BUILDING AN ALL ATLANTIC OCEAN COMMUNITY
Implementing the Belém Statement

WP7 - Alignment and Convergence of Research and Innovation infrastructures initiatives

All Atlantic COASTal observing and technology NETwork - AA-COASTNET

1 General Information of the Joint Action

1.1 Characteristics of the pilot action

- **Title of joint action: All Atlantic COASTal observIng and technology NETwork - AA-COASTNET**
- **Leaders of joint action responsible for liaising with CSA AANChOR:** Laurent Delauney (France), and Moacyr Araujo (Brasil) as a co-leader.
- **Name:** Delauney
- **Organisation:** IFREMER
- **Email:** laurent.delauney@ifremer.fr
- **Phone: +33 (0)6 62 85 44 72**
- **Country:** France
- **Countries that should be involved in the implementation of the joint action:**
    - EU (Leader: France)
    - Brazil
    - South Africa
    - Benin
    - Argentina
    - Cape Verde
    - USA
    - Canada
    - Ivory Coast
    - Senegal
    - Carribean zone
- **Stakeholders that should be involved in the implementation of the joint action:**

- JERICO-RI/JERICO-S3 (France): Laurent Delauney laurent.delauney@ifremer.fr
- SMCRI (South Africa): Dr Tommy Bornman tommy@saeon.ac.za
- SiMCosta (Brazil) Dr. Carlos Garcia garcia.io.furg@gmail.com,
- PNBoia (Brazil) Dr. Tobias Ramalho tobias.ramalho@marinha.mil.br,
- MePrO (Brazil) Dr. Fábio Nascimento fabion@pobox.com.
- PROPAO (Ivory Coast, West Africa) KONE VAMARA kvamara@hotmail.com
- PLOCAN (Spain); José Joaquín Hernández Brito - joaquin.brito@plocan.eu, Director of the Oceanic Platform of the Canary Islands - Eric Delory - eric.delory@plocan.eu , Head of Observatory, Jerico-S3 technological innovation WP lead

- French National Research Institute for Sustainable Development (IRD) (Bernard Bourles - <Bernard.Bourles@ird.fr> - Patrice Brehmer - <Patrice.Brehmer@ird.fr>)
- CNRS - FRANCE Felipe Artigas - <felipe.artigas@univ-littoral.fr> - Laboratory of Oceanology and Geosciences (CNRS UMR 8187) Associate Professor ULCO (Université Littorale côte d'Opale).
- CRODT, centre de recherche océanographique de Dakar Thiaroye, Saliou Faye (Senegal), researcher at ISRA.
- AtlantOS PROGRAM http://www.atlantos-ocean.org/

1.2 Indicate which Operational Objective(s) is the joint action contributing to

- The AA-COASTNET joint action will primarily investigate how to improve the network between coastal observing entities from countries part of the Belem (and Galway) statement. This is fully in accordance with the Operational Objective #1, OO1 - Identify innovative modes to attract RIs to participate in a transatlantic network of RI initiatives propose attainable actions to implement the transatlantic network.

- Thanks to the AA-COASTNET joint action the TNA (Trans-National Access) issue will be addressed to study how to implement such transatlantic access to the infrastructures. Transatlantic TNA participation was already involved during a JERICO-NEXT TNA. Practical problems were encountered and the funding of transatlantic TNAs should be tackled. So, we can consider that Operational Objective #2, OO2 - Define the conditions for a successful transatlantic share of RI and propose attainable actions to implement TNA to Atlantic stakeholders, will be as a first phase addressed.

1.3 Indicate which Key Performance Indicator(s) is the joint action contributing to

- n/a

1.4 Indicate which of the BS thematic area(s) will be addressed through this joint action

- Climate variability and ecosystem approaches;
- Ocean observation (including seabed mapping), forecasting and monitoring processes and systems;
- Food security, fisheries management, aquaculture and biodiversity;
- Oceans technology (including for observation and renewable marine energy);
- The effects of emerging pollutants (i.e., microplastics)
- Exchanging, sharing and increasing capacity and capability

1.5 Indicate which of the societal needs stated in the BS will be addressed through this joint action

- Better monitoring and forecasting activities
- Human health and well being
- Sustainable use of marine resources
- Blue-green ocean economy
- Improved safety at sea
- New and emerging technologies to service societal needs and new value chains

1.6 Which of the related sub-Multi-stakeholder Platforms working within WP3 to WP7 originated this joint action?

- Capacity Development

- Knowledge Transfer for Ocean Innovation and Economy
- Common Standards for Information and Data Sharing
- Ocean Citizen Awareness and Literacy
- Convergence and Alignment of R&I Infrastructure Initiatives

1.7 Indicate 6-10 keywords in relation to the joint action

- Coastal observatories
- Research infrastructures
- Trans-National Access
- Capacity building
- Ocean best practices
- Fisheries management
- Data sharing and access
- Information products

2 Brief Description of the Joint Action

2.1 Summary of the joint action

The AA-COASTNET *"All Atlantic COASTal observIng and technology NETwork"* AANChOR joint action will propose a framework and a work plan to establish a network dedicated to Marine Coastal Observation with the countries part of the Belem and Galway Statements. This network will help to share know-how and strategies to support excellence in marine coastal research to better answer societal and policy needs and to promote the convergence and the alignment of RIs dedicated to coastal observation. The AA-COASTNET Joint Action will establish a network that is able to connect, align and maximize the coastal observation efforts already existing in both edges of the tropical and southern Atlantic.

The partners involved in this joint action are key entities in their country for coastal observation and technology. In **Brazil** there are three GOOS-Brazil initiatives, the Brazilian Coastal Monitoring System (SiMCosta), the National Buoy Program (PNBoia) and the Best Practices in Ocean Observations (MePrO), which are networks dedicated to meteorological and oceanic measurements (surface biogeochemical sensors, currents, waves), research and prediction ; **South Africa** with Shallow Marine and Coastal Research Infrastructure "SMCRI" based on the South African Environmental Observation Network "SAEON" and the South African Institute for Aquatic Biodiversity "SAIAB"; **West Africa** (Gulf of Guinea) with the Coastal sea Surface temperature network "PROPAO" and regional databank; **Cabo Verde** has the CVOO (Cabo Verde Ocean Observatory) which is collecting data since 2006 with a deep sea mooring and also the infrastructure OSCM (Ocean Science Center of Mindelo) that can be used also in the region; **Argentina** with the EMAC low-cost buoys and stations monitoring network and **Europe** with the Joint European Research Infrastructure of Coastal Observatories "JERICO-RI" that is a system of systems strengthening the European network of coastal observatories dedicated to observe and monitor the complex marine European coastal seas.
AA-COASTNET AANChOR joint action will share between participants how they produce a more science integrative approach to better observe the coastal ecosystem, raising up the scientific excellence, with consideration of the regional and local ecosystems.

That will be implemented also focusing to improve our knowledge about the processes linking coastal/inshore to offshore dynamics and the integration between open ocean and regional/coastal Atlantic observing systems. *(It is important to stress somewhere that this initiative will help to fill out the scientific gaps we have in most regions about the processes linking open ocean and shelf/coastal areas. And also to homogenise coastal/regional and offshore observations/systems - best practices, EOVs, etc…).*

2.2 Objectives of the joint action

The AA-COASTNET *"All Atlantic COASTal observIng and technology NETwork"* joint action will address the following topics that are of prime interest for coastal observing systems in a dedicated workshop to share pros and cons in every country in order to emulate an All Atlantic synergy:

- **Best practises:** platform operations and metrology (physics, biogeochemical, biology, and fisheries).
- **Technology:** Needs and Gaps. Equipment solution and possibilities for coastal observation. Easy access development and implementation of sensors.
- **Data:** format, banking and data access in each observation infrastructure and according to the nature of the data.
- **Country initiatives** and needs that could be linked to EOOS technological forum (EU), Alliance for coastal technology (USA) and the ongoing proposed UN Ocean Decade Programme entitled: Predicting the Global Coastal Ocean.
- Transnational **Access** and Virtual Access,
- **Training** activities => Metrology, Platform operation, Inter-comparison of existing sensors, Easy access sensors development, etc.
- **Prospective** for a long term transatlantic coastal network addressing science topics as for example the land sea continuum.

This topic list is an ambitious program to fully address. It will not be possible to solve and mature every topic in every place.

The first step will be to identify existing regional or national networks and to share the status of these topics among every partner in order to map gaps and needs. This will be performed during a specific first AA-COASTNET workshop. The outcome will be a mapping of needs and gaps for each topic in each infrastructure and a strategic list of specific actions that could be performed in order to improve as much as possible the maturity of every topic in each infrastructure. **This will make it possible to organize a long-term strategy for participating in collaborative calls**.

Then, as a second step and according to the budget available, training activities could be organized according to the results of these needs and gaps mapping and according to partner possibilities. If needed, additional key partners could be involved in order to elaborate specific training.

In parallel, a specific All Atlantic coastal observation website will be established linked to already existing global (coastal) observing initiatives (ICOOS, GCOS, ...).

2.3 Contribution of the joint action to the implementation of the BS vision and goals

[Referring how it is contributing to the implementation of the related sub-multi stakeholder platform's strategic and operational objectives and the identified gaps and needs]

Signatories of the Belém Statement (2017) intend to cooperate on marine research and innovation to increase "**operational efficiencies by optimising the appropriate use and sharing of research infrastructures, and access to and management of data platforms**. " This joint action responds to the following needs, identified in D7.2 - Identification of major needs and gaps in Research and Innovation infrastructures initiatives:

- **AA-COASTNET** thru task 4 will support the recommendations from the **AtlantOS** project and will implement the All-Atlantic Ocean Observing System through the **AtlantOS** programme, building on the coordinated work of the Global Ocean Observing System (GOOS) and the Group on Earth Observations (GEO). In particular: AA-COASTNET will better connect the observing systems and networks; Mainly at international level between the countries from the Belem Statements, to help to ensure long-term, sustainable funding for coastal observing networks.

- **AA-COASTNET** will create a transatlantic network of coastal RI initiatives building on regional initiatives, SMCRI in South Africa, CVOO in Cape Verde, SiMCosta in Brazil, JERICO-RI in Europe.

During the AANChOR funding duration, the objective will be to understand the maturity of the coastal observing networks in the various BS countries in order to strategically prepare the long-term possible connections between coastal networks.

2.4 How does the joint action connect to the BS thematic area(s)?

The AA-COASTNET joint action is focused on a long-term better connection between coastal observations, science and services in the BS countries (Task 4 for the long-term strategy, task 3 for the communication). These networks are dedicated to propose services to serve many of the BS thematic areas. The better the connections, the better the services. In the marine coastal domain, the scientific thematics are obviously **"observation for forecasting and monitoring processes and systems"**, **"Food security, fisheries management, aquaculture and biodiversity"**, **"Climate variability and ecosystem approaches"**, and **"the effects of emerging pollutants"**. As well technology is addressed by the coastal networks and will be part of the AA-COASTNET joint action. Companies will be involved in a medium-term objective by including initiatives like EOOS Technological Forum (EU) and The Alliance for Coastal Technology (USA). Consequently, the thematic "Oceans technology for

observation" will be a pillar of the Joint Action. These thematic will be all addressed during the AA-COASTNET workshop (task 1).

A specific task (task 2) of the AA-COASTNET joint action will be dedicated to a training in order to demonstrate the ability of such transatlantic network, at long term, to exchange, share and increase capacity and capability that is an important BS thematic area.

2.5 Indicate how the joint action connects to the societal needs identified in the BS

A connected coastal observation network is a key element for many societal areas: science, food, economy, tourism, energy, safety, etc. Up to the AA-COASTNET joint action, starting to improve the connection between countries for coastal observation will emulate the countries to implement various services and as well will help to get possible some services that will address the BS societal needs as **"Human health and well-being"**, **"Improved safety at sea"** in some specific areas, **"Sustainable use of marine resources"** especially for example for aquaculture and fishing. Many of these societal needs are relying on **"monitoring and forecasting activities"** that are improved by a better connection between countries. The global interconnected and improved all Atlantic coastal observation network will stress the efficiency of the "**blue green ocean economy"** especially in the coastal areas and as well by addressing the land sea continuum. In fine, the AA-COASTNET joint action should strategically propose and help to promote **"new and emerging technologies to service societal needs and new value chains"**.

The AA-COASTNET joint action will not solve all these societal needs in the duration of the funding, but will be the springboard for future concerted actions.

2.6 Indicate if there is any novelty in the approach used (new tools, etc.)

Several recent efforts to evaluate the current observation systems in the Atlantic Basin (e.g., Tropical Atlantic Observing System - TAOS Review, H2020 AtlantOS Project, among others) have clearly highlighted the need to fill scientific gaps involving the connection between oceanographic processes (physical, biogeochemical and biological) that occur in shelf/coastal environments, and those in the open ocean. In fact, these two observation "ecosystems" interact very little, or in most cases and regions, never. The current status points to an extensive network of oceanic observation activities, mostly trans-national, aimed at studying the space and time variability of mechanisms at the scale of the basin and even the planet (e.g., ocean-atmosphere exchanges interaction and climate, inter-basin connection like ENSO, AMOC dynamics, etc.), which are disconnected with existing continuous observation activities happening in the adjacent shelf and coastal areas. These near shore observing systems, mostly conducted by national initiatives, which bring significant social benefits to coastal populations (safety, tourism, fishery, recreation, etc.), are under direct influence of offshore dynamics.

The AA-COASTNET joint action approach brings two main new aspects: (i) the possibility of establishing the best scientific observation practices for the main coastal observation networks in the tropical and southern Atlantic. This will happen through the establishment of a coastal observation network, which from then on will be connected and will be able to promote (and to spread) best practices through joint training/capacity building, and to foster the development of new scientific and technological observation tools; and (ii) as a network, AA-COASTNET will be able to establish and maintain continuous cooperation with today (and future) open ocean observation efforts/programs, in order to fill the existing scientific gaps between open ocean and shelf/coastal dynamics. These two new aspects do not currently exist.

3 Overview of the Work Plan -

3.1 Describe the overall strategy and the joint action management structure

The AA-COASTNET *"All Atlantic COASTal observIng and technology NETwork"* AANChOR joint action will propose a framework and a work plan to establish a network dedicated to Marine Coastal Observation with the countries part of the Belém and Galway Statements.

The strategy is first to implement the core network by allowing the pillar participants of this Joint Action to meet and exchange information about their Coastal Observation system and national or inter-country community situation. This will happen during the AA-COASTNET workshop (task 1) and will be the key moment to first brainstorm on **long term** actions to establish an active coastal observing network across the Atlantic. The long-term strategy is as well specifically addressed by task 4 "Prospective for a long term transatlantic coastal network - connection with AtlantOS program". The AA-COASTNET ANChOR Joint Action is a crucial and unique possibility to establish a long term *All Atlantic COASTal observIng and technology NETwork.*

The joint action management structure is as follow:

The **steering committee** is composed of

- **Joint Action Leader**: Laurent Delauney (France / JERICO-S3 Coordinator / Ifremer),
- **Joint Action Co-Leader**: Moacyr Araujo (Brasil),
- **Task 1 (Workshop) leader**: Tommy Bornman (South Africa) - TBC,
- **Task 2 (Training) leader**: Dr Gerardo M. E. Perillo (Argentina) & Carlos Garcia (Brazil),
- **Task 3 (Website) leader**: Fabio Nascimento (Brazil),
- **Task 4 (Prospective) leader**: Laurent Delauney (France) & Moacyr Araujo (Brasil), Adviser: Carolina Cusack (AtlantOS - task 4.4 USA/Europe cooperation)

The coordination of the Joint Action is specifically managed by Task 0 and will produce the final AA-COASTNET Joint Action deliverable (M18).

A virtual **Kick Off meeting** will be organized by task 0 at M1.

A Virtual **Final General Assembly** will be organized by task 0 at M18.

Virtual **Steering Committee meetings** will be led **monthly** by the Joint Action Leader and Co-Leader (task 0) to follow up the joint action progress and mitigate any problem in due time.

Task 1 (workshop), Task 2 (Training) and task 4 (Prospective) will produce a report (respectively M6, M12, M18) that will contribute to the Final AA-COASTNET Joint Action deliverable (M18). Task 3 will produce a website (from M1 to M18) that will be presented in the Final deliverable.

Task 1 Workshop (M6) will stand as a General assembly of the AA-COASTNET Joint Action.

3.2 Description of the requested tasks to implement the joint action, correspondent deliverables and time schedule (please fill in the table below)

TASKS	POSSIBLE DELIVERABLES	FORESEEN TIME SCHEDULE
Task 0 - AA-COASTNET Joint Action Coordination Task Leader: Laurent Delauney & Moacyr Araujo Duration: from M1 (start) to M18 (end)	Virtual Kick Off Virtual steering committee. Physical GA (Task 1 workshop) Virtual final General assembly Final AA-COASTNET Joint Action deliverable.	M1 (start) Monthly M6 M18 (end) M18 (end)
Task 1 - AA-COASTNET **workshop** Duration: 2 or 3 workshop days (not including transportation) Attendees: Joint action group (c.f. annexe) + invited participants + Stakeholders.	**Meeting Report :** Identification of networks, needs and gaps analysis and actions proposition including a prospective for a long term network.	M6
Task 2 - AA-COASTNET **Trainings** Duration: 5 days maximum Attendees: Training team (J.A. group or specific invited persons) + person to be trained.	**Report** / minutes of training, attendee list and training content.	M12

Task 3 - Website - All Atlantic Coastal Observation. Duration: from M1 to M18 (end) Participants: Joint action group	Contribution to the All Atlantic Coastal Observation website. Hosted by the allatlanticocean.org website LINK	M1 to M18
Task 4 - Prospective for a long term transatlantic coastal network. *(connection with AtlantOS program)* Duration: from M6 to M18 (end) Participants: Joint action group	Report on Prospective for a long term transatlantic coastal network.	M6 to M18

3.3 Describe in detail the above tasks and deliverables.

[Identify the lead participants for each task and possible the rest of participating organisations for each task]

Task 0 - AA-COASTNET Joint Action Coordination

Task Leader: Laurent Delauney & Moacyr Araujo

To ensure efficient Joint Action coordination adapted to the specifications of the AA-COASTNET Joint Action and to achieve the Joint Action objectives and goals.

Management of the final **AA-COASTNET** Joint Action report.

Task 1 - AA-COASTNET Workshop

Task leader: South Africa, Tommy Bornman (to be confirmed)

The AA-COASTNET Workshop will be organised back-to-back with the GEO blue planet event in South Africa in October 2021.

This AA-COASTNET workshop will be the barebone of the Joint Action to connect people from the Belém and Galway countries and define the pillars of the long term All Atlantic COASTal observIng and technology NETwork.

The workshop will address the identified topics that are of prime interest for coastal observing systems to share, gaps, pros and cons in every country of the Belem and Galway statement in order to emulate an All Atlantic synergy for coastal observation.

The short- and long-term objectives of the workshop are to improve the coordination and alignment of programmes/initiatives and projects between South, North Atlantic regions including the EU and its Member State. It will contribute to create the right conditions for the development of homogenized and fit for purpose (accuracy) monitoring, modelling, planning, management and prediction capacities (sub-topics A & B).

As well, the workshop will make the point on how to increase the competitiveness of the EU's blue economy by developing new technologies to service societal needs and new value chains (subtopics A, B & C).

The workshop will establish a long-term strategy for the consolidation of education and training networks including more ocean-engaged citizens and communities.

Finally, the workshop will start the elaboration of Task 4 dedicated to the Prospective for a long term transatlantic coastal network.

Task 2 - AA-COASTNET Training

Task leader: Argentina, Dr Gerardo M. E. Perillo & Carlos Garcia.

Ecosystem monitoring requires reliable information about all variables necessary to analyze the health and evolution of the system in both space and time. This needs a number of instrumented platforms distributed according to the ecosystem characteristics and conditions.

Even for small ecosystems, the cost of installation, and posterior and maintenance of the network increases exponentially with the number of stations and sensors. For research groups with low budgets buying commercial platforms and sensors could be prohibitive, especially if the sensors must be imported. Since, even the sensor of the highest quality subject to the environment may deteriorate or stop working, the time to repair or replace it becomes crucial because the time series will have data gaps that may even affect the total monitoring effort.

Within the last 15 years the Instituto Argentino de Oceanografía (IADO) started a program to design, develop and build its own sensors and platforms. Today there are more than 30 active stations and buoys in lakes, rivers and in the coast of the country and in Uruguay and Portugal. All stations have direct communication with the server at IADO (https://emac.iado-conicet.gob.ar/2019).

All our sensors are at least one order of magnitude cheaper than commercial ones and provide comparable capacity and resistance. However, the most significant advantage is that once we detect that a sensor is about to fail, we can readily replace it for another in store, reducing to a minimum the data gap. Moreover, since we do know the sensor itself, if possible, it could be repaired and recalibrated to be ready to install in another station. Furthermore, the fact that the equipment is cheap, it lets, with the same budget, the possibility to have more than one station for ecosystem allowing also spatial monitoring.
Our philosophy is they are designed by researchers for researchers. Meaning that the equipment is adaptable to the needs of the researcher rather than the he/she adapts to the equipment. Whenever somebody asks us for an equipment, we analyze with the researchers what they want to measure, when and where. Our support then provides the station and the sensors, but also our advice to where and how to install it for a better performance.

We consider that this concept should be expanded to other countries with similar conditions, we propose a training course about the design and construction of low-cost sensors and

platforms to be deployed along coastal areas. Attendees should have a background in electronics and experience with use and repair of marine instrumentation. Because the IADO has already all set up for the course, we propose that this initial course be organized there. Future courses can be implemented at different places involved. FURG (Brazil) is also proposing to bring commercial equipment to compare and calibrate with the sensors built by the students.

The idea of the workshop is to create network connectivity by training people that will be able to train new people. The attendees will build low cost sensors and will deploy them *in situ*. The Data FAIRness principle will be addressed in a data session to ensure people know "how to" upload the data to a recognized data repository and distributor that follows FAIR practices.

Tas**k 3 - AA-COASTNET website**

Task Leader: Fabio Nascimento - Brazil

The AA-COASTNET Joint Action website will be one of the tools to fulfil the goal of improving the network between coastal observing entities from countries part of the Belém (and Galway) Statement.

In addition of being the informative platform of the project's own initiatives, it should be a collaborative instrument in: the search for means of integrating coastal monitoring systems, the promotion of best practices in ocean observation, and the dissemination of technical developments, whether incipient or not, that could improve the coastal observation.

The synergy between the project partners throughout its execution, will allow the development of a website that will contribute to: the wide access to the collected data by the monitoring systems; the better understanding of the regional technological needs and gaps; the boost to the convergence for the formatting, storage and availability of data; the application of best practices in operations; the development/use of local, regional and global technologies; and to the training of human resources.

This website must be integrated with the All Atlantic website (https://www.allatlanticocean.org). It must establish the link/integration to already existing global (coastal) observing initiatives (ICOOS, ...), to the websites of the monitoring systems along the Atlantic coast, and also to other platforms, such as: coastspredict.org, oceanexpert.net, www.jerico-ri.eu and oceanbestpractices.org.

The AA-COASTNET page should contain:

- Project information: "Who We Are"; "Our Focus"; Our Resources; "News & Events"; "Contact Us";

- Information of the partners coastal monitoring systems: technical references, important links, contacts etc.

- Glossary of metocean terms: converging the local vocabulary to the international standards;

- A geographic database with time-space information: showing the metadata of collected data by reliable monitoring systems in the partners coastal area, over time.

- A database of technology developments (instruments, sensors etc.) with photos, description and contacts link => link to the future EOOS Technological Forum and the Alliance for Coastal Technology

- A Best Practices initiatives: with the description of methodologies, quality control protocols, calibration processes etc. => linked to oceanbestpractices.org

These web pages content, in preference, should be integrated with other websites with similar aim, to avoid redundancies or loss of goal, and must be integrated to the developments of the Work Package 5 of the AANChOR "Common standards for information and data sharing".

The project aims to reach its end with a website that helps the integration of the coastal monitoring systems, the dissemination of their results to the society and the alignment of RIs dedicated to coastal observation, being a strong collaborative platform.

Task 4 - Prospective for a long term transatlantic coastal network - connection with AtlantOS program

Task Leader: Laurent Delauney & Moacyr Araujo
Adviser: Carolina Cusack (AtlantOS - task 4.4 USA/Europe cooperation).

The AA-COASTNET joint action intends to use seed resources to begin to fill a particular gap and existing observation need, through the identification of partnerships and the establishment of a network that is able to connect, align and maximize the coastal observation efforts already existing in both edges of the tropical and southern Atlantic. It is, therefore, about optimizing the different existing initiatives (e.g., SMCRI in South Africa, PROPAO in West Africa, CVOO in Cape Verde, PLOCAN in Canary, SiMCosta, PNBoia and MePrO in Brazil, EMAC in Argentina, and JERICO-RI in Europe) and inducing the use of the resources of these systems based on common guidelines that lead to the improvement of the best observation practices. As a network, the AA-COASTNET JA will also be able to encourage and identify new sources of funds for its maintenance, especially those made available in calls for proposals from international and trans-national funding agencies, which would be unfeasible/more difficult for each of its participants.

The AA-COASTNET joint action will also keep a close link with open ocean observing networks in the All Atlantic basin, seeking opportunities to promote cooperation and ship-time/equipment sharing, once ships necessarily cross shelf break-shelf-coastal areas. These joint activities will promote a better scientific knowledge about the links and exchanges between offshore and inshore/coastal regions.

Finally, it is important to note that AA-COASTNET is in tune and could, in the short term, become a focus point to Atlantic Coastal Observing communities contributing to the **« Predicting Global Coastal Ocean : Toward a More Resilient Society »** initiative, as proposed

for the **United Nations Decade** of the Ocean Program (https://www.coastspredict.org/draft-programme-document/).

The AA-COASTNET joint action will carefully follow the UN Ocean Decade implementation plan and will apply for endorsement by the UN Ocean Decade.

4 Other Needs (Including Funding)

4.1 Describe the possible needs to implement each of the above-mentioned tasks to execute the joint action.

[Financial mechanisms (existing, desirable), funding amounts, in kind contribution, political and others]

Task 0 - AA-COASTNET Joint Action Coordination

Budget: In kind contribution

Task 1: AA-COASTNET Workshop

Organisation of the AA-COASTNET Workshop back-to-back with the *GEO blue planet* event in South Africa in October 2021.

Participants: AA-COASTNET J.A. team and invited persons.

Budget: AANChOR AA-COASTNET funding, 35 k€ (according to size and format of the event).

Additional funding: Additional funding should be founded, as for example in the Ifremer/WP7 AANChOR project.

The budget will be used to hire the room and facilities and will help to fund the travels and accommodations of the workshop participants. In order to save budget, the workshop will happen back-to-back with the *GEO blue planet* event in South Africa in October 2021.

This AA-COASTNET workshop will be the barebone of the Joint Action to connect people from the Belem and Galway countries and define the pillars of the long term All Atlantic COASTal observIng and technology NETwork.

Task 2: AA-COASTNET Trainings (one training)

Budget: AANChOR AA-COASTNET funding, 15 k€.

Additional Funding: Additional funding should be chased, as for example in the Triatlas WP.10 activities, i.e., CANEMS where budget Funding for Students could be obtained.

https://triatlas.w.uib.no/canems/

The total budget will be used to finance the travelling and the training cost.

Participants: It is planned to have 5 attendees that will participate in the full creation of low-cost sensors and to deploy them *in situ*.

The idea of the workshop is to create network connectivity by training people that will be able to train new people.

Task 3: AA-COASTNET All Atlantic coastal observation website

Budget: 0 k (in kind contribution)

The **AA-COASTNET** website structure will be integrated into the All Atlantic website, so the **AA-COASTNET** joint action will ask for the support of AANChOR WP8 (Communication WP) for the developments.
The content of each topic of the site should be provided by the project partners, so each country will nominate and support an interested party to gather information, "in-kind" contribution from their parts.

Task 4: Prospective for a long term transatlantic coastal network - connection with AtlantOS program -

Budget: 0 k€ and in-kind contribution.
The task will take advantage of the initial workshop (task 1), already established national/regional/trans-national connections with different Atlantic observing systems and stakeholders, and web-conference.

4.2 Please indicate if any of the aforementioned tasks require seed funding from the AANChOR project

[If any, please fill in the seed funding application form and attached it to this joint activity form]

Task 1: AA-COASTNET Workshop: 35 k€

Task 2: AA-COASTNET Trainings (one training): 15 k€

5 Impacts and Risks

5.1 Describe the expected outputs of the joint action

The AA-COASTNET joint action outputs are as follow:

- ➔ A consolidated network dedicated to All Atlantic Coastal Observation among the Belém (and Galway) statement countries.
- ➔ Identification of topics that are of prime interest for coastal observing systems to share, gaps, pros and cons in every country of the Belém and Galway statement in order to emulate an All Atlantic synergy for coastal observation.
- ➔ Identification on how to increase the competitiveness of the EU's blue economy by developing new technologies to service societal needs and new value chains.
- ➔ A Prospective for a long term transatlantic coastal network including a long-term strategy for the consolidation of education and training networks including more ocean-engaged citizens and communities.
- ➔ The AA-COASTNET Joint Action website that will be one of the tools to fulfil the goal of improving the network between coastal observing entities from countries part of the Belem (and Galway) Statement.
- ➔ Endorsement application to the UN Ocean Decade

5.2 Expected direct and indirect impacts of the joint action

[For leveraging transatlantic cooperation in Ocean research and innovation, including the expected impacts implementing the strategic objectives and the operational objectives. The impacts

should include societal, environmental, business, economic, research, literacy, media impacts among others]

In the short term, the AA-COASTNET Joint Action will Improve the coordination and alignment of programmes/initiatives and projects between South and North Atlantic regions and with the EU and its Member State.

In a longer term, the AA-COASTNET Joint Action will contribute to create the right conditions for the development of better and accurate monitoring, modelling, planning, management and prediction capacities in the whole Atlantic (sub-topics A & B). Increasing the competitiveness of the EU's blue economy by developing new technologies to service societal needs and new value chains (subtopics A, B & C). The AA-COASTNET Joint Action will help to build an education and training networks including more ocean-engaged citizens and communities.

In the long term, the AA-COASTNET Joint Action will help to harmonize coastal monitoring methodology in the Atlantic area and then will help to establish the land sea continuum in this area.

5.3 Identify measures and indicators to access the aforementioned expected impacts

The assessment of the aforementioned expected impact will be performed first by a matrix assessing the needs and gaps of coastal observing systems of the AA-COASTNET Joint Action partners. In EU, JERICO is preparing a tool to assess the maturity level of coastal observing systems and could be used.

KPI (Key Performance Indicator) concept will be used to measure the progress of the project. KPI that could be used could come from the following document *" REFERENCE FRAMEWORK FOR ASSESSING THE SCIENTIFIC AND SOCIO-ECONOMIC IMPACT OF RESEARCH INFRASTRUCTURES, OECD SCIENCE, TECHNOLOGY AND INDUSTRY POLICY PAPERS,March 2019 No. 65"*.

A KPI table will be established by the steering committee led by the Joint Action Coordination (Task 0). The table will be in the following format and will be proposed by the coordination at the virtual kick off meeting (M1).

AA-COASTNET				
IDENTIFICATING AA-COASTNET's KPIs				
TASK in AA-COASTNET	**IMPACT CATEGORY**	**KPI - detail**	**What is needed ? / Data or identification action**	**Materialisation in AA-COASTNET**
TASK 1 - WORKSHOP	Communication and public outreach	Engagement through direct contact	Numbers of attendees and participants to outreach and dissemination events	TASK 1 / TASK 4
TASK 2 - TRAINING	Educational and training activities	Number and diversity of proposed training activities	Identification and categorisation of different training levels/opportunity and success of proposed materials/activities	TASK-2 / TASK 4
TASK 3 - WEBSITE	Communication and public outreach	Public awareness and number of users reached	Numbers of users reached by the website, social media and communication efforts (to be detailed)	TASK 3
TASK 4 - PROSPECTIVE	TBD…			TASK 4

5.4 Describe the Transatlantic benefit and added value of the joint activity

a) Transferring knowledge, services and data across the Atlantic basin
Different groups involved in coastal/shelf observations are traditionally lacking capacity, in particular in

the Tropical and South Atlantic. AA-COASTNET will foster the societal uses of coastal sea data, which may help to construct/revise contingency protocols on tsunamis, storm surges, port activities and tide tables, and other types of derived information;

b) Cross community collaboration in AA-COASTNET will foster the development and uniformization of QC and processing protocols to improve the flow of quality-controlled sea level data in the North-South and South-South Atlantic. Best practices will be extended to all sensors deployed and operational efforts to ensure the same data quality across the All Atlantic coastal observing systems;

c) AA-COASTNET will promote common protocols/scripts to sensor data processing and the development of new low-cost devices, improving interoperability/standardisation, facilitating easy dataset format conversion (compatible with international data integrators), and reducing the need for data centres to re-process or convert data;

d) AA-COASTNET will foster the construction of a Findable, Accessible, Interoperable and Reusable (FAIR) data policy management plan for All Atlantic coastal observing networks;

e) AA-COASTNET will promoted the formation and capacity building in regional universities, and reinforced capacity to carry on research in the partner laboratories;

Cooperation between North-South and South-South with AA-COASTNET will improve exchanges among Universities and laboratories, promoting capacity building through academic works (MSc., PhD, etc.). Already existing initiatives, like the participation of Brazilian scientists in the Master of Science in Ocean Sciences in Cotonou, Benin, will be reinforced.

f) AA-COASTNET will foster Industry-Research partnerships

Already existing successful Public-Private partnership cases in coastal/shelf observing systems/networks will be used as examples to foster new cooperation, as for example aquaculture industry and pollution control projects.

5.5 Identify possible risks and/or bottlenecks and corresponding contingency plans

The greatest current risk to the success of AA-COASTNET Joint Action is related to the effects resulting from the Coronavirus pandemic, which can delay and hinder the execution of planned in-person actions, such as the realization of AA-COASTNET Workshop (Task 1) and training in situ and in laboratories (Task 2). These activities, which will involve different countries in the Atlantic basin, may be postponed depending on the evolution of the epidemic.

No major difficulties are expected associated with the coordination of activities (Task 0), nor with the development of the website (Task 3) and Prospective for a long term transatlantic coastal network - connection with AtlantOS program (Task 4). Services associated with Task 3 may be developed remotely. And the activities related to Task 0 and Task 4 can be carried out taking advantage of already established national/regional/trans-national connections between the trans-national groups involved in AA-COASTNET Joint Action and different Atlantic observing communities and stakeholders.