

Sustainable Blue Growth: *for youth*

educational information package



If the oceans were a country, it would have the seventh largest economy in the world.

*Hoegh-Guldberg, O., et al. (2015).
Reviving the Ocean Economy: The Case for Action 2015.
Geneva, Switzerland: WWF International.*

Contents

SB Bridge – Building Bridges for Green Technology Future / 4

SB Bridge – Project Partners / 5

INTRODUCTION / 7

The Blue Economy: Key Messages / 8

1 chapter. THE BLUE ECONOMY / 9

1.1 What Is the Blue Economy About? / 9

1.2 The Categories of the Blue Economy / 10

1.3 Historical Background of the Blue Economy and the Blue Growth Concepts / 12

1.4 Scientific Research Input to the Sustainable Blue Growth Development / 15

2 chapter. THE UNITED NATIONS AND THE BLUE ECONOMY / 19

2.1 The Most Important Water-Related Conventions, Plans, Actions and Significant Events by the UN / 19

2.2 The UN Agenda 2030 for Sustainable Development / 20

2.3 Relating Three SDGs: Goals 6, 11 and 14 / 21

3 chapter. THE EUROPEAN UNION AND THE BLUE ECONOMY / 23

3.1 Towards the Sustainable Blue Economy in the EU / 23

3.2 The EU Blue Economy Report 2021 / 25

3.2.1 Main Economic Trends of the Blue Economy, 2009-2018 / 26

3.2.2 Covid-19 Impact on the Blue Economy / 27

3.2.3 The Development of Emerging Water-Related Sectors / 27

3.2.4 Importance of the “Blue” Research, Expenditures on it / 28

3.3 Interreg Europe Scientific Projects to Meet the Blue Economy’s Challenges / 28

3.3.1 Smooth Ports / 29

3.3.2 Islands of Innovation / 30

3.3.3 Blue Green City / 31

3.3.4 Land-Sea / 32

3.3.5 Extra-SMEs / 32

SPECIFIC QUESTIONS ON SUSTAINABLE BLUE GROWTH / 34

For an Open Discussion / 34

For Checking of Individual Knowledge / 34

CONCLUSION / 38

REFERENCES / 39

SB Bridge – Building Bridges for *Green* Technology Future

What is the project changing?

The SB Bridge project aims to reduce the mismatch between higher education and its graduates and the green and blue labour market, improving the motivation of young people to study and work in the green and blue sector.

What is the project creating?

The project aims to build a bridge between education and the demands of engaging SMEs by developing a new approach based on the German concept of “*TechnOlympics*”. It is based on a concept in which cross-border events with a competitive nature are designed to stimulate students’ interest in technology and innovation.

The purpose is an innovative approach to raise motivation and develop matchmaking between skilled pupils and graduates and SMEs within the SB region. The intended project will develop this concept towards blue and green industries and required skills to the whole SBP Region by involving more partners: APs, SMEs and other interested groups. Project will cover several WPs, related to informal education with strong focus on green technologies, cross border thematic camping in all PP’s countries, also skills development sustainability activities.

Which economic sub-sectors are covered by the project?

- ✓ Renewable energy
- ✓ Green building
- ✓ Clean transportation
- ✓ Waste management
- ✓ Water management



Project duration: From July, 2018 to December, 2021.

Project website: Please, find the SB Bridge Project official website: <https://sbbridge.eu/>

SB Bridge – Project Partners

The project involves 6 partners from 5 countries: Lithuania (2), Poland (1), Sweden (1), Germany (1), Denmark (1). The lead partner of the project is Klaipeda University. Moreover, there are 15 associated partners in the project.



Klaipeda University (KU) has experience in international project activities and skilled staff in formal and informal education also participates actively in professional networks and developing platforms, initiates tie with SMEs willing to be more “green” and “blue”, supports SMEs with consultation on business development solutions, promotes blue and green growth. KU actively participates in international innovation events, takes a leading role in R&D activities in the Western part of Lithuania, has strong linkages with international networks forwards more innovations-oriented, provides master degree in Innovation management and Marine technologies natural sciences studies, related to the green and blue labor force.



Klaipeda Economic Development Agency (KEDA) has appropriate experience in implementing international European projects, the staff has great project management skills. While implementing previous projects, the staff gained abilities to coordinate, manage the projects, implement activities, disseminate the project properly. KEDA team has various certificates which prove that the team can implement various international projects.

The Culture Factory is an incubator of contemporary performing arts and creative businesses which aims to promote the entrepreneurship of young people in Klaipeda and the competitiveness of small and medium-sized enterprises as well as to contribute to the development of creative industries.



Gdańsk Entrepreneurship Foundation (GEF) is an NGO founded by the City of Gdansk (2005). Since 2011 GEF runs a Gdansk Business Incubator STARTER focusing on IT, creative industry, maritime and logistic



The County Administrative Board of Skåne, in the very south of Sweden, is a regional management and development authority working directly under the Swedish government. The County Administrative Board of Skåne

start-ups, presently implements several projects for start-ups, SME and children, youth, and students (entrepreneurial education) from different sources (EU, e.g. INTERREG - Central Europe, BSR; regional EU operational programs; municipal grants; private sources).



ATI brings in experiences from many national and international projects. Related to European projects for education and youth, mainly Interreg, ATI will work closely together with schools and SMEs to enhance the specialized skill in educational sciences with the regional skills of marketing, project management, and services in the organization of international workshops. The ATI's mission is achieved in particular through the implementation of scientific events, training programs, and general project strategy development.

dates its history back to the year 1634 and has a broad area of responsibility. The Board works on issues concerning the environment, urban development, the labor market, competence sourcing, the business community, social development, gender equality, human rights, integration and migration, transport, infrastructure, housing, and spatial planning.



Holbaek Municipality is a local municipality with approximately 70.000 inhabitants placed on the border of Isefjorden in Zealand, Denmark. Holbaek Municipality has recently opened an experience centre (Brorfelde Observatorium) to make science interesting for the citizens.

Introduction

The ocean is a common heritage of all humanity, providing millions of people across the world with livelihoods and contributing to a range of critical “ecosystem services”, from biodiversity and culture to carbon storage and flood protection, recreation and amenity opportunities.

However, not all countries have the financial or technical means to share in the benefits of our marine and coastal resources or help protect them. And now, the ocean’s ecosystems are under threat from overfishing, pollution, habitat destruction and climate change.

Unless these threats are reversed, millions of livelihoods could be lost and thousands of communities will have reduced access to a vital staple food. With [the UN 2030 Agenda for Sustainable Development](#), it is timelier than ever to bring these issues to the forefront of the debate.

Most of the world’s fish is supplied by small-scale coastal fisheries, particularly in developing countries, but this is often unaccounted for in national statistics and unsupported by policymakers. Meanwhile, the high seas, making up half of the planet’s surface area, remain largely ungoverned – but increasingly exploited. And these ecosystems are, of course, closely interconnected. That is why it is urgently important to protect the oceans for the future generations.

This information booklet has been developed in the frames of the SB-Bridge project and aims to make aware young learners about the importance of the Blue Economy and the sustainable development of it.

The Blue Economy: *Key Messages*¹

The Blue Economy encompasses all waterbodies, including the world's oceans, lakes, rivers and wetlands. Inland cities are affected as much as coastal or island cities.

Anticipating, mitigating and adapting to the impacts of climate change is an essential component of the Blue Economy. National and local investments in infrastructure, community resilience and environmental protection must be complemented by shared global and regional principles, strategies and priorities. Improving countries' and cities' readiness to access international climate funds will become crucial in developing a Blue Economy.

Cities are at the forefront of the Blue Economy. Many urban centres are located along coasts and waterfronts around the world. Cities must recognize the value of their natural capital, including their waterbodies.

Resilient urban planning and design, and low-carbon plans for infrastructure and basic services are needed to promote local economic development and to protect cities from further contributing to environmental degradation – paying special attention to water management, wastewater, oceans and marine pollution.

Harnessing the potential of cities to benefit from the Blue Economy – such as sustainable livelihoods, green and blue job creation, sustainable housing and infrastructure, waste management, ecological protection and restoration of coastal and waterfront areas.

Prosperity is a key driver of healthy and sustainable Blue Economies. Without the full engagement of women, youth, and other marginalized groups, these economies will not work to their optimal level.

Integrating urban planning and marine spatial planning must be a priority for Blue Economy. Bringing together spatial planning and integrated coastal zone management (ICZM) through the development of integrated coastal and marine spatial plans (CMSP) are therefore important steps to guide national government policy-makers, local government officials, marine protection experts and other civic stakeholders.

Restoring and protecting coastal and other water ecosystems will be crucial for both cities – in terms of strengthening their resilience to climate-induced shocks – and oceans. Often, the most vulnerable and poorest populations that live in informal settlements are least prepared, will be most deeply affected, and take longest to recover.

Governance arrangements of coastal, marine and other waterbody environments must be harmonized for better economic, social and environmental outcomes. These must go along with appropriate institutional priorities, goals, plans and actions on all levels of government.

Investments in data, science and cutting-edge technology will be critical in supporting governance prioritization, reforms and shaping management decisions to achieve sustainable 'blue' transformations.

More scientific research is needed to draw the linkages between cities and the Blue Economy, in terms of cities as hotspots of vulnerability, as well as drivers of sustainable development.

¹ United Nations Human Settlements Programme (UN-Habitat) (2018). Blue Economy and Cities. Background Paper. Nairobi: UN-Habitat.

1 chapter. The Blue Economy

1.1 What Is the Blue Economy About?

The Blue Economy is an emerging concept which encourages better stewardship of our ocean and other blue resources. It provides for an inclusive model in which coastal zones, or those with significant waterbodies – which sometimes lack the capacity to manage their rich water resources – can begin to extend the benefit of those resources to all. The use of the term stems from the UN Conference on Sustainable Development (Rio+20) outcomes where member states pledged to “*protect and restore the health, productivity and resilience of oceans and marine ecosystem to maintain their diversity, enabling their conservation and sustainable use for present and future*”². The terms “Blue Economy” or “Blue Growth” have over the years become common policy usage around the world. Despite increasing high-level adoption of the Blue Economy, as a concept as well as a goal of policy making and investment, there is still no globally accepted definition of the term.

<i>A Definition of the Concept of the Blue Economy</i> <i>Economist Intelligence Unit, 2015</i> ³	<i>Blue Aspects of the Green Economy</i> <i>UNEP, 2013</i> ⁴
<p><i>“A sustainable ocean economy emerges when economic activity is in balance with the long-term capacity of ocean ecosystems to support this activity and remain resilient and healthy.”</i></p> <p>Essentially, the Blue Economy concept is a lens by which to view and develop policy agendas that simultaneously enhance ocean health and economic growth, in a manner consistent with principles of social equity and inclusion.</p>	<p>The main objectives of the Green Economy remained the same, yet with a stronger focus on marine environments. In this context it referred to “<i>improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities including the principle of a low-carbon economy based on resource efficiency and social inclusion, in particular in states where future resources are marine related.</i>”</p>

According to the World Bank⁵, the Blue Economy refers to the sustainable use of ocean and other water resources for economic growth, improved livelihoods and job creation. The activities that are undertaken need to provide social and economic benefits for current and future generations and should also aim at restoring, protecting, and maintaining the

² United Nations Conference on Sustainable Development (UNCSD) (2012). The Future We Want: Outcome Document.

³ Economist Intelligence Unit (2015). The Blue Economy: Growth, Opportunity and a Sustainable Ocean Economy. Briefing Paper for the World Ocean Summit 2015.

⁴ UNEP (2013). Our Planet: The magazine of the UN Environment Programme. September 2013 Issue. Nairobi: UN Environment.

⁵ World Bank (2016). Toward a Blue Economy: A Promise for Sustainable Growth in the Caribbean; An Overview. Washington, DC: The World Bank.

diversity, productivity, resilience, core functions and the intrinsic value of the marine ecosystem. Furthermore, they must be based on an economic system that emphasizes clean technologies, renewable energy, waste reduction and the recycling of materials⁶.

The Blue Economy seeks to promote economic growth, responsible production and consumption, social inclusion, and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of ocean and coastal, as well as other waterfront areas, through the circular economy⁷. However, recognizing the importance of oceans in the discussion on the Blue Economy is crucial, as it is estimated that billions of people worldwide, especially the world's poorest, rely on the ocean to provide jobs and food, which further underscores the urgent need to sustainably use and protect this natural resource⁸.

1.2 The Categories of the Blue Economy

The growing Blue Economy encompasses a multitude of traditional human activities. However, today's marine and other freshwater resources are also under severe threat by human activities and unsustainable consumption and production patterns. They can be broadly categorized as follows⁹:

Type of activity	Related sectors	Explanation	Driver of growth
Harvesting and trade of marine resources.	Fisheries: While fisheries can generate revenue for many stakeholders, there is clear inequality due to overfishing and large-scale exploitation. More conservation efforts are needed to protect and restore fish stock, and to protect the livelihoods of small-scale fishermen/fisheries.	Sustainable fisheries can be an essential component of a prosperous Blue Economy, with marine fisheries contributing more than USD 270 billion annually to global GDP. However, 31.4 per cent of fish stocks were estimated as fished at a biologically unsustainable level and therefore overfished ¹⁰ .	Growing demand for food and nutrition.

⁶ World Bank and United Nations Department of Economic and Social Affairs (UN-DESA) (2017). The Potential of the Blue Economy: Increasing Long-Term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries. Washington, DC: The World Bank.

⁷ United Nations Human Settlements Programme (UN-Habitat) (2018). Blue Economy and Cities. Background Paper. Nairobi: UN-Habitat.

⁸ World Bank (2016). Toward a Blue Economy: A Promise for Sustainable Growth in the Caribbean; An Overview. Washington, DC: The World Bank.

⁹ United Nations Human Settlements Programme (UN-Habitat) (2018). Blue Economy and Cities. Background Paper. Nairobi: UN-Habitat.

¹⁰ World Bank and United Nations Department of Economic and Social Affairs (UN-DESA) (2017). The Potential of the Blue Economy: Increasing Long-Term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries. Washington, DC: The World Bank.

Type of activity	Related sectors	Explanation	Driver of growth
Extraction of non-renewable resources.	Extraction of goods (e.g. minerals, energy sources, freshwater generation): Oceans and other water resources are being exploited for consumption and production of materials and goods.	More and more cities around the world rely on desalination technology to purify ocean water for their use, due to a lack of natural water sources. This is still costly, but if treated sustainably could help cities' economies.	Demand for resources.
Use of renewable natural resources.	Renewable energy: Hydro-energy (wind, wave, tidal and offshore plants) plays a vital role in economic development around the world. It is estimated that between 1974 and 2013 the global public budget for ocean energy R&D was USD 1.6 billion ¹¹ . Moreover, if ocean energy deployment was on track to reach 748 gigawatts by 2050, this could create over 160,000 jobs by 2030 ¹² .	Efforts to combine economic and sustainable approaches have led to increased interest in offshore renewables in East Africa, where there has been a growing focus on wave energy ¹³ . Overall, East Africa is forecasted to have more than 50,000 megawatts of renewable energy generation potential by 2030 ¹⁴ .	Demand for energy resources.
Commerce and trade in and around waterbodies.	Transport: Over 80 per cent of traded international goods are transported by sea and the volume of seaborne trade is expected to double by 2030 and quadruple by 2050 ¹⁵ .	Cities are centers of consumption and net importers of food. Much of the food is traded through ports and rivers ¹⁶ .	Transport and trade demand.
	Tourism: Ocean and coastal tourism can bring jobs and economic growth, however if not managed sustainably can have a negative impact on marine ecosystems (e.g. resorts, water sports, cruise ships, boating, seafood consumption ¹⁷ .	Coastal Least Developed Countries (LDCs) and Small Island Development States (SIDS) receive more than 41 million visitors per year	Global growth of tourism.
	Real estate and coastal development: Other less-known and quantifiable contributions of oceans and	More research is required to determine how such investments, formal and informal, affect the Blue	Urbanization along waterbodies.

¹¹ Executive Committee of the Ocean Energy Systems (OES) (2011). An International Vision for Ocean Energy.

¹² World Energy Council (2016). World Energy Resources: Marine Energy.

¹³ International Union for Conservation of Nature (IUCN) (2010). Greening Blue Energy: Identifying and Managing the Biodiversity Risks and Opportunities of Offshore Renewable Energy.

¹⁴ United Nations Human Settlements Programme (UN-Habitat) (2018). Blue Economy and Cities. Background Paper. Nairobi: UN-Habitat.

¹⁵ United Nations Human Settlements Programme (UN-Habitat) (2018). Blue Economy and Cities. Background Paper. Nairobi: UN-Habitat.

¹⁶ Hoff, H., et al. (2014). Water Footprints of Cities Indicators for Sustainable Consumption and Production. Hydrol. Earth Syst. Sci. (18), 213-226.

¹⁷ World Wildlife Fund (WWF) (2015). Living Blue Planet Report: Species, Habitats and Human Well-Being.

Type of activity	Related sectors	Explanation	Driver of growth
	other waterbodies are real estate values for properties along these waterbodies that are well planned and developed.	Economy positively or negatively, especially in the context of cities.	
Indirect, negative consequences of human activity.	Climate change: The impact of climate change that is causing rising sea-levels, coastal erosion, biodiversity loss, changing patterns of vital ocean currents, and acidification are staggering. Oceans are an important carbon sink and help mitigate climate change. Changes to their natural balance will have irreversible effects on our planet's ecosystems and human populations.	Additionally, crucial other water ecosystems such as wetlands, lakes and rivers can help buffer and protect human settlements from extreme weather events caused by climate change, yet they must be protected and maintained in a sustainable manner.	Increased climate change impacts.
	Waste Management: 80 per cent of marine litter is from land-based sources ¹⁸ . Assessing the quantity and distribution of marine debris globally, there is a higher concentration of debris close to urban centres, emphasizing the need and importance of targeting land-based waste management on the local level ¹⁹ .	Improving waste management on land, and especially in cities that are close to waterbodies, is a necessity for protecting marine and freshwater ecosystems from harmful plastic pollution, as well as from wastewater streams that flow directly into these waterbodies.	Waste and water pollution.

1.3 Historical Background of the Blue Economy and the Blue Growth Concepts

Governance of marine resource use is increasingly facilitated around a recently introduced term and concept – “blue growth.” This concept is essentially the newest of many recent calls for more holistic management of complex marine social-ecological systems²⁰. However, despite use by multiple and diverse stakeholders, the term has no generally agreed upon definition. Instead, it embodies vastly different meanings and approaches, depending on the social contexts in which it is used. The potential for miscommunication is great, as scientists from different fields, as well as other stakeholders, may be using the

¹⁸ Jambeck, J. R., et al. (2015). Plastic Waste Inputs From Land Into the Ocean. *Science*, 347 (6223), 768-771.

¹⁹ Willis, K. et al. (2017). Differentiating Littering, Urban Runoff and Marine Transport as Sources of Marine Debris in Coastal and Estuarine Environments. *Scientific Reports*, 7, 44479.

²⁰ Burgess, M. G., et al. (2018). Five Rules for Pragmatic Blue Growth. *Marine Policy*, vol. 87, 331-339.

same term but unknowingly perceiving the concept differently, leading to potential misunderstandings and possibly misguided governance outcomes. Discussion of the meanings and implications of this increasingly globally important term is badly needed. More awareness hopefully will lead to enhanced communication among colleagues and across disciplines and to the convergence towards an operational definition of blue growth necessary to create comprehensive science-based policy that delivers net social and economic benefits as well as benefits the aquatic environment, in particular marine systems²¹.

The roots of the “blue growth” concept can be traced back to the conceptualization of sustainable development (SD). Sustainable development - or the challenge of a sustainable use of natural resources, while at the same time securing economic and social objectives - has been a focus of the international community since the 1960s.

Three large international conferences mark the main milestones in the development of the Sustainable Development concept²²:

1. *The environmental/resource dimension* was defined in Stockholm in 1972 at the first United Nations (UN) conference on SD.
2. *The economic dimension* was defined in Rio in 1992 at the second UN conference on SD.
3. *The social dimension* was defined in Johannesburg in 2002 at the third UN conference on SD.

The need for a Blue Economy approach was discussed and agreed upon at the United Nations Conference on Sustainable Development (UNCSD) in 2012, also known as Rio+20 or Earth Summit, and it was the fourth conference on sustainable development topic. It focused on two key themes: the developing and refining of a global institutional framework for sustainable development and advancing the concept of the “Green Economy”. During the preparatory process for the conference, many coastal countries questioned the focus of the Green Economy and its applicability to them. Some of the [Small Island Developing States \(SIDS\)](#) voices reflected a need to focus on a stronger position on Blue Economy issues aimed at providing better adaptation mechanisms to coastal and sea resource-based countries, which eventually resulted into the organization of the Blue Economy Summit and then the Third International SIDS Conference in 2014.

Institutional efforts were made to expand the blue aspects of the Green Economy as embodied in the “Green Economy in a Blue World” report²³. Rio+20 helped member states to develop a common understanding that the world’s oceans and seas require more in-depth attention and coordinated action. This also led to the development of a

²¹ Eikeset, A. M., et al. (2018). What Is Blue Growth? The Semantics of “Sustainable Development” of Marine Environments. *Marine Policy*, vol. 87, 177-179.

²² Najam, A., Cleveland, C. (2003). Energy and Sustainable Development at Global Environmental Summits: An Evolving Agenda. *Environment, Development and Sustainability: A Multidisciplinary Approach to the Theory and Practice of Sustainable Development*. Springer, vol 5 (1), 117–138.

²³ UNEP, FAO, GRID-Arendal, IMO, IUCN, UNDP (2012). *Green Economy in a Blue World*.

Sustainable Development Goal (SDG) that focuses specifically on oceans: SDG 14 that aims to “conserve and sustainably use the oceans, seas and marine resources for sustainable development”.

The Sustainable Development Goals (SDGs) are the world’s shared plan to end extreme poverty, reduce inequality, and protect the planet by 2030.

Adopted by 193 countries in 2015, the SDGs emerged from the most inclusive and comprehensive negotiations in UN history and have inspired people from across sectors, geographies, and cultures. Achieving the goals by 2030 will require heroic and imaginative effort, determination to learn about what works, and agility to adapt to new information and changing trends.

The UN Foundation focuses on ideas and initiatives that generate larger impact, advance the SDG imperative to “leave no one behind,” and are backed by evidence, practical commitments, and action.

Picture: Sustainable Development Goals

Source: [United Nations Foundation](#), 2021



Today, coastal and island states are at the forefront of the Blue Economy advocacy, recognizing that the approach offers solutions that are tailored to their circumstances, constraints and challenges. While many Blue Economy definitions may only include ocean and marine resources, it is obvious that without the support and considerations of other non-coastal or mainland states and other waterbodies, a sustainable and prosperous Blue Economy cannot be achieved.

Therefore, the wider definition of the Blue Economy that encompasses all other significant waterbodies – rivers, lakes and wetlands – demonstrates that at the core lies the

de-coupling of socioeconomic development from environmental degradation. To attain this, the blue natural capital must be integrated into all aspects of economic activity – such as infrastructure development, trade, travel, renewable and non-renewable resource exploitation, production and consumption patterns, spatial planning, and local economic development²⁴.

The current state of marine, coastal and freshwater ecosystems indicates that further efforts are needed in the management of human activities. Spatial planning, integrated conservation, sustainable and efficient resource use are necessary tools and mechanisms to achieve sustainable development. In addition, integrated ecosystem approaches are the most effective way to tackle the above challenges. Ensuring the ecosystem-based management of human activities will on one hand allow the restoration and conservation of biodiversity and natural resources, while it will on the other hand support sustainable resource extraction and consumption. Only through ecosystem-based management can governments and communities ensure healthy oceans, marine and freshwater environments, and thereby also maintain a healthy quality of life and sustainable development²⁵.

1.4 Scientific Research Input to the Sustainable Blue Growth Development



*Boonstra et al.*²⁶ discuss the relevance and usefulness of the term blue growth for the development of capture fisheries, a sector where growth is often accompanied by substantial harm to marine ecosystems. The authors compare intensive and extensive growth to argue that certain development trajectories of capture fisheries might qualify as blue growth. They also highlight aspects of some fisheries that blue growth advocates might want to emphasize if they choose to consider capture fisheries, including:

- a) adding value through certification,
- b) technology development to more efficiently utilize resources in fishing operations and to upgrade their fish as commodities, and
- c) specialization.

²⁴ United Nations Human Settlements Programme (UN-Habitat) (2018). Blue Economy and Cities. Background Paper. Nairobi: UN-Habitat.

²⁵ United Nations Human Settlements Programme (UN-Habitat) (2018). Blue Economy and Cities. Background Paper. Nairobi: UN-Habitat.

²⁶ Boonstra, W. J., Valman, M., Bjorkvik, E. (2018). A Sea of Many Colour – How Relevant Is Blue Growth for Capture Fisheries in the Global North, and Vice Versa? *Marine Policy*, vol. 87, 340-349.

The authors posit that the term blue growth is meant to realize economic growth based on the exploitation of marine resources, while at the same time preventing their degradation, overuse, and pollution.



*Burgess et al.*²⁷ discuss how the complexity of ocean systems, exacerbated by limitations on data and capacity, demands an approach to management that is pragmatic. By this they mean goal- and solution-oriented, realistic, and practical. Burgess et al. propose five helpful rules of thumb upon which to build such an approach:

1. Define objectives, quantify trade-offs, and strive for efficiency.
2. Take advantage of the data that you have, which can do more than you may think.
3. Engage stakeholders, but do it right.
4. Measure your impact and learn as you go.
5. Design institutions, not behaviours.

These rules, if used properly, will go a long way towards encouraging development that is realistic rather than unattainable.



Integrated management of multiple relevant economic sectors is also a central tenet of blue growth, as is a socially optimal use of ocean-based natural resources; but we do not have more than a poor understanding of possible mechanisms for the implementation of integrated policies that would actually achieve this. *Klinger et al.*²⁸ take steps to fill this gap by reviewing current challenges and opportunities within multi-sector management. They describe the roles played by several key existing sectors (fisheries, transportation, and offshore hydrocarbon) and emerging sectors (aquaculture, tourism, and seabed mining) and discuss the likely synergistic and antagonistic interactions between sectors. To help operationalize blue growth, they review current and emerging methods to characterize and quantify inter-sector interactions, as well as decision-support tools to help managers balance and optimize around interactions.

²⁷ Burgess, M. G., et al. (2018). Five Rules for Pragmatic Blue Growth. *Marine Policy*, vol. 87, 331-339.

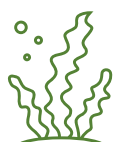
²⁸ Klinger, D.H., et al. (2018). The Mechanics of Blue Growth: Management of Oceanic Natural Resource Use With Multiple, Interacting Sectors. *Marine Policy*, vol. 87, 356-362.



*Hilborn and Costello*²⁹ summarize the past and present status, as well as potential catch, abundance and profit for 4713 fish stocks constituting 78% of global fisheries. In particular they focus on three possible scenarios for how the future might look:

1. Business as usual (BAU), in which unmanaged fisheries move towards a bioeconomic equilibrium, while well-managed fisheries maintain their current management.
2. Maximum sustainable yield (MSY), in which fisheries are managed to maximize yields.
3. Fisheries reform (REF), where competition to fish is eliminated and fisheries are managed to maximize the profits.

They found that for most of the fisheries, better management can result in higher profits. In order to increase yields, in some cases it is necessary to rebuild overexploited stocks; in others, we must reduce fishing mortality on stocks that are still abundant but finished at high rates; and, in some cases, fishing some stocks harder will increase the yield. They also find that Asia provides the greatest opportunity for increasing fish abundance, particularly in cases where increased profits caused by fisheries reform will ultimately lead to a reduced fishing pressure. As the oceans provide food, employment and income for billions of people, reduced fishing pressure and sustainable fisheries are critical for global food security.



Social innovation is the process of developing effective concepts, strategies, solutions, or other ideas that can help solve challenging societal and (or) environmental problems via collaborative action by a group of actors. Social innovation can result in changing behaviour across institutions, markets or the public sector, and can enhance creativity and responsible action towards a synthesis of social, economic and environmental goals. Is it possible for blue growth to enable social innovation as a strategy for the use and management of marine resources? *Soma et al.*³⁰ examine this issue using case studies and conclude that this may be possible, but success will be dependent on creating cooperation, inclusiveness and trust between the different actors.

²⁹ Hilborn, R., Costello, C. (2018). The Potential for Blue Growth in Marine Fish Yield, Profit and Abundance of Fish in the Ocean. *Marine Policy*, vol. 87, 350-355.

³⁰ Soma, K., et al. (2018). Social Innovation – A Future Pathway for Blue Growth? *Marine Policy*, vol. 87, 363-370.



*Pauly*³¹ presents a short history of marine fisheries, highlighting the dramatic expansion of industrial fleets in the 1900s and the intrinsic unsustainability of those fisheries. Pauly then argues that while the vast majority of large, commercial fisheries lack the features that would make them sustainable or even capable of sustainability, small-scale fisheries (including artisanal, subsistence and recreational fisheries) often possess most of these features. Small-scale fisheries could become an important blue growth sector, assuming total fishing effort is not increased and incentives for industrial fishing are reduced. Unfortunately, small-scale fisheries usually receive little attention from policy makers, as is clearly seen by the lack of small-scale fishery catch data submitted by member countries to the Food and Agriculture Organization (FAO).

³¹ Pauly, D. (2018). A Vision for Marine Fisheries in Global Blue Economy. *Marine Policy*, vol. 87, 371-374.

2 chapter. The United Nations and the Blue Economy

2.1 The Most Important Water-Related Conventions, Plans, Actions and Significant Events by the UN

There are several United Nations agencies, conventions, conferences and bodies that have been formed in the past few decades that deal with various issues around oceans, seas and waterbodies. Noteworthy, a few of them have been steering discussions on how to grow an economy based on the waterbodies, while also protecting them from unsustainable resource extraction, pollution and other issues of environmental degradation. In the *Table* below, you can see a summary of the most important water-related conventions, plans, actions and significant events by the UN³²:

Host UN Agency	Name of Convention / Plan	Start / effectiveness date	Signatories	Region
UNESCO	Ramsar Convention on Wetlands of International Importance	1971 (signed), 1975 (effective)	169	Global
UN Environment (hosts 7)	UN Regional Seas and Action Plans (18 total)	1974	143	Regional
Under the Regional Seas programme	Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention)	1976 (signed), 1995 (effective)	22	Regional
Under the Regional Seas programme	Convention on the Conservation of Antarctic Marine Living Resources (CAMLR Convention)	1980 (signed), 1982 (effective)	24	Regional
Under the Regional Seas programme	Convention for the Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention)	1981 (signed), 1984 (effective)	22	Regional
Under the Regional Seas programme	Protection of the Marine Environment and Coastal Area of the South-East Pacific (Lima Convention)	1981 (signed), 1986 (effective)	5	Regional

³² United Nations Human Settlements Programme (UN-Habitat) (2018). Blue Economy and Cities. Background Paper. Nairobi: UN-Habitat.

Host UN Agency	Name of Convention / Plan	Start / effectiveness date	Signatories	Region
N/A	United Nations Convention on the Law of the Sea (UNCLOS)	1982 (signed), 1994 (effective)	157	Global
Under the Regional Seas programme	Convention for the Development, Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean (Nairobi Convention)	1985 (signed), 1996 (effective)	10	Regional
Under the Regional Seas programme	Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (Noumea Convention)	1986	24	Regional
Under the Regional Seas programme	Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) (there were two predecessors, the Oslo and Paris Conventions)	1992	15	Regional
UN Environment	Global Program of Action (GPA) for the Protection of the Marine Environment from Land-based Activities	1995	108	Global
Convention on Biological Diversity (CBD)	Jakarta Mandate on the Conservation and Sustainable Use of Marine and Coast Biological Diversity (Jakarta Mandate)	1995	180	Global
All	Sustainable Development Goal 14 on Oceans	2015	All member states	Global
All	First United Nations Oceans Conference	2017	N/A	Global
N/A	UN Secretary-General's Special Envoy for the Ocean	2017	N/A	Global

2.2 The UN Agenda 2030 for Sustainable Development


Oceans, seas and marine resources are central to the delivery of [the United Nations Agenda 2030 for Sustainable Development](#), including the Sustainable Development Goals (SDGs). Through the 2030 Agenda, and later reinforced through the first United Nations Oceans Conference in 2017, the sustainability of the oceans and their resources has emerged as a global priority. In the 2030 Agenda, Goal 14 recognizes the “contribution of oceans to sustainable development by seeking the conserve and sustainably use the oceans, seas, and marine resources for sustainable development”. It is crucial to make the

connections between Goal 14 and other related goals, to understand the relationship within and between developmental issues. Goal 6 (water), 11 (cities), and 14 (oceans) may in the context of the Blue Economy have the most obvious linkages, however Goals 1 (poverty), 3 (health), 7 (energy), 8 (economy), 9 (infrastructure), 12 (consumption and production), 13 (climate), and 17 (partnerships) have as many important linkages to the Blue Economy.



2.3 Relating Three SDGs: *Goals 6, 11 and 14*

The relationship between *SDG 6 (water)*, *SDG 11 (cities)* and *SDG 14 (oceans)* is of particular importance. Since most of the world's megacities are located in coastal areas, and coastal areas generally demonstrate higher population densities, the linkages between sustainable cities, adequate access to clean water resources, and sustainable oceans are obvious. Expansive land and resource use in coastal and other waterbody areas, which also includes infrastructure development, has many negative impacts on natural ecosystems. There are likely synergies between the reduction in marine and freshwater pollution and the development of safe housing and environmentally friendly cities that aim at reducing energy consumption, improving sewer management and minimizing the degradation of oceans and other waters at large³³. Similar benefits occur between sustainable management practices and conservation efforts of coastal, marine and freshwater environments and the development of safe, resilient and sustainable human settlements. Conflicts may occur where water conservation and restoration limit options for urbanization, housing, infrastructure or transport upgrading. Promoting the construction of new buildings using local materials may have negative impacts on natural ecosystems from which the building materials are removed, and on their conservation and restoration. Therefore, it is important to work with nature to find sustainable and inclusive solutions.

The SDG targets that are most significantly related to one another in this context are the following:

Cities, SDG 11 	11.4	Strengthen efforts to protect and safeguard the world's cultural and natural heritage.
	11.5	By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

³³ International Council for Science (2017). A Guide to SDG Interactions: From Science to Implementation.

	11.6	By 2030, reduce the adverse per capita environmental impacts of cities, including paying special attention to air quality and municipal and other waste management.
	11.A	Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning.
	11.B	By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters.
Oceans, SDG 14 	14.1	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.
	14.2	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.
	14.5	By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.
Water, SDG 6 	6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safer reuse globally.
	6.4	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.
	6.6	By 2030, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.
	6.B	Support and strengthen the participation of local communities in improving water and sanitation management.

3 chapter. The European Union and the Blue Economy

3.1 Towards the Sustainable Blue Economy in the EU

On the 17th of May, 2021 the European Commission proposed a new approach for a [sustainable Blue Economy in the EU](#) for the industries and sectors related to oceans, seas and coasts.

Frans Timmermans,
Executive Vice-President for the Green Deal

European Commission, 2021³⁴

“Healthy oceans are a precondition for a thriving blue economy. Pollution, overfishing and habitat destruction, coupled with the effects of the climate crisis, all threaten the rich marine biodiversity that the blue economy depends on. We must change tack and develop a sustainable blue economy where environmental protection and economic activities go hand in hand.”

Virginijus Sinkevičius,
Commissioner for the Environment, Fisheries and Maritime Affairs

European Commission, 2021³⁵

“The pandemic has hit the marine economy sectors in different, but profound ways. We have an opportunity to start afresh, and we want to make sure that the recovery shifts the focus from mere exploitation to sustainability and resilience. Thus, to be truly green, we must also think blue.”

The [European Green Deal](#) calls for a transformation of European Union economy to become a modern, resource-efficient and competitive economy where net emissions of greenhouse gases are phased out and the EU's natural capital is protected³⁶. The [Recovery Plan for Europe](#) sets out to boost the green and digital transitions and make Europe's economy fairer, more resilient and more sustainable for future generations. The European Union's blue economy can help achieve this dual challenge: if put on a more sustainable path, it will become a font of action and ideas creating innovation, spurring fast and lasting recovery and protecting our planet. A sustainable blue economy offers many solutions to achieve these objectives. Many of the current activities need to reduce their carbon footprint, while new, carbon-neutral activities need to take centre stage. But for this, *a transformation of the blue economy value chains is needed.*

³⁴ European Commission (2021). European Green Deal: Developing a Sustainable Blue Economy in the European Union. Retrieved December 10, 2021, from https://ec.europa.eu/commission/presscorner/detail/en/ip_21_2341

³⁵ European Commission (2021). European Green Deal: Developing a Sustainable Blue Economy in the European Union. Retrieved December 10, 2021, from https://ec.europa.eu/commission/presscorner/detail/en/ip_21_2341

³⁶ European Commission (2019). The European Green Deal. Retrieved December 14, 2021, from https://ec.europa.eu/info/sites/default/files/european-green-deal-communication_en.pdf

The Blue Economy encompasses all industries and sectors related to oceans, seas and coasts, whether they are based in *the marine environment* (e.g. shipping, fisheries, energy generation) or *land* (e.g. ports, shipyards, land-based aquaculture and algae production, coastal tourism). Transforming the [EU's Blue Economy for a sustainable future](#) will require a transformation of the value chains:

1. ACHIEVING THE OBJECTIVES OF CLIMATE NEUTRAL AND ZERO POLLUTION

The EU aspires to reduce greenhouse-gas emissions by at least 55% of 1990 levels by 2030 and become climate neutral by 2050. The Blue Economy will contribute to carbon neutrality by developing offshore renewable energy and by greening maritime transport and port.

2. CIRCULAR ECONOMY AND PREVENTING WASTE

Pollution from nutrients, contaminants, litter (largely made up of plastics) and underwater noise contaminate European seas. The [EU Action Plan on Zero Pollution](#), the [Single-Use Plastic Directive](#), the [2020 EU Circular Economy Action Plan](#), and the revising of the [Ship Recycling Regulation](#), will play a vital role on reducing the impacts of human activities on the sea.

3. BIODIVERSITY CONSERVATION AND RESTORATION

Marine biodiversity is not only the prerequisite for economic activities like fisheries, bio-technology and tourism, but it also presents economic opportunities. The [EU Biodiversity Strategy for 2030](#) aiming at protecting 30% of EU's sea area, taking an ecosystem-based management approach under EU legislation, and the upcoming proposal for legally binding EU targets to restore degraded ecosystems, will help reverse biodiversity loss, contribute to climate mitigation and resilience and at the same time help generate significant financial and social benefits.

4. COASTAL RESILIENCE

About 1/3 of the EU population lives within 50 km of the coast. Coastal resilience will mean adapting to the inevitable consequences of climate change, and it should be based on natural and nature-based solutions – for instance, wetlands such as salt marshes, seagrass fields, mangroves and dunes. The Commission will close the knowledge gaps and stimulate innovation, boost the capacity for [Copernicus](#) and [EMODnet](#) (European marine observation and data network) observation, modelling and forecasting to better anticipate the effects of extreme weather events, stimulate cooperation between coastal regions and islands, as assist Member states in long-term planning to phase in investments.

5. RESPONSIBLE FOOD SYSTEMS

By using marine resources better and by choosing alternative sources of food and feed, the Blue Economy can help alleviate pressure on our climate and on

natural resources for food production. By 2023, the Commission will put a legislative proposal for a framework that will include fisheries and aquaculture products, to accelerate and facilitate the transition towards a sustainable food system. In 2022, the Commission will put a legislative proposal for modern, sustainable marketing standards for seafood, and adopt a dedicated initiative on algae, it will support the digital transformation of fisheries, assess the investment needs regarding cell-based seafood and keep implementing common fisheries policy.

The Communication also discusses ocean knowledge, investment, research and innovation, blue skills and jobs, maritime spatial planning, maritime security and citizen engagement and ocean literacy, as well as sea basins, regional cooperation and support for coastal regions. For more information, please [click here](#).

The purpose of the Communication is to lay a foundation on which to build the initiatives of the next few years, including initiatives that are not yet planned. The European Commission will be working closely with the Member States and regions, so Europe can move “as one” towards sustainability.

3.2 The EU Blue Economy Report 2021

On the May, 2021 the European Commission has published the fourth edition of [the EU Blue Economy Report \(2021\)](#), providing an overview of the performance of the EU-27 economic sectors related to oceans and the coastal environment for a period of 2009-2018.

The 2021 EU Blue Economy Report is a joint collaboration between the [European Commission's Department for Maritime Affairs and Fisheries](#) (DG MARE) and the [Joint Research Centre](#).

<i>Seas and oceans cover more than 70% of Earth's surface. They hold 97% of all water and sustain 80% of all life forms on the planet.</i>	<i>Blue Economy traditional sectors contribute to about 1.5% of the EU-27 GDP in 2018.</i>	<i>Blue Economy traditional sectors provide about 4.5 million direct jobs, i.e. 2.3% of EU-27 total employment in 2018.</i>	<i>Between 2007 and 2019, public and private R&D expenditure on wave and tidal energy in the EU amounted to €3.84 billion.</i>
<i>The coastal tourism sector is one of the most affected by Covid-19 with an estimated decrease in tourism activity of 60%-80% in the EU-27.</i>	<i>Comparing the first halves of 2019 and 2020, new orders in EU shipyards, because of Covid-19, decreased by 62%.</i>	<i>In June, 2020, out of 75 ports (i.e. 48%) had registered a decline in container vessel calls, compared to pre-Covid times.</i>	<i>In 2020, 66% of global wave energy capacity was installed in the EU.</i>

Seas and oceans cover more than 70% of Earth's surface. They hold 97% of all water and sustain 80% of all life forms on the planet. Blue Economy traditional sectors contribute to about 1.5% of the EU-27 GDP and provide about 4.5 million direct jobs, i.e. 2.3% of EU-27 total employment, and generated around €650 billion in turnover and €176 billion in gross value added in 2018³⁷. Emerging innovative Blue Economy sectors, such as ocean renewable energy, blue biotechnology, and algae production are developing quickly by adding new markets and creating new jobs.

The seven established water-related sectors considered in this report which are divided by other subsectors³⁸:

Sector	Sub-sector
Marine living resources	Primary production
	Processing of fish products
	Distribution of fish products
Marine non-living resources	Oil and gas
	Other minerals
Marine renewable energy	Offshore wind energy
Port activities	Cargo and warehousing
	Port and water projects
Shipbuilding and repair	Shipbuilding
	Equipment and machinery
Maritime transport	Passenger transport
	Freight transport
	Services for transport
Coastal tourism	Accommodation
	Transport
	Other expenditure

3.2.1 Main Economic Trends of the Blue Economy, 2009-2018

The report shows gross value added (GVA) from coastal tourism, the largest blue economy sector in the EU, increased by 20.6% compared to 2009, while maritime transport and port activities increased by 12% and 14.5%, respectively. Also, the living resources sector – including fisheries and aquaculture – is in good health and has generated €7.3 billion gross profits in 2018, a 43% rise compared to 2009.

Employment in the blue economy has remained stable (+1%) over the last ten years, although this figure masks a strong shift between sectors. While employment in the non-living resources dropped by 60% compared to 2015, coastal tourism saw a 45% increase over the same

³⁷ European Commission (2021). The Blue Economy Report 2021. Luxembourg: Publications Office of the European Union.

³⁸ European Commission (2021). The Blue Economy Report 2021. Luxembourg: Publications Office of the European Union.

period. Offshore wind is confirming its spectacular development of recent years, with 15% more jobs in 2018 compared to just the year before.

Gross investments in tangible goods decreased by 14.2% compared to 2009: from €29.8 billion to €25.5 billion. This decline was mainly driven by decreases in investments in the sectors of maritime transport, non-living resources, and to a lesser extent, port activities. On the other hand, shipbuilding and repair, as well as the living resources sector, reported a positive trend (+8.6% and +12.6%, respectively).

3.2.2 Covid-19 Impact on the Blue Economy

Based on the most recent data and analysis, all the established sectors, with the exception of marine renewable energy, suffered severely from *the COVID-19 crisis*.

The coastal tourism sector is one of the most affected with an estimated decrease in tourism activity of 60% to 80%. Comparing the first halves of 2019 and 2020, new orders in European shipyards decreased by 62%. In June 2020, out of 75 ports, i.e. 48% had registered a decline in container vessel calls compared to pre-COVID times.

3.2.3 The Development of Emerging Water-Related Sectors

The report also looks into emerging sectors, which are still in full development but hold significant potential for the future.

Blue biotechnology and the blue bioeconomy can play a crucial role as suppliers of plant-based alternatives to plastics and other petrochemical applications. The sector is still in its infancy, the most notable subsector being algae production with a total turnover of €10.7 million in France, Spain and Portugal. In 2022, the European Commission will adopt an algae strategy to foster development of the sector.

Emerging marine renewable energy activities including floating offshore wind, wave and tidal energy and floating solar photovoltaic energy, may help the EU meet its goal of carbon-neutrality by 2050. Installed capacities are still small and often not yet commercial, but the EU is taking a leading role in its development. In 2020, 66% of global wave energy capacity was installed in the EU.

This edition of the Blue Economy report also provides an overview of the *maritime security and surveillance* sectors, which were not included in prior editions.

Digitalisation and technological innovation are transforming the maritime sector in nearly every aspect of its operations, from underwater to air equipment, including an increased usage of robots for different purposes, such as surveys, scientific research, oil and gas

exploration, border surveillance, infrastructure inspection, and farming. Global market value of the maritime robotics sector is forecasted to double by 2025.

3.2.4 Importance of the “Blue” Research, Expenditures on it

Research and education are key enablers for the twin green and digital transitions. A preliminary assessment shows that the majority of Horizon 2020 investments in the blue economy focused on ocean observation, blue growth and blue biotechnology.

Between 2007 and 2019, public and private R&D expenditure on wave and tidal energy in the EU amounted to €3.84 billion. For the next long-term research programme Horizon Europe (2021-27), at least 35% will be devoted to climate-related actions and supporting the transition of maritime industries to climate neutrality.

Mariya Ganriel,
Commissioner for Innovation, Research, Culture,
Education and Youth, responsible for the Joint
Research Centre

European Union Science Hub, 2021³⁹

“The EU Blue Economy 2021 report marks an important milestone towards establishing the European Blue Observatory, a knowledge sharing platform that will enable near real-time monitoring of decarbonisation efforts across Europe’s blue economy sectors.”

Virginijus Sinkeničius,
Commissioner for the Environment, Fisheries and
Maritime Affairs

European Union Science Hub, 2021⁴⁰

“This (EU Blue Economy 2021) report shows that the blue economy is an important driver of today’s European economy, in coastal communities and beyond. Moreover, with the European Green Deal, its importance will only grow in the future. The sector will contribute to decarbonisation and other European environmental objectives with innovative solutions and by reducing its own footprint. I call on Member States and private investors to support this transformation and invest in a sustainable blue economy.”

3.3 Interreg Europe Scientific Projects to Meet the Blue Economy’s Challenges

Interreg Europe helps regional and local governments across Europe to develop and deliver better policy. The organisation creates an environment and opportunities for sharing solutions and policy learning. The aim of the Interreg Europe is to make sure that

³⁹ EU Science Hub (2021). 2021 EU Blue Economy Report – Emerging Sectors Prepare Blue Economy for Leading Part in EU Green Transition. Retrieved December 8-14, 2021, from <https://ec.europa.eu/jrc/en/news/2021-eu-blue-economy-report-emerging-sectors-prepare-blue-economy-leading-part-eu-green-transition>

⁴⁰ EU Science Hub (2021). 2021 EU Blue Economy Report – Emerging Sectors Prepare Blue Economy for Leading Part in EU Green Transition. Retrieved December 8-14, 2021, from <https://ec.europa.eu/jrc/en/news/2021-eu-blue-economy-report-emerging-sectors-prepare-blue-economy-leading-part-eu-green-transition>

government investment, innovation and implementation efforts all lead to integrated and sustainable impact for people and place.

Any actions developed with financial support from Interreg Europe must fall into one of the following four categories:

- ✓ *Research and innovation.*
- ✓ *SME competitiveness.*
- ✓ *Low-carbon economy.*
- ✓ *Environment and resource efficiency.*

Interreg Europe exists to assist three types of beneficiaries:

- ✓ Public authorities – local, regional and national.
- ✓ Managing authorities/intermediate bodies - in charge of the Investment for Growth and Jobs programmes or European Territorial Cooperation.
- ✓ Agencies, research institutes, thematic and non-profit organisations – these types of organisations can also work with Interreg Europe by first engaging with their local policymakers in order to identify options for collaboration with Interreg Europe.

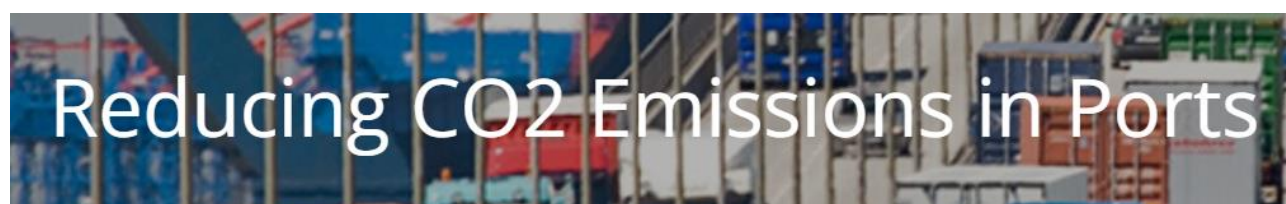
Organisations that work with Interreg Europe must also be based in one of the 27 EU Member States, Norway, Switzerland or the United Kingdom.

There are some of the listed below scientific projects, funded by Interreg Europe, whose main target is *to meet the Blue Economy challenges* and, in the words of Virginijus Sinkevičius⁴¹ (EU Commissioner for Environment, Oceans and Fisheries), “*to replace unchecked expansion with clean, climate-proof and sustainable activities that tread lightly on the marine environment*”.

SMOOTH PORTS

Topic: Low-carbon economy

Period: from August, 2019 to January, 2023



Ports have been vital gateways for prosperity and engines for growth over centuries. While they constitute an important economic asset for their regions, they can also have significant negative environmental impacts.

⁴¹ Interreg Europe (2021). From Blue Growth to Sustainable Blue Economy: A New Approach to the EU. Retrieved December 13-14, 2021, from https://www.interregeurope.eu/policylearning/news/12295/from-blue-growth-to-sustainable-blue-economy-a-new-approach-for-the-eu/?no_cache=1&cHash=ff45c28c6ea2f359f3975baf348c25cd

Inefficient road traffic in port areas causing CO2 emissions has been much overlooked in the past. It involves a complex network of different stakeholders engaged in various kinds of daily port activities, in particular in the course of transporting goods, operational and clearance procedures – all powered by CO2 intensive fuels.

Optimizing road traffic in port areas and developing strategies for smooth and efficient transport flows has been a crucial challenge for policy makers in order to reduce CO2 emissions. However, in most European regions, structural funds programs or other relevant policy instruments, have neglected to address this problem in the past. The [SMOOTH PORTS](#) project sets out to change that.

By engaging stakeholders from administration, port related business' and logistic business' along the supply chain, SMOOTH PORTS' aims to reduce CO2 emissions from port-related road traffic by improving regional policy instruments in a holistic manner.

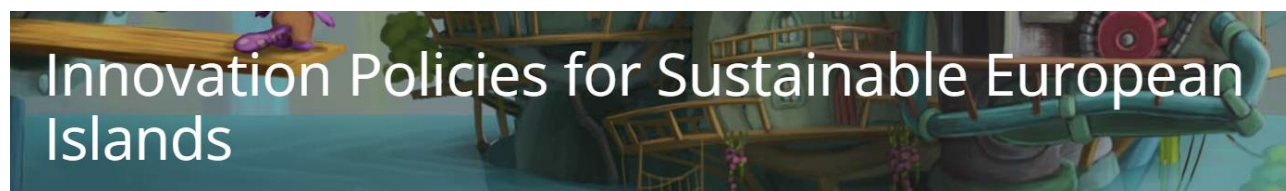
To achieve these aims, SMOOTH PORTS wants to utilise the differences of the project partners' ports through an exchange of effective tools and best practices. A key focus lies on finding optimal procedures for the clearance of the goods that are so vital for society and commerce – making their processing speedy and avoiding unnecessary burdens on environment and people. A further focus will be on the different approaches regarding Information and Communications Technology solutions for various traffic related port activities as well as on the question what alternative fuels can power port activities in the future.

Based on this, a comparison of the strengths and weaknesses of the respective policy instruments will help to improve the local policy instruments of the partners. This close and joint effort between the different authorities, public institutions and ports will produce a beneficial synergy from which all stakeholders benefit.

ISLANDS OF INNOVATION

Topic: Research and innovation

Period: from January, 2017 to December, 2021



European island regions face several challenges: loss of population, isolation, vulnerable environments and limited economic activity, which is often small scale and focuses on few economic sectors, such as agriculture and tourism, due to the island regions' territorial characteristics. One of the largest threats islands faces, is the loss of population due to limited work opportunities, especially the young people and talent. However, the islands have their advantages compared to mainland: they have to be more self-reliant, with

stronger community involvement and isolation situation that can trigger innovations and provide a distinct, resourceful environment for experimental implementation of innovations.

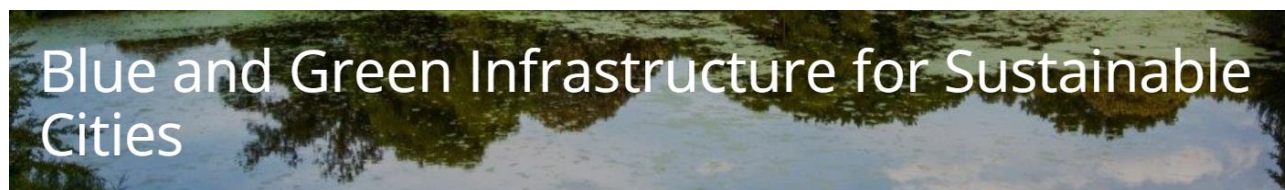
Therefore, insular regions in this project want to address the opportunities of diversification of their economies by improving their innovation policies. [The project](#) seeks to investigate and improve public policy measures in order to turn the islands into innovation “test-beds”: islands as innovation-promoting, experimental “probing and learning” environment which can keep and attract young, innovative and entrepreneurial people and activities to the islands. This will be done through policy improvement, learning sessions, action plan development, good practice identification and sharing and active work on the islands with involvement of regional stakeholder groups. The project will collect and disseminate the knowledge gained in good practice directory and innovation guide for island regions.

The project partnership consists of geographical islands or island regions/archipelagos from The Netherlands, Denmark, Portugal, Estonia, France and Greece.

BLUE GREEN CITY

Topic: Environment and resource efficiency

Period: from August, 2019 to January, 2023



[BLUE GREEN CITY](#) seeks to improve policies that promote Green and Blue Infrastructure (GBI) as an integral part of a local or regional natural heritage preservation strategy

BLUE GREEN CITY will increase individual, organisational, stakeholder and external knowledge of the concept of ecosystem services and the value of GBI through project events, workshops and training.

This will be done through interregional Policy learning process and collaboration in finding common solutions to common challenges posed by climate change adaptation and by sharing experience and exchanging good practices.

LAND-SEA

Topic: Environment and resource efficiency

Period: from January, 2017 to December, 2021

Sustainability of the land-sea system for eco-tourism strategies.

The [LAND-SEA](#) project illustrates the joint efforts of partners from four European regions to promote an integrated approach towards improving the policies for sustainable management of the land-sea ecosystems. The ultimate goal of the Project - establishment of joint guiding principles for promotion of interventions for regional growth in the field of the eco-tourism and the related sectors.

Based on the interregional learning approach the project includes intensive exchange of experience and knowledge in the field of conservation, restoration and sustainable management of coastal marine areas, as well as in the development and promotion of sustainable and responsible eco-tourism.

The networking activities under the project include interregional and local activities: thematic seminars, study visits, expert papers, conferences.

EXTRA-SMEs

Topic: SMEs competitiveness

Period: from June, 2018 to May, 2023

Improving policies to boost SME competitiveness and extraversion in EU coastal and rural areas where aquaculture is a driver of the regional economy

More than 90% of businesses in [EXTRA-SMEs](#) regions are inland and coastal SMEs operating across and around the aquaculture value chain, contributing to growth and creation of jobs. Along the chain, these economic operators are characterized by systematic weaknesses in reaching international markets and exporting their products. To this end, EXTRA-SMEs will support public authorities to join forces and exchange experiences in:

- a) administrative simplification,
- b) expansion in new markets,
- c) innovative value-added product solutions,

- d) personnel up skilling, and
- e) resolution of stakeholders' conflicts of interests.

EXTRA-SMEs brings together 8 regions from 7 countries, to achieve expansion of rural and coastal SMEs in wider markets for the promotion of their products, through simpler and improved administrative processes, and innovative technologies.

Specific Questions on Sustainable Blue Growth

For an Open Discussion

International organizations are at the forefront of developing new thought, directions, priorities and guidelines. While some national governments have taken up the challenge to define their *Blue Economic issues and develop policies associated with the concept*, it remains to be seen which efforts will lead to maximum effectiveness and success. Both *national and local-level policy-makers will have to engage in these discussions*. However, local authorities may often experience the realities of the Blue Economy first – in terms of challenges and opportunities.

For local governments, there are particular policy questions that urgently require responses. Allowing for discussions, while also targeting new research in the area is crucial. *The below-listed specific questions, You are welcome to discuss*, provide food for thought for further examination, research and policy development, with the aim to transform communities and strengthen local decision-making:

- ✓ *How can the Blue Economy leverage sustainable consumption and production cycles on a city/ region/ country scale?*
- ✓ *How can the Blue Economy strengthen poverty reduction, justice and equity?*
- ✓ *How can a city/ region/ country foster “blue-green” jobs with the aim to harmonize ecological and economic interests?*
- ✓ *Can cities take actions to decouple their economic development from environmental degradation without the support of national governments? If so, how?*
- ✓ *How can science, technology and innovation help local governments strengthen their understanding and implementation of a sustainable Blue Economy?*

For Checking of Individual Knowledge

<i>Question no.1</i>	The project “South Baltic Bridge” is about <i>(complete the sentence)</i> :
<i>Answer options:</i>	a) “Building bridges for the green technology future”. b) “Building railway for the green technology future”. c) “Building bridges for the green technology future in Africa”. d) None of the above.
<i>Right answer:</i>	
<i>Question no.2</i>	The project “South Baltic Bridge” was implementing by 5 countries <i>(complete the sentence)</i> :
<i>Answer options:</i>	a) Lithuania, Poland, Sweden, Denmark and Germany.

	b) USA, Brazil, Russia, Australia and Egypt. c) Madagascar, Sri Lanka, Indonesia, Greece and France. d) None of the above.
<i>Right answer:</i>	
<i>Question no.3</i>	What is the Blue Economy about?
<i>Answer options:</i>	a) The Blue Economy seeks to promote economic growth, responsible production and consumption, social inclusion, and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of ocean and coastal, as well as other waterfront areas, through the circular economy. b) The Blue Economy refers to the sustainable use of forests resources for economic growth, improved livelihoods and job creation. c) The Blue Economy concept is a lens by which to view and develop policy agendas that simultaneously enhance ocean health and economic growth, in a manner consistent with principles of social inequity and inclusion. d) All of the above.
<i>Right answer:</i>	
<i>Question no.4</i>	Which economic sectors are related to the Blue Economy?
<i>Answer options:</i>	a) Fisheries, hydro-energy, ocean and coastal tourism, waste management. b) Fisheries, green building, hydro-energy, forestry. c) Ocean and coastal tourism, waste management, mineral water production. d) None of the above.
<i>Right answer:</i>	
<i>Question no.5</i>	Sustainable development – or the challenge of a sustainable use of natural resources, while at the same time securing economic and social objectives – has been a focus of the international community since <i>(complete the sentence)</i> :
<i>Answer options:</i>	a) the 1960s b) the 1970s c) the 1980s d) the 1990s
<i>Right answer:</i>	
<i>Question no.6</i>	The need for a Blue Economy approach was discussed and agreed upon at the United Nations Conference on Sustainable Development (UNCSD) in 2012, also known as <i>(complete the sentence)</i> :
<i>Answer options:</i>	a) Rio+20. b) Earth Summit. c) Answers a) and b). d) None of the above.
<i>Right answer:</i>	

<i>Question no.7</i>	The Sustainable Development Goals (SDGs) are the world's shared plan to end extreme poverty, reduce inequality, and protect the planet by <i>(complete the sentence)</i> :
<i>Answer options:</i>	<ul style="list-style-type: none"> a) 2030 b) 2040 c) 2050 d) 2060
<i>Right answer:</i>	
<i>Question no.8</i>	The Sustainable Development Goals (SDGs) <i>(complete the sentence)</i> :
<i>Answer options:</i>	<ul style="list-style-type: none"> a) were adopted by 193 countries in 2015. b) were adopted by 139 countries in 2015. c) were adopted by 391 countries in 2015. d) were adopted by 319 countries in 2015.
<i>Right answer:</i>	
<i>Question no.9</i>	How many the Sustainable Development Goals (SDGs) are generated by the United Nations?
<i>Answer options:</i>	<ul style="list-style-type: none"> a) There are 15 SDGs. b) There are 17 SDGs. c) There are 19 SDGs. d) There are 21 SDGs.
<i>Right answer:</i>	
<i>Question no.10</i>	Which statement is true?
<i>Answer options:</i>	<ul style="list-style-type: none"> a) The <i>European Green Deal</i> calls for a transformation of European Union economy to become a modern, resource-efficient and competitive economy where net emissions of greenhouse gases are phased out and the EU's natural capital is protected. b) The <i>Recovery Plan for Europe</i> sets out to boost the green and digital transitions and make Europe's economy fairer, more resilient and more sustainable for future generations. c) On the May, 2021 the European Commission has published the fourth edition of the <i>EU Blue Economy Report</i> (2021), providing an overview of the performance of the EU-27 economic sectors related to oceans and the coastal environment for a period of 2009-2018. d) All of the above.
<i>Right answer:</i>	
<i>Question no.11</i>	On the 17th of May, 2021 the European Commission proposed a new approach for a sustainable Blue Economy in the EU for the industries and sectors related to oceans, seas and coasts. Transforming the EU's Blue Economy for a sustainable future will require a transformation of the following value chains <i>(complete the sentence)</i> :
<i>Answer options:</i>	<ul style="list-style-type: none"> a) Biodiversity conservation and restoration. b) Coastal resilience. c) Responsible food systems.

	d) All of the above.
<i>Right answer:</i>	
<i>Question no.12</i>	Which statement is true?
<i>Answer options:</i>	a) Blue Economy traditional sectors contribute to about 1.5% of the EU-27 GDP in 2018. b) Comparing the first halves of 2019 and 2020, new orders in EU shipyards, because of Covid-19, decreased by 62%. c) In 2020, 66% of global wave energy capacity was installed in the EU. d) All of the above.
<i>Right answer:</i>	
<i>Question no.13</i>	Which statement is true?
<i>Answer options:</i>	a) Between 2007 and 2019, public and private R&D expenditure on wave and tidal energy in the EU amounted to €3.84 billion. b) Blue Economy traditional sectors provide about 4.5 million direct jobs, i.e. 2.3% of EU-27 total employment in 2018. c) In June, 2020, out of 75 ports (i.e. 48%) had registered a decline in container vessel calls, compared to pre-Covid times. d) All of the above.
<i>Right answer:</i>	
<i>Question no.14</i>	The aim of the <i>Interreg Europe</i> is to make sure that government investment, innovation and implementation efforts all lead to integrated and sustainable impact for people and place. Organizations that work with <i>Interreg Europe</i> (<i>complete the sentence</i>):
<i>Answer options:</i>	a) should be based in one the 27 EU Member States. b) can be from Norway, Switzerland. c) can be from the United Kingdom. d) All of the above.
<i>Right answer:</i>	
<i>Question no.15</i>	Which of the listed below scientific projects, funded by <i>Interreg Europe</i> , meet the Blue Economy challenges?
<i>Answer options:</i>	a) Smooth Ports. b) Blue Green City. c) Land-Sea. d) All of the above.
<i>Right answer:</i>	

Right answers:

Qst.1	Qst.2	Qst.3	Qst.4	Qst.5	Qst.6	Qst.7	Qst.8	Qst.9	Qst.10
a)	a)	a)	a)	a)	c)	a)	a)	b)	d)
Qst.11	Qst.12	Qst.13	Qst.14	Qst.15					
d)	d)	d)	d)	d)					

Conclusion

The challenges of the Blue Economy are global and will require global solutions framed within national and local priorities. Oceans, seas, wetlands, lakes and rivers support human wellbeing and livelihoods and underpin poverty eradication, food security, employment, industrial development, innovation, sustainable communities, health, tourism and protection from natural disasters. When treated sustainably, they can also counteract the impacts of climate change, both as ecological buffers and as carbon reservoirs.

The Blue Economy approach presents an opportunity for governments to develop and discuss novel and innovate methods, technologies and cutting-edge research that help to diversify their economic and environmental protection activities. Most countries that have waterbodies or are situated along coasts will need to rethink and redevelop the ways in which they have treated their water resources. It remains a challenge to many countries and cities on how best to harness the benefits of the waterfronts – whether for their lakes, rivers, wetlands or oceans. Countries and cities are coming together to learn from one another, share best practices and lessons from countries around the world.

However, local government leaders must engage now in creating their own economic opportunities, environmental protection and spatial planning activities that help spur the Blue Economy, while they can also thrive off the benefits. Much more research is needed in the sectors linking oceans, waterbodies and urban development, especially the knowledge and information that can feed into policy decisions and processes on the local, regional and national levels. However, conferences like [the Sustainable Blue Economy Conference](#) help to shape a new global agenda on the topic, and with the engagement from local, subnational and national governments around the world, more adequate responses can be found in making cities and their waterbodies – freshwater and saltwater – more sustainable and resilient.

References

1. Boonstra, W. J., Valman, M., Bjorkvik, E. (2018). A Sea of Many Colour – How Relevant Is Blue Growth for Capture Fisheries in the Global North, and Vice Versa? *Marine Policy*, vol. 87, 340-349.
2. Burgess, M. G., et al. (2018). Five Rules for Pragmatic Blue Growth. *Marine Policy*, vol. 87, 331-339.
3. Economist Intelligence Unit (2015). The Blue Economy: Growth, Opportunity and a Sustainable Ocean Economy. Briefing Paper for the World Ocean Summit 2015.
4. Eikeset, A. M., et al. (2018). What Is Blue Growth? The Semantics of “Sustainable Development” of Marine Environments. *Marine Policy*, vol. 87, 177-179.
5. EU Science Hub (2021). 2021 EU Blue Economy Report – Emerging Sectors Prepare Blue Economy for Leading Part in EU Green Transition. Retrieved December 8-14, 2021, from <https://ec.europa.eu/jrc/en/news/2021-eu-blue-economy-report-emerging-sectors-prepare-blue-economy-leading-part-eu-green-transition>
6. European Commission (2019). The European Green Deal. Retrieved December 14, 2021, from https://ec.europa.eu/info/sites/default/files/european-green-deal-communication_en.pdf
7. European Commission (2021). European Green Deal: Developing a Sustainable Blue Economy in the European Union. Retrieved December 10, 2021, from https://ec.europa.eu/commission/presscorner/detail/en/ip_21_2341
8. European Commission (2021). The Blue Economy Report 2021. Luxembourg: Publications Office of the European Union.
9. Executive Committee of the Ocean Energy Systems (OES) (2011). An International Vision for Ocean Energy.
10. Hilborn, R., Costello, C. (2018). The Potential for Blue Growth in Marine Fish Yield, Profit and Abundance of Fish in the Ocean. *Marine Policy*, vol. 87, 350-355.
11. Hoegh-Guldberg, O., et al. (2015). Reviving the Ocean Economy: The Case for Action 2015. Geneva, Switzerland: WWF International.
12. Hoff, H., et al. (2014). Water Footprints of Cities Indicators for Sustainable Consumption and Production. *Hydrol. Earth Syst. Sci.* (18), 213-226.
13. International Council for Science (2017). A Guide to SDG Interactions: From Science to Implementation.
14. International Union for Conservation of Nature (IUCN) (2010). Greening Blue Energy: Identifying and Managing the Biodiversity Risks and Opportunities of Offshore Renewable Energy.
15. Interreg Europe (2021). From Blue Growth to Sustainable Blue Economy: A New Approach to the EU. Retrieved December 13-14, 2021, from https://www.interregeurope.eu/policylearning/news/12295/from-blue-growth-to-sustainable-blue-economy-a-new-approach-for-the-eu/?no_cache=1&cHash=ff45c28c6ea2f359f3975baf348c25cd
16. Jambeck, J. R., et al. (2015). Plastic Waste Inputs From Land Into the Ocean. *Science*, 347 (6223), 768-771.

17. Klinger, D.H., et al. (2018). The Mechanics of Blue Growth: Management of Oceanic Natural Resource Use With Multiple, Interacting Sectors. *Marine Policy*, vol. 87, 356-362.
18. Najam, A., Cleveland, C. (2003). Energy and Sustainable Development at Global Environmental Summits: An Evolving Agenda. *Environment, Development and Sustainability: A Multidisciplinary Approach to the Theory and Practice of Sustainable Development*. Springer, vol 5 (1), 117–138.
19. Pauly, D. (2018). A Vision for Marine Fisheries in Global Blue Economy. *Marine Policy*, vol. 87, 371-374.
20. Soma, K., et al. (2018). Social Innovation – A Future Pathway for Blue Growth? *Marine Policy*, vol. 87, 363-370.
21. UNEP (2013). *Our Planet: The magazine of the UN Environment Programme*. September 2013 Issue. Nairobi: UN Environment.
22. UNEP, FAO, GRID-Arendal, IMO, IUCN, UNDP (2012). *Green Economy in a Blue World*.
23. United Nations Conference on Sustainable Development (UNCSD) (2012). *The Future We Want: Outcome Document*.
24. United Nations Human Settlements Programme (UN-Habitat) (2018). *Blue Economy and Cities. Background Paper*. Nairobi: UN-Habitat.
25. Willis, K. et al. (2017). Differentiating Littering, Urban Runoff and Marine Transport as Sources of Marine Debris in Coastal and Estuarine Environments. *Scientific Reports*, 7, 44479.
26. World Bank (2016). *Toward a Blue Economy: A Promise for Sustainable Growth in the Caribbean; An Overview*. Washington, DC: The World Bank.
27. World Bank and United Nations Department of Economic and Social Affairs (UN-DESA) (2017). *The Potential of the Blue Economy: Increasing Long-Term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries*. Washington, DC: The World Bank.
28. World Energy Council (2016). *World Energy Resources: Marine Energy*.
29. World Wildlife Fund (WWF) (2015). *Living Blue Planet Report: Species, Habitats and Human Well-Being*.

For more information, please [click active links](#) in the text.

Sustainable Blue Growth: *for youth.*

educational information package, 2021



The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.