

MEAP-TT: briefing on key UN Decade Programmes and Projects



Website: <https://www.oceandecade.org/>

Implementation plan: <https://www.oceandecade.org/wp-content/uploads/2021/09/337521-Ocean%20Decade%20Implementation%20Plan:%20Summary>

Extracts and definitions from the implementation plan:

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Decade Actions

Decade Actions include **programmes and projects**, as well as **activities** and/or **contributions**:

- A **Decade programme** is typically global or regional in scale and will contribute to the achievement of one or more of the Ocean Decade Challenges. It is long-term, multi-year, interdisciplinary and multinational. A programme will consist of component projects and potentially enabling activities.
- A **Decade project** is a discrete and focused undertaking. It may be regional, national or subnational and it will typically contribute to an identified Decade programme.
- A **Decade activity** is a one-off, standalone initiative (such as an awareness-raising event, scientific workshop or thematic training opportunity). It enables a programme or project or directly contributes to an Ocean Decade Challenge.
- A **Decade contribution** supports the Ocean Decade through provision of resources (e.g. funding or an in-kind contribution). A contribution can support either the implementation of a Decade Action or the coordination functions of the Ocean Decade. These Calls may relate to specific themes or geographies and are expected to be launched twice per year. Proponents can submit **activities** or **contributions** at any time via an online platform to request endorsement by the Decade Coordination Unit. United Nations entities can register Actions at any time with the Decade Coordination Unit. Endorsement of Decade Actions will ensure that initiatives are collectively contributing to the priorities of the Ocean Decade and will allow ongoing assessment of impact. Proponents will request endorsement of **programmes and projects** in response to periodic Calls for Action that will be launched by the Decade Coordination Unit, the central coordination hub for the Ocean Decade. These Calls may relate to specific themes or geographies and are expected to be launched twice per year. Proponents can submit **activities** or **contributions** at any time via an online platform to request endorsement by the Decade Coordination Unit. United Nations entities can register Actions at any time with the Decade Coordination Unit. When requesting endorsement or registering potential Actions, proponents will provide information on the alignment of their proposed Action with the criteria below. Decade Actions should:

- Contribute to fulfilling the Ocean Decade Challenges and to achieving the Decade Objectives and associated sub-objectives.
- Accelerate the generation or use of knowledge and understanding of the ocean, with a specific focus on knowledge that will contribute to the achievement of the SDGs and complementary policy frameworks and initiatives.
- Be co-designed or co-delivered by knowledge generators and users and thus facilitate the uptake of science and ocean knowledge for policy, decisionmaking, management and/or innovation.
- Ensure that all data and resulting knowledge are provided in an open access, shared, discoverable manner in accordance with the provisions of UNCLOS and are appropriately deposited in recognized data repositories consistent with the IOC Oceanographic Data Exchange Policy² or the relevant UN subordinate body data policy.
- Strengthen existing or create new partnerships across nations and/or between diverse ocean actors, including users of ocean science.
- Contribute toward capacity development, including, but not limited to, beneficiaries in SIDS, LDCs and LLDCs. Overcome barriers to diversity and equity, including gender, generational and geographic diversity.
- Collaborate with and engage local and indigenous knowledge holders. Potential Decade Actions can be submitted for endorsement without having secured all required financial and in-kind resources. Where required, the Decade Coordination Unit may facilitate connections between proponents of Actions and resource providers. Both ongoing and new initiatives can be considered for endorsements as Decade Actions. Once endorsed, Actions will be announced on the Ocean Decade website. Proponents of endorsed Actions will be able to use the Ocean Decade logo during the implementation of the Action. Proponents will be required to provide a brief annual report on the implementation of the Action. Endorsement will be valid for the duration of the Action.

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How will the Ocean Decade be financed?

The Ocean Decade itself is not a funding mechanism but it includes mechanisms and opportunities to increase funding available for ocean science and to bring together resource providers around common priorities.

Resources for ocean science come from a range of organizations, including governments, philanthropic foundations and business and industry. To achieve the ambitions of the Ocean Decade, the amount and type of resources available for ocean science will need to increase significantly in coming years. Both financial support and in-kind support (e.g. use of research vessels, data, access to infrastructure) will be important to the success of the Ocean Decade. The Ocean Decade Alliance will be an important mechanism for resource mobilization. It will comprise a network of high-level supporters of the Ocean Decade who will lead by example to mobilize resources for Decade Actions. Alliance members will provide significant financial and in-kind support for Decade Actions and will inspire action in other partners through networking and awareness raising. Decade Actions will be financed in different ways.

Proponents of Decade Actions can secure their own financing via traditional mechanisms, for example research grants. Via the Global Stakeholder Forum and the Ocean Decade Alliance, the Decade Coordination Unit will also create connections between Ocean Decade partners carrying out ocean science and partners who can provide resources and thus become part of a collective, highly visible global effort to transform ocean science.

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ForeSea



ForeSea is the OceanPredict's Programme of the UN Decade

Website: <https://oceanpredict.org/foresea/>

Full proposal:

https://oceanpredict.org/docs/Documents/ForeSea/ForeSea_programme_proposal_UNDecade_v4a.pdf

Objectives

ForeSea's vision to extend and transform the current ocean prediction capacity with the following high-level objectives:

- Coordinate ocean prediction world-wide in a sustainable manner towards maximum societal benefits
- Maximize the benefits of ocean observations for ocean predictions and societal impact
- Support development and maturation of the full-length operational oceanography value chain, from observations to end users, by using best practices and coordinating the integration of existing and new partners (international science initiatives and intergovernmental organizations)
- Advance the science behind ocean prediction and its connection to the other components of the earth system, including the atmosphere, land, cryosphere, continental hydrology, etc.
- Make ocean prediction science more impactful and relevant by collaborating with socioeconomic experts and stakeholders to quantify the impact and utility of ocean prediction for science and society, especially in coastal areas (in collaboration with CoastPredict)

It is important to note that, while this programme will be hosted by OceanPredict, this is not business as usual. This programme builds on both OceanPredict and the larger community capacity to address challenges by 2030 that cannot be achieved by OceanPredict alone.

Planned activities

ForeSea activities will be separated into **two themes**

- *“Catalyzing transformative ocean prediction science solutions for sustainable development, connecting people and ocean prediction”* and
- *“Increasing impact and relevance: Improving science and science capacity for the ocean we want”*

which will be realized through UN Decade projects to make ocean prediction science impactful and relevant.

Theme 1 will cover:

1. Integrated forecasts of ocean hazards with socioeconomic forecasts to quantify impacts and guide policy and management for preparedness, mitigation and restoration
2. Community description of historical ocean conditions (i.e. reanalysis) at high resolution
3. Improved forecasts for extreme events (tropical cyclones, harmful algal blooms, oil spills, etc.) to address “safety of life at sea” considerations
4. Maximizing the impact and value of observations – see supporting document in section 41 on the proposed project entitled *“Synergistic Observing Networks for Impactful and Relevant Ocean Predictions (SynObs)”*
5. Guiding the evolution of ocean observing systems based on scientific assessment of their impacts and efficiency in ocean predictions – also included in SynObs
6. Capacity building and training
7. Contribution to a digital ocean
 - Optimizing user value
 - Coordinated approach for digital ocean and digital atmosphere

Theme 2 will cover:

1. Advancing use of ocean prediction technologies in weather and climate predictions, including use of earth system models (ESMs) and coupled data assimilation techniques
2. Coupling of open ocean systems with coastal/land systems (partnership with CoastPredict)
3. Development of limited area ESMs with appropriate coupling between the meteorological, hydrological, ice, and ocean components, to serve as test-beds to address the above issues, to improve model predictability and provide more reliable forecasts in the ocean component (collaboration with CoastPredict)
4. Extending the forecast range and ensemble approaches

Activities covering Theme 1 and 2:

1. Improved descriptions of surface and near-surface ocean conditions

2. Development of an integrated description of the 4D biogeochemical state of the ocean based on satellite and in situ observations that informs society on key issues related to ocean health and the management of marine resources (to be carried out jointly with the development of a global [BGC](#) Argo array)
3. Biogeochemical (BGC) nowcasts and ecological forecasting as area for transformative progress addressing from stakeholder needs ranging from carbon accounting to ecosystem health
4. Integrated short-term and sub-seasonal to seasonal predictions in the coastal zones (including probabilistic products) that can assist institutional and private services towards sustainable management of marine resources, preparedness and response to hazards, marine safety and search and rescue operations (collaboration with CoastPredict)

ForeSea is taking part in the 2nd call for UN Decade actions, inviting project proposals

The project negotiation and submission process is described on the UN Decade website → [2nd call for action – published on 15 Oct 2021](#).

ForeSea's vision is for strong international coordination and community building of an ocean prediction capacity for the future. The overarching goal are to (1) improve the science, capacity, efficacy, use, and impact of ocean prediction systems and (2) build a seamless ocean information value chain, from observations to end users, for economic and societal benefit. These transformative goals aim to make ocean prediction science more impactful and relevant.

ForeSea is calling for projects that will extend and transform current ocean prediction capacity and address the following high-level objectives:

- **Coordinate ocean prediction world-wide** in a sustainable manner towards maximum societal benefits
- **Maximize the benefits of ocean observations** for ocean predictions and societal impact
- **Support development and maturation of the full-length operational oceanography value chain**, from observations to end users, by using best practices and coordinating **the integration of existing and new partners** (international science initiatives and intergovernmental organizations)
- **Advance the science behind ocean prediction** and its connection to the other components of the earth system, including the atmosphere, land, cryosphere, continental hydrology, etc.
- Make ocean prediction science more impactful and relevant by collaborating with socioeconomic experts and stakeholders to **quantify the impact and utility of ocean prediction** for science and society, especially in coastal areas (in collaboration with CoastPredict)

Expected outcomes of ForeSea

1. An operational oceanography information value-chain where verified/certified information and knowledge are exchanged freely and enable all operational oceanographic components, integrated from the open ocean to the coastal areas, to contribute effectively together
2. A continuously optimized ocean observing system integrated from the open ocean to the coastal areas that provides maximum information benefit with manageable cost.
3. An ocean information delivery system that provides the right information at the right time for facilitating marine decisions in support of human safety and environmental safety, and an efficient and sustainable blue economy.
4. Improved extended range forecasting capabilities for ocean prediction systems.
5. Better assessment and prediction of the ocean state (including reliable uncertainty estimates) and ocean impact on forecasts of other earth system components (e.g., atmosphere, ice, waves, marine ecosystems, estuaries, etc.).
6. An informed ocean literate society and global economy
7. Coordinated capacity building across all elements of the operational oceanography value chain to sustain production and delivery of ocean prediction.
8. Demonstrated impact and value of predictions for coastal communities.
9. Effective use of ocean prediction technologies for weather and climate predictions

Established connections between OceanPredict with GOOS, WMO, IOC, JCOMM, Argo, GRHSST, GEO, GEO BluePlanet, etc. will facilitate realization of the expected outcomes. This will also be facilitated by collaborations identified with the following proposed UN decade programmes:

- a. The GOOS-supported Integrated System Design UN Decade Programme will coordinate the design and the implementation of observing networks, their interface with the open ocean systems and sets standards for forecasting and predictions at the different scales
- b. CoastPredict will demonstrate the value added of the global ocean analyses and forecasts to the coastal ocean
- c. DITTO will establish and advance a digital framework on which all marine data, modelling and simulation will form a new globally shared capacity to access, manipulate, analyze and visualize marine information.
- d. GEOS – Global Ecosystem for Ocean Solutions will help to use the new scientific knowledge and the ForeSea technology prototypes to advance solutions and involve stakeholder communities
- e. Equisea – Ocean Science Fund for All is dedicated to equitable education dedicated to equitable education that will work in synergy with ForeSea to co-finance and co-implement projects that build the capacity of under-resourced regions to monitor, understand, and predict their coastal ocean
- f. OceanCorps, a unifying concept for inspiring sustained, long-term education and research collaborations between scientists from under-resourced nations and scientists from the US and other higher-resourced nations

Contribution to the vision and mission of the UN Decade

The ForeSea programme's two theme groupings are aligned with the UN Decade's vision of *"the science we need for the ocean we want"*, and the UN Decade's mission to catalyze *"transformative ocean science solutions for sustainable development, connecting people and our ocean"*.

ForeSea's first theme, **"Catalyzing transformative ocean prediction science solutions for sustainable development, connecting people and ocean prediction"**, will enable mechanisms for ocean prediction science to work with other components to build a global international operational oceanographic capacity. This capacity further enables, in conjunction with WMO activities, the creation of marine environmental prediction services that will further develop the blue economy. Ultimately, this theme advances the implementation of science in ForeSea into sustained prediction services in partnership with other program elements of the Decade (observing systems, digital ocean, etc.).

ForeSea's second theme, **"Increasing impact and relevance: Improving science and science capacity for the ocean we want"**, will advance the science needed to evaluate its impact on prediction systems, enabling focus on and enhancement of relevant capabilities and efforts.

Emphasis will be on advancing the science in key areas to:

1. Determine how best to capture the precision and utility of ocean prediction systems and
2. Develop research and develop methodologies to routinely optimize the ocean observing system for maximum impact on prediction skills

Supporting and contributing to UN Decade outcomes

Outcome 4: A predicted ocean where society understands and can respond to changing ocean conditions.

Outcome 4 is enhanced through ForeSea's improvements in the science behind ocean prediction, and further enabled by ForeSea co-creation of an international structure to support research, development and operations for operational ocean forecasting systems. These are elements of the full operational oceanography value chain, spanning: needs, observations, data management, analysis, ocean prediction, dissemination via digital ocean, and information service delivery, culminating in end use. In a modern context, this is achieved in conjunction with WMO and IOC groups.

Outcome 5: A safe ocean where life and livelihoods are protected from ocean-related hazards.

Outcome 5 is enabled by applying ForeSea ocean prediction outputs and it is further strengthened through tuning end user feedback, increasing output standardization, and further enabling accessibility to marine environmental prediction output by operational response groups (environmental incident response, search and rescue, etc.) and regulatory groups.

Outcome 6: An accessible ocean with open and equitable access to data, information and technology and innovation.

Outcome 6 is an integral component of the ForeSea programme. ForeSea relies on other groups to design a digital ocean (collaboration with UN Ocean Programme DITTO), while ForeSea aims to populate such digital ocean environments with marine environmental prediction output for past, present and future conditions. The ForeSea data, consequently, enables access to predicted ocean information that society can exploit in a changing environment to achieve Decade outcomes. The predicted ocean information, if accessible to all, enables society in general as well as all Decade programmes to better achieve the desired outcomes.

SynObs

SynObs is a ForeSea's Project

Website: <https://oceanpredict.org/foresea/synobs/#section-overview>

Proposal: https://oceanpredict.org/docs/Documents/SynObs/SynObs_CFDA2-submission-Jan2022.pdf

Synergistic Observing Network for Ocean Prediction (SynObs)

SynObs will seek to extract maximum benefit from combining various observation platform measurements, typically satellite and in situ observation data, or combinations of coastal and open ocean platforms for ocean/coastal predictions.

SynObs aims to identify the optimal combination of the different ocean observation platforms through observing system design and evaluation, and to develop assimilation methods which can enable drawing synergistic effects from these combinations. Targets of SynObs include open-ocean, such as global, tropical, mid-latitude, arctic and subarctic oceans, as well as coastal-sea, and biogeochemical observing systems.

SynObs was submitted to the UN Decade second call for action as a project of ForeSea.

The submission document includes details on

- project partners and supporting organisations
- project objectives
- planned project activities and expected outcomes
- and more ...

Questions of SynObs for MEAP-TT members. Can we:

1. *Contribute to the observing system evaluation showcase, which is a SynObs activity to demonstrate the feasibility and effectiveness of observing system evaluation*
2. *Participate in the on-site and on-line meetings of SynObs and share the information on the development of DA schemes for BGC*

3. *Conduct collaborative evaluation of the impacts of satellite ocean color data and BGC Argo floats with SynObs*
4. *Provide examples of BGC observing system evaluation for the SynObs observation impact reports*

Marine Life 2030



Marine Life 2030 is a UN Decade Programme

Website: <https://marinelife2030.org/>

Proposal:

https://marinebon.org/assets/Marine_Life_2030_UN_Ocean_Decade_request_for_endorsement_20210115.pdf

Marine Life 2030 is a UN Ocean Decade Endorsed Programme that seeks to transform the observation and forecasting of marine life for the future for the benefit of all people.

Our Vision

By 2030 and beyond, anyone, anywhere, will have access to information on marine species and ecosystems important to local fisheries, culture, health, and livelihoods. We will be able to diagnose how species are shifting with climate change and management interventions, to achieve a sustainable future for nature and people.

What We Do

- Convene stakeholders to chart the course together, implementing equitable management for long-term coordination and financing of global marine life observation and applications
- Leverage emerging innovation to democratize marine life knowledge, using 'omics, acoustics, imaging, and AI, and a sequence-based Ocean Biocode of global marine species

- Integrate biodiversity into a global ocean observation system by establishing and promoting interoperable biodiversity standards and best practices, integrating with other disciplines
- Apply enhanced knowledge of marine life to co-develop solutions, informing conservation and sustainable use of marine life by trained stakeholders in every coastal nation

Other relevant programmes:

CoastPredict: <https://www.coastpredict.org/>

Digital Twins of the Ocean (DITTO): <https://ditto-oceandecade.org/>

Ocean Observing Co-Design (ObsCoDe):

https://www.goosocean.org/index.php?option=com_content&view=article&id=298&Itemid=433

Workshop 7,8,9 June 2022:

https://www.goosocean.org/index.php?option=com_content&view=article&id=404:ocean-decade-co-design-workshop&catid=9&Itemid=411

Ocean Practices for the Decade

<https://www.oceanbestpractices.org/ocean-practices-for-the-decade/#:~:text=The%20Ocean%20Practices%20for%20the,collectively%20advancing%20your%20methodological%20heritage.>