



# AtlantOS

**Supporting Ecosystem Based Management for Fisheries  
in the Atlantic Upwelling Regions**



Sandra Ketelhake (German Marine Research Konsortium)  
and AtlantOS use case team

- Ambition of AtlantOS
- Basin-scale approach
- Use case approach
  - Presently active use cases
- Supporting Ecosystem-Based Management for Fisheries in Atlantic Upwelling Regions
  - Issues and challenges
  - Identified needs / information products
  - Value-added through AtlantOS program
  - Current activities



An international program leading to a comprehensive All-Atlantic Ocean Observing System that benefits all of us living, working and relying on the ocean

## **Support All-Atlantic Perspective**

Connect sub-basin, regional and national observing activities in the Atlantic Ocean, South of the Arctic and North of Antarctica. The coverage area of AtlantOS includes the North Atlantic, Tropical Atlantic, South Atlantic, and their connectivity to the Marginal Seas (e.g. North-Sea and Mediterranean).

## **Support Regional Implementation**

Policy agreements such as the EU – USA – Canada Galway and EU – South Africa – Brazil Belém Statements (plus additional countries) and various GEO Blue Planet and regional GOOS arrangements benefit from multilateral coordination and facility sharing across the Atlantic through AtlantOS..

## **Work towards a fit-for-purpose observing system**

Through value chain approach support of reviewing the Atlantic wide system, national and regional commitments and how it optimally serves ocean information, knowledge and societal value.

- To improve **international collaboration** in the design, implementation and benefit sharing of ocean observing,
- To promote **engagement and innovation** in all aspects of ocean observing,
- To facilitate **free and open access** to ocean data and information => **Digital-Twin Ocean**
- To enable and disseminate methods of achieving **quality and authority** of ocean information,
- To strengthen the Global Ocean Observing System (**GOOS**) and contribute to **GEO** Blue Planet Initiative,
- To contribute to the **Galway** and **Belém** Statements on Atlantic Ocean Cooperation



Covering the Atlantic basin and interface with the Arctic, Southern Ocean, and marginal seas.

**Requirements** for a use case

- Build upon *existing data and observing infrastructures*
- Help *building community / capacity exchange*
- Work towards *needed services* not presently available
- Create a *prototype component* of the final system.
- Contribute to the *implementation of international activities*



AtlantOS value chain: From societal need to observations and information products. Credit: AtlantOS

Carbon Uptake –  
Identifying sources  
and sinks of carbon

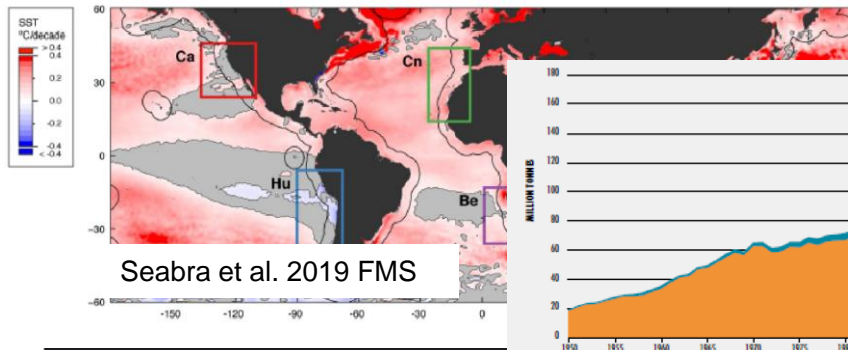
Mitigating Impacts of  
Sargassum on Coastal  
Communities in the  
Tropical Atlantic

Networks to predict  
and explain marine  
animal movements in a  
changing environment

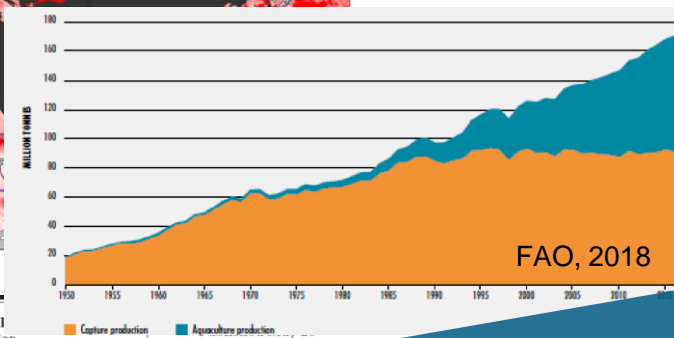


Providing Basin-Scale  
Climate Services –  
Atlantic Meridional  
Ocean Circulation

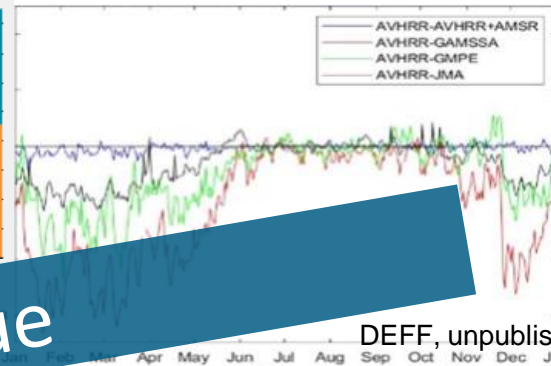
Supporting Ecosystems  
Based Management  
for Fisheries in Atlantic  
Upwelling Regions



Seabra et al. 2019 FMS



FAO, 2018



DEFF, unpublished

Vol. 596: 155–164, 2018  
<https://doi.org/10.3354/meps12567>

MARINE ECOLOGY PROGR  
 Mar Ecol Prog Ser

Capture production Aquaculture production

**Basin-wide issue**

## Non-stationary responses in anchovy (*Engraulis encrasicolus*) recruitment to coastal upwelling in the Southern Benguela

Peter van der Sleen<sup>1,2,\*</sup>, Ryan R. Rykaczewski<sup>3</sup>, Brendan D. Turley<sup>4</sup>, William J. Sydeman<sup>5</sup>, Marisol Garcia-Reyes<sup>1</sup>, Steven J. Bograd<sup>5</sup>, Carl D. van der Lingen<sup>7</sup>, Janet C. Coetzee<sup>6</sup>, Tarron Lamont<sup>7,8</sup>, Bryan A. Black<sup>1</sup>

Environmental Development 17 (2016) 230–243



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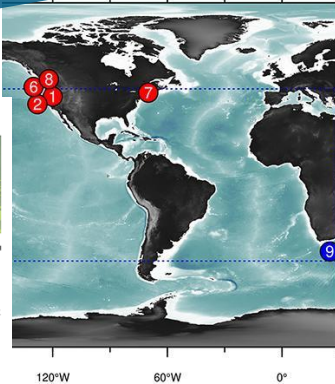
Environmental Development

journal homepage: [www.elsevier.com/locate/envdev](http://www.elsevier.com/locate/envdev)



Climate change, dinoflagellate blooms and sardine in the southern Benguela Current Large Marine Ecosystem

C.D. van der Lingen<sup>a,b,\*</sup>, L. Hutchings<sup>b</sup>, T. Lamont<sup>cd</sup>, G.C. Pitcher<sup>ab</sup>



## Lessons from the First Generation of Marine Ecological Forecast Products

Mark R. Payne<sup>1\*</sup>, Alistair J. Hobday<sup>2</sup>, Brian R. MacKenzie<sup>1</sup>, Desiree Tommasi<sup>2</sup>, Danielle P. Dempsey<sup>4</sup>, Sascha M. M. Fassler<sup>3</sup>, Alan C. Haynie<sup>5</sup>, Rubao Ji<sup>7</sup>, Gang Liu<sup>4,5</sup>, Patrick D. Lynch<sup>6\*</sup>, Daniela Matei<sup>1\*</sup>, Anna K. Miesner<sup>1</sup>, Katherine E. Mills<sup>1\*</sup>, Kjersti O. Strand<sup>1\*</sup> and Ernesto Villarino<sup>1\*</sup>

REVIEW  
 published: 12 September 2017  
 doi: 10.3389/fmars.2017.00299





BUILDING AN ALL ATLANTIC OCEAN COMMUNITY  
Implementing the Belém Statement



**iAtlantic**  
INTEGRATED ASSESSMENT OF ATLANTIC MARINE ECOSYSTEMS IN SPACE AND TIME

**MBON**

Marine Biodiversity Observation Network

**BLUE ACTION**

**ZMT**  
LEIBNIZ-ZENTRUM für Marine Tropenforschung



Hansen Programme



**MEERWISSEN**  
African-German Partners for Ocean Knowledge

Many activities and actors but lack of coordination

**TRIATLAS**



**ICES**

**PLOCAN**

PLATAFORMA OCEÁNICA DE CANARIAS



Gobierno de Canarias



**UN environment programme**



Abidjan Convention  
Convention d'Abidjan

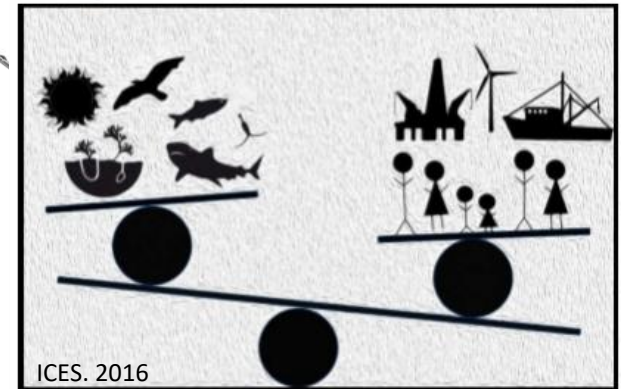


**KIEL MARINE SCIENCE**  
CONNECTED RESEARCH





- Adequate **indices** to identify and monitor changes in an integrated manner
- Appropriate **links** between environment and fisheries
- **Balancing human activities & environmental protection** in a multiple use context with
  - Resource users
  - Ocean Scientists
  - Resource managers
  - Policy makers
  - General Public



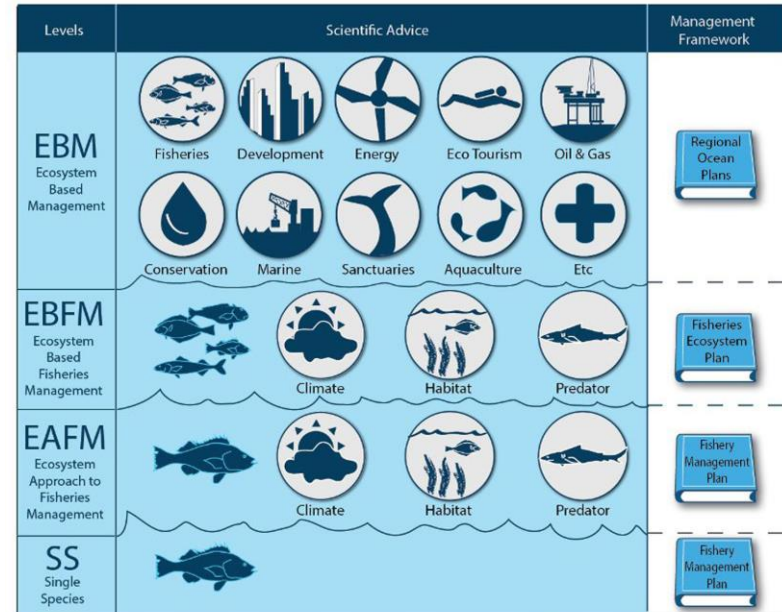
- Connecting of **existing programs, institutions and projects**
- Identify a **common set of questions** that might be applied to different fish species of interest in different parts of the upwelling regions
- Identify and implement **adequate indices and integrated monitoring approaches**
- Support appropriate **link between environment changes/tipping points and fisheries**
- Develop **predictive modelling services** to mitigate impacts to communities and fishery industry
- Support **basin-wide Dynamic Ocean Management**
- Provide **centralized access to information**



UN General Assembly 2015

1. No Poverty
2. Zero Hunger
3. Good Health and Well-being
4. Quality Education
5. Decent Work and Economic Growth
6. Industry, Innovation, and Infrastructure
7. Responsible Consumption and Production
8. Climate Action
9. Life Below Water
10. Partnerships for the Goals.

- **Improving our working knowledge** of the links between climate, fisheries, and ecosystem management through
  - Fundamental research (process studies)
  - Long-term monitoring
  - Comparative approach
- Further **unite a network of partners** with observing, modeling/prediction, and scientific expertise
- Better **translation of data to information** for effective management
- **Maximize benefits** of existing investments and instrumentation



Schmidt et al. 2019 FMS

# AtlantOS

[atlantos-ocean.org](http://atlantos-ocean.org)

Please contact us and join the use case team  
– your knowledge and experiences are needed!

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#AtlantOS

