



BLUE NATURE  
ALLIANCE

# Finance Structure Options for High Seas MPAs: Executive Summary

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## Overview

The proposed treaty on biodiversity beyond national jurisdiction (“BBNJ”) serves as an implementation agreement of the United Nations Convention on the Law of the Sea (UNCLOS) in areas beyond national jurisdiction (“ABNJ”), including the high seas and the international seabed.

Four negotiating sessions have been held from 2018 to the present, with a fifth one scheduled for August 2022. There are five main elements included in the negotiation package: 1) Area-based management tools including marine protected areas, 2) Environmental impact assessments, 3) Marine genetic resources and the sharing of benefits, 4) Capacity-building and the transfer of marine technology, and 5) Cross-cutting issues which includes institutional arrangements and finance. To implement the BBNJ treaty, a financial structure will need to be designed to help put in place the physical and institutional infrastructure to achieve high seas conservation goals.

## Gaps in the high seas treaty

While the negotiations have focused on issues around funding, such as monetary versus non-monetary funding; the integration of existing financial institutions; and some potential structures, there is a need to explore a few key gaps of the current draft text more deeply.

1. **A Mechanism** to identify and establish high seas marine protected areas (MPAs)
2. **A Framework** for adopting meaningful conservation objectives and enforceable management plans
3. **Financial structure(s)** to ensure adequate financing for activities

## Objective of this document

Studies have shown that MPAs are effective conservation tools and establishing MPAs is needed to ensure effective conservation of the high seas. Establishing an MPA in state waters presents many challenges, some of which are multiplied in the high seas. The process involves several activities, whose costs are important to understand while determining a financial structure that enables smooth flows of funding.

Using previously identified potential high seas MPAs that have been noted as critical areas of high seas to be protected, this summary document provides a starting point to address the gaps mentioned above, including:

1. The associated costs of establishing and managing high seas MPAs and the value that can be unlocked through their protection; and
2. Potential **financial structures** suited to fund high seas MPAs and a **high-level evaluation** of those structures.

This document does not address costs for environmental assessment components (EIA), strategic assessment components (SEAs), capacity building and marine technology transfer,

nor does it consider terms and tools for a marine genetic resource mechanism or potential for a BBNJ secretariat and administration.

### *Potential areas of the high seas that are critical to protect*

Several studies have already been conducted to identify areas with exceptional ecological value, factoring multiple layers of conservation features and commercially important waters. The Pew Charitable Trusts conducted one such study<sup>1</sup>, analyzing 54 data layers to select a solution area in the high seas that protected at least 30% of the conservation features in each individual layer while minimizing overlap with highly fished areas (Annex 1).

The study also highlighted 10 high seas areas that can be “starting points” for establishing MPAs (Annex 1). These areas have exceptionally high concentrations of conservation features, and cover 13mn sq km, accounting for 6% of the high seas. The High Seas Alliance has collectively also recognized the value of these specific areas through similar prioritization exercises.

### **Steps to establish a high seas MPA<sup>2</sup>**

Establishing a high seas MPA is a 4-step process. Each step involves several activities that can be implemented depending on the design choices that are made. Each of the activities have a cost associated with them, but the current draft treaty text only includes some of these activities. To ensure funding for each step of high seas MPA establishment, alternate sources of funding need to be identified or the text of the draft treaty needs to be broadened to include this need.

1. **Identify potential MPA sites:** Define potential target zones for MPAs as a starting point for future legal designation

This includes conducting capacity building workshops for states on developing proposals, co-creating studies to identify areas of exceptional ecological value, and determine key prioritization criteria to identify a first tranche of potential areas that meet conservation objectives. Note, this process will need to be repeated multiple times to advance [a comprehensive system of area-based management tools, including] a network of ecologically representative and connected marine protected areas that are effectively and equitably managed.

2. **Propose and designate MPAs:** Legally define high seas MPA footprint, allowable uses and activities, and implementing parties/jurisdictions

Some activities include conducting stakeholder consultations (e.g., with deep-sea cable providers, fishing associations, etc.) for coordination and planning, and the development of MPA management and research plans to define the boundaries, conservation objectives, and allowable activities within MPA.

3. **Establish MPAs:** Move from “on paper” MPA to an operational MPA with active monitoring and enforcement by signatories

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<sup>1</sup> A Path to Creating the First Generation of High Seas Protected Areas by The Pew Charitable Trusts

<sup>2</sup> The MPA Guide: A framework to achieve global goals for the ocean Kirsten Grorud-Colvert et al;  
<https://www.science.org/doi/10.1126/science.abf0861>

This would include establishment of a management team and development and activation of monitoring plans (e.g., satellite surveillance, processes to document and report activities, alert home ports of illegal activity by flagged vessels, etc.)

4. **Actively manage MPA:** Conduct ongoing MPA management activities in perpetuity

Some activities include continued implementation and adaptation of the MPA management plan, regular impact assessment studies to measure performance, coordinated compliance and conduct enforcement activities in line with the objectives and rules of the MPA.

*Phases of management and monitoring when establishing a high seas MPA*

This work considers monitoring, compliance, and science as three core components of an MPA. The level of implementation effort could vary significantly across monitoring, compliance, and scientific activities<sup>3</sup> and will be determined by the final agreed upon text of the treaty. The level of the treaty's ambition will have a direct impact on the costs associated with each of the four stages of MPA development and operation mentioned earlier. The more comprehensive the approach, the larger the economies of scale that can be achieved, especially since it is potentially cheaper and easier to monitor a full no-take zone rather than a highly regulated multi-take zone. The information below outlines what activities and subsequent costs should be considered in a basic, enhanced, and comprehensive high seas MPA. While every MPA should aspire to be comprehensive, different funding, operational, and political constraints could restrict its establishment. The approach outlined here is with the intent that MPAs could start off at any phase of management and eventually work towards progressing through the stages as constraints are navigated or overcome.

A. **First phase of a high seas MPA - Basic:** This option includes the minimum required activities to establish a high seas MPA, which includes significantly less effort than what is typical of an MPA within national boundaries. This would involve:

- i. **Monitoring:** Using remote satellite radar and imagery technology to monitor MPAs in combination with Vessel Monitoring System (VMS) and Automatic Identification System (AIS) tracking.
- ii. **Compliance:** Reporting of suspicious and/or illegal activity to "home ports" (flagged state) under the aegis of the treaty, for compliance and enforcement to be conducted by those home ports.
- iii. **Science:** Monitoring and evaluation of MPA effectiveness through assessment surveys<sup>4</sup> at regular intervals.

B. **Second phase of a high seas MPA - Enhanced:** This option represents a more robust MPA that would build on the base case and include additional efforts across categories, such as:

- i. **Monitoring:** Additional use of electronic physical infrastructure (buoys) to track ship movement and noise pollution.

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<sup>3</sup> Discussions with experts

<sup>4</sup> Scientific studies to monitor water column health, water temperatures, stock assessment, topographical assessment amongst other things

- ii. Compliance: Additional inclusion of capacity building and training for signatures to the treaty to promote adherence to treaty and compliance at ports.
- iii. Science: In addition to assessment surveys, dedicated funding for a wider variety of scientific research that could include marine genetic studies, and studies needed to assess impacts of climate change and ensure ecosystem protection in a changing ocean.

**C. Third phase of a high seas MPA - Comprehensive:** This option is most analogous to an ideal MPAs and is what would be considered the minimum effort required for a high seas MPA to be at least as effective as a high performing near shore MPA.

- i. Monitoring: In addition to satellite monitoring, VMS and AIS tracking, and physical buoys, this option accounts for targeted monitoring through aircrafts or surface patrol boats (additional patrols could target areas of poor coverage or specific activity as identified by satellites).
- ii. Compliance: In addition to capacity building, it would also include funding for port states to enforce compliance of illegally operating vessels (confiscate vessels, repatriate crew, seek criminal charges).
- iii. Science: It would build on the models above, by ensuring dedicated funding for ongoing monitoring and evaluation of ecosystem health, climate change, and other relevant ongoing research activities.

### *Costs associated with establishing a high seas MPA*

The table below indicates the costs associated with establishing an MPA the size of 1 million square kilometers across the different design choices mentioned earlier.

Activity	Treaty coverage <sup>5</sup>	Base case	Enhanced case	Comprehensive case
<b>Identifying</b>	Included	\$1-\$2M	\$1-\$2M	\$1-\$2M
	Financial gap	\$6-\$17M	\$6-\$17M	\$6-\$17M
<b>Proposing</b>	Included	\$1-\$2M	\$1-\$2M	\$1-\$2M
	Financial gap	\$8-\$24M	\$8-\$24M	\$8-\$24M
<b>Establishing</b>	Included	\$1-\$20M <sup>6</sup>	\$1-\$20M <sup>4</sup>	\$1-\$20M <sup>4</sup>
	Financial gap	-	-	\$15-\$45M

<sup>5</sup> The current treaty texts explicitly mention certain activities (e.g., negotiations) that can be funded with funds raised under the treaty through the financial structure

<sup>6</sup> This includes monitoring infrastructure costs which could be in various forms including satellite radar, satellite photos of different resolutions, VMS and AIS tracking, and buoy tracking. The range for each technique varies significantly and these costs are based on best assumptions from expert interviews.

<b>Activity</b>	<b>Treaty coverage<sup>5</sup></b>	<b>Base case</b>	<b>Enhanced case</b>	<b>Comprehensive case</b>
<b>Total one-time costs</b>	Included	<b>\$3-\$24M</b>	<b>\$3-\$24M</b>	<b>\$3-\$24M</b>
	Financial gap	<b>\$14-\$41M</b>	<b>\$14-\$41M</b>	<b>\$29-\$86M</b>
<b>Annual costs</b> (Actively manage MPA)	Included	\$0.2-\$0.5M	\$0.2-\$0.5M	\$0.2-\$0.5M
	Financial gap	<b>\$0.6-\$1.8M</b>	<b>\$1.6-\$4.8M</b>	<b>\$5.0-\$15.0M</b>

Based on the above, the total costs of establishing MPAs across 30% of the high seas (65 million sq km) can range from **\$1,105M to \$7,150M** while annual costs can range from **\$49M to \$1,014M**, some activities of which are currently mentioned in the draft treaty text.

## Value of high seas MPAs

While theoretical under current models, significant value could be unlocked through the establishment of MPAs. Further research could enable the monetization of this value and open the door to other complementary sources of funding through commercial instruments such as blue bonds among others.

- Fisheries in EEZs<sup>7</sup>**: Some projections estimate a spillover effect of 30% increase in yield in fisheries in EEZs as a direct result of high seas MPAs. This could generate an additional \$20-30 billion each year.
- Marine based industries<sup>8</sup>**: Some projections estimate a 10% increase in revenue in marine based industries though the spillover effect. This could generate an additional \$5-8 billion each year.
- Carbon storage<sup>9</sup>**: Studies have indicated 1.65 billion tonnes of carbon dioxide is captured and stored annually through natural biological processes (though phytoplankton) on the high seas. The notional value of capturing carbon through protection of 30% of the high seas at current carbon prices is potentially \$50 billion, although under current carbon monetization frameworks there is no path to realization. It is recognized that this will reduce the negative environmental impacts of its release into the ocean and atmosphere.

<sup>7</sup> Close the High Seas to Fishing? by Crow White and Christopher Costello indicate that closing the high seas would lead to more than >100% profit in fisheries and >30% increase in fish yields; The transboundary nature of the world's exploited marine species by Juliano Palacios-Abrantes indicates global fisheries revenue from EEZ is \$70-80B

<sup>8</sup> Hurst, D.; Børresen, T.; Almesjö, L.; De Raedemaeker, F.; Bergseth, S. (2016). Marine biotechnology strategic research and innovation roadmap (Revenue includes ~\$5bn marine biotechnology, nutraceutical products \$250bn, Omega 3 products \$19bn, cosmeceutical products \$30.5bn)

<sup>9</sup> Global Ocean Commission Report 2014; adjusted to 30% based on 30% of high seas protected; total value is \$148B

4. **Ecosystem services**<sup>10</sup>: Studies have indicated that the high seas contribute \$25 to 40 trillion in value to the world annually through a bundle of ecosystem services (provisioning, regulating, habitat, and cultural services). While it would be impossible to monetize and capture this full amount, there may be opportunities to capture some payment for ecosystems services in the future.

**Not protecting the high seas can also have damaging repercussions.**

Depending on the protection standards of an MPA (i.e., levels of allowed activity) and the design choices made on monitoring the high seas, other valuable resources in the high seas are also afforded protection. While these resources may fall under the purview of other authorities, a comprehensive MPA can enable and promote the co-protection of these resources.

1. **Deep sea mining**<sup>11</sup>: If a moratorium is not put in place, or precautionary regulations adopted, there could be a race by private players and countries to “grab” control over minerals in the seabed despite the mandate of the ISA to regulate mining on behalf of humankind as a whole and to ensure effective protection of the marine environment. For example, if minerals in the Clarion-Clipperton Zone were fully exploited, it could lead to lasting damage in the ocean ecosystems, fish stock, carbon storage in the seabed and overall climate resilience.

Also at risk are fish that feed on potentially contaminated/depleted prey as well as the many other creatures that depend on deep ocean/mesopelagic resources as part of the food web<sup>12</sup>.

2. **Carbon storage**<sup>13</sup>: According to recent research, marine sediments store approximately twice as much organic carbon as terrestrial soils. Sediments in abyss/basin zones account for 79% of global marine sediment carbon (Atwood et al. 2020) and, as such, represent a large and globally important carbon-sink. However, the lack of protection for marine carbon makes it vulnerable to human disturbances that can lead to their remineralization to CO<sub>2</sub>, further aggravating climate change impacts (Atwood et al. 2020). A recent study published in the journal Nature (Sala et al. 2021) also suggests that significant amounts of stored carbon can be released from the seabed sediment into the water, as a result of seabed disturbance (in the case of the Nature study—bottom trawling). In the current context of global climate change, the implications for seabed mining contributing to carbon emissions is a cause for concern.
3. **Human rights**: It is estimated that 1.76 million people are forcefully employed on high seas vessels. Protecting the high seas could support efforts to combat forced labor and illegal activities.

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<sup>10</sup> Global estimates of the value of ecosystems and their services in monetary units Rudolf de Groot et al.

<sup>11</sup> CCZ mineral estimates taken from <https://www.nature.com/articles/d41586-019-02242-y> and valued at average mineral prices in 2021-22

<sup>12</sup> WHOI report on role of [Ocean Twilight Zone](#) and WHOI website on [foodwebs](#)

<sup>13</sup> UNEP Finance Initiative, HARMFUL MARINE EXTRACTIVES: DEEP-SEA MINING <https://www.unepfi.org/publications/harmful-marine-extractives-deep-sea-mining/>

4. **Cultural value:** Indigenous people and local communities value ocean ecosystems for various reasons and depend on it for their livelihoods. They could be negatively impacted with deteriorating ocean health and transgressions in the ocean

*Potential financial structures suited to fund high seas MPAs and a high-level evaluation of those structures*

Having understood the potential cost of establishing MPAs and the potential value those MPAs could generate, determining the best suited financial structure is critical for the success of establishing high seas MPAs.

- A financial structure is essential to support
  - Inter-governmental organizations and stakeholder dialogues, consultations and negotiations;
  - Conference of Parties (COP) administrative and management costs; and
  - Identification, designation, and establishment of MPAs.
- A financial structure should be able to
  - Effectively and efficiently receive state contributions and raised funds;
  - Defray costs for different activities across all regions ensuring equitability; and
  - Accommodate potential future revenue streams that can assist in raising additional funding and repay some of the infrastructure cost over time.
- There can be multiple financial structures adopted simultaneously to execute the treaty

**This document has explored three options for financial structures (see Annex 2).**

**1. Centralized structures: Could either leverage existing institutions (e.g., GEF) or establish a new institution (e.g., Ocean sustainability fund)**

Centralized structures are most suited if the following are key criteria

- i. Raising capital: A centralized structure can tap into more sources to raise large scale funding, enforce state contributions, and sustain capital through productive investments
- ii. Standardized operating infrastructure: A fixed and standard approval process ensures projects are well-scoped, allowing for benchmarking, learning, and risk control
- iii. Equitable allocation of funds: Centralized coordination is aimed at potentially promoting equitable allocation across regions

A challenge to implementation is that developing nations face a high barrier to access these funds and processes are slow. It is unclear whether a new structure can address the limitations of using existing structures or that using existing structures is faster to deploy.

**2. Hybrid structures: This is a combination of centralized and decentralized structures with a centralized body raising funds and allocating them to regional structures for further disbursement.**

Hybrid structures are most suited if the following are key criteria

- i. Accessibility and flexibility in use of funds: A regional structure allows for some contextual factors to be considered while approving proposals within a standard approval process defined by the centralized structure, potentially improving accessibility to funds while being scoped to a minimum standard
- ii. Equitable allocation of funds: Centralized coordination ensures equitable allocation across regions and while the decentralized / regional tier ensures greater equitable allocation within the region

Challenges include the complexity of navigating a structure of dual authorities, which is difficult to navigate due to the risk of significant red tape. Regional execution also implies a less standard approval process and different regions could prioritize different needs.

**3. Decentralized structures: Could leverage existing institutions (e.g., HELCOM), but are likely to require establishing new institutions as well.**

These are most suited if the following are key criteria

- i. Accessibility and flexibility in use of funds: Regional decision making allows for contextual factors to be considered while approving proposals, potentially improving accessibility to funds
- ii. Speed and cost of funds: Decentralized structures allow for faster speed of deployment of funds and lower transaction and administration costs

Challenges include a risk of inequitable allocation of funds especially since funds are raised regionally. This makes it hard to maintain global equitability and will require a centralized finance committee to navigate this aspect. Further, not all regions will be covered via existing structures and new regional structures will have to be established. The ability to fundraise is limited as countries may be hesitant to fund activities for another region where they gain no benefit.

**An assessment of the 3 potential structures’ key criteria is below**

DRAFT FOR DISCUSSION     Strong alignment to criteria     Some alignment to criteria     Weak alignment to criteria     Potential to align to criteria

Decision making criteria	Description	A. Centralized	B. Hybrid	C. Decentralized
 <b>Raising of capital and ongoing finance</b>	Large scale funding			
	Sustainability and capacity to make productive investments			
 <b>Ease of set up &amp; implementation (incl. accessibility of funds)</b>	Ease to operationalize			
	Accessibility and ease of approvals			
	Flexibility in use of funds			
	Low transaction costs <sup>1</sup>			
 <b>Equity considerations</b>	Equitable access and distribution of capital			
	Adequacy and timeliness of capabilities and technology transfer			
 <b>Governance and reporting</b>	Transparency of decision making			
	Transparency, robustness, and timeliness of reporting			
	Ease of reporting			

1. Cost of funds includes transaction costs and fund administrative costs

## **Conclusion**

This policy brief has attempted to show the high-level estimate of what it may cost to establish MPAs in the high seas and potential approaches to institutionalize a financial structure to service high seas MPAs. A few points to highlight are

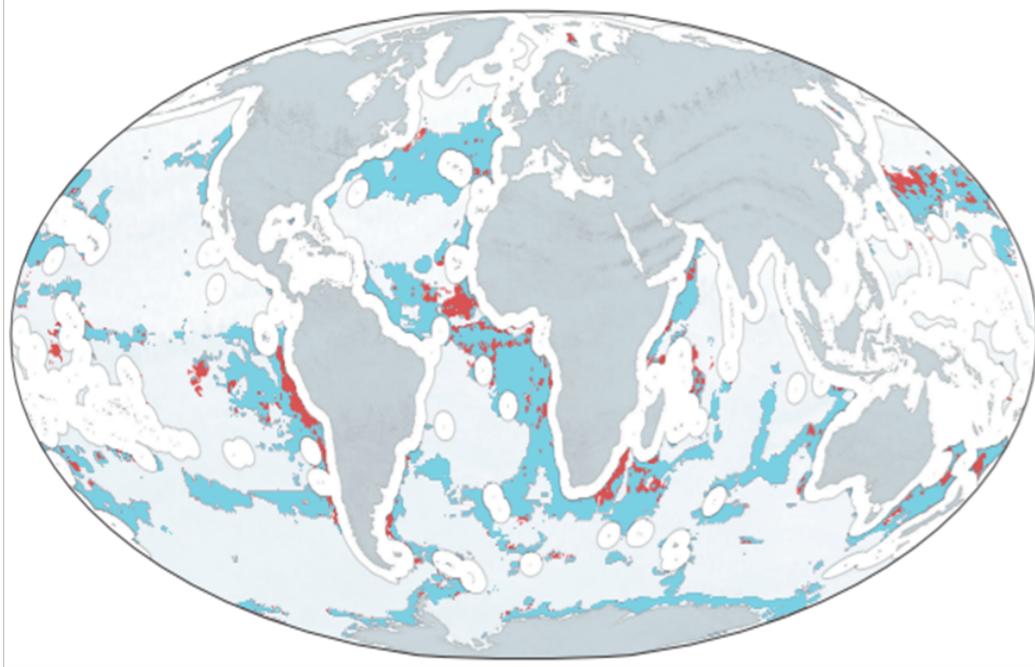
1. The costs for establishing and operating MPAs are likely to be significant and can vary widely depending on the design choices made while establishing them and the needs of the MPA
2. The treaty is unlikely to have funding for (via government funding) and account for all activities involved in establishing an MPA. There are potential sources (e.g., philanthropy) or monetizable values that could be leveraged
3. The choice of a financial structure could have meaningful implications for not only administrative considerations but also equity in outcomes and accessibility, potential costs of management, among others

While this document laid out a starting point for discussion of identified gaps of funding needed for the establishment and operationalization of high seas MPAs, further analysis and research is needed to refine the cost, value, and design of potential MPAs and financial structures. Decision and design choices across monitoring, compliance, and science activities significantly influence cost and these choices need to be agreed upon by Parties to the treaty.

## Annex 1

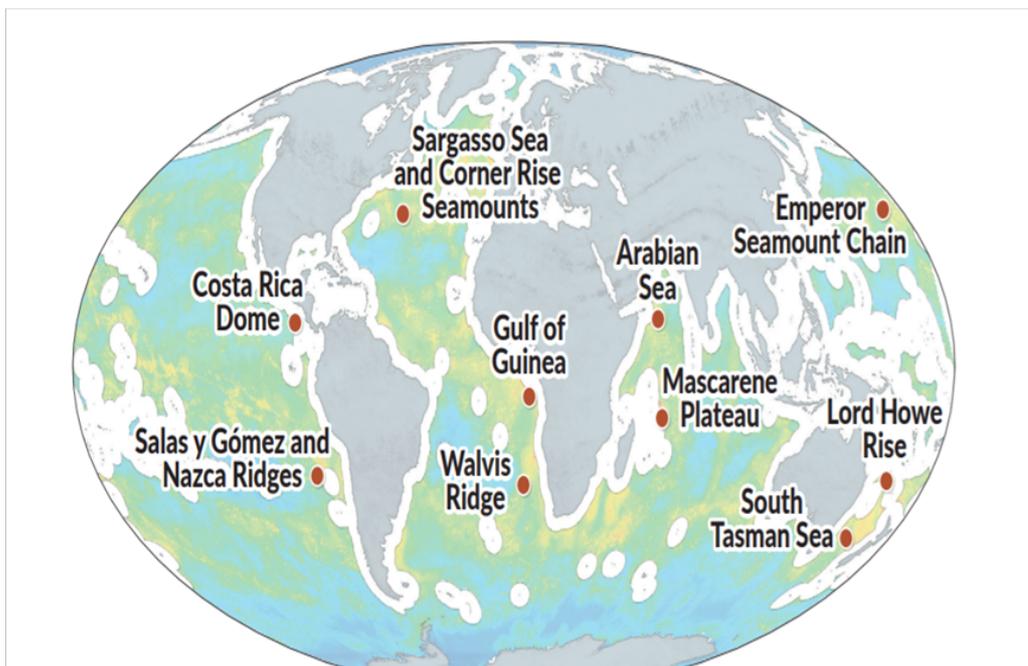
### High seas areas that meet 30% conservation objective

Some of the most biodiverse places also tend to be commercially important



### 10 high seas that could be “starting points” for establishing MPAs

These areas have exceptionally high concentrations of conservation features



The Pew Charitable Trusts study<sup>14</sup>, analyzes 54 data layers to select a solution area in the high seas that protected at least 30 per cent of the conservation features in each individual layer while minimizing overlap with highly fished areas. The 54 different data layers of conservation features were grouped into six broad categories, outlined below, and one cost layer:

1. Conservation features
  - a. Species richness
  - b. Seafloor habitat diversity
  - c. Species extinction risk
  - d. Hydrothermal vents
  - e. Seamounts
  - f. Productivity
2. Cost Layer: Fishing effort

The study also highlighted 10 high seas areas that could be “starting points” for establishing MPAs.

- 1) Sargasso Sea
- 2) Arabian Sea
- 3) Gulf of Guinea
- 4) Emperor Seamount Chain
- 5) Mascarene Plateau
- 6) Lord Howe Rise
- 7) South Tasman Sea
- 8) Eastern Pacific Thermal Dome
- 9) Salas Gomez and Nazca Ridges
- 10) Walvis Ridge

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<sup>14</sup> A Path to Creating the First Generation of High Seas Protected Areas by The Pew Charitable Trusts

Annex 2

