



# Resilient seagrasses

## *Conserving seagrass beds in West Africa*

For: MAVA Foundation / Others  
From: Wetlands International Africa (WIACO)  
Grid-Arendal  
Regional Network of Marine Protected Areas in West Africa (RAMPAO)  
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Countries: [Cabo Verde](#), [Gambia](#), [Guinee](#), [Guinee-Bissau](#), [Mauritania](#), [Senegal](#) et [Sierra-Leone](#)

Lead partners and coordination: [WIACO](#), [Grid-Arendal](#) and [RAMPAO](#)

Implementing partners:

*NGOs:* [NCD](#), [ODZH](#), [NAAFO](#), [WABSA](#), [Tiniguena](#), [Guinee Ecologie](#), [Biosfera](#), [Lantuna](#), [ADAD](#), [AMISO](#), [Bird Ornithology](#), [FEGUIPA](#), [Conservation Society Sierra Leone](#)

*Knowledge institutes:* [Duke University](#), [ISE/UCAD](#), [CSE](#), [IMROP](#), [ISSM](#), [Univ Nouakchott](#), [UTA](#), [UNICV](#), [Univ Gambia](#), [CERE](#), [CERESCOR](#), [NARI](#), [INEP](#)

*Government:* [PNBA](#), [EPA](#), [NPAA](#), [Ministry of Fisheries and Marine Resources](#), [DNA](#), [IMar](#), [IMP](#), [MEED](#), [DAMCP](#), [DPN](#), [CNPMZC](#), [OGUIPAR](#), [DPWM](#), [NEA](#), [CIPA](#), [IBAP](#)

## Summary

Seagrasses are one of the most productive ecosystems in the world. They not only provide shelter and food to an incredibly diverse community of animals, but also sequester approximately 10% of the carbon buried in ocean sediment annually. Still seagrass is one of the world's most threatened ecosystems. This project is the 3<sup>rd</sup> phase of the seagrass project (ResilienSEA) that MAVA Foundation financed in the past years and builds on previous results, with the aim to improve the conservation of seagrass in 7 countries in West Africa.

In this 3<sup>rd</sup> phase, WIACO and partners will execute scientific research, increase awareness about the values of seagrass among key stakeholders and actors, support policy reforms, and develop and apply systems to calculate the (carbon) value of seagrass beds.

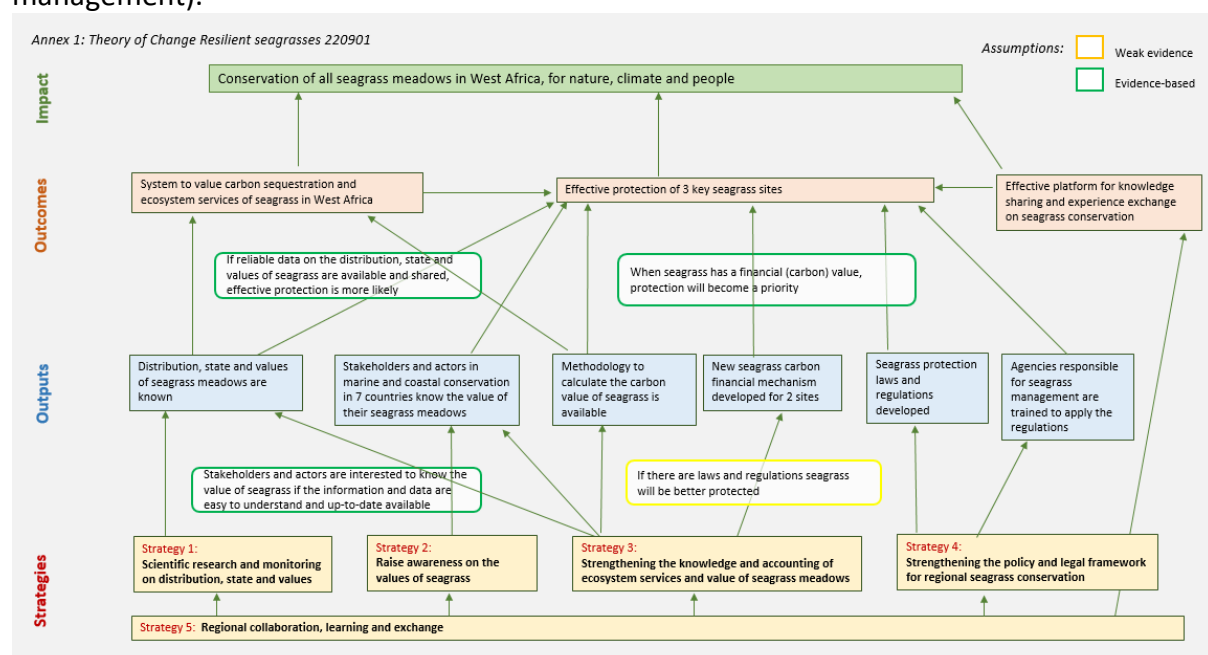
The project objective is:

*“By 2027, seagrass beds in at least 3 key sites in Marine Protected Areas in West Africa are properly valued and effectively conserved”*

Outcomes will be:

- System to value carbon sequestration and ecosystem services of seagrass in West Africa
- Effective protection of 3 key seagrass sites
- Effective platform for knowledge sharing and experience exchange on seagrass conservation

The **Theory of Change** (below; see also Annex 1) explains how outcomes and impact will be achieved. It is a simplified design of the project logic and does not list all activities mentioned under the 5 strategies below. The core **assumptions** on which this project logic is based are mentioned in between the levels (strategies – outputs – outcomes). Some assumptions are evidence-based, for some the evidence is weak. The assumptions will be carefully monitored. In case the reality changes, the activities can be adapted to meet the new situation (adaptive management).



## 1. Introduction

Although they often receive little attention, seagrasses are one of the most productive ecosystems in the world. Seagrasses grow in salty and brackish (semi-salty) waters around the world, typically along gently sloping, protected coastlines. Seagrasses provide shelter and food to an incredibly diverse community of animals, from tiny invertebrates to large fish, crabs, sea turtles, marine mammals and birds. A single acre of seagrass can support upwards of 40,000 fish and 50 million small invertebrates, and there are often tens to hundreds more animals in a seagrass bed compared to adjacent bare sandy areas.

Seagrasses provide many important services to people as well. They sequester approximately 10% of the carbon buried in ocean sediment annually (27.4Tg of carbon per year). Per hectare, seagrasses can store up to twice as much carbon than terrestrial forests. Seagrass meadows also filter sediment and other nutrients from the water and are constantly building and securing sediment, which buffers coasts from erosion, storms and flooding.

Despite all the important services they provide, seagrasses are among the world's most threatened ecosystems, with annual global loss of around 1.5% and accelerating in recent decades. Globally, about 29% of Earth's seagrass ecosystems have been lost. Major threats to seagrasses include degradation of water quality, dredging and abusive fishing. (Smithsonian, <https://ocean.si.edu/ocean-life/plants-algae/seagrass-and-seagrass-beds>).

When the ResilienSEA project started in 2016, little work was still done on mapping or protecting seagrass locations in West Africa. Funded by MAVA Foundation, WIACO and partners brought together managers and researchers to gather data and create national and regional expertise within West Africa, in 7 priority countries: Cabo Verde, Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal et Sierra-Leone.

## 2. What has been achieved?

In the past 6 years, ResilienSEA implemented 5 strategies and achieved important results:

### 1. Scientific research & monitoring

- Mapping of the presence of seagrass in 7 pilot sites, one in each target country
- Predictive seagrass distribution model for all 7 countries developed
- Scientific literature review to assess seagrass ecosystem services in West Africa
- Gain insight in the contribution of seagrass to the Paris agreement commitments the 7 countries have made (based on perceptions of stakeholders)
- ResilienSEA GIS platform set up. This is a web application to store and share data on seagrass meadows

### 2. Training on seagrass conservation

- Technical training for participants from all 7 target countries on seagrass conservation (coastal ecology, biology, identification, monitoring) bringing together various stakeholders (site managers, academics, researchers, fisheries stakeholders, students)

- Students from Sierra Leone, Gambia and Cabo Verde (1 scholarship per country) on followed a Master programme, carrying out their thesis work at pilot sites in their respective countries
- 14 Divers from the 7 target countries (2 per country) technically trained in scientific diving and underwater monitoring of seagrass bed

### **3. Awareness and Advocacy**

- Key stakeholders have been mapped and assessed;
- Communication materials (poster, short videos, infographics, story maps etc.) developed;
- ResilienSEA website and social media developed;
- “Power-mapping” document for Sierra Leone developed, highlighting seagrass ownership and decision making at the sub national level;
- 2 E-learning training modules developed:
  - Knowledge of seagrass beds
  - Degradation factors of seagrass beds

### **4. Strengthening the legal frameworks and effective management seagrass sites**

- Overview of the legal and policy framework for conservation in all 7 countries with a focus on seagrass meadows;
- Training manual on seagrass conservation developed;
- Development and validation of a participatory strategy for the protection of seagrass beds in West Africa.

### **5. Strengthening the partnership**

- Creation of a diverse multinational / sub-regional team dedicated to resources mobilisation for sustainable financing of the ResilienSEA initiatives;
- Creation of a network of specialists (students, divers, managers, etc.) to research, monitor, advocate and improve the conservation of seagrasses at regional level;
- Achievements of the project shared at national and international workshops (IUCN World Conservation Congress, PRCM Forum, West African Wetlands Conference (WAWC 2021).

What remains to be done from the current work plan (until end 2022):

- Assess ecosystem services of seagrass beds in Cabo Verde, Guinee-Bissau and Senegal;
- Map the ownership and decision making regarding seagrass conservation at the sub national level;
- Advocacy at national level to reach majorities for passing legislation on seagrass conservation;
- Support the implementation of the regional strategy for seagrass conservation;
- “Meadows of Knowledge” - Putting West Africa on the Global Seagrass Map.
- Effective operationalization of the GIS platform for enhanced knowledge and monitoring of seagrasses.

### 3. Objective *Resilient seagrasses* (ResilienSEA phase 3)

Despite the increased recognition of the importance of seagrass, the constant pressures from population dynamics, coastal infrastructure and the use of natural resources continue to threaten and destroy seagrass beds in West Africa. ResilienSEA started encouraging initiatives to integrate seagrass in policy and management tools, which is key for improved conservation. But for sustainable results, more training and advocacy work needs to be done, especially on a regional level.

At the same time, the mechanisms for valuing (and paying) for “blue carbon” are quickly developing, as is the market price. The carbon sequestered in seagrass will become of high value for the countries, to meet their Paris Agreement commitments, or perhaps in the future sell to market parties. This market mechanism can help to protect and conserve (and even increase) seagrass meadows. In this valorization, the ecosystem services provided by seagrass, should be taken into account.

In this new phase, the partners will capitalize on the results already achieved, especially on a regional level, but also look at the future challenges and (financial) opportunities.

Our overall goal for the project therefore is:

*“By 2027, seagrass beds in at least 3 key sites in Marine Protected Areas in West Africa are properly valued and effectively conserved”*

### 4. Strategies and results

To achieve this overall goal, the partners will implement **5 strategies** in parallel. Under each strategy the main activities are listed.

#### 1. *Scientific research and monitoring on distribution, state, and values*

Objectives

- Ensure the effective capitalization and deepening of scientific knowledge
- Ensure that scientific results are disseminated

*Key activities (lead partner: Grid Arendal)*

- Complete the mapping of the distribution and area of seagrass beds in all 7 countries
- Complete studies on ecological roles and ecosystem services (carbon, resource regeneration);
- Study of the biodiversity in seagrass beds (what flora and fauna can cohabit, what is the ecological relation, impact and threats)
- In-depth studies on the risks and threats to seagrass in 3 specific MPA sites
- Develop a system for monitoring the health of seagrass meadows

#### 2. *Raise awareness on the values of seagrass*

Objectives

- Ensure there is a clear and effective mechanism for handling scientific information;

- Stakeholders (NGOs, civil society, public authorities, etc.) are aware of the importance of seagrasses and use knowledge to better conserve seagrass beds in the 7 countries.

*Key activities (lead partner: WIACO)*

- Developing effective and easy to apply communication tools and systems (open access) to share information and experiences on the conservation and enhancement of seagrass beds
- Awareness campaign on ecosystem services provided by seagrass for direct stakeholders and actors involved in the conservation of coastal and marine ecosystems in the 7 countries. For Guinea Bissau, Senegal and Cabo Verde the study on ecosystems services is ongoing ; results to be presented in October 2022

### **3. *Strengthening the knowledge and accounting of ecosystem services and value of seagrass meadows***

Objectives:

- Have a system to calculate the carbon sequestration value of seagrass meadows in West Africa, for countries to meet their Paris Agreement commitments and potentially sell those on the international carbon market

*Key activities (lead partner RAMPAO)*

- Develop methodology to calculate seagrass carbon at selected sites
- Develop a methodology to calculate the value of the ecosystem services of seagrass
- Develop for 2 sites / countries a new financial mechanism to sustainably fund the conservation and protection of seagrass

### **4. *Strengthening the policy and legal framework for regional seagrass conservation***

Objectives

- Ensuring effective conservation of seagrass beds through the application of laws and regulations at sub-regional level

*Key activities (lead partner WIACO)*

- Support the development of specific laws and regulations on seagrass conservation (laws, charter, etc);
- Adopt and disseminate the regulation to all stakeholders involved;
- Provide the means (training, awareness raising, human and financial resources, etc.) for the application of the regulation.

### **5. *Regional collaboration, learning and exchange***

Objectives

- Enhance sub-regional partnership collaboration on seagrass conservation;

- Contribute to strengthening the capacity of seagrass managers and relevant research institutions in the sub-region.

*Key activities (lead partner WIACO)*

- Draw up and sign partnership agreements/charters between at least 3 seagrass pilot sites and the relevant research institutes;
- Institutionalise the holding of a sub-regional forum on seagrass beds every 2 years;
- Develop/strengthening mechanisms for exchanging and sharing data on seagrass beds at the sub-regional level (platform, database, etc)

**In summary:**

By strategically planning and combining the above activities, the project will achieve the following **outcomes**:

- System to value carbon sequestration and ecosystem services of seagrass in West Africa
- Effective protection of 3 key seagrass sites
- Effective platform for knowledge sharing and experience exchange on seagrass conservation

The **impact** to which these outcomes will contribute is:

*“Conservation of all seagrass meadows in West Africa, for nature, climate and people”*

## 5. Timeframe and budget

Timeframe: 1 January 2023 – 31 December 2027

Budget: **5 355 000 Euros** (*Indicative budget proposal*)

Strategy	Indicative budget in €	%
1. Scientific research and monitoring on distribution, state and values	1 000 000	21
2. Raise awareness on the values of seagrass	1 000 000	21
3. Strengthening the knowledge and accounting of ecosystem services and value of seagrass meadows	595 000	13
4. Strengthening the policy and legal framework for regional seagrass conservation	720 000	15
5. Regional collaboration, learning and exchange	950 000	20
Overhead	495 000	10
Total activities	4 760 000	100
Admin. costs	595 000	12,5
<b>Total (euro)</b>	<b>5 355 000</b>	<b>100 %</b>

\*\*Budget breakdown in annex