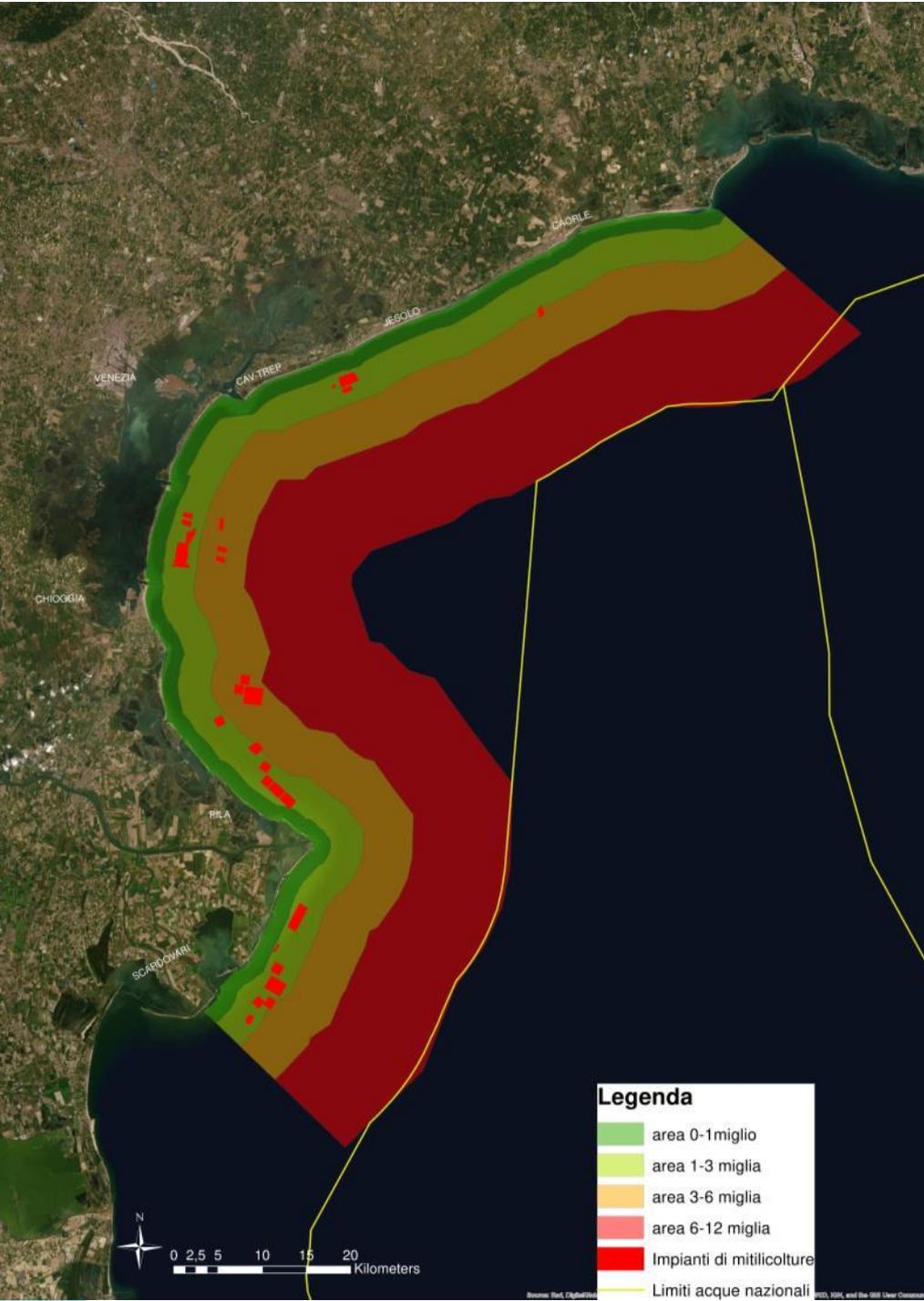
### THE EMPLOYMENT

In Veneto in 2017, a total of 7,058 people were employed in the fishing industry, an increase of 8.1% compared to 2014.

All sectors show positive variations in the period 2014-2017, with the exception of those employed in the wholesale trade of processed products (-11.5%).

## ACTION 2 - Location of fishing areas

- Space within the first mile from the coast where the activity of a high percentage of hydraulic dredgers (excluding those used for fishing fasolari) and most of the gillnets are concentrated.
  - Area between 1 mile and the 3 mile limit where, as a result of the Mediterranean Regulation 1967/2006, the fishing activity of trawlers has been ousted, it is an area of exclusive occupation of gillnet boats.
  - Space between 3 and 6 miles where it is possible to cross several trades such as fishing for fasolari, trawling boats and even gillnets.
  - Outermost area that from 6 miles reaches the limits of 12 miles where hydraulic dredgers (phasolare) and trawlers operate (limited if not absent the action of the boats with gillnets)
- Translated with [www.DeepL.com/Translator](http://www.DeepL.com/Translator) (free version)



## ACTION 2 - Potential interference analysis between fishing areas and fishing system

Ambiti di potenziale limitazione per attrezzo a traino				
	entro 1 miglio	tra 1 miglio e 3 miglia	tra 3 e 6 miglia	tra 6 e 12 miglia
Veneto	120 vongolare	0	238 fasolare+strascico	238 fasolare+strascico

Imbarcazioni con attrezzi da traino nelle diverse marinerie e zona di pesca (elaborazione Agriteco 2018)				
Porto	entro 1 miglio	tra 1 miglio e 3 miglia	tra 3 e 6 miglia	tra 6 e 12 miglia
Veneto Orientale	15 vongolare	0	21 fasolare+28 strascico	21 fasolare+28 strascico
Area Veneziana	50 vongolare	0	11 strascico	11 strascico
Chioggia Levante	51 vongolare	0	22 fasolare +104 strascico	22 fasolare +104 strascico
Area Delta Po	4 vongolare	0	52 strascico	52 strascico

Ambiti di potenziale limitazione per attrezzo da posta				
	entro 1 miglio	tra 1 miglio e 3 miglia	tra 3 e 6 miglia	tra 6 e 12 miglia
Veneto	300	300	35	0

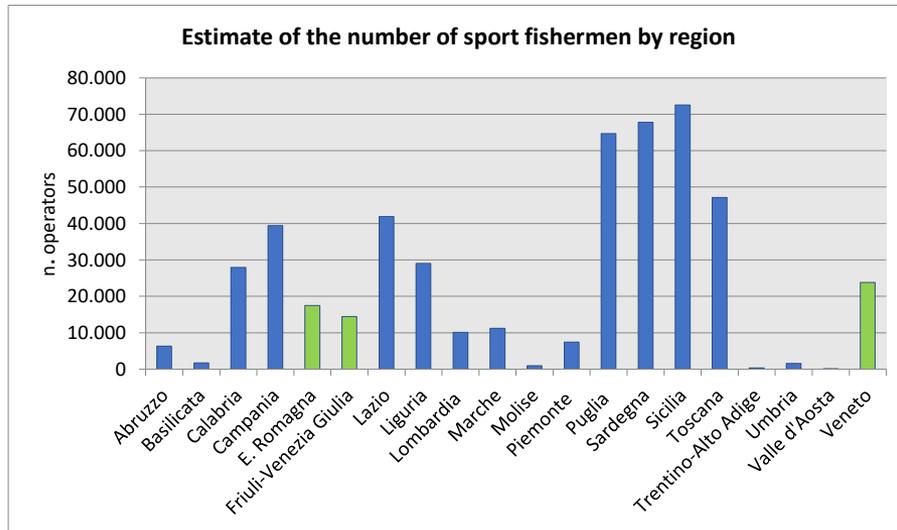
Porto	Reti da posta
Veneto Orientale (da Caorle a Cavallino)	95
Area Veneziana (Burano-Venezia e Pellestrina)	46
Chioggia Levante	77
Area Delta Po	82

## ACTION 2 - LOCATION OF THE PROPOSED SIC AREA, FISHING AREAS AND ACTIVITIES

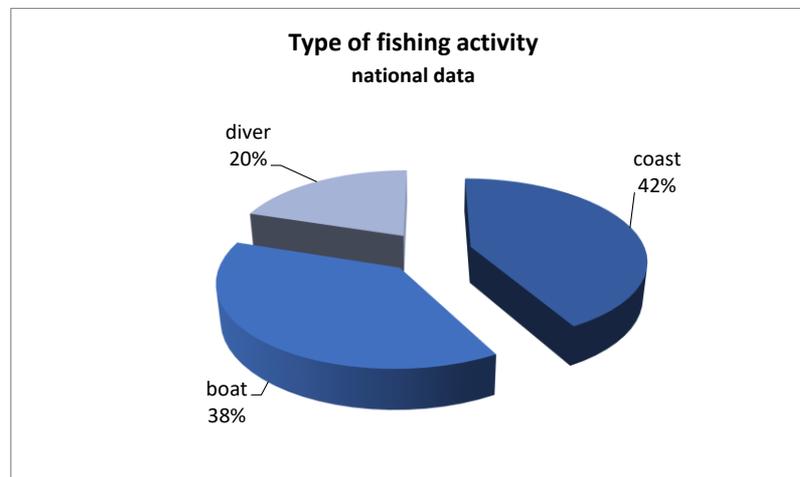
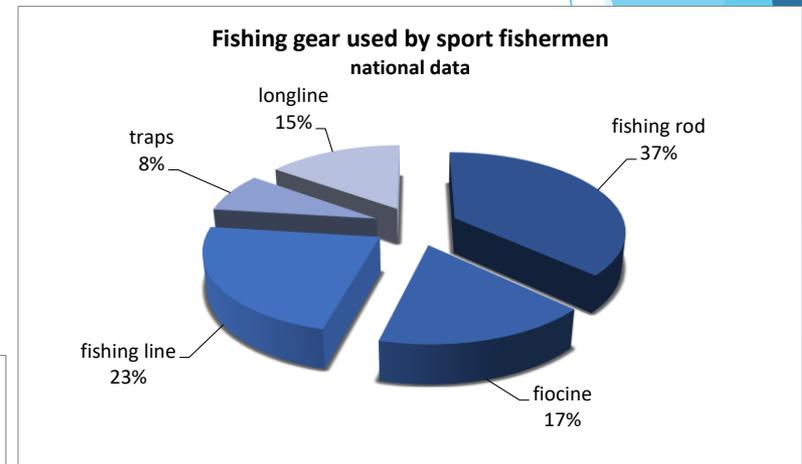


## ACTION 2 - ANALYSIS RECREATIONAL FISHERIES

The sport fishing in marine water: 500.000 operators



In Veneto more or less 23.800



## ACTION 2 - Incidence of catches of fish species by recreational fisheries

Sport fishing

Incidence of catches



2%



7,5%

Incidence by target species varies from



0,01%

al



15-16%



# AZIONE 3 - monitoraggio diretto per valutare l'interazione reale della pesca su tartarughe marine e tursiopi

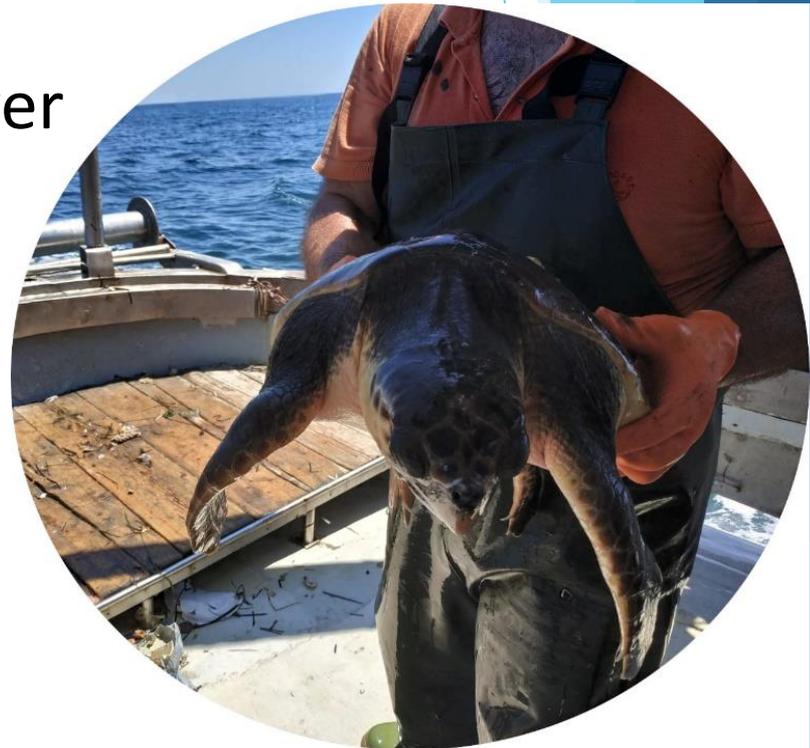
**AIM:** evaluating seasonality/area of the protected species, evaluating the interaction with fishing activities

- PROCEDURE

Fishing trips with scientific observer taking notes of the presence and the interaction of the protected species

Type of fishing vessel monitored:

- Otter trawl
- Beam trawl
- Trammel net



# ACTION 3 - MONITORING RESULTS WITH OBSERVERS ON BOARD

10 fishing vessel join the projects (from Caorle, Chioggia e Pila)

36 fishing trips: 25 otter trawl, 3 beam trawl e 8 trammel nets

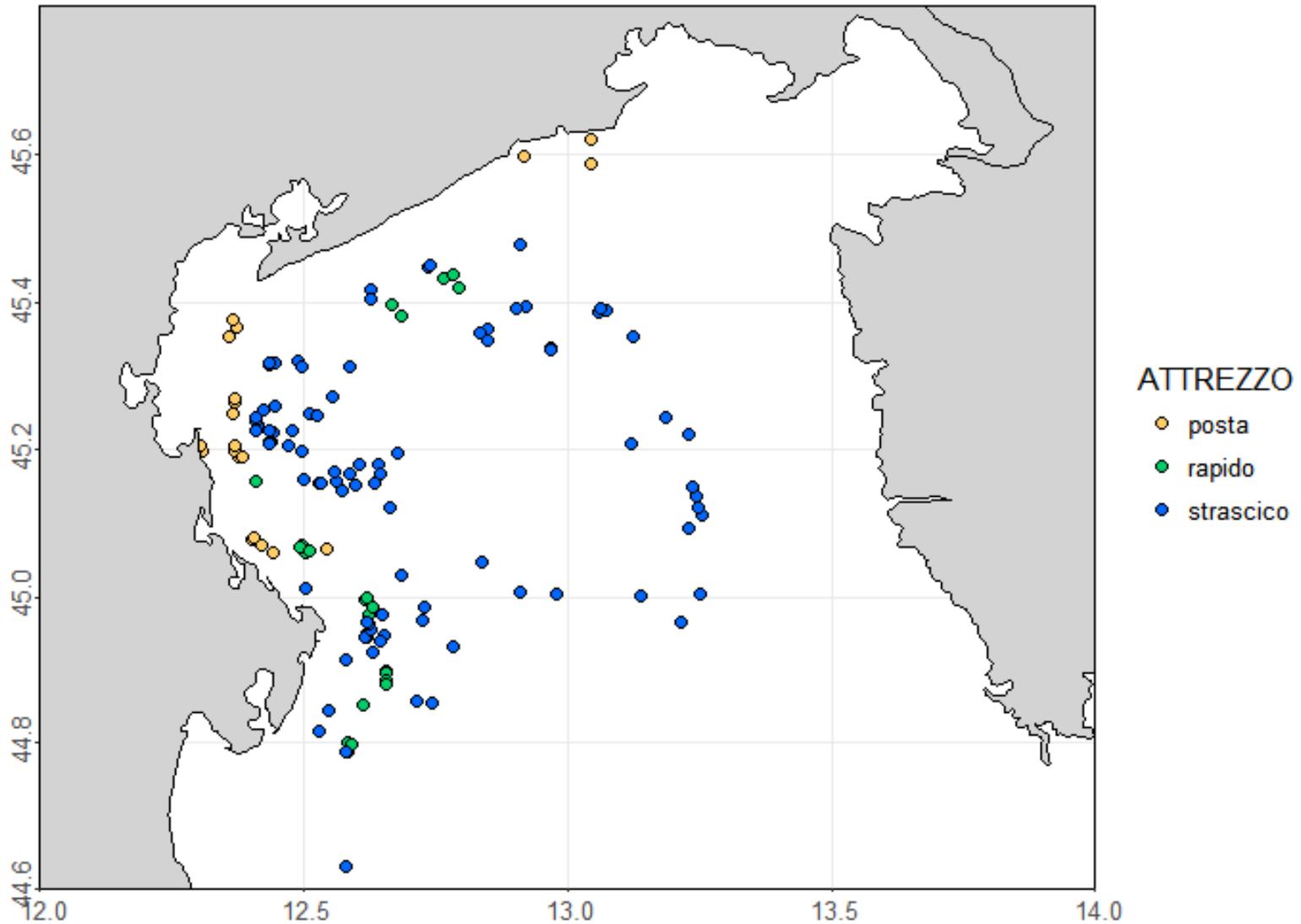
153 haul observed

From January 2019 to January 2020

		Caorle	Cortellazzo*	Chioggia	Pila	Totale
N. of vessel	Otter trawl	1	0	4	1	10
	Beam trawl	1	0	1	0	
	Trammel nets	1	0	1	0	

\* We were not able to join fishing vessels of Cortellezzo due to the small dimension of the fishing vessel themselves.

## ACTION 3 - Monitored areas (geographic point of the hauls)

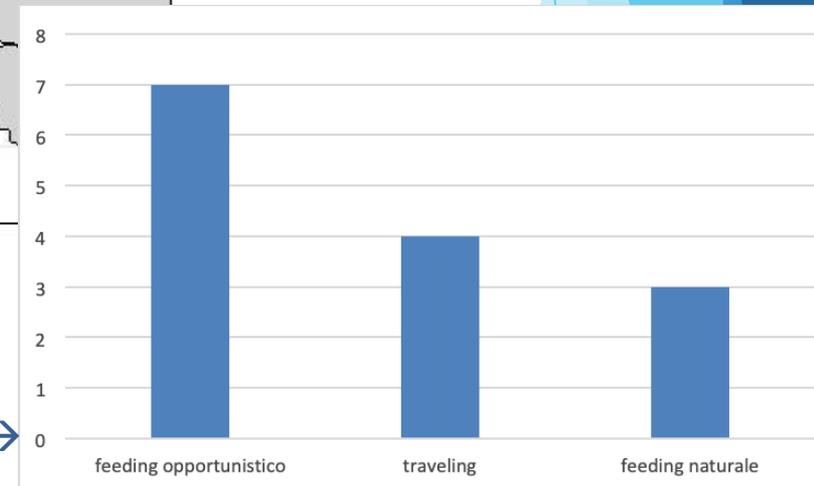
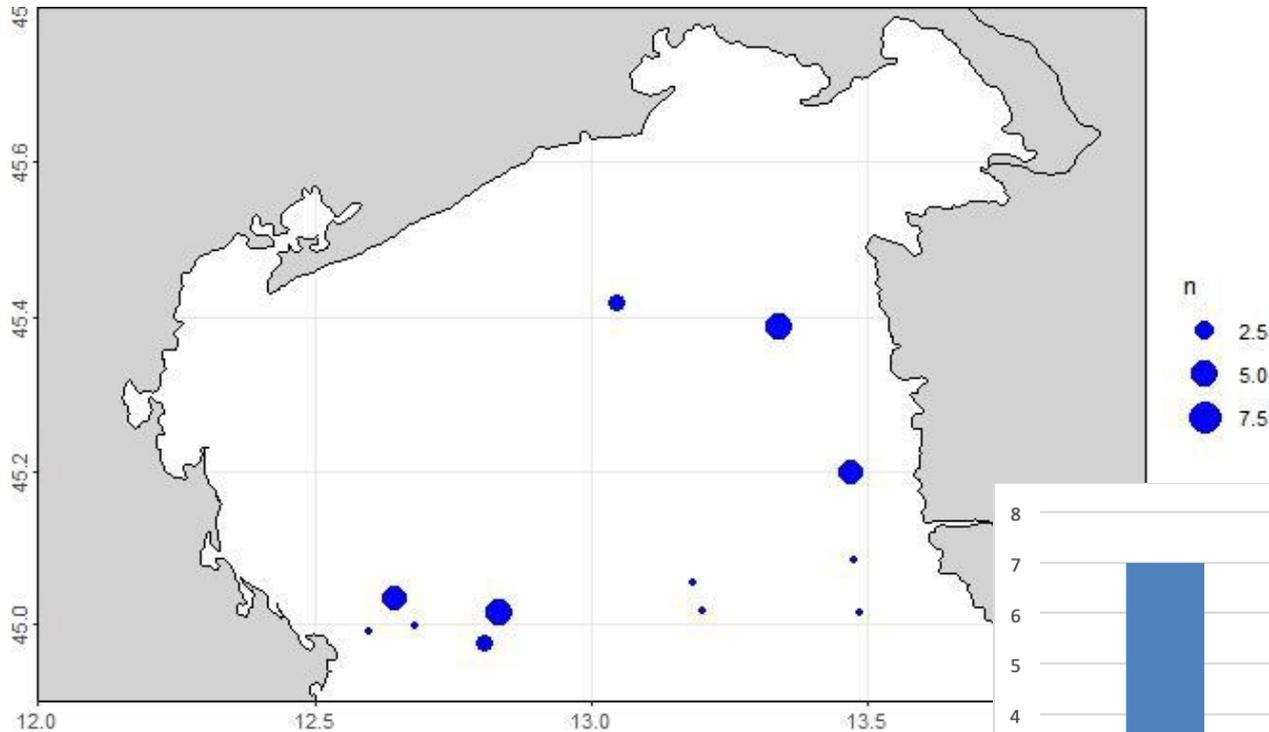


## ACTION 3 - SIGHTINGS RESULTS

- Sighted bottlenose dolphins: 13 sight events - may/june
- Sighted sea turtles: just 1!

Sighting rates for hauls:

- Otter trawl: 0,078
- Beam trawl: 0,013
- Trammel net: 0

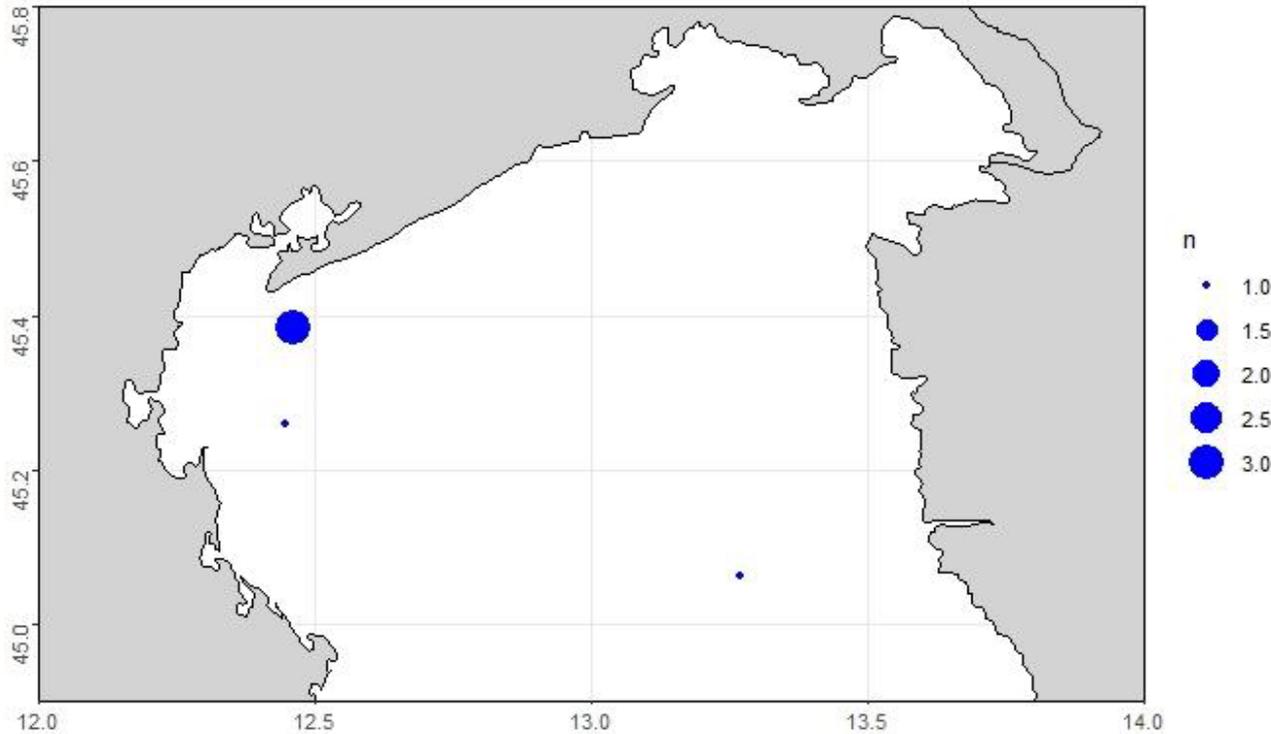


Bottlenose dolphins observed behaviour during fishing trips →

## ACTION 3 - Accidental catches of sea turtles:

5 in 3 hauls - may, july and october.

Catch rates for the otter trawl: 0,032. 0 for the other fishing gears



Rates per hauls:

- Otter trawl: 0,032
- Beam trawl: 0
- Trammel nets: 0

**Conduction of the catch: 3 handled correctly, 2 sea turtles released without any medical check of the status**

- **Accidental catch of dolphins: 0 catch (Rates 0)**



# **ACTION 4 - indirect monitoring to assess the presence and impact of fishing on sea turtles and bottlenose dolphins**

(Indirect monitoring by fishermen)

**AIM: evaluating seasonality/area of the protected species, evaluating the interaction with fishing activities**

**PROCEDURE: the fisherman note if there was an interaction with a protected species during the fishing trip (we gave them a logbook like-table) from vessel with different fishing gear:**

- Otter trawl
- Beam trawl
- Trammel nets

# ACTION 4 - RESULTS INDIRECT MONITORING

N. of fishing vessel that joined the project: 20

Data record: from April 2019 to February 2020

		Caorle	Cortellazzo	Chioggia	Pila	Totali
N. vessel joined	Otter trawl	3	0	3	<b>1</b>	20
	Beam trawl	1	0	0	0	
	Trammel nets	0	<b>10</b>	1	0	
	Pelagic trawl	0	0	1*	0	

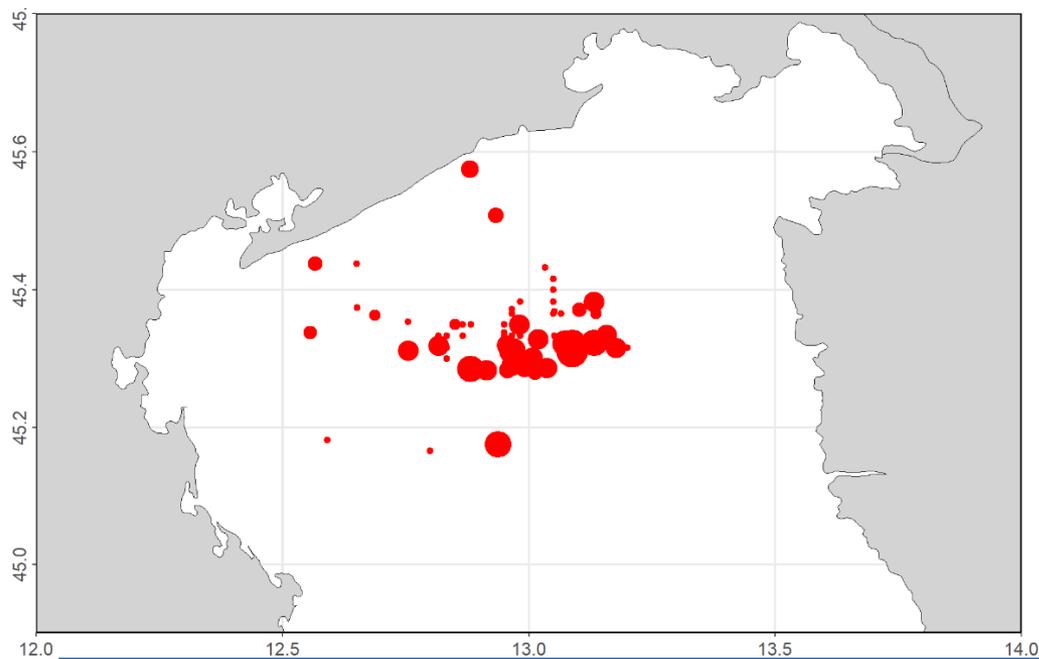
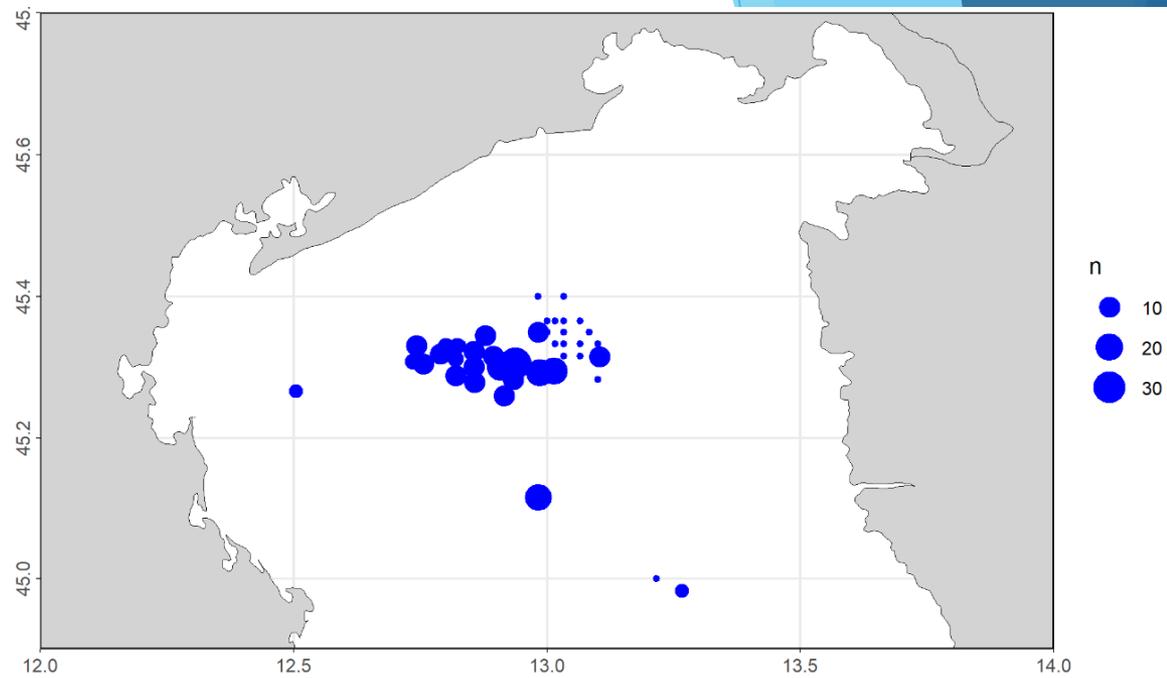
\* Data from pelagic trawl is not considered in the result part due to bias (they usually observe more dolphins than other fishing gear).

- Area monitored and fishing days: ND  
(this is the reason why we were not able to calculate the rates)

## ACTION 4

Dolphins sighted:  
139 sight events

Autumn-winter sight

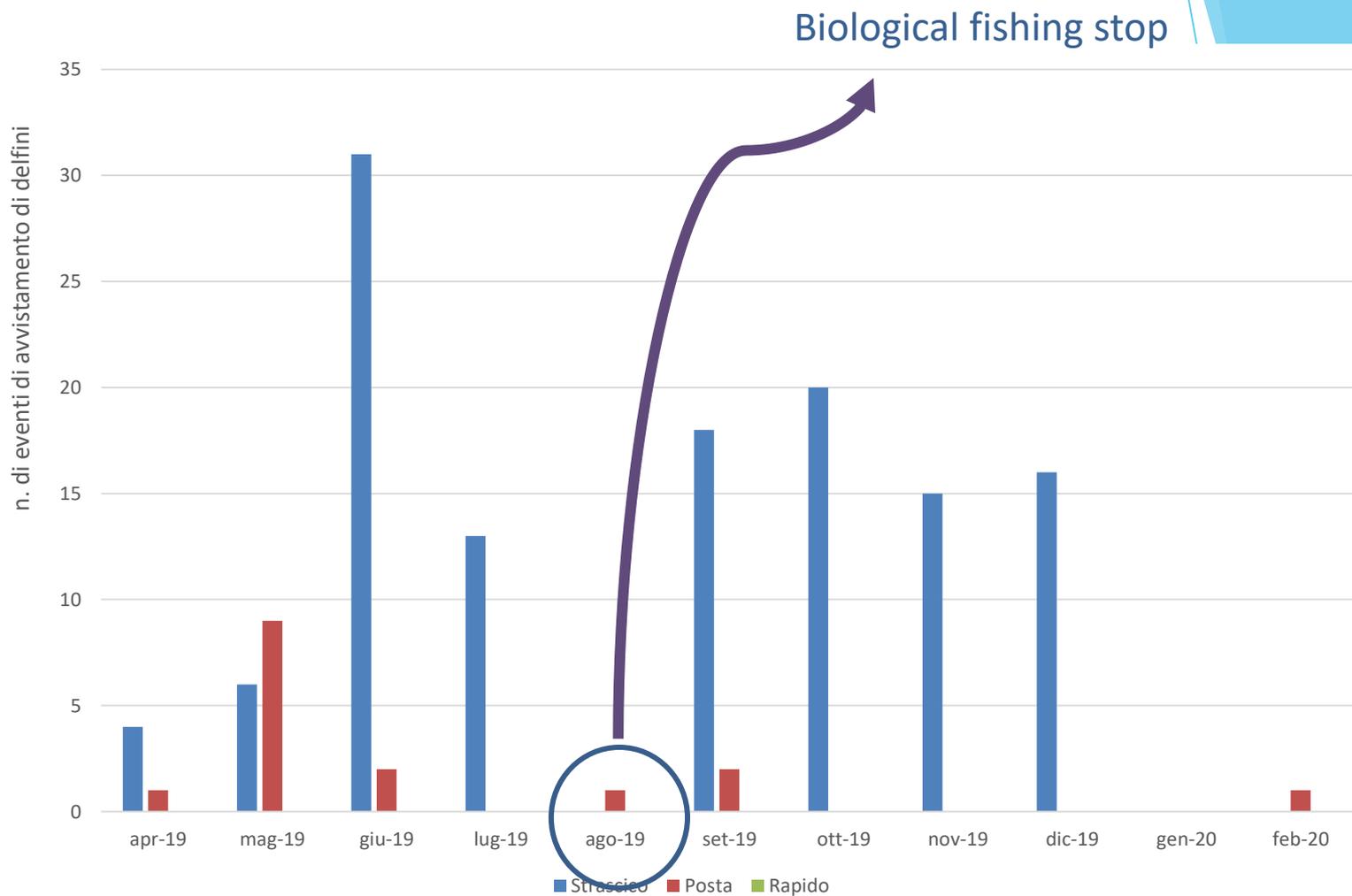


Sea turtle sight:  
0 sight events

Spring-summer sight

## ACTION 4

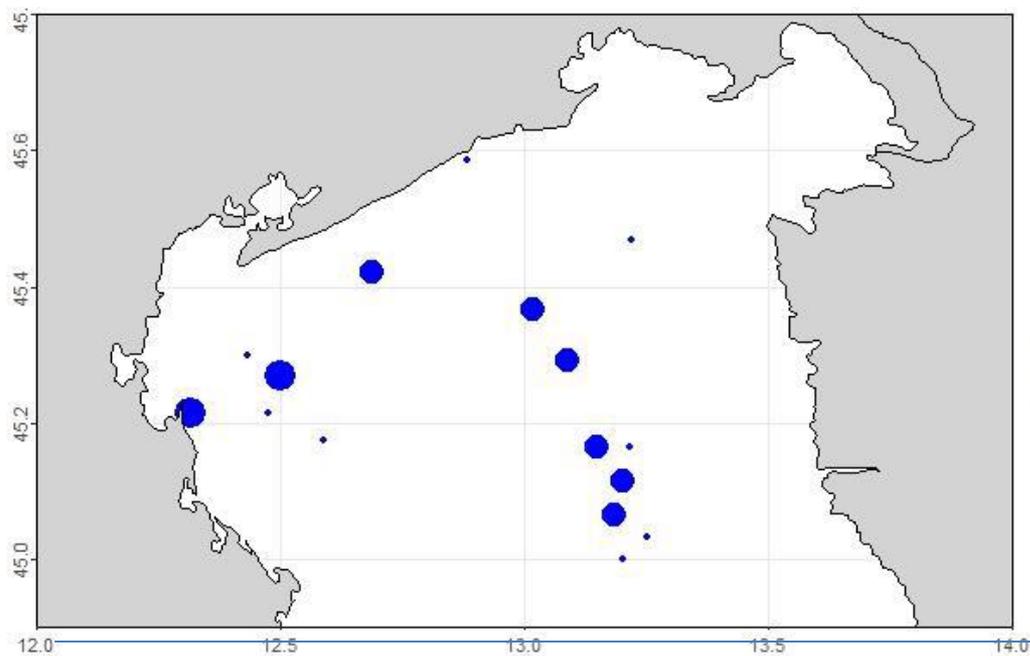
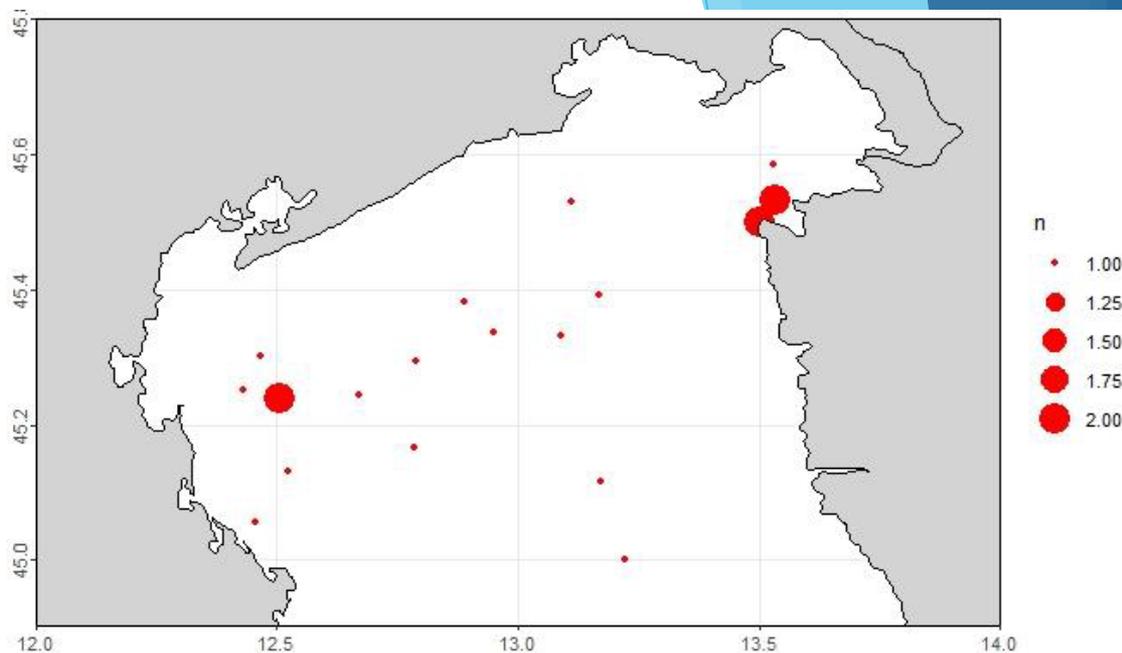
### Seasonal variation



## ACTION 4

Accidental catches of sea turtles:  
43 sea turtles caught in 31 hauls

Spring-summer catches

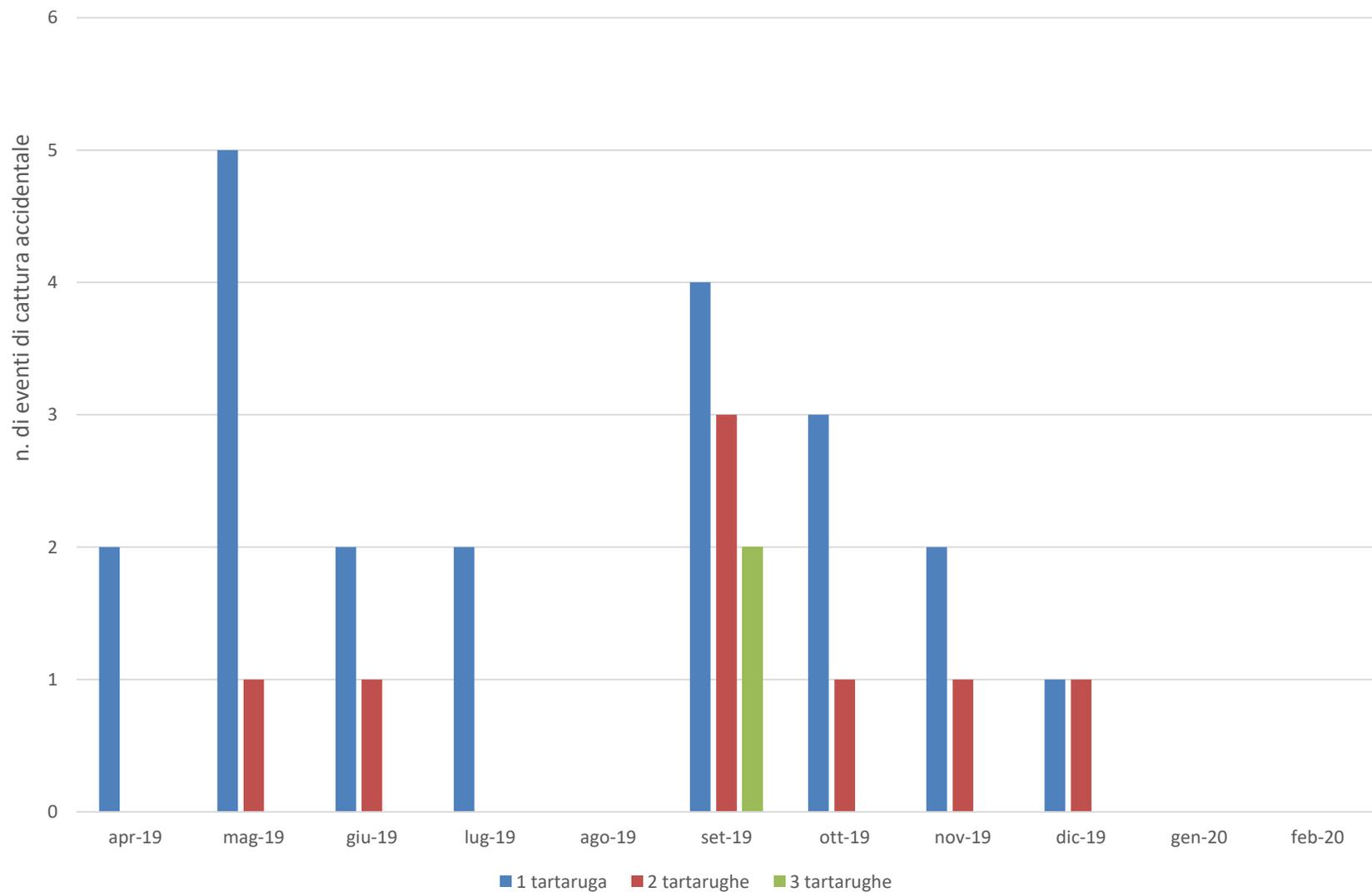


Accidental catches of dolphins:  
0 dolphins caught

Autumn-winter catches

## ACTION 4

### Catch season



# ACTION 3 VS ACTION 4

## ADVANTAGES

- More data collected
  - Data accuracy
- Possibility to build a constructive relationship with fishermen
- Presence of an objective scientific observer onboard

## ADVANTAGES

- Virtually more data

## DISADVANTAGES

- «Fishery dependent» data
- Not all the captain want the scientific observer onboard (low participation)\*
- Low number of fishing trip (36 in 1 year!)

## DISADVANTAGES

- «Fishery dependent» data
- Not all the captain want to fill the table (low participation)\*
- Data often not precise

\* It was difficult recruit fishermen for the 2 steps, in particular for Pila. On the contrary, in Cortellazzo the fishermen were collaborative.

# ACTION 5 - operational protocol in the event of accidental capture by individual species

Creating and sharing a protocol with the authority if there is an incidental catch

What should I do in case of accidental sea turtle catch?

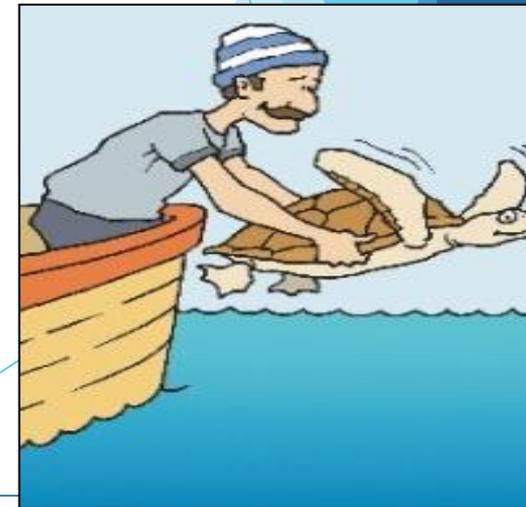
Live and active  
sea turtle



- The turtle keep moving
- The turtle move the head up to breath
- If raised the turtle move the fins
- If stimulated by pulling the fins the turtle move the fins

## Released the sea turtle in the sea:

- From the stern of the boat, with turn off the engine
- It's better for the turtle to approach the water from the head
- Report the catch to WWF Dune Alberoni (tel. 3482686472)



*Chelonia mydas truncatus* in the coastal area of the Northern

## Comatose or injured sea turtle

- If raised the turtle does not move the fins
- If stimulated by pulling the fins the turtle does not react
- The turtle looks dead (but it can be still alive!)



Put the turtle with the belly down in a comfort space, fresh if summer or warm during winter, with the back raised 20 cm from the ground for 4 hour. Cover the eyes but keep the nose free.



IF THE TURTLE  
REACTIVATES IT  
RELEASES



IF THE TURTLE REMAIN  
COMATOSE



BRING THE  
TURTLE TO THE  
HARBOR



CALL:

Capitaneria di Porto: **1530**

WWF Dune Alberoni: **348 2686472**

Università di Padova: **366 9256638**

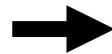
(FOR DEAD TURTLES ONLY!) **049 8272549**

**049 8272963**

## ALIVE DOLPHINS

- Reduce stress.
- For your safety pay attention to the mouth and the fins!
- **Release the animal as soon as possible**, following these instruction:
  - Do not pull the animal from the fins;
  - Do not use ropes;
  - If possible put the dolphin on a blanket to lift it, or if not possible lift in at least 3-4 people. Then, gently release in the water from the snout.

DEAD DOLPHIN



**BRING THE ANIMAL TO  
THE HARBOR!**

**CALL**

**Capitaneria di Porto: 1530**

**Università di Padova: 366 9256638**

# ACTION 8

## Commercial fishermen training

1. SPECIES RECOGNITION
2. FILLING THE REPORT LABEL
3. FIRST AID FOR DOLPHINS AND SEA TURTLE



# CONCLUSIONS

A TEMPORARILY AND SPATIALLY WIDER MONITORING is required to get a more complete data of the presence of dolphins in the North Adriatic Sea.

OTHER MONITORING METHODS (e.g. DRONE), wider in time and space, are necessary for the evaluation of the presence of sea turtles.

Catch rates is lower compare to other project (Progetto Bycatch VII: catch rates: 0,005).

We need to improve the knowledge of the post release mortality of sea turtles.

The area in front the Po river needs to be monitored more. This is the where we expect an higher concentration of the protected species.

The project TartaTur help fishermen to better understand their important role in the environment protection and preservation.

# CRITICAL ASPECTS AND FUTURE PERSPECTIVES

**IN SOME AREA PARTECIPATION WAS LOW.**

**THE ASSOCIATION MUST BE MORE PARTICIPATING, AND HELP TO RECRUIT AS MANY FISHERMEN AS POSSIBLE TO COLLECT MORE DATA.**

**DATA COLLECTION MUST BE WIDER AND TEMPORALLY LONGER TO CREAT A MORE ROBUST DATASET. In order to do that the future project must be longer.**

**It Is important the feedback from the fishermen to build a better collaboration.**

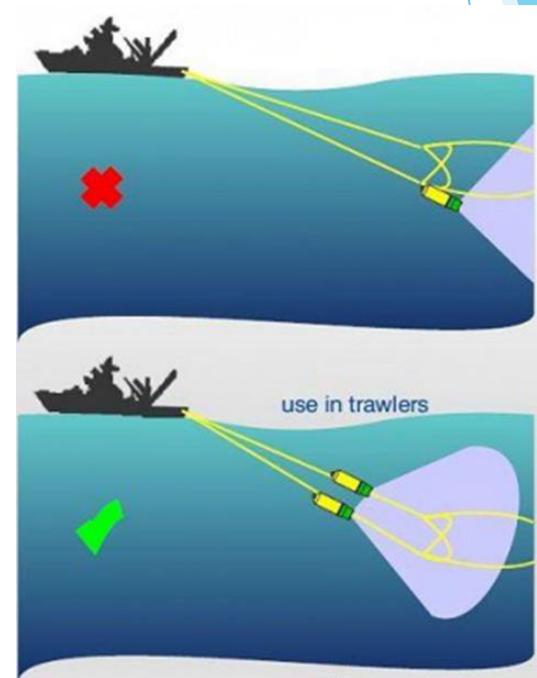
# ACTION 6 - METHODOLOGIES FOR REDUCING INTERFERENCE BETWEEN FISHERIES AND PROTECTED SPECIES

The reduction of interference between fishing and protected species is achieved by acting on fishing gear, with different types of bollards:

- **Acoustic bollards:** systems of emission of unpleasant sounds for dolphins
- **Interactive bollards:** the system interacts with echolocation clicks from dolphins
- **Light bollards:** light signals used to disturb turtles and bottlenose dolphins
- **Physical bollards:** structural modifications to fishing nets that prevent the entry of turtles

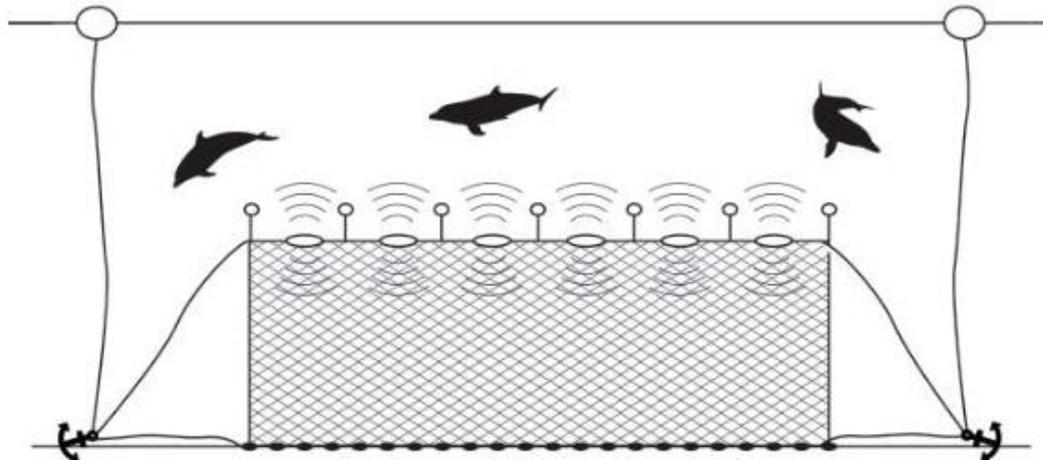
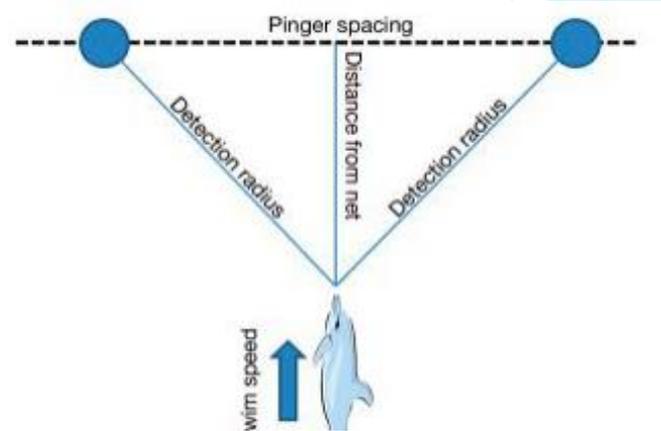
## ACTION 6 - Acoustic bollards(DDD)

- based on the emission of persistent unpleasant sounds to bottlenose dolphins
- used to keep dolphins at a safe distance and to reduce the depredation of nets
- the sound emitted annoys the dolphins that move away
- they do not seem effective on medium/long-term



## ACTION 6 - Interactive acoustic bollards (DiD)

- Evolution of DDD
- They produce ultrasound only when they detect the presence of mammals in the surrounding area by means of an appropriate circuit of "listening" of dolphin echolocation clicks
- They can be used on both gillnets and towed nets



## ACTION 6 - Sea turtle acoustic repellent (STAR)

- Not considered a valid mitigation system
- The required sound intensity is not selective for the species and can also affect the target species of fishing
- Some studies show turtle hardening to acoustic signals

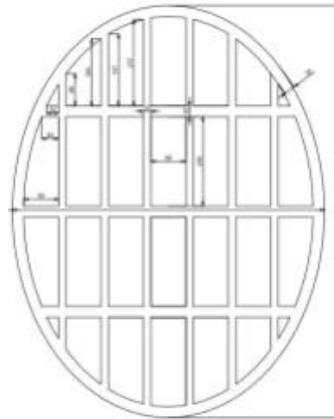
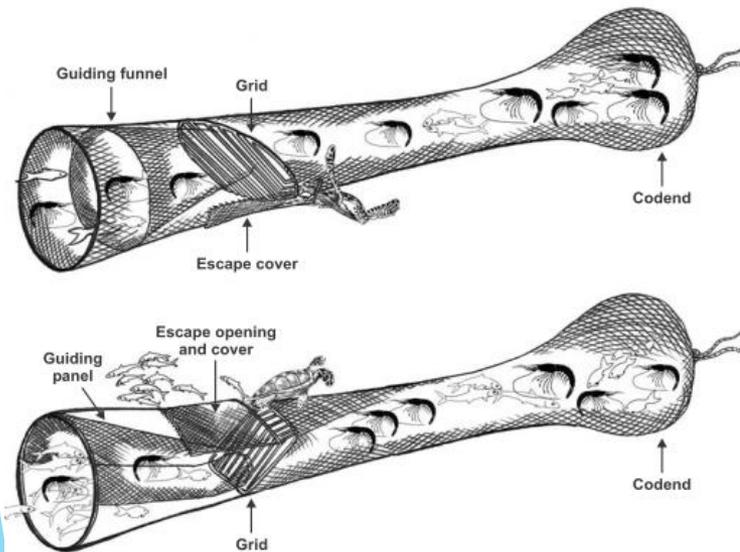
## ACTION 6 - Light bollards

- Mitigation system for gillnets
- Use LED lamps or light stick in UV or green light spectra
- The light emitted keeps turtles away
- Do not interfere with fishing efficiency



## ACTION 6 - Physical bollards TED (Turtle Excluder Devices)

- allow turtles to escape as soon as they enter the fishing net
- Devices designed to convey the target species towards the terminal sac and the turtles outwards
- Typical for different fishing areas
- The grids require specific modifications in relation to the characteristics of the nets and the target of the fishing



## ACTION 6 - Physical bollards TED (Turtle Excluder Devices)

TED may differ in:

- Construction material (steel, plastic, etc.)
- Shape (square, round, oval, etc.)
- Angle of inclination within the net
- Active / Passive
- Hard TED/Soft TED



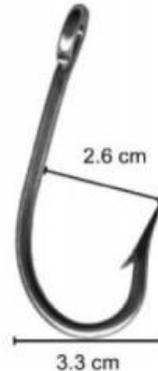
## ACTION 6 - Physical bollards for longlines

- Hook shape – use of circular hooks
- Hook size – reduction of hook size
- Type of bait – use of baits that reduce the possibility of hook ingestion
- Depth of hooks – some studies show a relationship between hook depth and turtle bycatch

16/0 OPI circle hook



2 Mustad J hook



# ACTION 6 - OBSERVATIONS

- Acoustic bollards :
  - Effective with both bottlenose dolphins and turtle
  - Effectiveness limited in time
- Light bollards
  - Significant reduction in catches of bottlenose dolphins and turtles
  - No negative interference with fishing
  - Small size of devices
  - Easy to use and apply
- Physical bollards
  - Good results in keeping turtles out of bottom trawl
  - Improvement in the quality of the catch
  - Need to find a right location in the network to ensure maximum efficiency
- Bollards for hooks
  - Structural changes in hooks
  - use of baits that are not ingestible in a single bite
  - use of biodegradable materials for the lines
- **Need to continue the tests on these types of bollards and on mixed type bollards**

# ACTION 7 - GUIDELINES TO ALLOW SEA FISHING WHILE RESPECTING THE PROTECTION OF PROTECTED SPECIES

## GENERAL CONSIDERATION

The TartaTUR Project was the first approach on the regional territory to evaluate the interference between sea fishing, carried out with trawls, gillnets and hooks, and the protected marine species *Caretta caretta* and *Tursiops truncatus*

The investigation also developed for the proposal to establish a marine SIC area in the marine stretch in front of the Po Delta

The duration of the project TartaTUR enabled to perform exploratory investigation. The results provide an initial framework that must be increased and updated.

The data collected show some critical issues that require further investigation.

# ACTION 7 - GUIDELINES TO ALLOW SEA FISHING WHILE RESPECTING THE PROTECTION OF PROTECTED SPECIES

## Critical issues

- The Tarta-TUR project involved the fishermen from the start in all activities but this type of path requires larger timeframes
- The duration of the Tarta-TUR project is too short to collect a significant data set suitable for formulating hypotheses, proposals, action strategies, guiding measures
- No data have been found for fishing with pair trawling, large cogolli (reoni), hooks and lines (longlines)
- It was not possible to analyze data from leisure/sport fishing sector
- It was difficult to collect data in areas where marine SIC is planned. These are the areas where most pelagic and pair trawlers operate.

# ACTION 7 - GUIDELINES TO ALLOW SEA FISHING WHILE RESPECTING THE PROTECTION OF PROTECTED SPECIES

At the end of the project activities, guidelines were developed, proposed for sea fishing in Veneto, with the aim of limiting interactions with protected marine species as much as possible.

The guidelines are divided into 4 sections:

- **Type of intervention** - types of interventions that can bring solutions to limit the interference of gill gear with marine species *Caretta caretta* and *Tursiops truncatus*
- **Scope of intervention** - areas of application of the guidelines
- **Operating procedures** – procedures for applying the listed techniques
- **Recommendations** - recommendations to be implemented during fishing to further limit accidental catches.

# ACTION 7 - GUIDELINES TO ALLOW SEA FISHING WHILE RESPECTING THE PROTECTION OF PROTECTED SPECIES

## TYPE OF INTERVENTION

### *Caretta caretta*

- 75% of sightings in spring / summer
- 70-75% of catches in spring summer
- Bottom trawls are the tools with the greatest impact
- The greatest stress is observed with gillnets
- There are no impacts on fish or fishing gear

**Guidelines: Tips for specific modification of fishing gear to avoid or limit the catch of turtles**

### *Tursiops truncatus:*

- Opportunistic animals
- The detected incidence of capture is zero
- Sightings throughout the year with a drop in winter
- Evidence of damage to fish related to the sighting of bottlenose dolphins
- Correlation between the presence of bottlenose dolphins and the abundance of fish species

**Guidelines: Implementation of modifications / adaptations of fishing equipment in order to keep bottlenose dolphins away, avoiding damage to fish, tools and even bottlenose dolphins themselves**

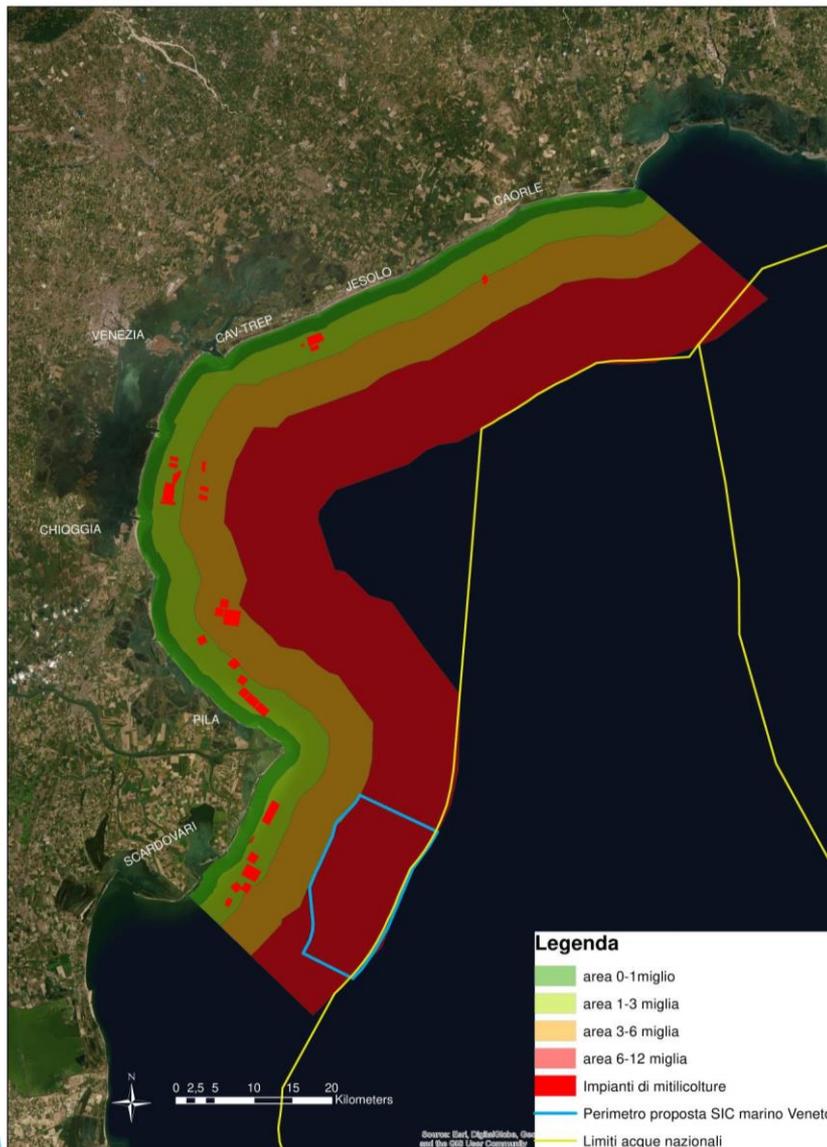
# ACTION 7 - GUIDELINES TO ALLOW SEA FISHING WHILE RESPECTING THE PROTECTION OF PROTECTED SPECIES

## SCOPE OF INTERVENTION

The proposed Guidelines are effective in all marine areas of Veneto coast, both in national and international waters.

Spatial location of fishing activities:

- 0-1 NM: activities of a high percentage of hydraulic dredgers and gillnets
- 1-3 NM: exclusive occupation of boats with gillnets
- 3-6 NM: hydraulic dredge (*Callista chione*), trawling and gillnets
- 6-12 NM: hydraulic dredge (*Callista chione*) and trawling, marginal presence of gill nets



## OPERATING PROCEDURES

Preliminary guidelines are proposed to be tested in the use of the following tools:

Trawl fishing (bottom trawler)

Fishing with gears (nets, trams, etc.)

Indications are also given for the other fishing gear used in the North Adriatic.

Quadro sintetico delle Linee Guida per la limitazione degli impatti tra pesca e specie protette				
Attrezzo	Dispositivo proposto	Periodo di utilizzo	Zona	Area SIC
Strascico con divergenti	TED's Device sonori (Pingers)	Aprile-ottobre	Alto Adriatico	SI
Strascico con volante	Device sonori (Pingers) Device luminosi	Aprile-ottobre	Alto Adriatico	SI
Strascico con rapidi	È necessaria una sperimentazione per verificare il reale impatto, soprattutto in caso di urti			
Attrezzi da posta reti	Device sonori (Pingers) Device luminosi	Aprile-ottobre	Alto Adriatico	SI
Attrezzi da posta nasse e nassini	NON si ravvisano interferenze tra questi attrezzi e tartarughe e tursiopi			
Attrezzi da posta grandi cogolli o reoni	È necessaria una sperimentazione per verificare il reale impatto			
Ami e lenze	I pochi pescatori professionali che utilizzano ami e lenze e i pochi dati suggeriscono l'avvio di una sperimentazione che consideri ad esempio l'adozione di ami curvi			
Draghe idrauliche	NON si ravvisano interferenze tra questi attrezzi e tartarughe e tursiopi			
Pesca sportiva	È necessaria una sperimentazione per verificare il reale impatto, anche sulla base degli attrezzi utilizzati dagli sportivi			

## Fishing with otter trawls

- Practiced all year round with the exception of the 40-50 days technical stoppage
- Practiced throughout the Veneto coast
- It shows conflict especially with sea turtles
- Bottlenose dolphins are especially a disturbing element for the catch

The use of TED's (Turtle Excluder Device) in the net is suggested.

This device must be used between April and October of each year, in correspondence with the larger presence of turtles in the high Adriatic waters.

To keep bottlenose dolphins at a distance, the use of acoustic devices (pingers) is suggested, to be used between April and October of each year, when the presence of bottlenose dolphins in the high Adriatic waters is larger.

## ACTION 7 –OPERATIVE MODES - Gillnets

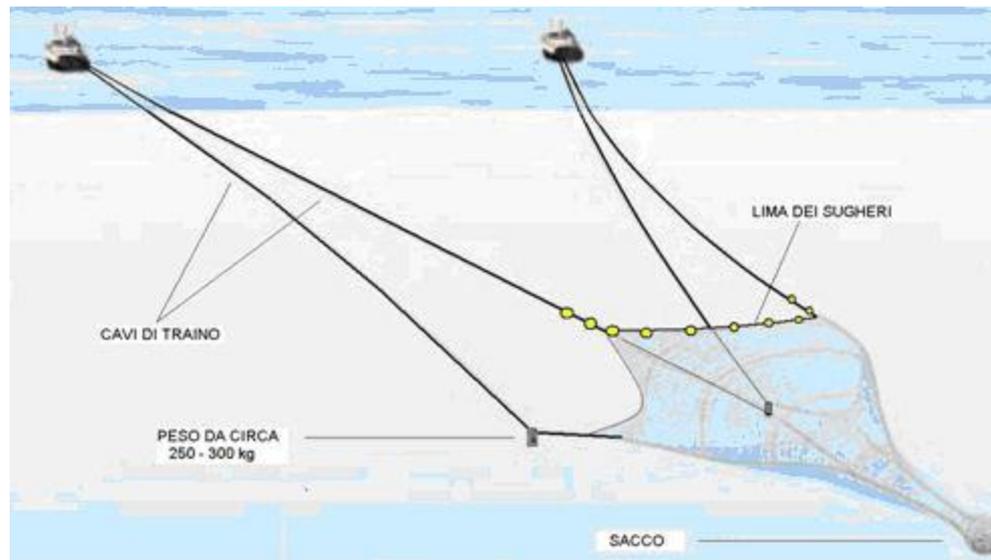
- Trammel nets, barracuda, other types of fishing nets
- interference with species protected especially with turtles
- bottlenose dolphins use the net as a feeding aid

The use of **light bollards** is suggested, positioned at an adequate distance in order to warn the protected species and keep them at a safe distance from the nets.

## ACTION 7 – OPERATIVE MODES – Pair trawlers

- Mainly practiced by boats of the Po Delta for the fishing of blue fish
- Do not allow the application of an exclusion grid such as TED

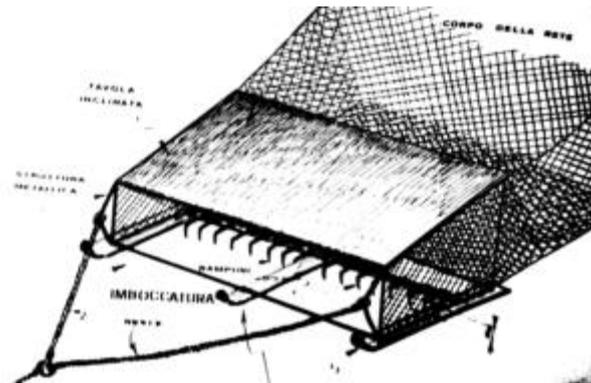
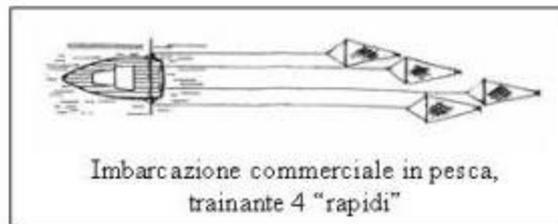
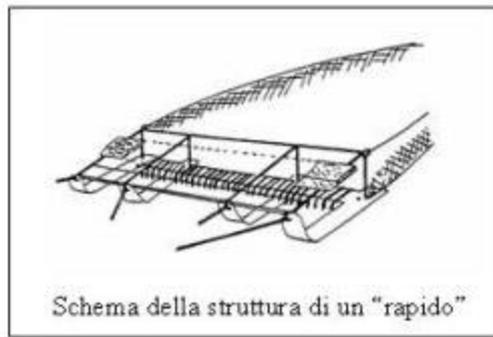
We suggest the adoption of devices that keep away turtles and dolphins such as pingers and / or UV lights



The absence of data in this project does not allow to indicate precise guidelines. It is necessary to start an experiment to investigate the problem with the fishing operators and evaluate its impact on the two protected species.

## ACTION 7 –OPERATIVE MODES - Rapidi

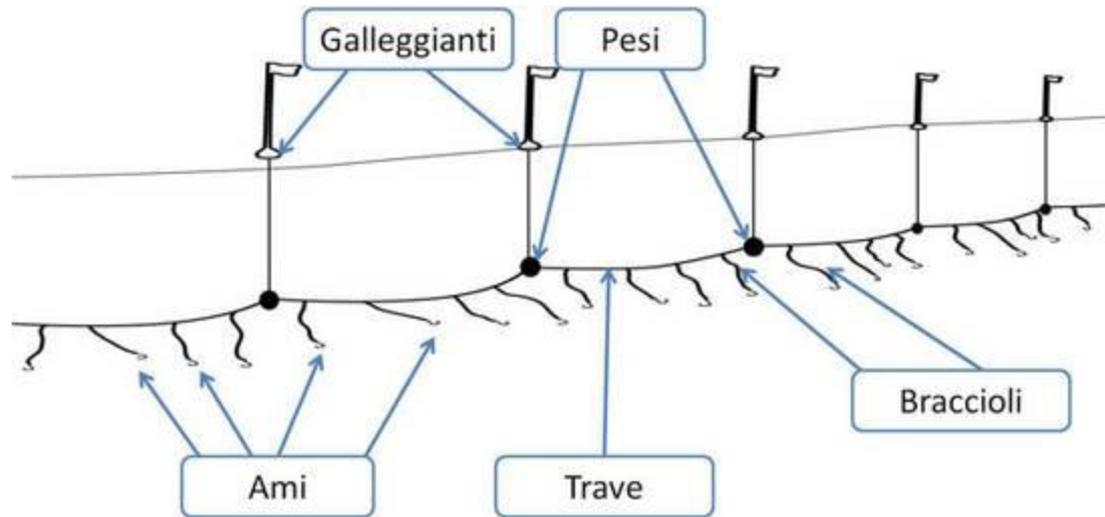
- Conformation that makes the capture of sea turtles or dolphins unlikely
- Possibility of injuring standing sea turtles on the seabed



**Need for ad hoc experiments to verify the real impact of these tools on the two target species.**

## ACTION 7 – OPERATIVE MODES – Hook and lines

- Few operators use these fishing gear
- Difficulty in monitoring this type of fishing



Need to provide for some measures also for these fishing systems, and to start an experimentation concerning the application of circular hooks to replace J hooks.

## ACTION 7 –OPERATIVE MODES - Reoni

- Used between February-March and mid-May
- Used only near the coast (within one nautical mile)
- Present in the stretch of coast of Veneto between Punta Sabbioni and Sottomarina,
- about 60 workstations.
- Compatible with any accidental capture of protected species, especially turtles
- No data are available to prove and / or actually attest to the presence of conflicts

Based on the available information and data, there is a need to start an experiment to evaluate the interaction of these tools with turtles and bottlenose dolphins

## ACTION 7 –OPERATIVE MODES – Sport fishing

- In Veneto sport fishermen represent 5% of the national total (MIPAAF data)
- High probability of interaction with some protected species

It is necessary to pay particular interest on rod fishing (the most practiced), to study the impact of the hooks used, and on gillnets.

**There is a need to start an experimentation with the involvement of sport fishermen to evaluate the effects of this fishing on protected species.**

# AZIONE 7 – RECOMMENDATIONS

## To operators

- carefully follow the instructions given for the use of fishing gear.
- suggest any improvements to be made, always aimed in the direction of limiting and interference between fishing and protected species

## To competent Bodies

- Start experimentation as quickly as possible to improve knowledge on the subject.

## To Category Associationsria

- To act as a link between operators and the world of research and Competent Bodies.
- Promote training meetings or refresher courses for operators, increasing the climate of trust between decision-making bodies and fishermen.

The creation of a regional portal or a mobile application in which everyone can signal any sightings of live animals at sea, dead or beached animals is recommended, in order to implement the database. To be validated, reports must be accompanied by an explanatory photo of the case.

# ACTION 7 – GUIDELINES IN THE MARINE SIC OF THE PO DELTA

Off the coast in front of the Po Delta an Italian SIC Marina area of approximately 225 km<sup>2</sup> has been proposed within which all fishing activities must be specifically regulated.

The guidelines described, regarding changes to the gear to limit accidental catches of protected species, are valid within a SIC area.

# ACTION 8 – Training activity for fishermen to recognise

Training with fishermen  
Sharing protocols agreed with authorities

1. RECOGNITION SPECIES
2. FILLING IN A SIGNALLING SHEET
3. FIRST AID TO CAPTURED SEA TURTLES AND DOLPHINS



# Dissemination and communication events of the TartaTUR project

- **Presentation at the meeting of the Northern Adriatic Fish District - January 2019**
- **Publication of a summary of the project in the news letter Farnet - February 2019;**
- **Presentation of the project to the National FLAG Network, Noto (CA) - July 2019;**
- **Presentation of the first results of the project in Brussels during the seminar "Post-2020: Local action in a changing world", 3-4 December 2019 and award ceremony as "best project using CLLD strategy";**
- **presentation in Venice during a meeting within the Adri.Smart.Fish project. - December 2019**  
Translated with [www.DeepL.com/Translator](http://www.DeepL.com/Translator) (free version)



The table of the Northern Adriatic District

The Presidents of the two Veneto FLAGs in dialogue with Undersecretary Manzato





## The presentation of the first part of the TartaTUR project at the table of the Northern Adriatic District

# Communication activities

TO CONVEY TO THE MEDIA AND THE PUBLIC THE COMMITMENT THAT FISHERMEN PUT INTO THE PROTECTION OF THE MARINE ENVIRONMENT

February 2019

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## Fishermen and scientists team up to preserve protected species and businesses on Northern Adriatic coast

All too often, Marine Protected Areas (MPAs) can be seen as hampering the livelihood of local fishermen. However, a cooperation project based on the Veneto coast is building trust between the research world and fishing community, as they work together to analyse the interaction between commercial fishing activities and the protected species present in the Northern Adriatic Sea. The aim is to explore possible socio-economic effects that the conservation measures of a marine [Site of Community Importance](#) (SCI) can have on fisheries and aquaculture businesses.

Local fishermen will host researchers from the University of Padua (IT) on board their boats, looking out for loggerhead sea turtles (Caretta Caretta) and bottlenose dolphins (Tursiops Truncatus). During their daily work, the fishermen will monitor the presence and number of the protected species, and receive training on what to do if they encounter the dolphins or turtles – especially injured ones.

"Tarta-Tur", a combination of the Italian word for turtle (tartaruga) and the dolphin's name in Latin (Tursiops), involves four FLAGs across three Italian regions. [FLAG Veneziano](#) and [FLAG Chioggia e delta del Po](#) were joined by [FLAG Friuli-Venezia-Giulia](#) and [FLAG Costa dell'Emilia-Romagna](#) in September 2018. The project also aims to redefine the SCI areas, taking into account both the conservation of the two species, as well as the economic activity in these areas. FARNET Support Unit will be following the progress of Tarta-Tur with a Good Practice in the future.

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## Galician FLAG encourages entrepreneurs to boost culture, tourism and fishing economy

Projects that successfully use local tourism, heritage and fishing as a source of economic development have been highlighted at an [event](#) in Noia, northwestern Spain. [Costa Sostible FLAG](#) (ES), invited representatives from four projects from across Spain with the aim of inspiring similar initiatives in Galicia.

The Spai del Peix project, linked to the [fish museum](#) in Albaola (Catalonia), highlighted guided tours of the fish market and tasting sessions of food cooked by fishermen at the port of Palmaos. At the ["maritime factory"](#) in Albaola, visitors can see the reconstruction of a UNESCO-sponsored, 16<sup>th</sup> century whaling vessel. How self-management from the community can lead to transformation was shown in a presentation on a rejuvenated [market](#) in Tenerife. A [home for old people](#) in a small, rural community where the elderly play an active role in the residence, is a model that could be replicated in fishing communities.

Costa Sostible FLAG has already seen positive results from building strong links between tourism and local fisheries products and heritage. [Mar Galaica](#), a project from the last programming period (2007-2013), created a network of fisheries along the Galician coast offering almost 100 different tourism products. A new website was built to promote these activities and 150 local people, including fishermen, received additional training.

February's event builds on Costa Sostible FLAG's experience of offering business mentoring, coaching and financial support to local people, particularly the unemployed from the fishing sector. The [EMPREAMAR project](#) supported the development of entrepreneurial skills and ultimately led to eight new business initiatives in the FLAG area.

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## Other news

### UK trainee chefs get a lesson in lesser-known fish

[North of Tyne FLAG](#) has teamed up with a local food NGO to educate young trainee chefs and, in turn, the local population. [Food Nation](#) is teaching the trainee chefs about less-popular fish and seafood, then challenging the students to come up with creative ways to use them in recipes served to the general public as "street food". As well as raising awareness of and demand for local fisheries products in the North East of England, the project also tackles youth unemployment in an area where it is higher than the national average. Read more about the initiative in our [Good Practice story](#).

## Events

12 March  
[Boulogne-sur-mer, France](#)  
[MARINA Final Conference](#)

19 March  
[Istanbul, Turkey](#)  
[Facility for Blue Growth in the Black](#)



## ACTION 9

The TartaTUR corner at CLLD Conference «*Post-2020: Local action in a changing world*»

Awarding the prize as the project that best used the CLLD strategy by new Commissioner Virginijus Sinkevičius in his first public release



## ACTION 9

Certification as a winning project award paper

Awarding the prize as the project that best used the CLLD strategy by new Commissioner Virginijus Sinkevičius in his first public release