Town Hall

All-Atlantic Ocean Observing System
Why do we need an All-Atlantic Ocean Observing System, what does AtlanOS offer, and how do we implement AtlantOS?
Sandra Ketelhake (KDM) and Brad deYoung (MUN)

AtlantOS Use Cases (Examples)
Mitigating Impacts of Sargassum on Coastal Communities in the Tropical Atlantic
Emily Smail (GEO Blue Planet)

Supporting Ecosystems Based Management for Fisheries in Atlantic Upwelling Regions
Tarron Lamont (DEFF)

Q&A
moderated by Martin Visbeck (GEOMAR)
An International Program for Basin-Scale Observing of the Atlantic Ocean

Brad deYoung (Memorial University)
Sandra Ketelhake (German Marine Research Consortium)
A comprehensive Atlantic Ocean Observing System that benefits all of us living, working and relying on the ocean.
AtlantOS High-level Strategy (initially called AtlantOS BluePrint)

- Developed and drafted by a transatlantic writing team through the AtlantOS BluePrint Process
All-Atlantic Perspective

Several sub-basin, regional and national activities exist in the Atlantic Sector south of the Arctic and north of Antarctica. This includes the North Atlantic, Tropical Atlantic and South Atlantic and their connectivity to the Marginal Seas (North-Sea and Mediterranean).

Support Regional Implementation

Implementation of the All-Atlantic Ocean Observing System benefits from multilateral coordination and facility sharing across the Atlantic. In particular policy agreements such as the EU – USA – Canada Galway and EU – South Africa – Brazil Belem Statements (plus additional countries) and various GEO Blue Planet and regional GOOS arrangements.

Work towards a fit-for-purpose system

Support for an Atlantic wide system review and national and regional commitments towards the implementation of the system and how it optimally serves ocean information, knowledge and societal value.
Value Chain
How will AtlantOS generate value?

**Community building**
Bring the observations community in the Atlantic region together to build a common system.

**Services for Society**
Interpretation and presentation of information to provide the tools needed to bridge the gulf between science and society.

**Communication**
Activities to engage with users and ensure that the focus of the AtlantOS program is directed towards the needs of society.
Program content

Use Cases

Basin Implementation

Community Building
- AtlantOS Symposium
- Topical Workshops
- Education and Training

Services for Society
- Supporting Ocean Information Product Generation
- Fit-for-Purpose System Evaluation
- Support National and Regional Review and Commitments

Communication
- Information Portal
- Briefings and Fact Sheets
- Newsletter

Education and Training for Society Supporting Ocean Information Product Generation
Presently active Use Cases

- 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
**Issue:** Long-term sustainability and collaboration between programs making various property and biogeochemical measurements

**Need:** Promote the sharing of infrastructure and ease linkages to models

**Approach:** Developing program engagement (OSNAP, RAPID, SAMOC et al.)

**Leaders:** Brad deYoung (MUN) and Tarron Lamont (DEFF) and others
Networks to predict and explain marine animal movements in a changing climate

**Issue:** Rapid environmental change is causing shifts in marine populations

**Need:** Combine animal tagging, biodiversity and environmental data and information to help document, understand and predict these shifts

**Approach:** Emulate restoration and recovery efforts implemented in the Pacific and Atlantic during the International Year of the Salmon (2019) that are scalable to other species (e.g. mullet, marine mammals)

**Potential Outcomes:** Integrated data to identify hotspots, visualize shifts and forecast change; ecosystem indicators for top predators as ‘sentinels’ of change; basin-wide platform for information sharing

**Leaders:** Gabrielle Canonico (NOAA) and Fred Whoriskey (Dalhousie University) and others
Carbon uptake – Identifying sources and sinks of carbon

**Issue:** CO₂ grow rate in the atmosphere unabated

**Need:** Integrate the many different measurements and observing infrastructures; identify sources and sinks at the basin-scale; develop reliable CO₂ emission scenarios for 2° target

**Potential Outcomes:** Data and knowledge system in the context of carbon uptake in the ocean; information product on how to observe the ideas for marine solutions to increase CO₂ uptake in the Atlantic Ocean; good practices on how a global accounting system could work

**Leaders:** Leticia Cotrim (UFRJ), Martin Visbeck and Andreas Oschlies (GEOMAR) and others
Our approach to working on these cases will be

– To build upon existing data and observing infrastructures
– To help building community / capacity exchange
– To work towards needed services not presently available
– To create a prototype component of the final system
– To contribute to the implementation of international activities like GOOS Strategy 2030, OceanObs’19 follow up process, and the UN Decade of Ocean Science for Sustainable Development (2021 – 2030)

We openly encourage and invite other use case initiatives to self-organize themselves within the frame of AtlantOS
Collaboration with Global Ocean Observing System (GOOS)

AtlantOS will contribute to the implementation of the GOOS Strategic Objectives (Strategy 2030)
• Deepening engagement and impact
• System integration and delivery
• Building for the future

By offering
• A service to build the operational coordinating activity in the Atlantic Ocean,
• Engagement with national, regional and global networks
• Capture of physical, chemical, biological and ecological ocean properties from local to global coastal scales
Implementation activities

Development of
• Governance and system structure
• Partnership structure

Questions to be addressed
• What is the relation to national/regional (e.g. US IOOS, EuroGOOS) and international (e.g. GOOS) level?
• How can potential partners (e.g. GEO Blue Planet, industry, companies, and philanthropy) become engaged?
• What approach should we take to ensure that we are meeting societal needs considering the presently active use cases?
• How should we advance the use cases that have been proposed?
First Implementation Steps

AtlantOS Interim Steering Group

Brad deYoung (MUN)  
Martin Visbeck (GEOMAR)  
Maria Paz Chidichimo (CONICET)  
Isabel Sousa-Pinto (CIIMAR)  
Jessica Snowden (NOAA)  
Sabrina Speich (ENS)  
Tarron Lamont (DEFF)  
Leticia Cotrim (UFRJ)  
Penny Holliday (NOC)

AtlantOS secretariat: Sandra Ketelhake (KDM)

The AtlantOS program secretariat is supported by the German Marine Research Consortium and Memorial University

Building an Operational Plan - Consultations and Community Engagement

– All Atlantic Research Forum (5-7 February in Brussels)
– Ocean Sciences Meeting with AtlantOS Town Hall (16-21 February in San Diego)
– OOPC Meeting (10-11 March in Cape Town)
– UN Ocean Conference with AtlantOS Side Event (2-6 June in Lisbon)
– Plans for Second International AtlantOS Symposium (Fall 2020, USA)
Contacts:
Professor Brad deYoung – Memorial University
bdeyoung@mun.ca

Sandra Ketelhake, M.A. – German Marine Research Consortium, Brussels
ketelhake@deutsche-meeresforschung.de
Use Case

Mitigating Impacts of Sargassum on Coastal Communities in the Tropical Atlantic

Emily Smail, Ph.D.
Executive Director, GEO Blue Planet
NOAA/NESDIS/STAR/SOCD
UMD ESSIC
About Sargassum

Credit: Marine Geospatial Ecology Lab, Duke University.
Huge Sargassum Seaweed Blooms Again Threaten Florida, Caribbean and Mexico

By Ron Brackett · January 24 2019 06:11 PM EST · weather.com

Caribbean swamped by seaweed that smells like rotten eggs

Western Ghana’s Fisherfolk Starve Amid Algae Infestation

Kojo stands in a thigh-high pile of brown seaweed that blankets a beach in a giant mound of Sargassum stretches down the shore past the fishing village of his hand. He

Sam Kojo, chief fisherman of a village in western Ghana, says an influx of seaweed has crippled the fishing industry for months. Credit: Jessica McDiarmid/IPS
The great Atlantic Sargassum belt

Mengqiu Wang¹, Chuanmin Hu¹, Brian B. Barnes¹, Gary Mitchum¹, Brian Lapointe², Joseph P. Montoya²

Sargassum in the Caribbean Sea and Central Atlantic Ocean

[Charts and maps showing the distribution of Sargassum over time and area]
About the project
About the Project

Current activities

1. Sargassum Information Hub
2. Developing project plan and budget
3. NOAA CoastWatch Developing in situ database and citizen science data collection app
4. Supporting coordination and identifying stakeholders
Planned activities

1. Build on existing products to develop region-wide monitoring and forecasting system and improve Sargassum Inundation reports

2. Increase knowledge on ecological impacts of Sargassum blooms and mitigation efforts

3. Advance understanding of Sargassum pathways and extensions, particularly in coastal areas

4. Increase knowledge about the bloom cycle and the Sargassum belt ecosystem and investigate the possibilities to decrease or eliminate beach and coastal inundations

5. Make the case for sustained observations
• Use lessons learned from the AtlantOS Project to plan research and monitoring strategies to understand the link between ocean, atmospheric, and environmental conditions to this basin-wide phenomenon.

• Expand the existing efforts to monitor and forecast sargassum pathways and extension in the Gulf of Mexico, Florida coast, Caribbean Sea, and the Americas across the Atlantic Basin to the African coast & demonstrate value of information derived from ocean observations.
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<th>Contact us!</th>
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<tbody>
<tr>
<td><strong>AtlantOS</strong></td>
</tr>
<tr>
<td>Isabel Sousa Pinto (<a href="mailto:ispinto@ciimar.up.pt">ispinto@ciimar.up.pt</a>), Gabrielle Canonico (<a href="mailto:gabrielle.canonico@noaa.gov">gabrielle.canonico@noaa.gov</a>), Sandra Ketelhake (<a href="mailto:ketelhake@deutsche-meeresforschung.de">ketelhake@deutsche-meeresforschung.de</a>)</td>
</tr>
<tr>
<td><strong>GOCCO</strong></td>
</tr>
<tr>
<td>Emily Smail (<a href="mailto:emily.smail@noaa.gov">emily.smail@noaa.gov</a>), Leah Segui (<a href="mailto:leah.segui@noaa.gov">leah.segui@noaa.gov</a>)</td>
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<td><strong>FIU</strong></td>
</tr>
<tr>
<td>Sargassum listserve: <a href="mailto:SARGNET@FIU.EDU">SARGNET@FIU.EDU</a></td>
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Use Case
Supporting Ecosystems Based Management for Fisheries in Atlantic Upwelling Regions

Tarron Lamont
Department of Environmental Affairs
The need to link climate, fisheries, and ecosystem management

• What are the key gaps at present?
  • Adequate indices to identify & monitor change in an integrated manner
  • Appropriate links between environment & fisheries

• What will be the difficulties to overcome?
  • Disciplinary-specific nature of research & monitoring
  • Multitude of data products available – different results
  • Appropriate spatial & temporal resolution of data
Societal benefits and outcomes

Improving our working knowledge of the links between climate, fisheries, and ecosystem management through:
- Fundamental research (process studies)
- Long-term monitoring

UN General Assembly 2015

1. No Poverty
2. Zero Hunger
3. Good Health and Well-being
4. Quality Education
8. Decent Work and Economic Growth
9. Industry, Innovation, and Infrastructure
12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
17. Partnerships for the Goals
Supporting Ecosystems Based Management for Fisheries in Atlantic Upwelling Regions

- Identify Changes and Tipping Points
- Implement Observation, Modeling, Communication, Stakeholder Engagement, Knowledge Exchange
- Develop Dynamic Ocean Management
- Connect to existing programmes, institutions and projects: (EAF-Nansen Programme, LME Programmes, ATLAFCO, Subregional Fisheries Commission, Abidjan Convention)

Balancing human activities & environmental protection in a multiple use context with
- Resource users
- Ocean Scientists
- Resource managers
- Policy makers
- General Public

Leads: Tarron Lamont (DEFF), Carl van der Lingen (DEFF), Steffen Olsen (DMI), Jörn Schmidt (Kiel University/Kiel Marine Science)
atlantos-ocean.org
(AtlantOS.program@gmail.com)