



**Creating products and knowledge
for the Mediterranean**



AL HOCEIMA NATIONAL PARK OBSERVATORY

TECHNOLOGICAL EXPLOITATION OF A NETWORK OF INTEGRATED MEDITERRANEAN OBSERVATORY SYSTEMS FOR A BLUE ECONOMY IN AL-HOCEIMA

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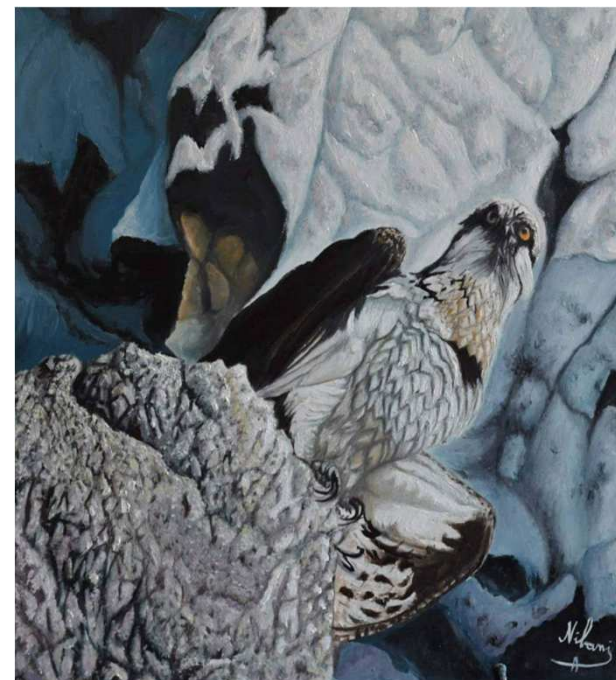
AGIR Association for integrated Management

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Context & challenges

- **Mediterranean Sea** covers 0.7% of the world's ocean area but it is one of the important reservoirs of marine biodiversity (25.5% of the world's marine fauna & flora).
- **Al Hoceima National Marine Park** (48000 Ha, including a sea area of 19600 Ha), is one of the most representative Mediterranean biotope for its high biodiversity
 - It is Home to several rare and endangered species listed on the IUCN Red List
 - It contains the **Mediterranean's** largest population of osprey and a reserve of red coral
 - It is home to 3 varieties of **dolphins**, 69 species of birds and hosted the last population of monk seals (disappeared since 2003), rays and sea **turtles**.
 - It is also, home to pink flamingos, migratory birds, ospreys.





ODYSSEA

Vision :

*Al Hoceima PNAH National Park will become an economic engine
For the region, Biodiversity is a factor in this development*



Context & challenges

- Traditional fishing is one of the major economic incomes for precarious local people
- Rapid demographic enhanced pressures on the marine environment and the use of illegal fishing activities
- Sector weakened by the lack of an appropriate strategies, the decrease of the fish stock and the lack of organization of artisanal fishermen





ODYSSEA

3 MAIN MISSIONS:

1- Observation, through:

- The acquisition of knowledge about the Al Houceima Marine Protected Area (AMP)
- Characterization of marine habitats
- Biodiversity monitoring, particularly of the park's emblematic species
- Monitoring the physico-chemical quality of water and marine sediments
- A cartographic monitoring of heritage areas.

2- Information analysis and decision-making support for monitoring and conservation of the MPA

- Edition of monitoring and surveillance dashboards for the AMP by adopting standardized methodologies validated by the scientific community
- Publication of research work in partnership with universities and research institutes.

3- Raising awareness among GPA users, by:

- The organization of scientific debates and conferences on the GPA and its values
- The organization of activities to discover the AMP for the benefit of children and the general public

Public

Building a genuine local management system based on respect for community biocultural knowledge is essential to cope with global changes,



- The ODYSSEA project will contribute to the adoption of approaches that encourage bottom-up exchanges and can facilitate the identification of critical problems and solutions that take into account ecological and socio-cultural factors, thus providing feedback in a cross-cutting approach, linking end users of local, national and global initiatives that are lacking in many regional and international sustainability frameworks.



Co-management of the Al Hoceima Marine Protected Area, through the synthesis of local biocultural knowledge and precise methods for measuring ex situ knowledge.

- Strengthening the resilience of coastal and marine ecosystems, local populations and artisanal fishing communities is done upstream by managing the factors that generate priority threats in our national marine park, monitoring and evaluation are essential to ensure innovative, multi-scale and interdisciplinary approaches to achieve effective sustainability.



ODYSSEA contributes to the adoption of innovative policies and management that recognize ex situ and in situ knowledge.

- This project links the provision of services to local users through a socio-ecological system; a biocultural approach to indicator development; where resource managers, scientists and decision-makers reflect not only on the types of indicators, but also on how they are defined, designed, applied, measured and ultimately combined to assess their use and well-being.
- By adopting policies and management that recognize in situ and ex situ knowledge, the strategies have been synthesized, reducing several threats and even eradicating dynamite fishing (especially because it is ancestral) in Al-Hoceima National Park.





First Littoral Master in Morocco in Al Hoceima Technologic Faculty involved in ODYSSEA Project



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ODYSSEA contribue à l'adoption de politiques et d'une gestion novatrices qui reconnaissent les connaissances ex situ et in situ.

- Indeed, biocultural approaches, combined with
- synthesis methods based on evidence from multiple sources,
 - such as the ODYSSEA project: "Exploitation of a network of integrated observatory systems in the Mediterranean",
 - which links nine regional Mediterranean and European technology observatories,
 - 28 academic, scientific and non-governmental institutions, including AGIR.



A NEW BORD FOR THREATS REDUCTION

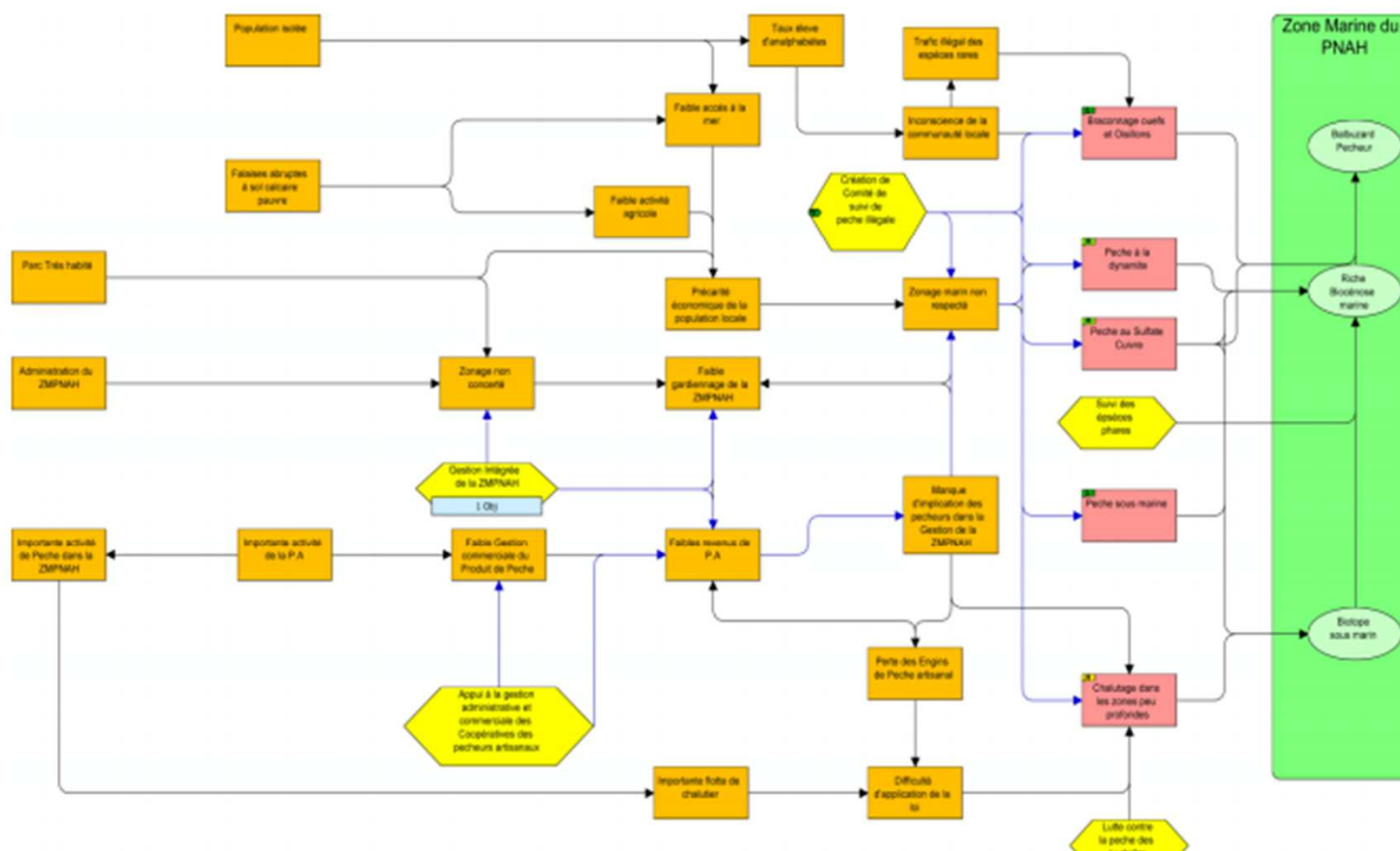
The measurement of ODYSSEA indicators will assist in more adaptive management inspired by the Conservation Action Partnership, which has allowed us to measure and track from 2012 to 2018;

Causes : Non Application de la loi des 3 miles	Pression : Augmentation de l'effort de pêche au sein de l'AMP	Impact Destruction du Biotope et du Stock Halieutique
		



ODYSSEA

Plan d'Action Restauration des Ecosystèmes



- [illegible]



aces \ Cibles	Biotope sous marin	Biocénose marine	Balbard Pêcheur	Grand Dauphin	Poulpe	Mérou	Puffin Cendré	Résumé du classement des menaces :
utage dans les s peu profondes	Elevé	Elevé	Elevé		Elevé	Moyen		Elevé
à la mite	Elevé	Elevé	Elevé		Elevé	Moyen		Elevé
e sous marine	Moyen	Elevé	Moyen		Elevé	Moyen		Elevé
e au Sulfate	Moyen	Moyen	Moyen		Moyen			Moyen
s maillants /ants		Moyen		Elevé			Moyen	Moyen
ngement au au des sites de fication			Elevé					Moyen
se aux Grand phins				Faible				Faible
d Corbeau & n noir			Faible					Faible
c illégal des lons			Moyen					Faible
mé des ements des s.	Elevé	Elevé	Elevé	Moyen	Elevé	Moyen	Faible	Elevé

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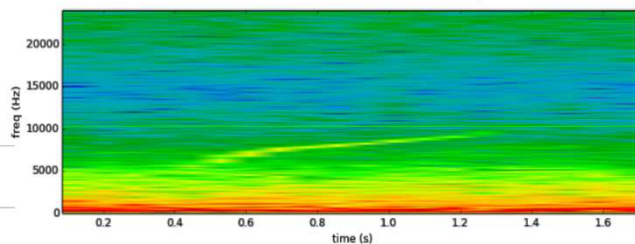
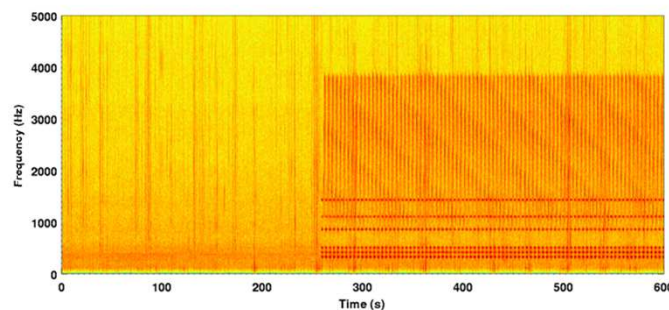
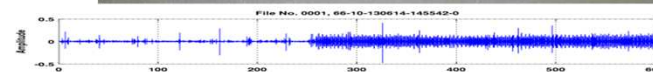
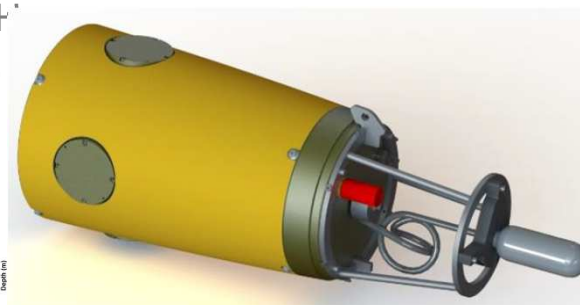
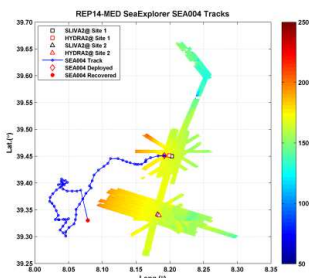


ODYSSEA

II - Planeur SEAEXPLORER

Acoustique sous-marine : Le cœur de métier historique d'Alseamar (ACSA)

- Fréquence d'échantillonnage : 48 kHz, 96 kHz ou 192 kHz
- Bande passante : 10 Hz à 65 kHz (autres sur demande)
- Convertisseur A/N 24 bits
- Applications :
 - ✓ Évaluation des mammifères marins
 - ✓ Détection de ping dans le sonar
 - ✓ Surveillance du trafic maritime
 - ✓ État de santé des habitats
 - ✓ Cartographie du bruit humain
 - ✓ . . .
 - ✓ Étude environnementale de base (EPE)



ALSEAMAR
ALCEN



Odyssea offers Adapted material technology

The new technology transform quasi obsolete some materials “scientific boat 350,000 Euros”

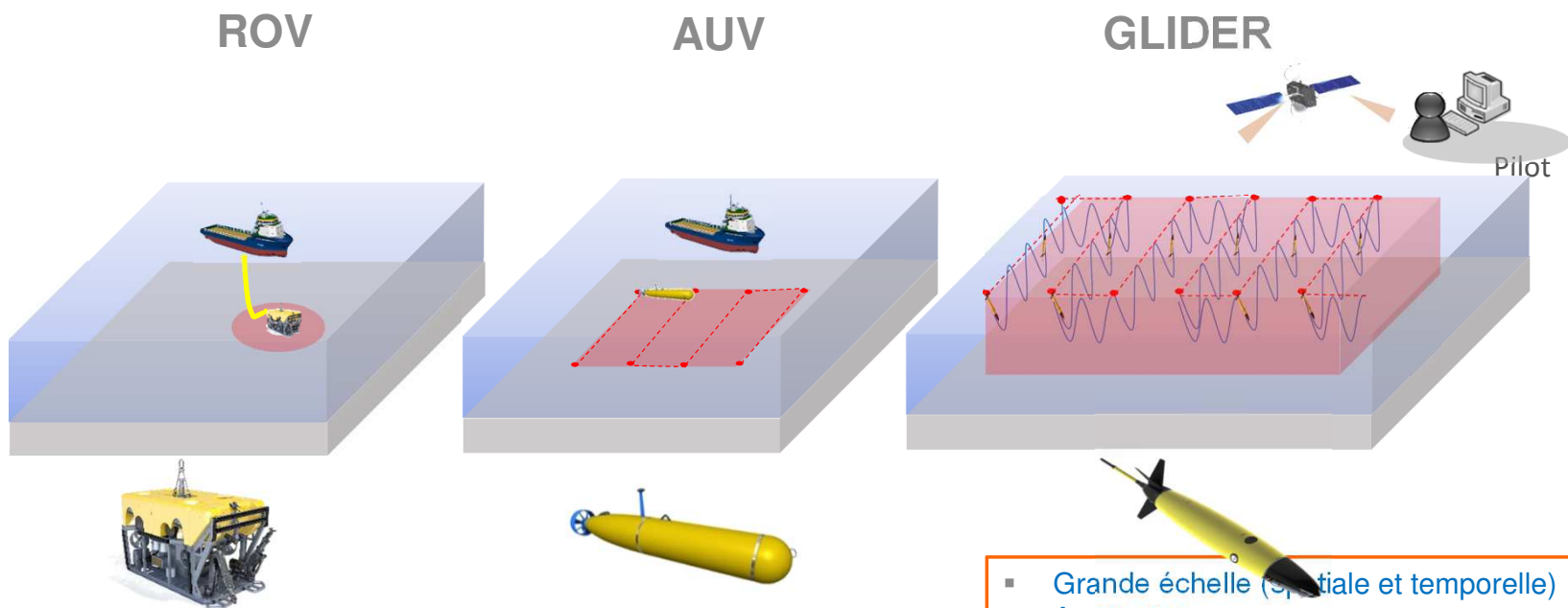


Image de synthèse du navire qui sera livré au Maroc. Crédit: Toyota Tsusho / DR



I - Notions de base sur les planeurs (Gliders)

Planeurs vs. autres véhicules sous-marins :



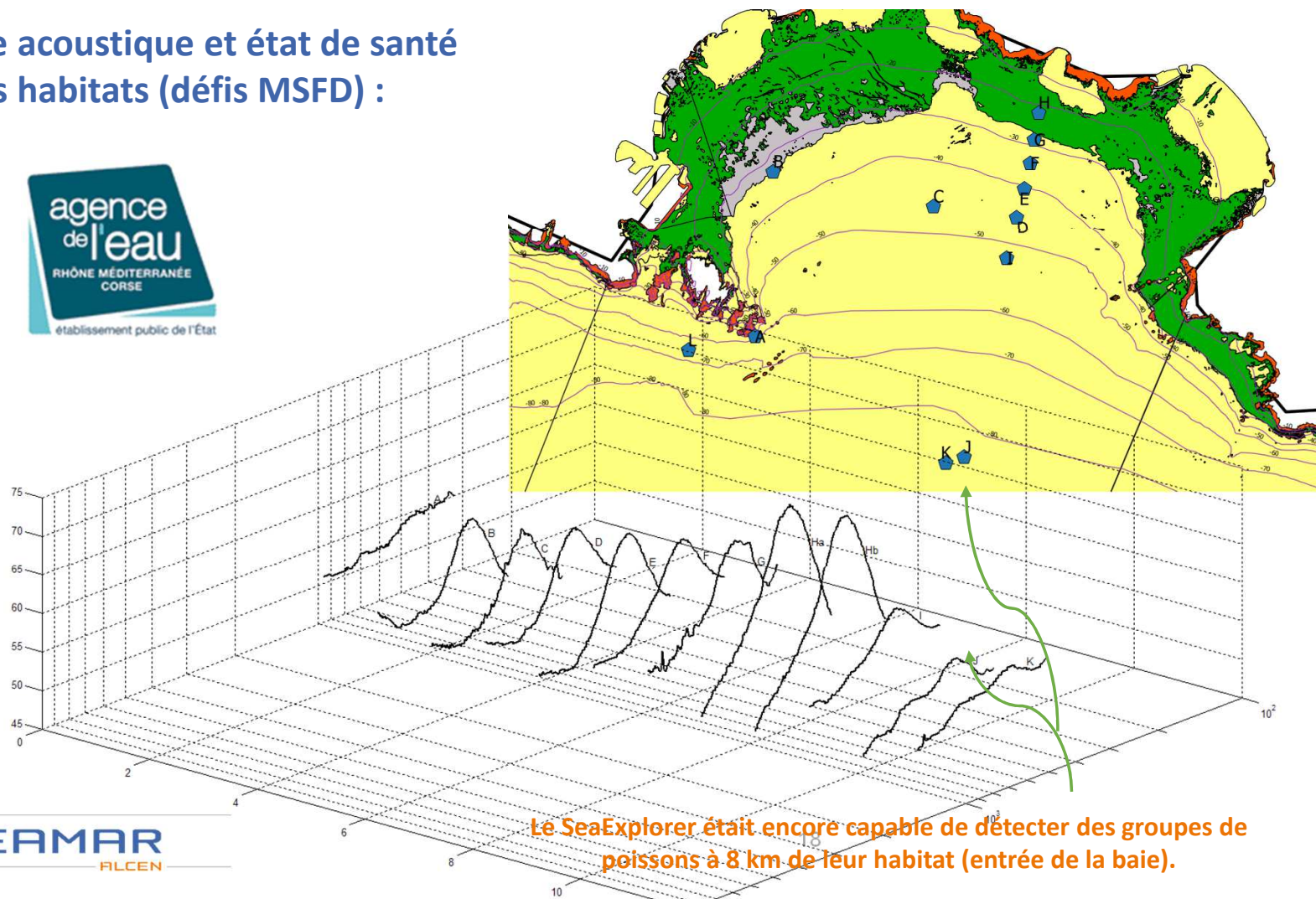
- Grande échelle (spatiale et temporelle)
- Autonome
- Observation persistante et en temps réel
- Aucun navire surveillant n'est requis



**Une façon très rentable de
recueillir des données !**

II – Planeur SEAEXPLORER

Paysage acoustique et état de santé
des habitats (défis MSFD) :



Le SeaExplorer était encore capable de détecter des groupes de poissons à 8 km de leur habitat (entrée de la baie).

Threats : Micorplastic marine waste



Illustration de prélèvement au filet manta

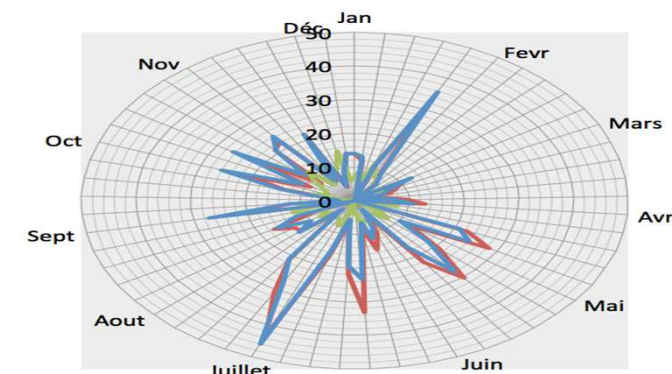
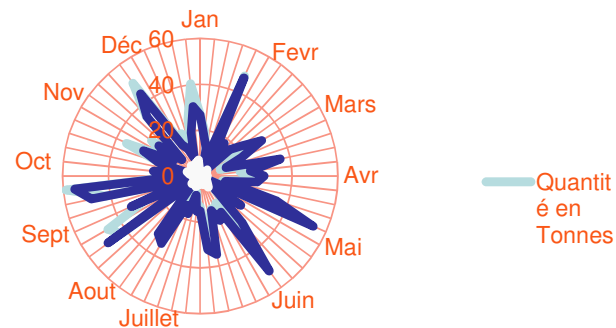


OTHER SERVICES OFFERED BY ODYSSEA

Depredation In Moroccan Coastal fisheries

Comparison of the Incidences of Bottlenose Dolphin attacks in relation to catches and sales in 2014 /2016

The Moroccan Government compensates some 200 seine boats in the Mediterranean for the problem of depredation incidences up to 140 000 Euros per boat

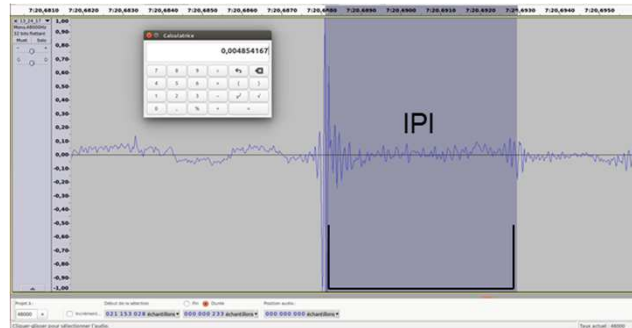


II - Planeur SEAEXPLORE

Exemple de mission : Évaluation et détection des mammifères marins

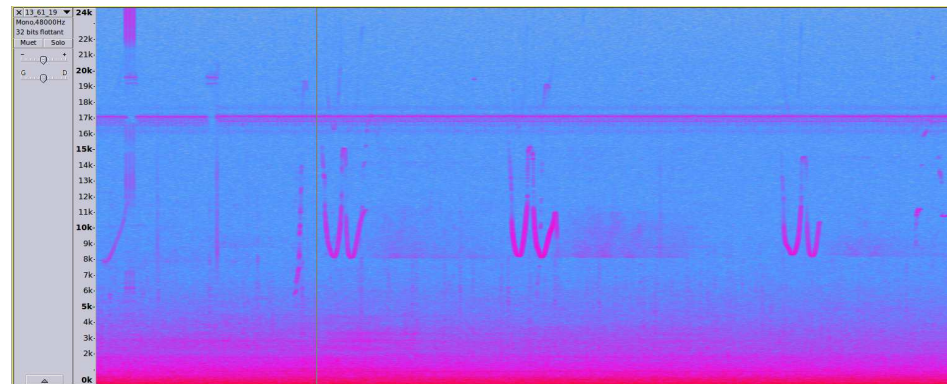
- Estimation acoustique de la taille des baleines :

L'Inter-Pulse Intervalle (IPI) de la vocalisation Sperm-Whales permet d'estimer leur taille : 11,85m & 13,54m



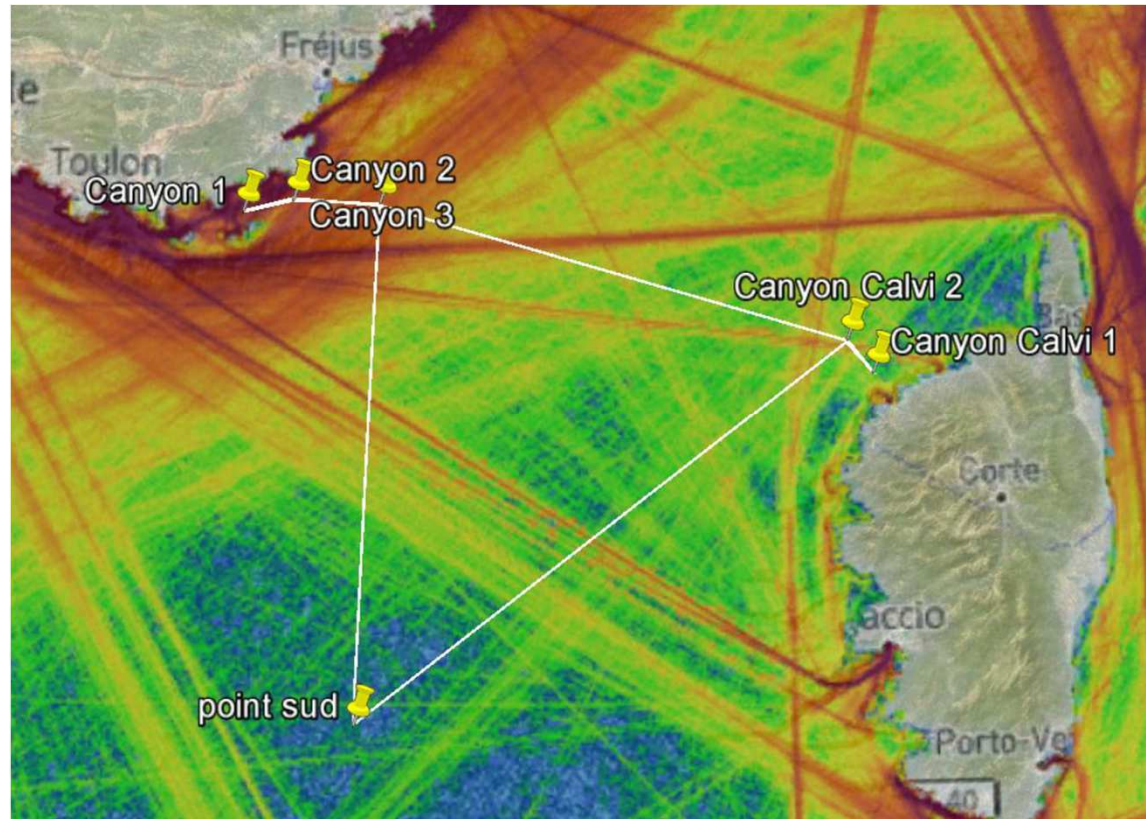
Source: www.cetaces.org

- Dolphin Chirps:
(6-9 kHz)



II – Planeur SEAEXPLORER

Cartographier le bruit sous-marin avec un planeur SeaExplorer au niveau du bassin
C. Gervaise ,Grenoble université.



Prespectives ODYSSEA au Maroc



un volume d'affaires annuel de 6 400 M€

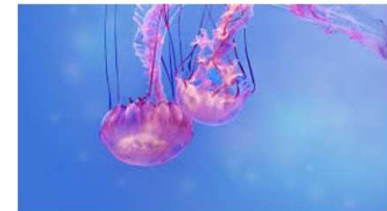
Type	Complexe Industriel-Portuaire
Construction	2004 - 2007 - 2016
Statut	Port autonome
Tirant d'eau	19
Tonnage	39 Mt
Trafic	3 millions d' EVP (2015)
Activités	Conteneurs , passagers, roulier, véhicules, hydrocarbures, vrac,logistiques,industries
Superficie	Port: 1000 ha. Zones d'activités: 3000 ha
Places	46e port mondial 1

Prespectives ODYSSEA au Maroc

Tourism



AGIR
ASSOCIATION DE GESTION
INTÉGRÉE DES RESSOURCES



**Pesca tourisme &
whale watching**



Lessons learnt

1. Building a true local management system based on respect of community biocultural knowledge, is essential to cope with global changes
2. Adopting policies and management that recognize ex situ and in situ knowledge reduced several threats and eradicated dynamite fishing (especially since it is ancestral) within Al-Hoceima National Park.
3. The full involvement of local communities through regular dialogues and respect of biocultural knowledge reinforced the project results
4. The management of factors generating priority threats, monitoring and evaluation were essential to ensure innovative, multi-scale and interdisciplinary approaches to strengthen the artisanal fishing
5. Adaptive Management inspired by the Conservation Measure Partnership allowed the participatory monitoring of the evolution of the ecosystem state from a high degradation state to a current average health state.
6. Participatory definition of a new zoning plan for the National Park' marine area, which responds to the ecological conservation concerns and not only to those of fisheries resources increased the marine resources

Partners



CEPF Critical Ecosystem Partnership Fund

Secretariat d'état chargé du développement durable



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MERCI

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