



Archipelagos  
Institute of Marine Conservation

# Archipelagos

## Institute of Marine Conservation

### Action of the Conservation of the Greek Seas

© Armando Rotoletti



*Anastasia Miliou, Scientific Director*  
*Greek Ambassador in the EU, for Sustainable Fisheries & Maritime Policy*

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**Mission: To defend the natural resources of the NE  
Mediterranean  
through applied research and conservation actions**





## **Scientific Research:**

- Marine and terrestrial biodiversity
- Laboratory analyses

## **Close collaboration with the local communities**

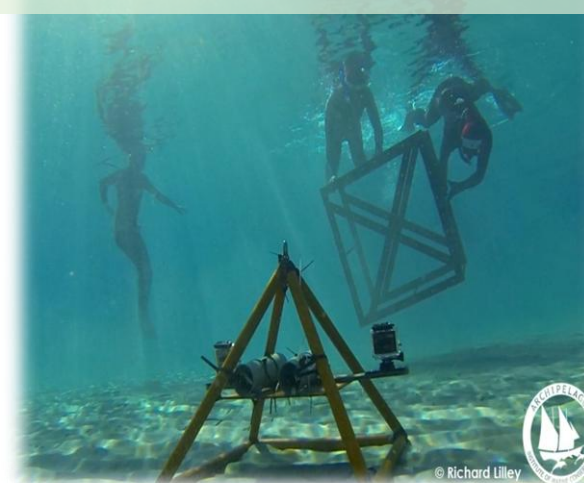
## **Conservation Actions & Development of Realistic - Sustainable Management Measures**

## **Lobbying in a national, EU and international level**

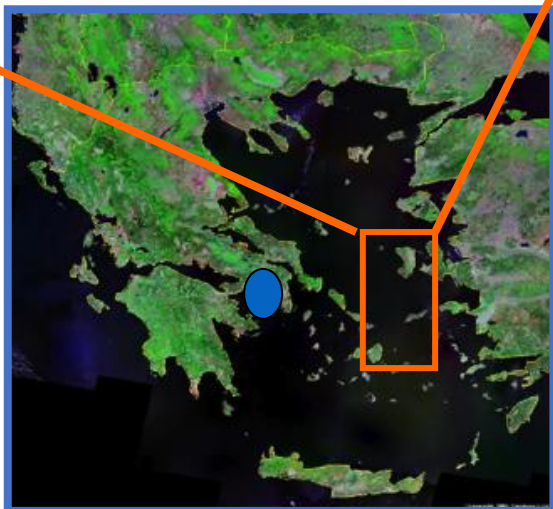
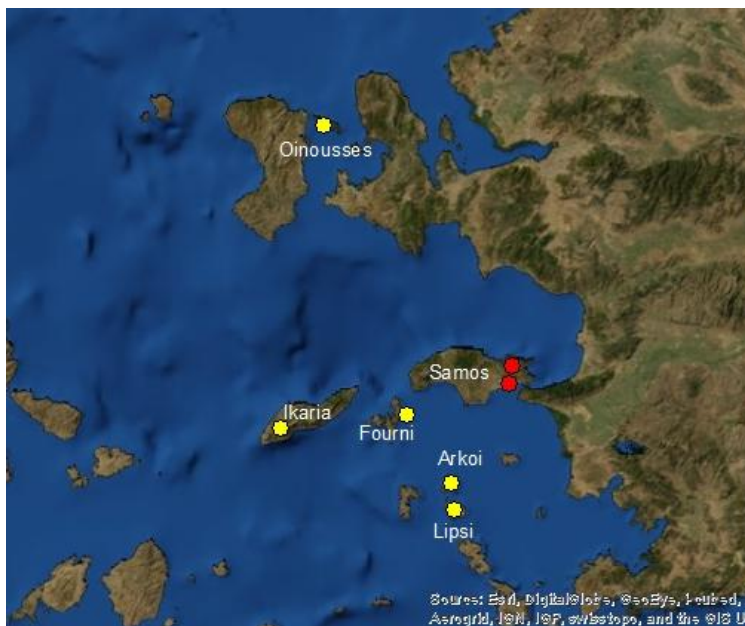




## ....Combining Community-Based Conservation with Applied Research & Education







## SAMOS

- Pythagorio Field Research Base
- Vathi Research Base/ Laboratories

## OINOUSSES

Research Station on Sustainable Aquaculture

## IKARIA

Forestry & Agronomy Research Station

## LIPSI

Fisheries Research Station  
Aegean Marine Life Sanctuary

## ARKI – MARATHI ISLETS (PATMOS AREA)

Research Stations on Coastal Biodiversity & Sustainable Development

## LEROS

Research Station on Sustainable Aquaculture

## ATHENS

Admin Office









### Universities

- University of Essex, UK
- University of Cardiff, UK
- University West of England, UK
- Norwegian University of Life Sciences
- University of Yale, USA
- University of Princeton, USA
- University of Texas Arlington, USA
- University of Oradea, Romania
- Ecological University of Bucharest, Romania
- University of Cukurova, Turkey
- University of Canakkale, Turkey
- University of Puerto Rico
- Ocean University, Taiwan
- University of the Aegean, Greece
- University of Athens, Greece
- University of Piraeus, Greece

### Research Institutes

- Democritos National Centre for Scientific Research
- National Agricultural Research Institute, Greece

### International Organisations

- MEDAC (*Regional Advisory Council of the EU for Fisheries in the Mediterranean*)
- AAC (*Aquaculture Advisory Council of the EU*)
- CIESM (*Mediterranean Science Commission*)
- ACCOBAMS (*Agreement on the Conservation of Cetaceans in the Mediterranean*)
- UNEP – MAP – SPA/RAC (*United Nations Environment Programme – Mediterranean Action Plan*)

### International NGOs/ Networks

- Seas At Risk
- MedReAct
- Ocean Care

**Scientists from all over the world**

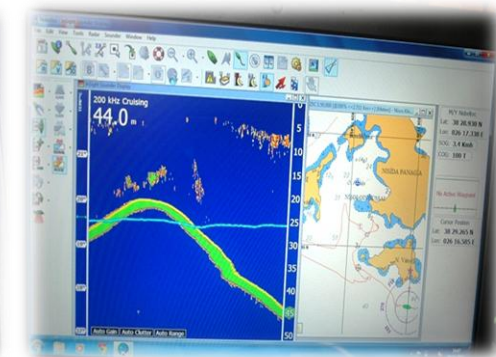
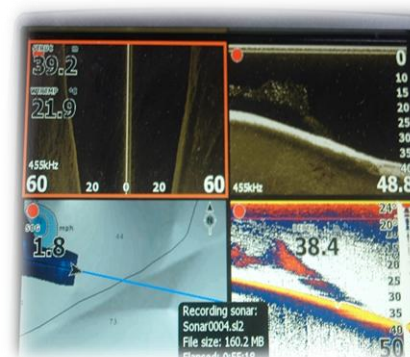
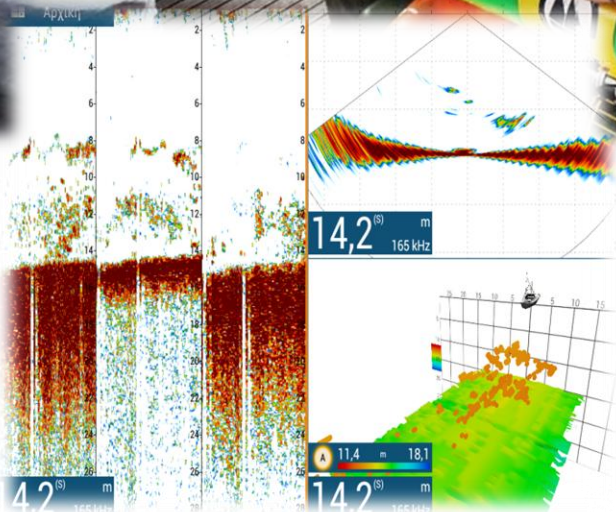
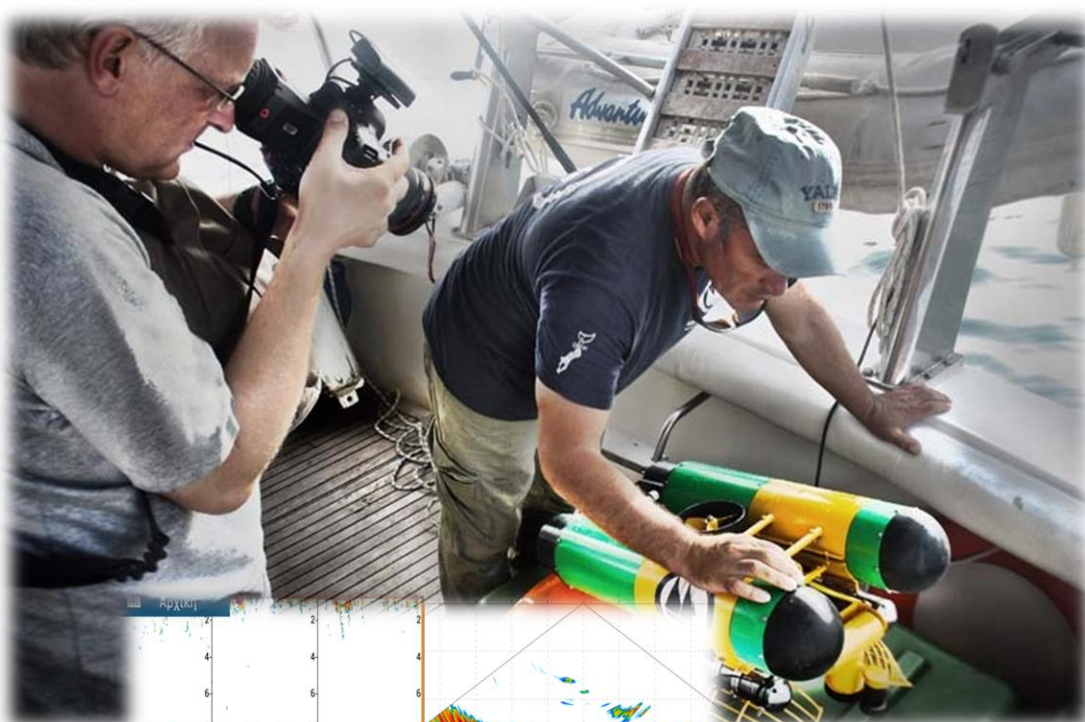




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# Archipelagos Institute brings the Greek Seas to the World Map of Scientific Education







- Largest coastline & biggest fishing fleet in the EU
- Heavy & dense uncontrolled maritime traffic
- Small territorial water zone which is largely unmonitored
- Historic & geographic specificity
- Weak centralised strategies for conservation
- Diverse local cultures on diverse islands
- Lack of collaboration between Greece & Turkey for the conservation of a shared sea



**TERRITORIAL SURFACE 131.000 Km<sup>2</sup>**

- |                                |                         |
|--------------------------------|-------------------------|
| - Islands surface (18.1%)      | 24.761 Km <sup>2</sup>  |
| - Total extension              | 350.000 Km <sup>2</sup> |
| - Lagoons surface              | 52.000 Ha               |
| - Littoral length              | 18.000 Km               |
| - Continental shelf            | 57.000 Km <sup>2</sup>  |
| - Territorial waters (6 miles) | 80.000 Km <sup>2</sup>  |
| - Aegean sea «ownership»       | 35 %                    |
| - Islands & islets             | 1.600                   |
| - Islands                      | 437                     |
| - Inhabited islands            | 154                     |





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One of the most important biodiversity hotspots in the  
Mediterranean and Europe





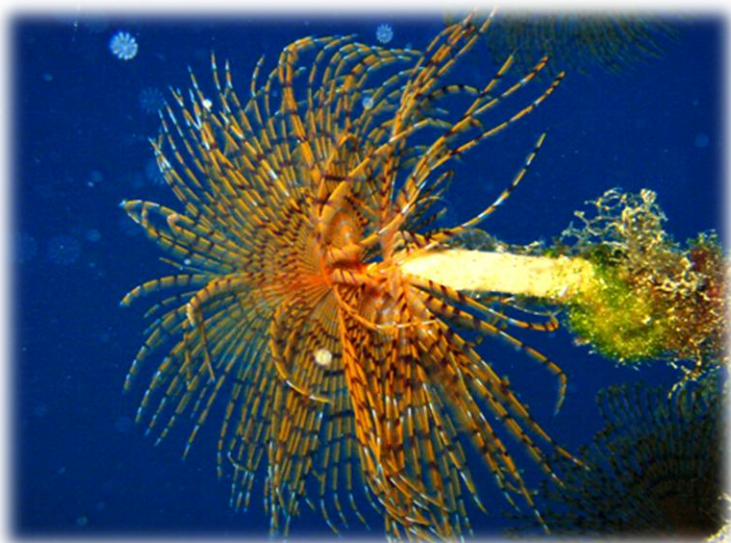
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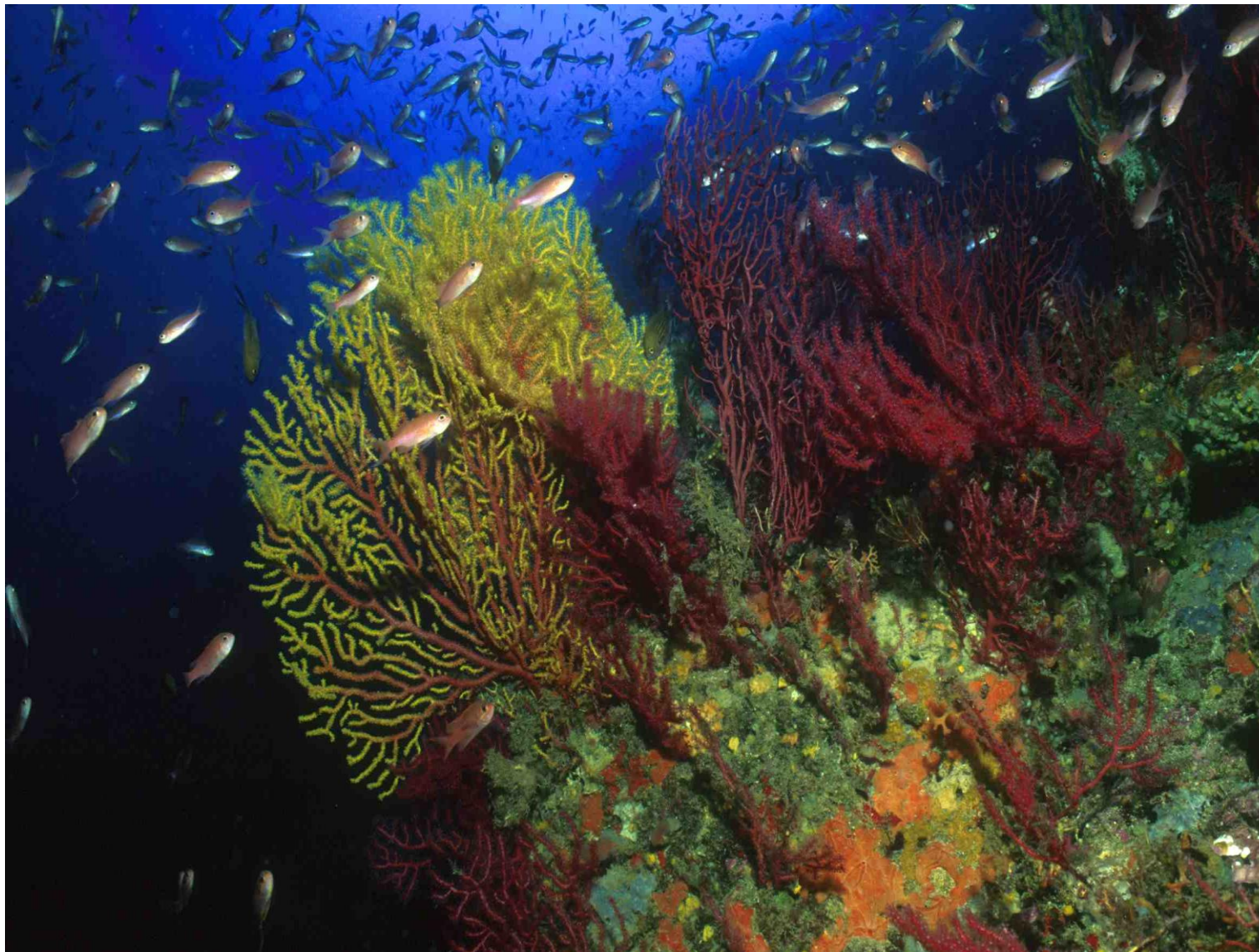






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One of the most important biodiversity hotspots in the  
Mediterranean and Europe



Archipelagos Institute - SPA/RAC UNEP/MAP















1. Overfishing – Pirate/IUU Fisheries
2. Lack of fisheries management
3. Lack of Protection/Rehabilitation Facilities for protected species
4. Explosions at sea with real ammunition
5. New pollutants: Microscopic Plastic Fibers
6. Risk of a major maritime accident







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# Combating IUU Fisheries in Greece & the Med

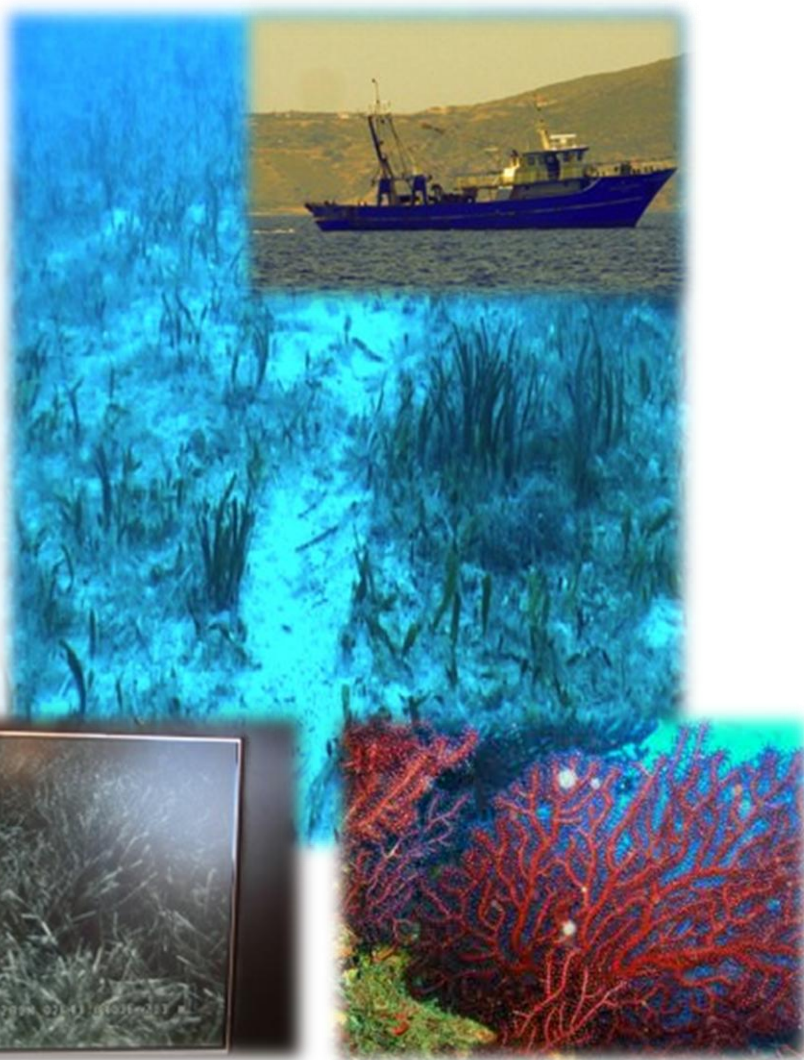
*Collaboration with EU DG MARE*



© Archipelagos 2010

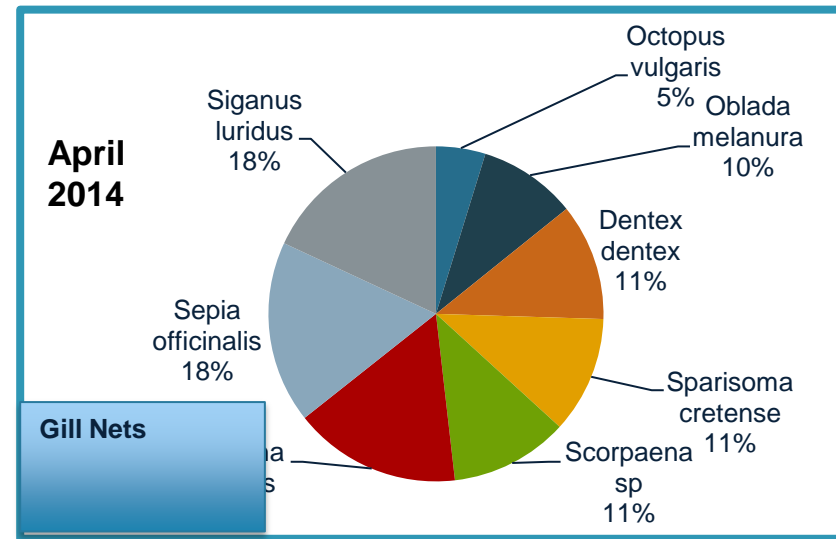
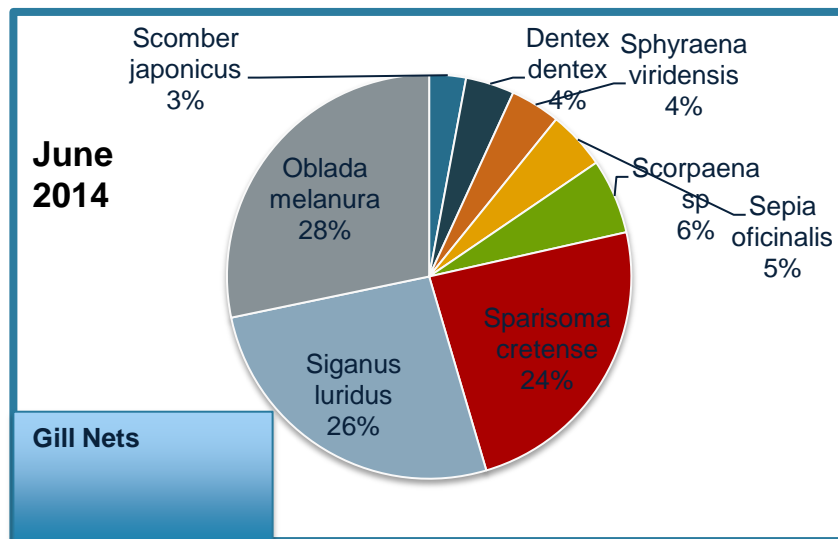
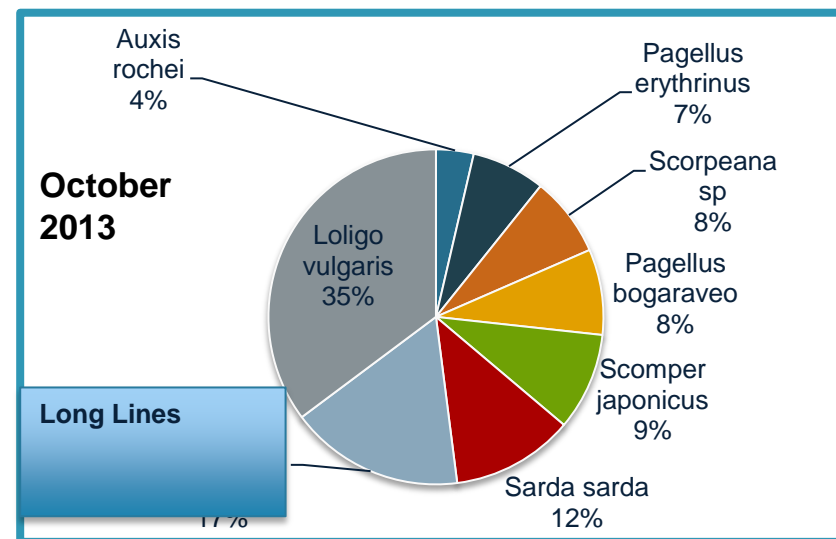
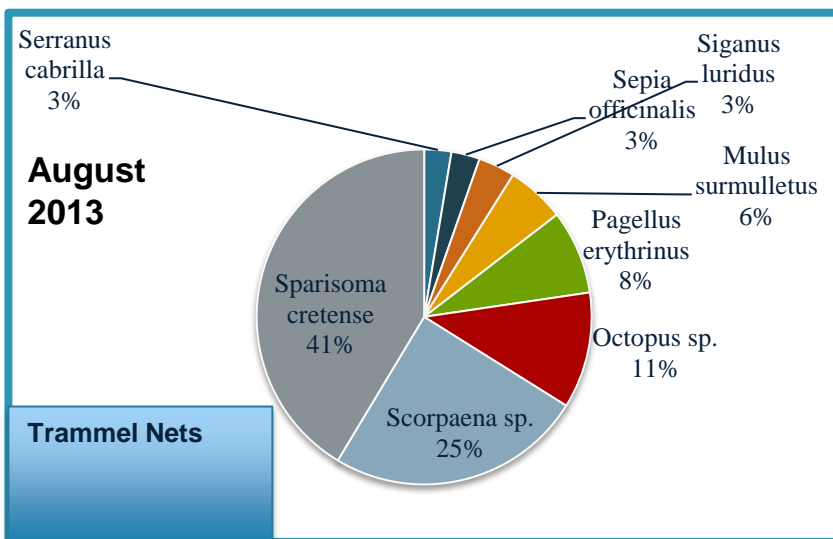






- Habitat mapping via sonar & cartographic camera system
- Assessment of impacts by IUU fisheries
- Biodiversity assessment via visual census (diving surveys)
- Lepidochronology – productivity assessment
- Assessment of heavy metal accumulation over time
- Collaboration with local/national authorities for designation of fishing grounds

## Indicative Results: Composition of catches per month





## Illegal & Destructive Fishing Practices

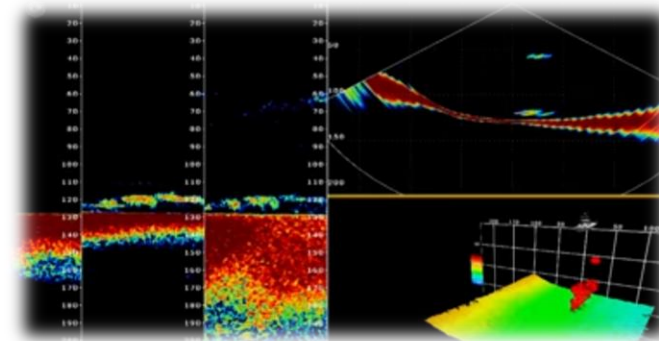
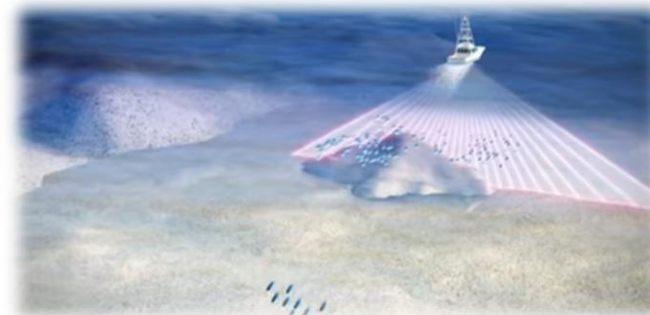
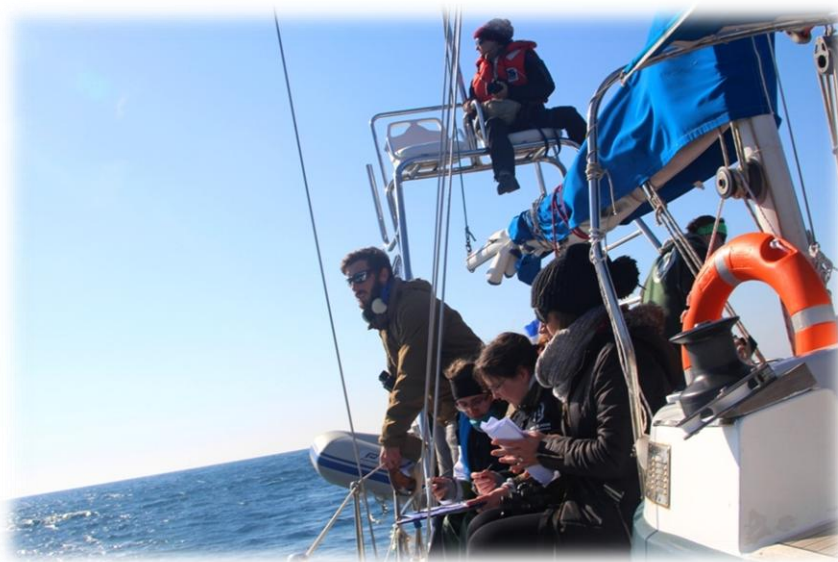


- Trawlers and purse seines (fishing illegally near the coast)
- Dynamite Fishing using explosives
- Spearfishing via scuba diving











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# Interaction between Fishing Gear & Marine Mammals

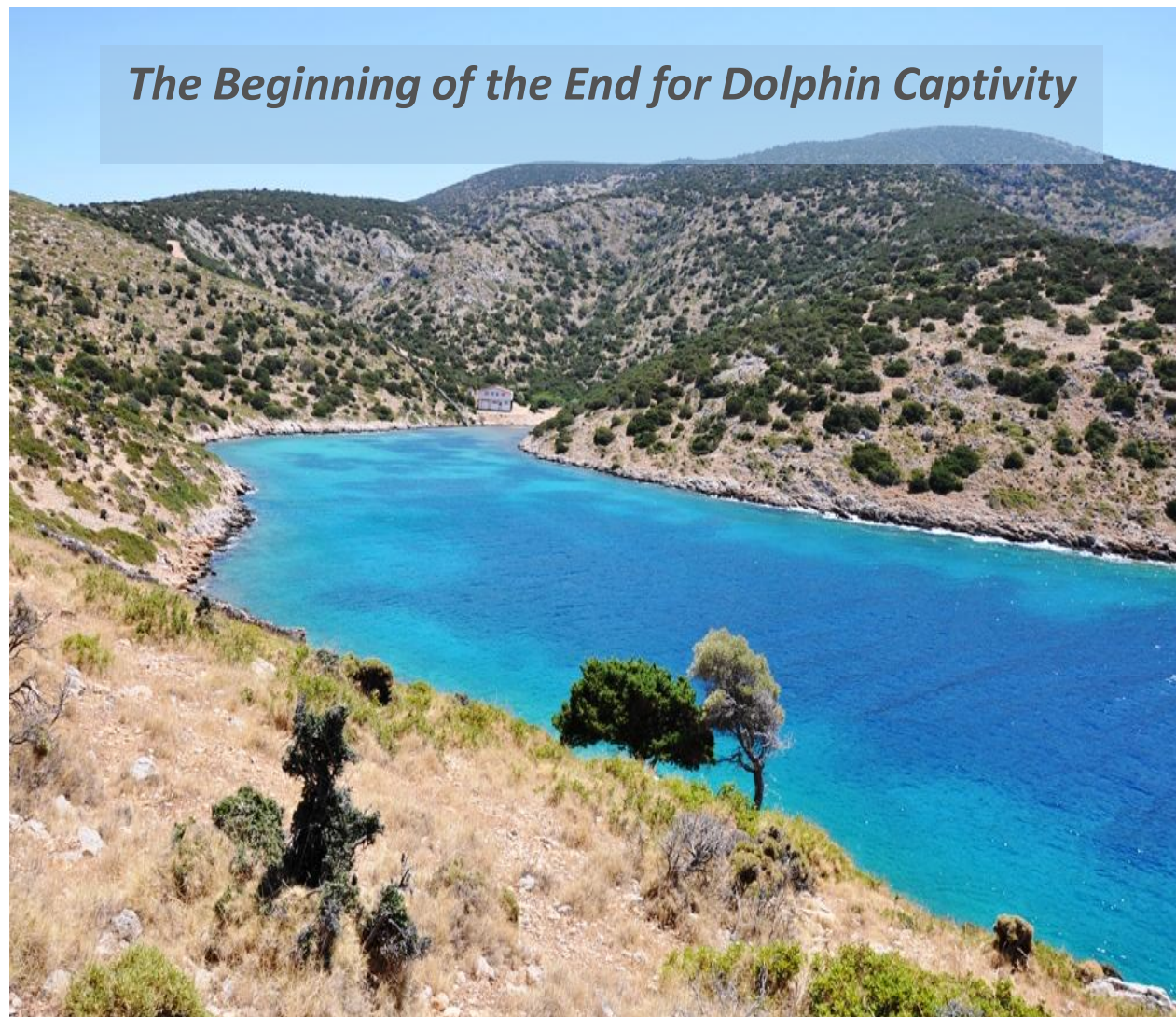






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## The Aegean Marine Life Sanctuary



*The Beginning of the End for Dolphin Captivity*



You Can Watch the  
Video <https://HERE>



- Sanctuaries – its time to stop speaking about sanctuaries and start creating them!
- Perspectives on what is acceptable and what is not change over the years
- Opinions and feedback



## 1. Strandings:

- Lack of facilities to respond to stranding calls
- No medical centres able to treat and care for marine species in the eastern Mediterranean Sea.

## 2. Release of Captive Dolphins :

- Increasing number of actions and campaigns for the closure of dolphinariums because of the unacceptable living conditions and treatment of the dolphins
- As dolphinariums shut down, their captive dolphins either remain in the closed facility, or are moved to another European dolphinarium where they continue to do tricks for food
- Currently, there is no suitable natural environment able to rehabilitate or host dolphins saved from captivity





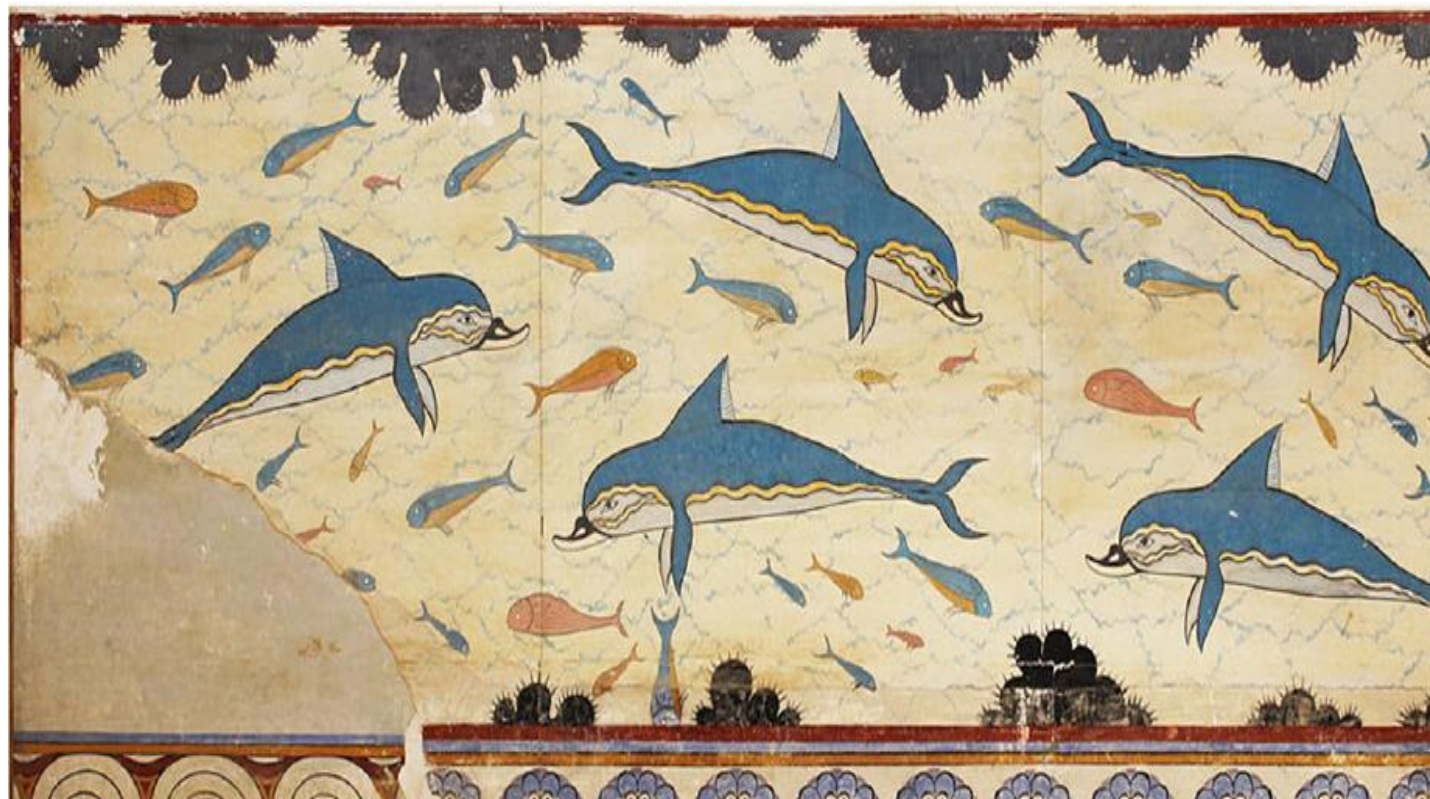
- Särkänniemi Adventure Park in Finland
- Delphinarium closed down due to public pressure and low attendance
- After 10 months that the dolphins remained in captivity (not performing), as no alternative was found, they were transported to Attica Zoo (Athens) where they are again performing in dolphin shows!
- Negative practice – Negative publicity!





The Aegean Marine Life Sanctuary will be a multi-purpose, rehabilitation facility. Our aims are to:

- **Provide medical care to stranded marine species** in semi-natural conditions (seals, turtles, and dolphins).
- House dolphins who have been **rescued from dolphinariums**.
- **Simulate the dolphins' natural habitat**. The dolphins will be free to re-learn how to hunt and behave as they did in the wild with no need to beg or do tricks for food.
- Use the expertise of a wide range of scientists in order to understand how best to create a sanctuary, **setting the standard for sanctuaries** that will be needed in the future.
- Be an educational facility that allows **research without human interaction**, providing knowledge that can help conserve the wild bottlenose dolphin populations.



**In Greece dolphins have been respected and protected dolphins since over 2500 years. As the first country to protect them by law, but also to research them, we now want to be the first country to provide them refuge from captivity.**





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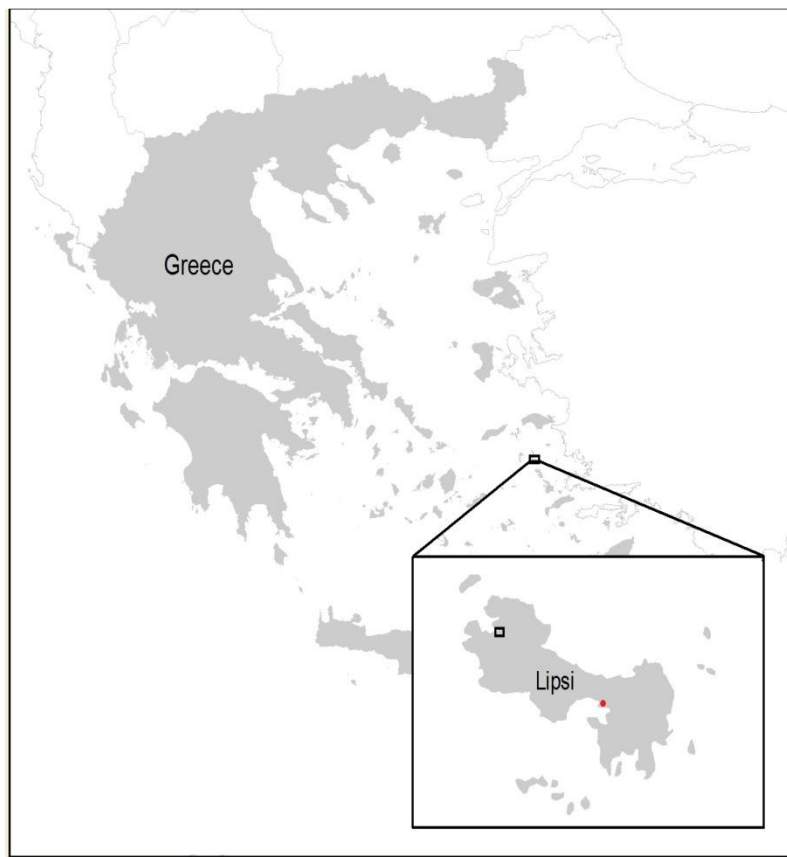
# A Multi-purpose Marine Life Sanctuary – Not a Dolphin Sanctuary!



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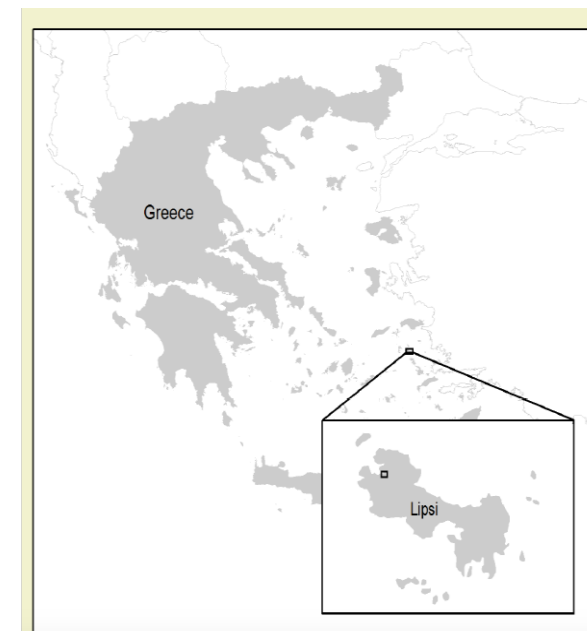


## Lipsi Island – An Ideal Location for the 1<sup>st</sup> Sanctuary in the World The Aegean Marine Life Sanctuary

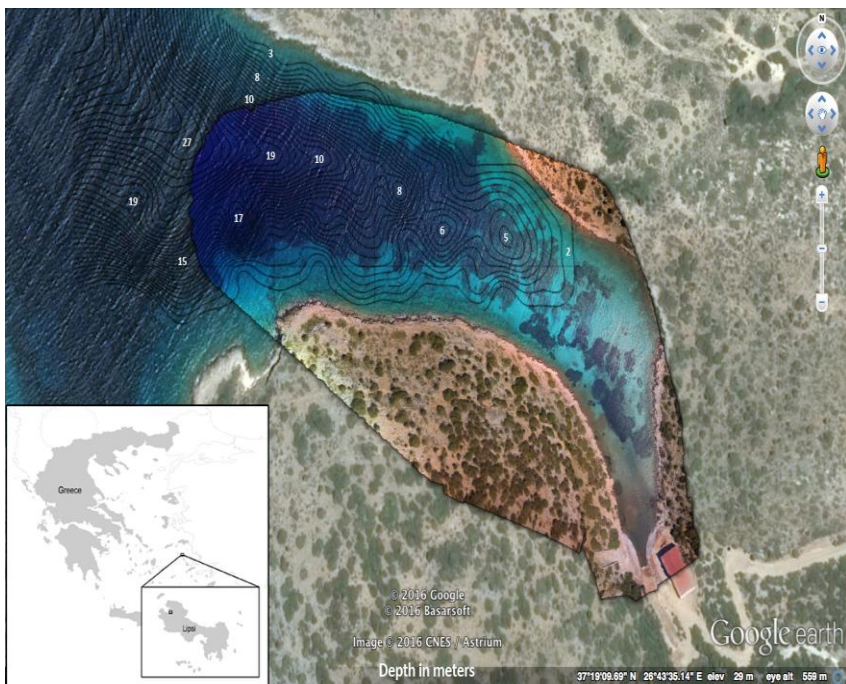




- Vroulia Bay, found on the NW of Lipsi, is located in the eastern Aegean Sea, supporting a great biodiversity.
- Archipelagos has a long-term lease of a 600m<sup>2</sup> building and 5ha of land to house the research base, veterinary clinic, offices and temporary staff housing, and supporting outdoor facilities.
- The sanctuary's surrounding areas belong to the Municipality of Lipsi, meaning there is no possibility for future urbanisation.
- **Strong participation and engagement of the local and regional communities and authorities, following 5 years of preparation!**



- No conflicts
- Public land – Controlled access
- Ideal temperature profile
- Support by the local community and authorities
- Highly biodiverse bay
- Sheltered from the rough seas

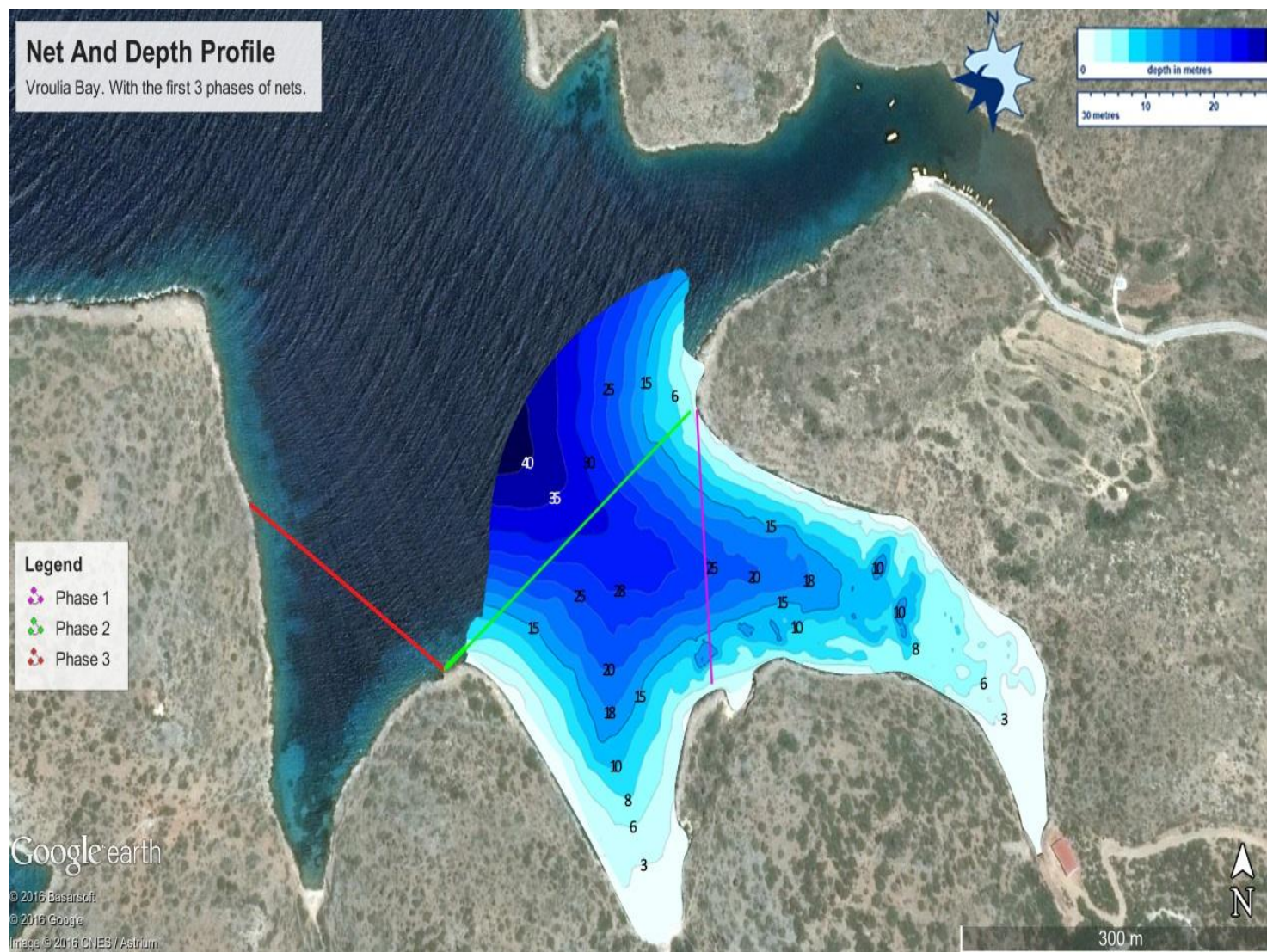


Month	T°C
June 2015	21-23.5
July 2015	23-24
August 2015	25-28
September 2015	22.5 - 25.5
October 2015	21-22
November 2015	20- 21
December 2015	18-20
January 2016	16.5-18
February 2016	16.5- 17
March 2016	17-17.5
April 2016	17.5-18.5
May 2016	18-20.5

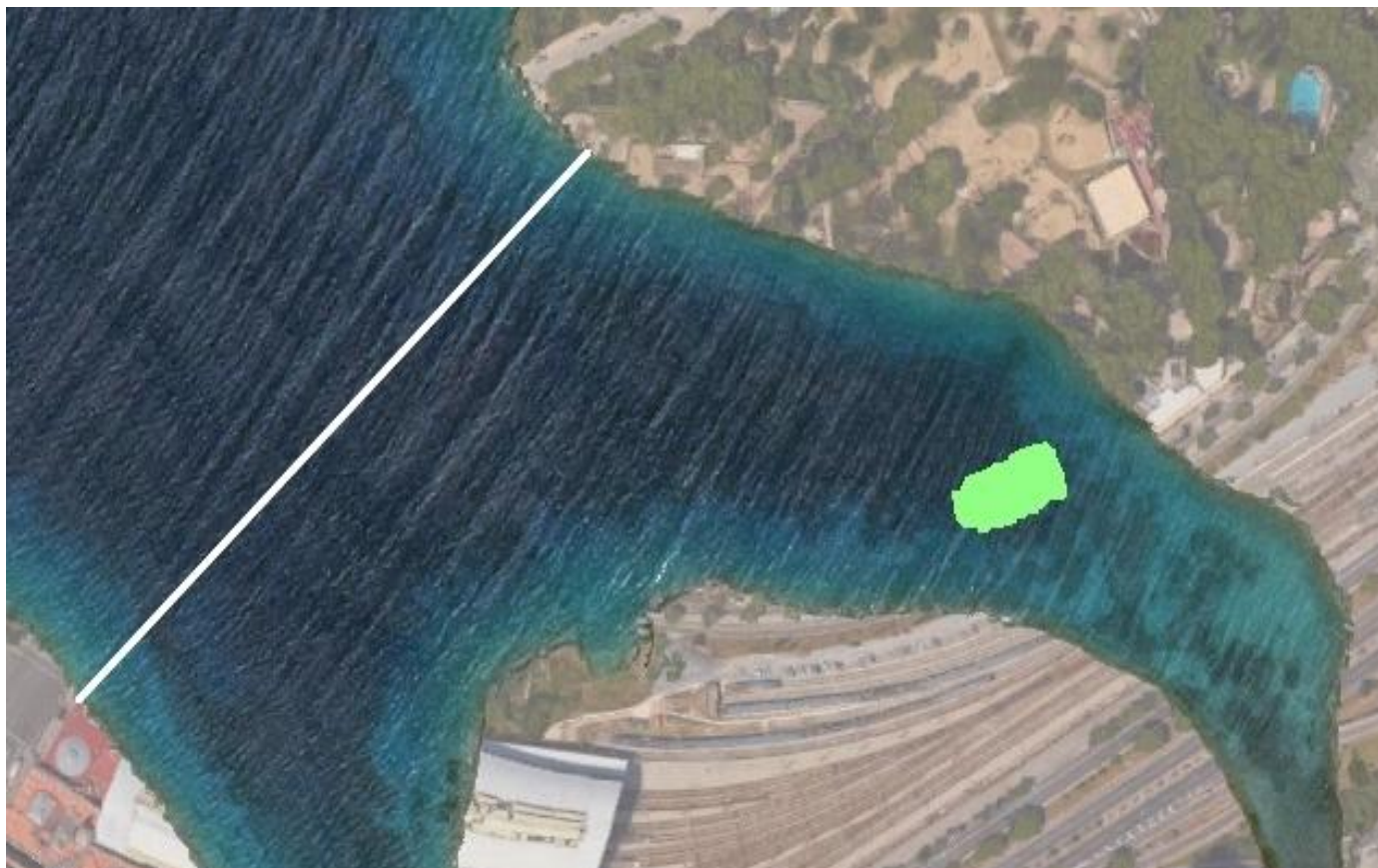


- Very progressive authorities, in full support of the sanctuary
- Role-model in eco-friendly activities (e.g. awards in recycling)
- Natura 2000 site (SPA & SCI) supporting great biodiversity of marine and terrestrial ecosystems
- Traditional fishing/agricultural community, with little tourism
- Lipsi has a resident population of 800 people, all of whom strongly support the creation of the sanctuary







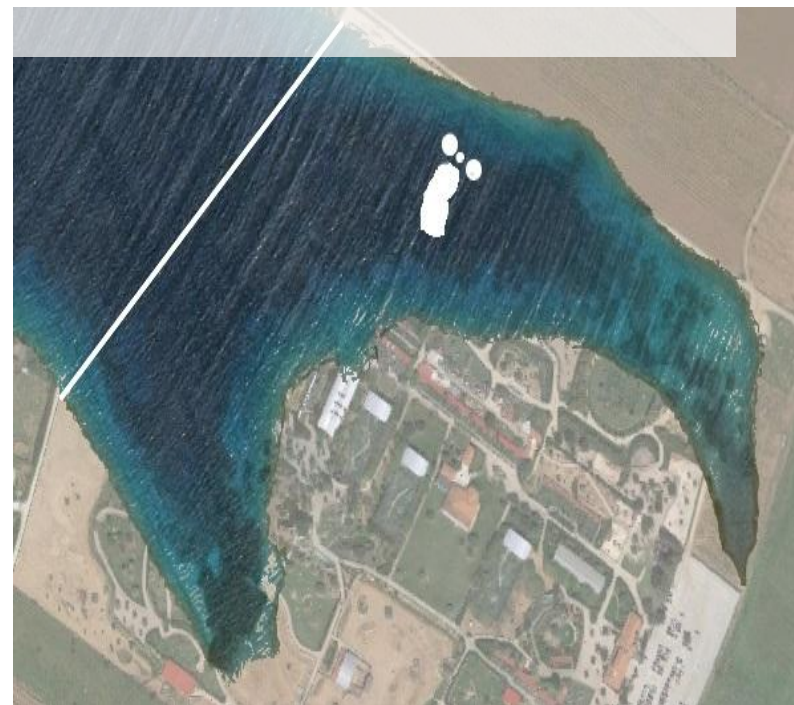


***The area of the Aegean Marine Life Sanctuary  
superimposed over the area where dolphins are  
kept in European dolphinariums: Barcelona Zoo***

## The area of the *Aegean Marine Life Sanctuary* superimposed over the area where dolphins are kept in European dolphinarium



**Dolphinarium  
Harderwijk – Holland  
(33 dolphins)**



**Dolphinarium of  
Athens– Greece  
(11 dolphins)**



## Protocols in development from an international expert group on numerous topics including:

- Transport
- Feeding (live fish)
- Minimum handling ensuring though efficient monitoring (different handling of each individual)
- No Breeding
- Crisis Management
- Disease Spread Prevention
- Strict protocol for invite-only visitors
- Use of real-time media via underwater cameras and hydrophones – for awareness raising



© T.Tsimpidis



**An Opportunity to develop  
the “gold standard”  
protocols, as an example  
for future dolphin  
sanctuaries around the  
world**

**Platform open for  
cooperation with scientists  
and experts around the  
world**

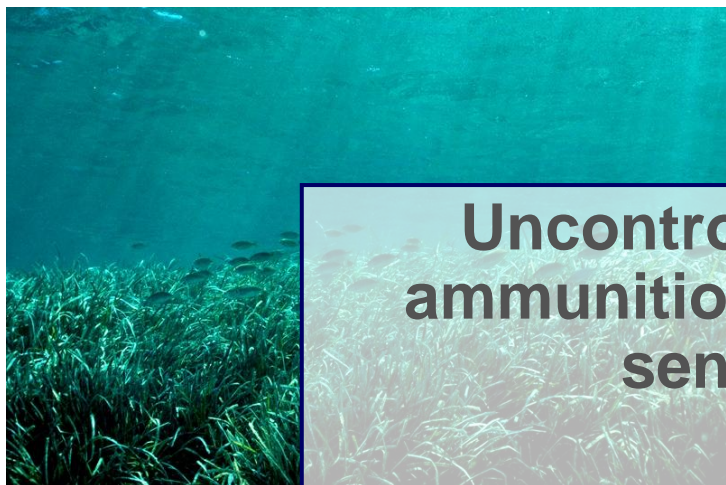
**A realistic solution for the  
Barcelona Zoo Dolphins**





# Risks for the Aegean

Military Activities  
Shipping Accident Risks



**Uncontrolled use of real  
ammunition in environmental  
sensitive areas**

**Permanent Cessation of Firing  
Fields @ Anidro & Petrokaravo  
islets**





## Toxic Substances Released by Real Ammunition: Danger for the environment and Public Health

- Mercury: **Toxic**
- 2-Amino-4,6-Dinitrotoluene: **Carcinogenic effect**
- 2-Amino-4,6-dinitrotoluene: **Highly toxic**
- 2-Nitroaniline: **Toxic**
- 2,3-Dinitrotoluene: **Highly Toxic, Carcinogenic**
- 2,4-Dinitrophenol: **Anaerobic toxicity, Explosive**
- 2,4-Dinitrotoluene: **Highly Toxic, Carcinogenic**
- 2,4,6-Trinitrotoluene: **Poisonous, Carcinogenic, natural hazard**
- 2,5-Dinitrotoluene: **Highly Toxic, Carcinogenic**
- 2,6-Dinitrotoluene: **Highly Toxic, Carcinogenic**
- 3-Nitroaniline: **Toxic**
- 3,4-Dinitrotoluene: **Highly Toxic, Carcinogenic**
- 3,5-Dinitroaniline: **Acute toxicity, health hazard, environmentally damaging**
- 3,5-Dinitrotoluene: **Highly Toxic, Carcinogenic**
- 4-Amino-2,5-dinitrotoluene: **Highly toxic**
- Aluminum Powder: **Toxic Ammonium**
- Nitrate: **Genotoxic**
- Barium nitrate: **Toxic**
- Lead Azide: **Explosive, Irritant, Health Hazard, Environmental Harm**
- Lead trizinate: **Toxic**
- Nitrobenzene: **Highly Toxic, Carcinogenic**
- Nitroglycerine: **Poisonous, Carcinogenic, natural hazard**
- Picric Acid: **Toxic, Explosive**
- 1,3,5-Trinitrobenzene: **Avoid contact**
- Tetrazene: **Moderately Toxic**
- Tetryl: **Toxic**
- +Many more



Yale University

**Research in cooperation with Yale University:  
Environmental Protection Clinic**

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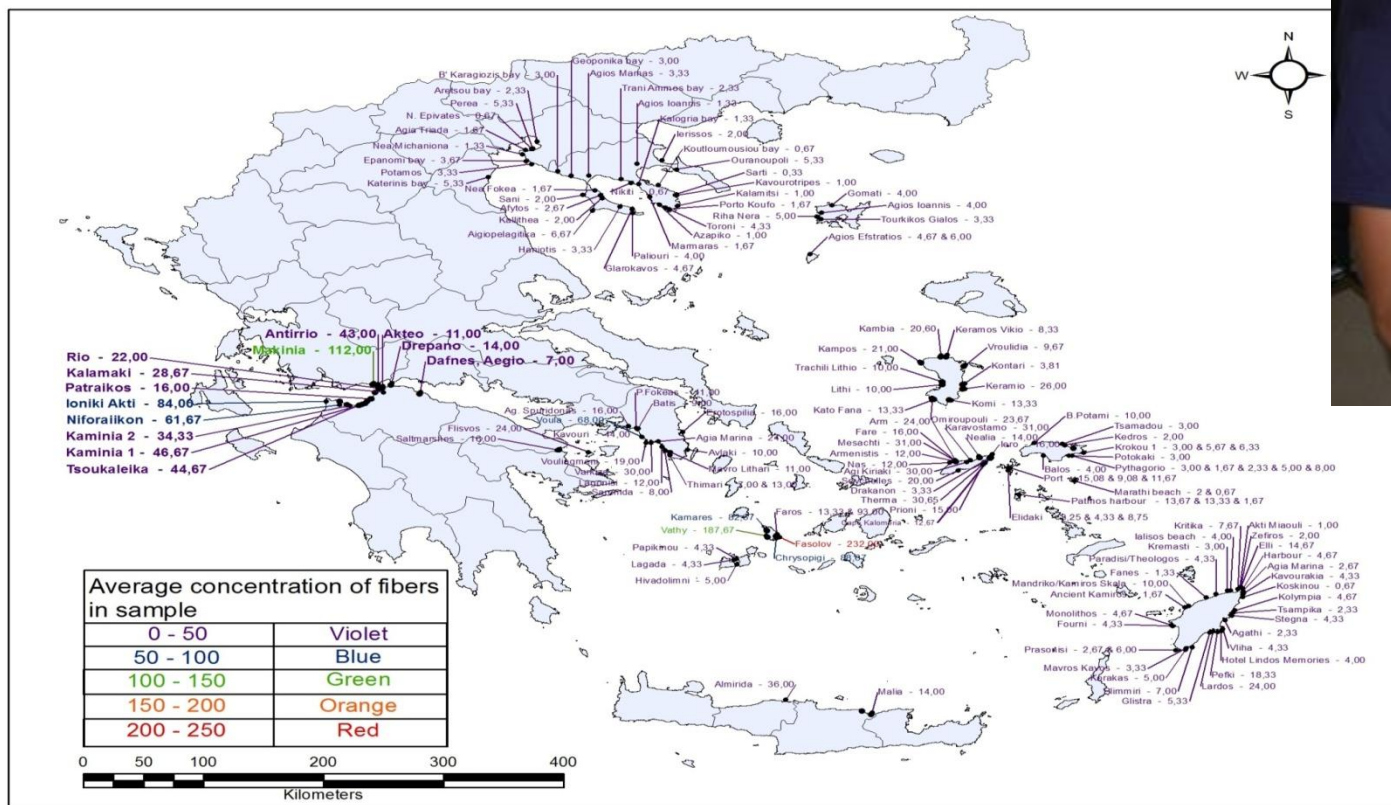
# Marine Pollution



## Plastic Fragments in the Seas: An Invisible Threat



# Distribution of Microplastic Fibres in the Greek Coasts





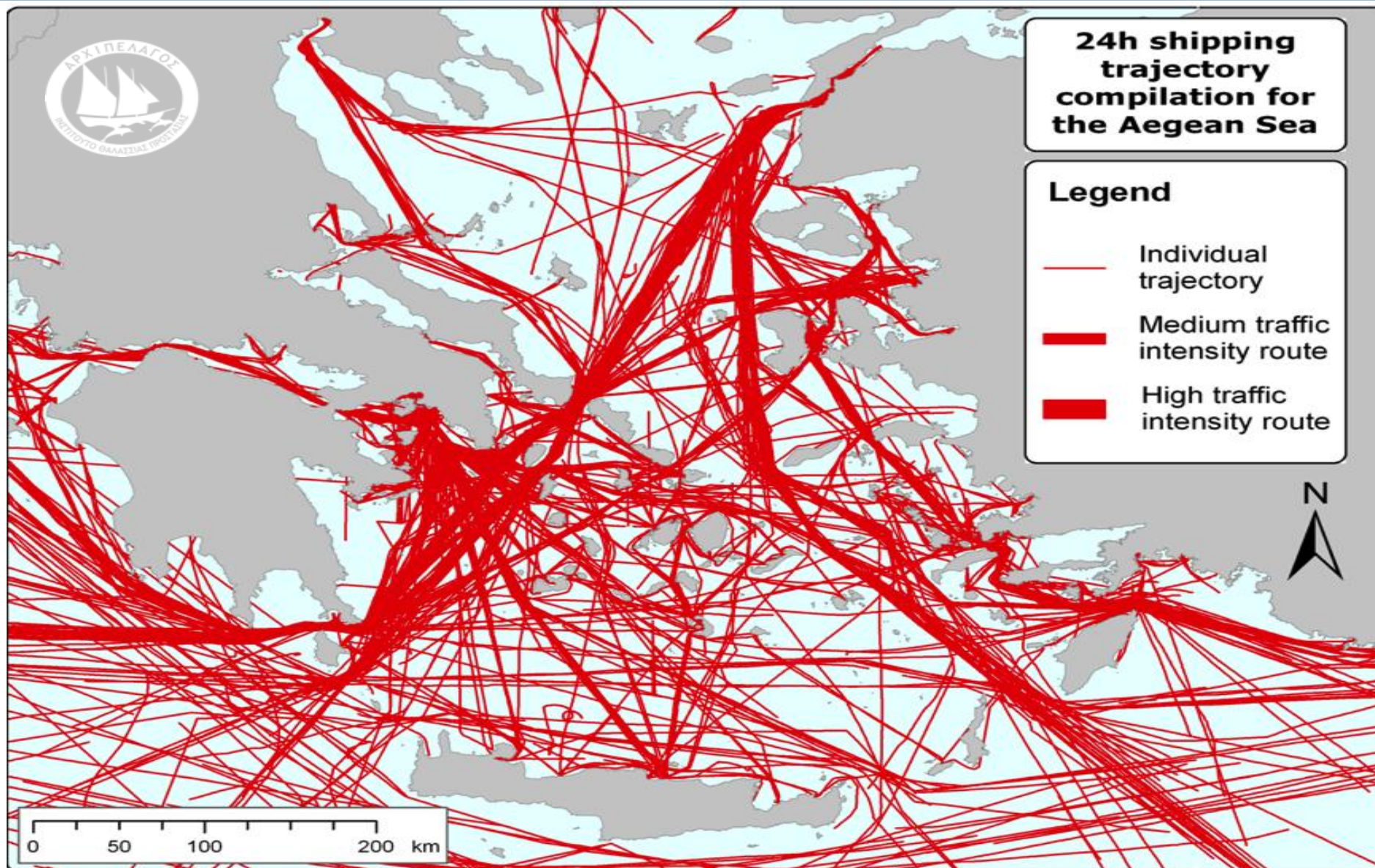


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# **Great Risk of a Maritime Accident**

**Danger of Non-Reversible Disaster**





# Shipping Accidents

Collision of the Cruiser Ship SEA DIAMOND (Greek Flag)  
on a reef on the bay off Santorini  
5 April 2007



Collision of container cargo YUSUF CEPNIOGLU (Turkish Flag)  
north of Mykonos,  
9 March 2014.



## More Recent Shipping Accidents

Cargo M/V **CABRERA** (Flag Antigua-Barbuda)  
Collision on 24/12/2016, on the rocky shores north of  
Andros



Ro-Ro/cargo **SAFFET BEY**  
(Flag Turkey)  
Collision on 3/9/2016 on the beach of the  
settlement Profitis Ilias in Neapoli – Southern  
Peloponnese

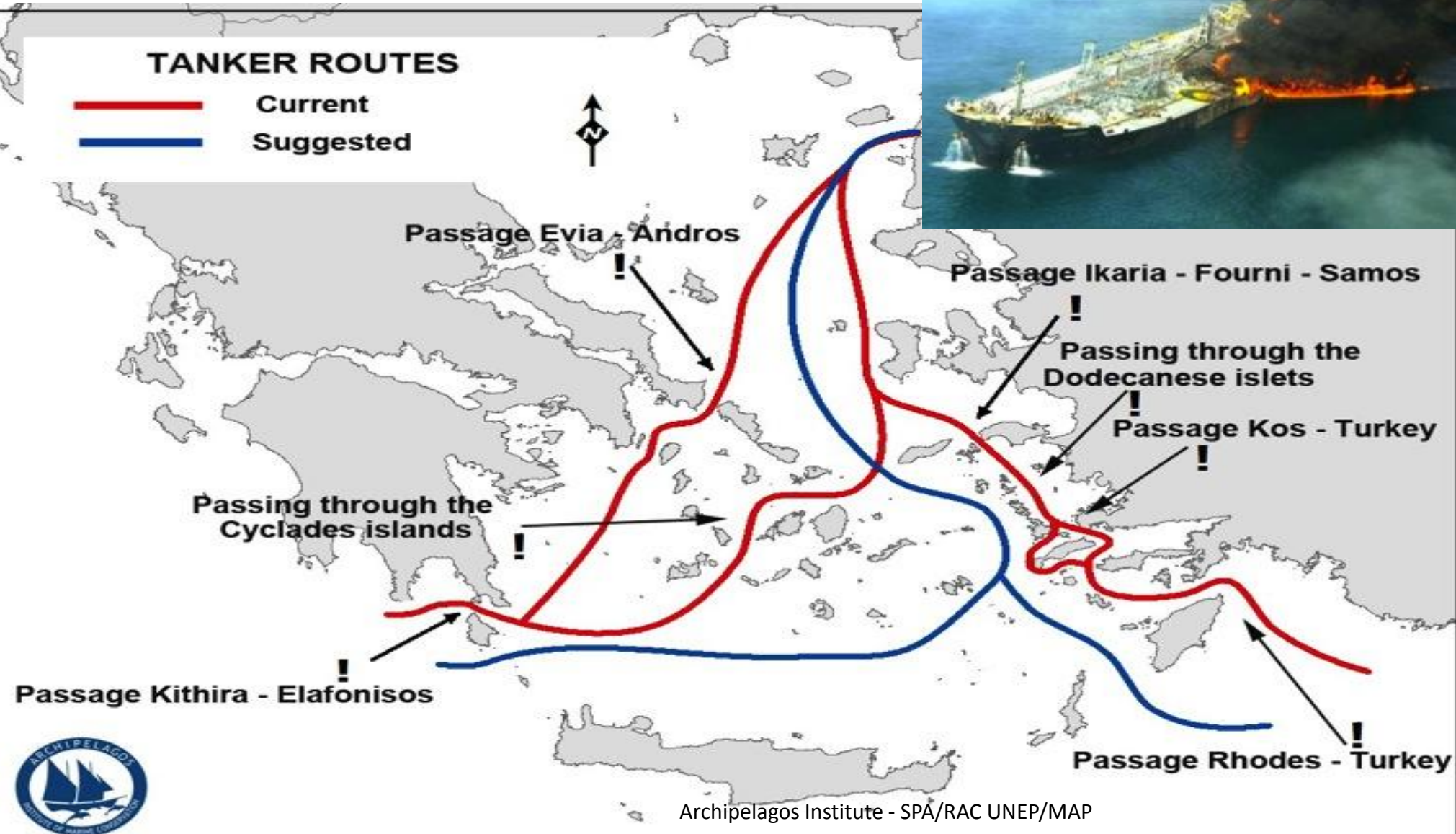




Small Tanker Agia Zoni II, sinking off Athens in  
Salamis on 10/9/2017

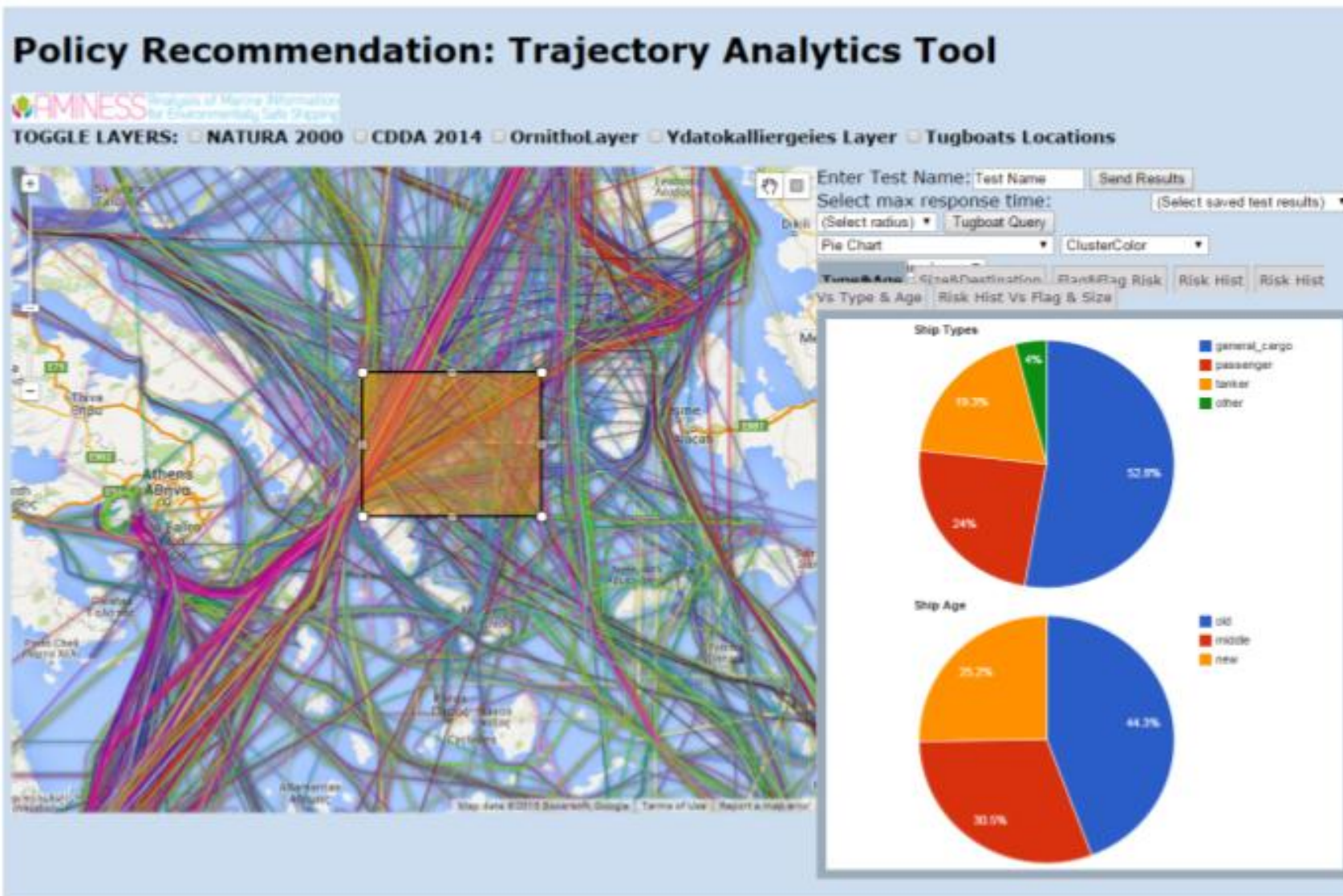


# High Hazard Locations





# Policy Recommendation Online Tool





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**When the financial crisis is overcome,  
we risk to have caused  
an irreversible destruction to our natural resources**



*Thank you for your attention!*

