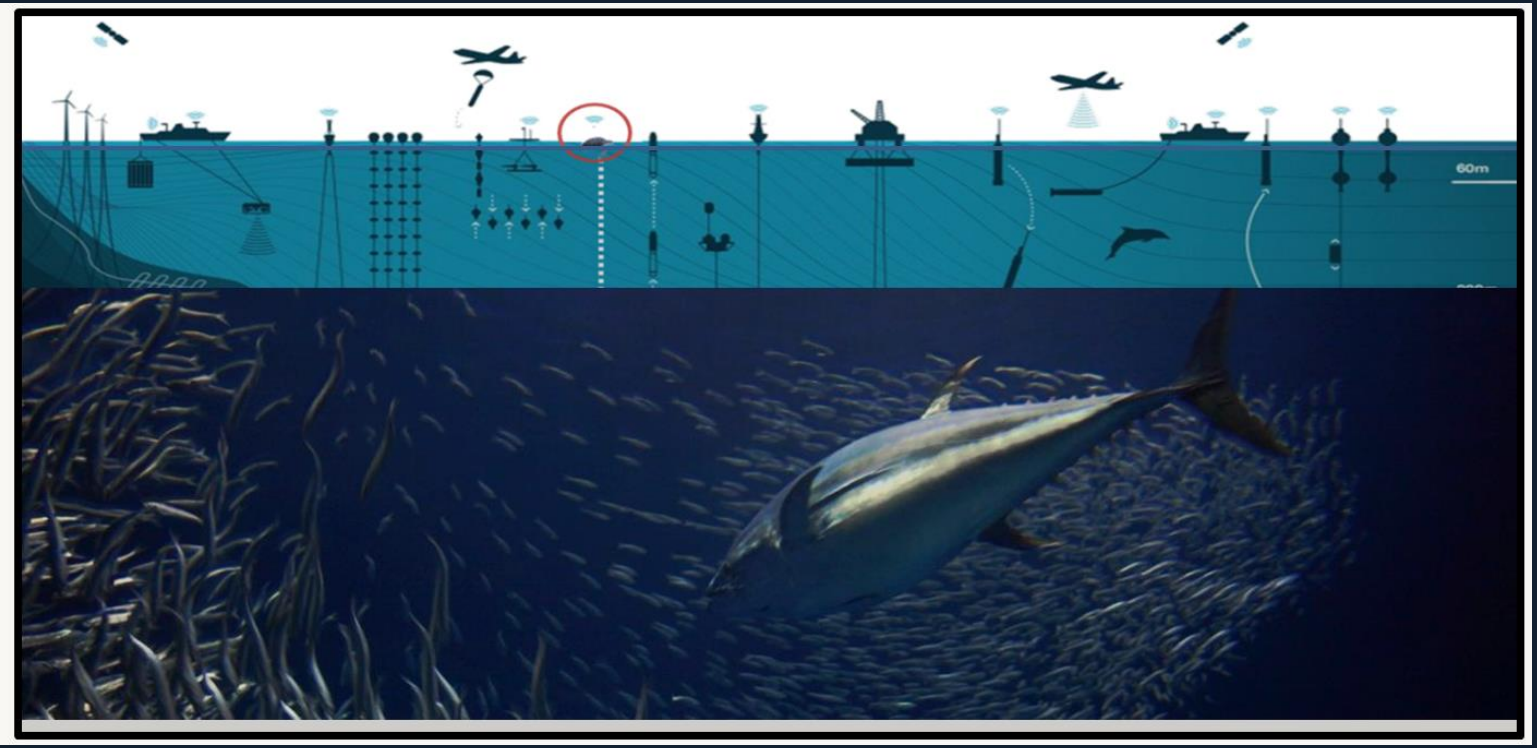
From theory to practical “operational fisheries oceanography”, an emerging field for linking species ecology, operational oceanography and fisheries assessment needs

Álvarez-Berastegui D, Hidalgo M, Reglero P, Balbín R, Barroso L, Mourre B, Hernandez I, Orfila A, Tintoré J.



9-12 September 2019 ; Gothenburg, Sweden

ICES CIEM

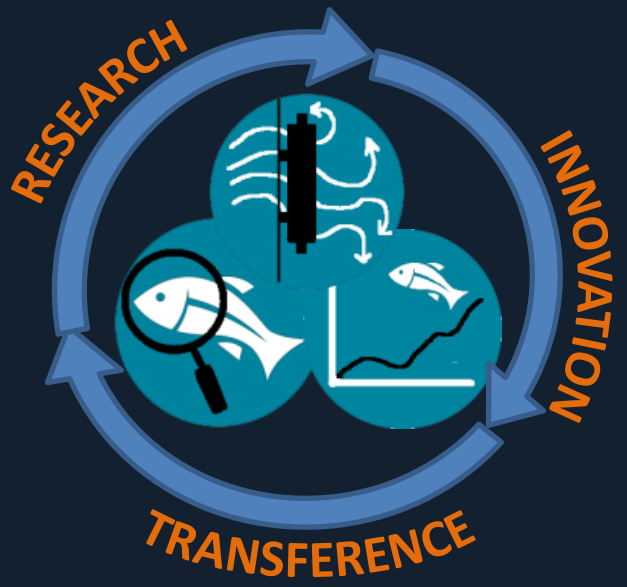
SOCIB Balearic Islands Coastal Observing and Forecasting System

IMEDEA

DEFINTION "OPERATIONAL FISHERIES OCEANOGRAPHY"

"A research and innovation discipline directed to link marine ecology and operational oceanography for the development of new information on environmental processes affecting species, and the systematic and effective integration of that information into the assessment and management for fisheries sustainability and conservation"

(Alvarez-Berastegui et al..,2018)



General scheme for practical implementation of "operational fisheries oceanography"

Identify needs at the assessment level

↓

Identify the links between oceanographic processes and species ecology

↓

Developing operational fisheries oceanography datasets for the parameterization of the ecological process

↓

Integrate into the assessment methods and evaluate improvement

General scheme for practical implementation of "operational fisheries oceanography"

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Integrate into the assessment methods and evaluate improvement

Eg. Reduce CPUE uncertainty of larval sampling used to assess SSB

CPUE bias from changes in the overlap between sampling areas and larval habitat distribution

General scheme for practical implementation of "operational fisheries oceanography"

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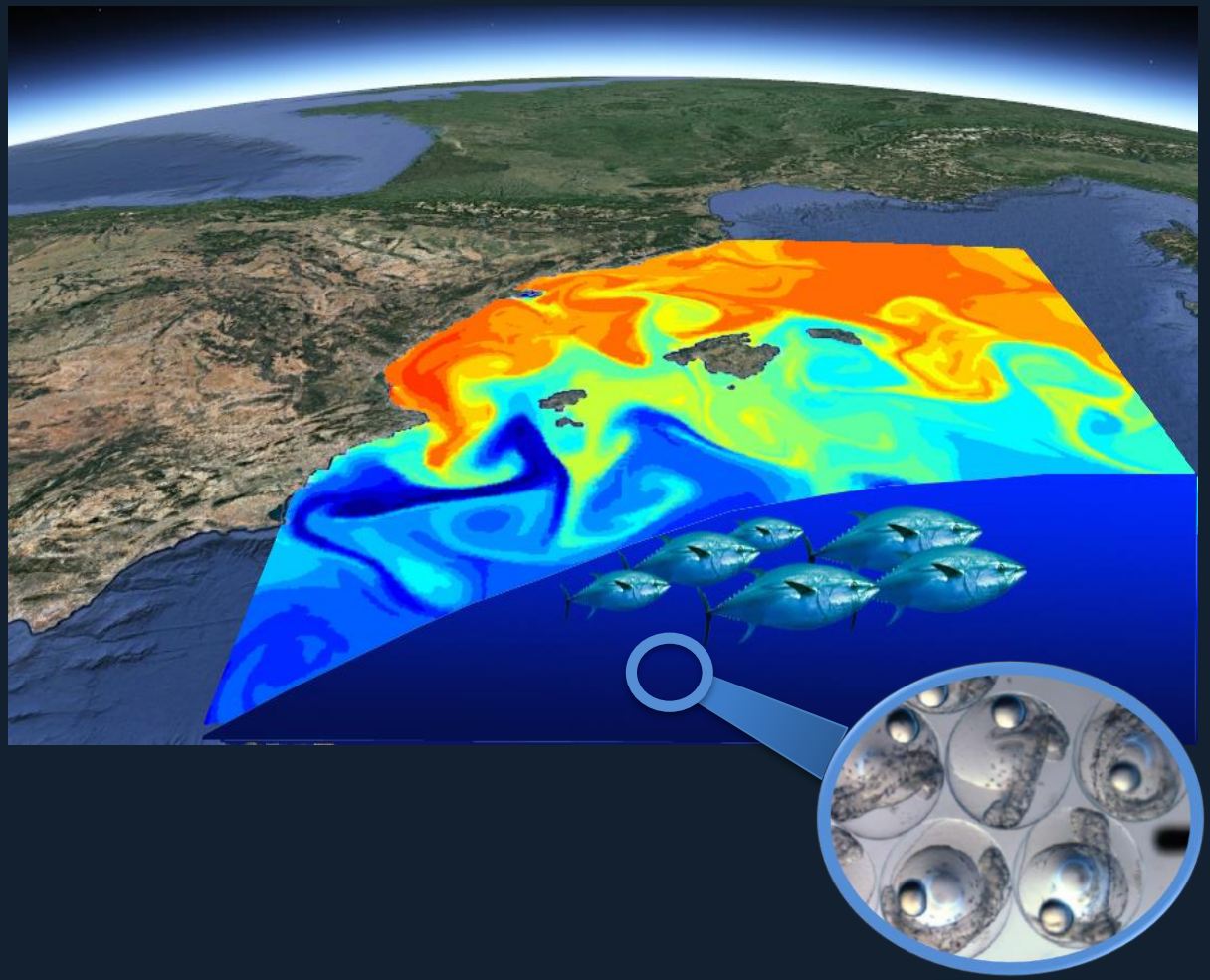

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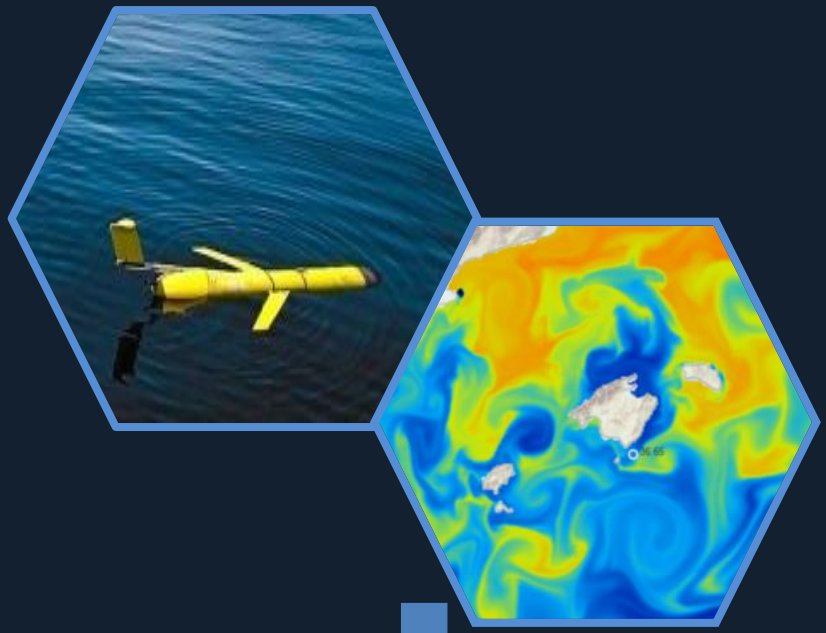

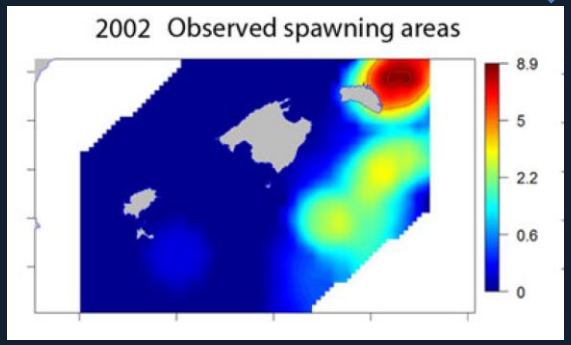

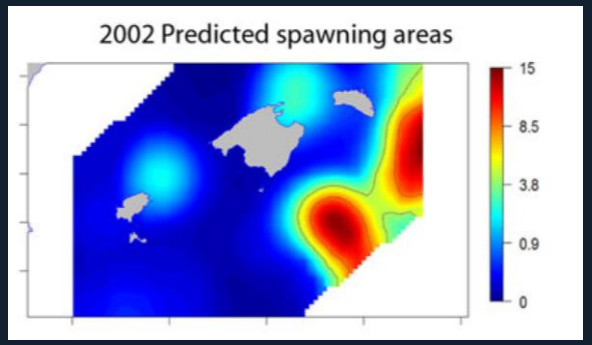

Research activities with impact in fisheries

General scheme for practical implementation of "operational fisheries oceanography"

Identify needs at the assessment level

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Identify the links between oceanographic processes and species ecology

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Developing operational fisheries oceanography datasets for the parameterization of the ecological process

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Integrate into the assessment methods and evaluate improvement

$$I_y = c_y p_y,$$

$$f_j(x_j) = \sum_{k=1}^{K_j} \beta_{jk} b_{jk}(x_j)$$

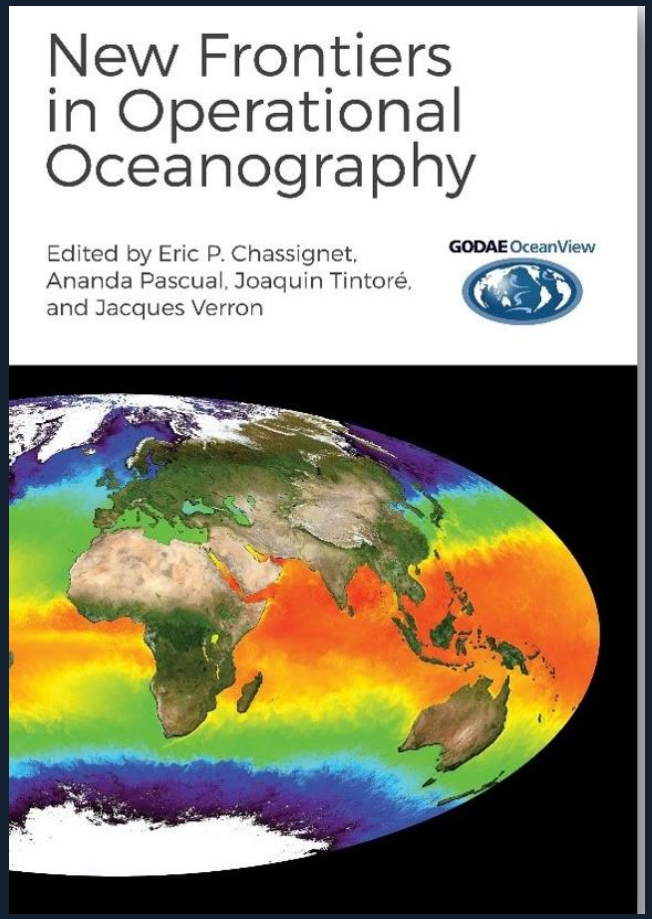
SCRS/2018/066 Collect. Vol. Sci. Pap. ICCAT, 75(2): 180-193 (2018)

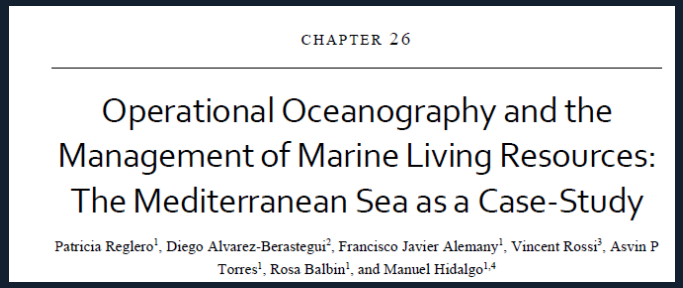
A METHOD FOR NONLINEAR STANDARDIZATION OF ZERO-INFLATED CPUE TO ACCOUNT FOR MESOSCALE OCEANOGRAPHIC VARIABILITY

(Alvarez-Berastegui et al. ICCAT, 2018)

Research activities with impact in fisheries

Dissemination of study cases in pelagic, demersal and artisanal coastal fisheries in the Mediterranean




CHAPTER 26

Operational Oceanography and the Management of Marine Living Resources: The Mediterranean Sea as a Case-Study

Patricia Reglero[1], Diego Alvarez-Berastegui[2], Francisco Javier Alemany[1], Vincent Rossi[3], Asvin P Torres[1], Rosa Balbin[1], and Manuel Hidalgo[1,4]

-Improving CPUE from habitat models

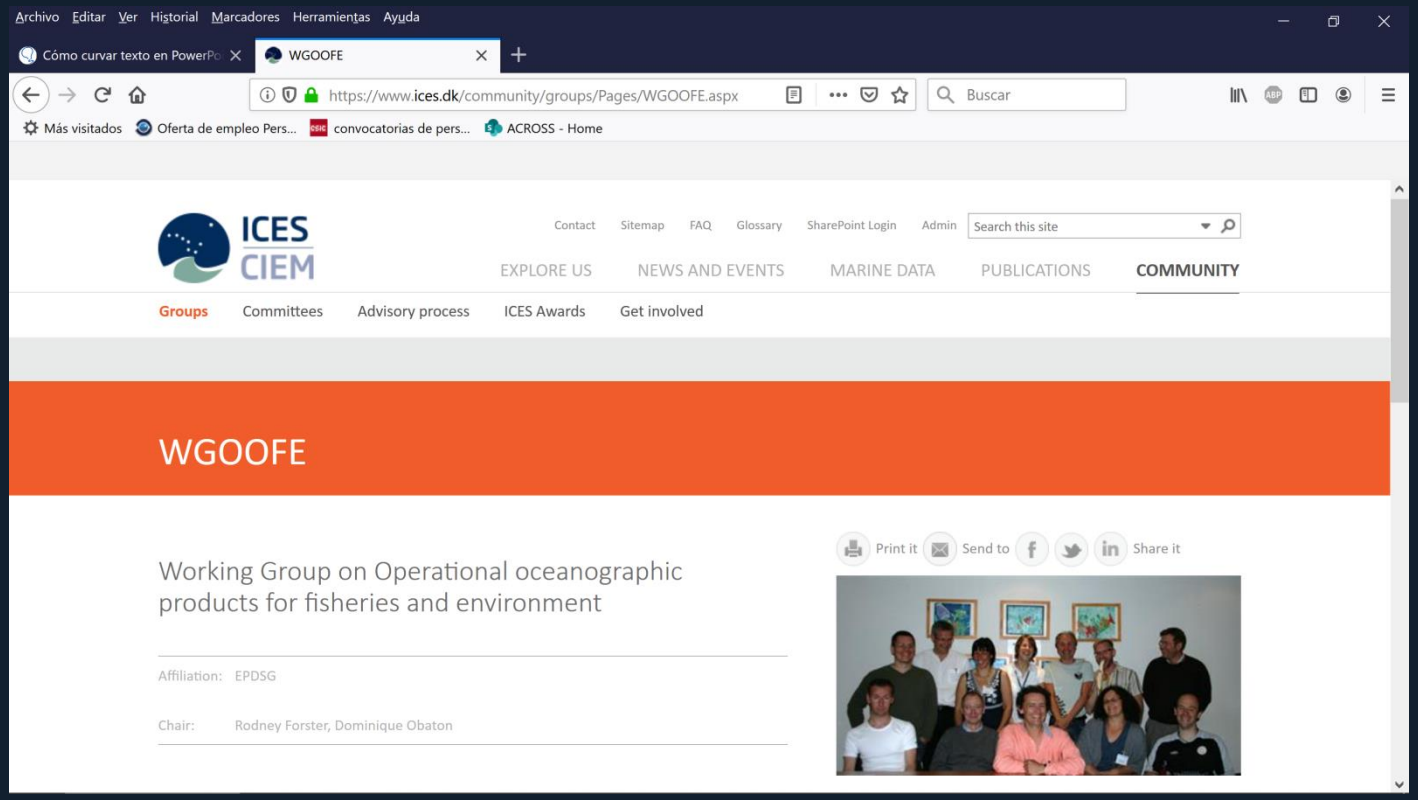
-Developing recruitment indices from environmental variability

-Integrate connectivity between stocks from larval dispersal

-Evaluate carrying capacity of coastal ecosystems affected by hydrography.

Activities for defining gaps, challenges and a way forward

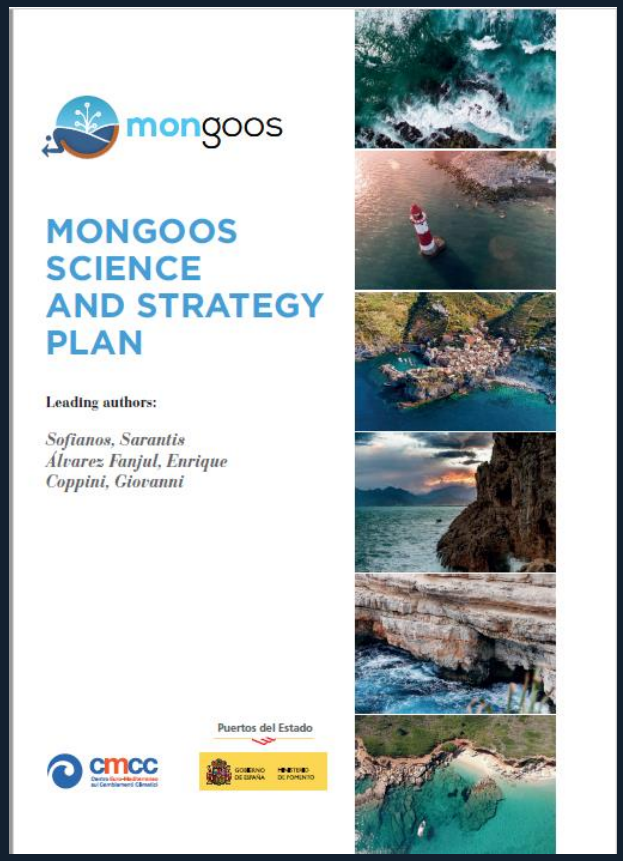
1- Interacting with WGOOFE



Activities for defining gaps, challenges and a way forward

1- Interacting with WGOOFE

2- Coordinating a group for defining a fisheries oriented strategy in MONGOOS **(Mediterranean Operational Network for the Global Ocean Observing System)**



Activities for defining gaps, challenges and a way forward

1- Interacting with WGOOFE

2- Coordinating a group for defining a fisheries oriented strategy in MONGOOS

3- Boosting a network for operatinal fiheries oceanography within CLIOTOP

https://oostop.wixsite.com/oostop

Activities for defining gaps, challenges and a way forward

1- Interacting with WGOOFE

2- Coordinating a group for defining a fisheries oriented strategy in MONGOOS

3- Boosting a network for operatinal fiheries oceanography within CLIOTOP

3- Organizing a workshop for operational fisheries oceanography in FISHFORUM (FAO , Rome December2018)

RESULTS: gaps and challenges

Regarding operational oceanography

-Availability of advanced oceanographic data products informing about specific dynamic processes driving the ecology of the species of interest (eg dispersion/retention processes)

-Data accessibility of specific datasets (e.g species habitat)

-Operational oceanography products quality control and transparency/trazeability

-Existence of tools (software) for data handling (e.g. Matlab vs R)

RESULTS: gaps and challenges

Regarding fisheries and ecology

-Knowledge about environmental processes driving species key ecological processes

-Adequate identification of the operational oceanographic products

-Researchers (fisheries/ecology) background to handle oceanographic datasets

- Viability of the assessment methodology (i.e. population models) to integrate environmental variability.

RESULTS: WAY FORWARD

-Connect developers of operational oceanography data with fisheries management organizations

-Foster the capacity building in operational fisheries oceanography (into the fisheries community)

-Design and promote specific study cases

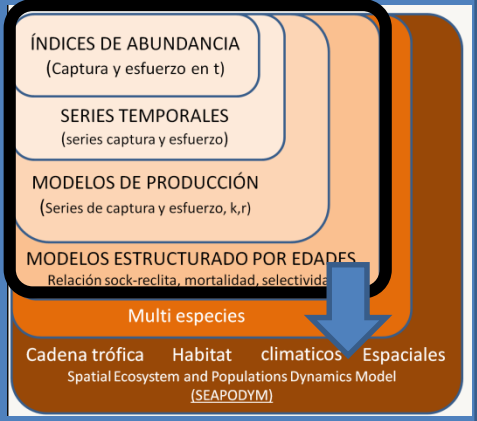
-Aligning Operational Oceanography objectives with the requirements of the fisheries end users community in marine ecosystems (GOOS->EuroGOOS,…)

- Interaction between working groups on “operational fisheries oceanography” of different institutions to maximize knowledge transference (ICES, GFCM, Tuna RFMOs)

RESULTS: WAY FORWARD

Operational Fisheries Oceanography should NOT be only about fisheries assessment

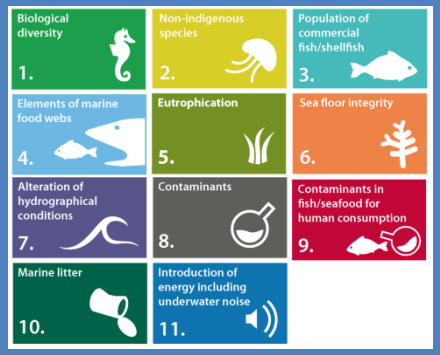
Suport advanced assessment methods



HOW:
From simple population models to ecosystem models

Integration into the MSFD

Directive 2008/56/CE



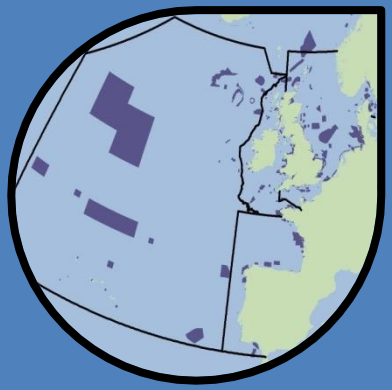
HOW:
Boosting the development of new indicators of ocean health

DIRECTIVE FOR THE MARITIME SPATIAL PLANNING

DirectivE 2014/89/EU

HOW:
Integrating fisheries into the MSP initiatives

CONVENTION ON BIOLOGICAL DIVERSITY (ONU)



HOW:
Integrando políticas de pesca y conservación en AMPs

Founding.

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