





## **MARIPOLDATA Reading Group**

## Fishing and the BBNJ agreement

### 19.08.2020

**Guest Speaker: Dr. Guillermo Ortuño Crespo**, first author of the Paper High-Seas fish biodiversity slipping through the governance net with a background in biophysical science and policy, understanding the policy dimension behind the ecological questions that his research addresses, particularly the international efforts to better conserve biodiversity in areas beyond national jurisdiction.

#### Context:

With the BBNJ agreement's objective to conserve and sustainably use marine biodiversity in ABNJ, the connection between the BBNJ agreement and fishing practices in the High Seas has to be considered.

- How is fishing affecting marine biodiversity in ABNJ?
- What is the role of existing regional and sectoral organizations currently responsible for sustainable fisheries?
- And what does it mean for marine biodiversity in ABNJ if fish was excluded from the BBNJ agreement?

**Readings for this session**: New implementing agreement under UNCLOS: A threat or opportunity for fisheries governance? (Marciniak 2017)<sup>1</sup> and High-Seas fish biodiversity is slipping through the governance net (Crespo et al 2019)<sup>2</sup>

<sup>&</sup>lt;sup>1</sup> Source: Marciniak, K. (2017). New implementing agreement under UNCLOS: A threat or an opportunity for fisheries governance? *Marine Policy*, *84*, 320-326.

<sup>&</sup>lt;sup>2</sup> Source: Crespo, G., Dunn, D., Gianni, M., Gjerde, K., Wright, G., & Halpin, P. (2019). High-seas fish biodiversity is slipping through the governance net. *Nature Ecology & Evolution*, *3*(9), 1273-1276.

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## 1. <u>New implementing agreement under UNCLOS: A threat or opportunity</u> for fisheries governance?

<u>Reading 1.</u> New implementing agreement under UNCLOS: A threat or opportunity for fisheries governance? (Marciniak 2017)

#### Overview:

The article looks at the relationship between the BBNJ agreement and the legal fisheries governance framework. The BBNJ agreement has the objective to conserve and sustainably use marine biodiversity beyond national jurisdiction (which also includes fish) and at the same time not undermine existing organizations (including the existing fisheries governance framework). The debate is if fisheries/ fish should be included in the new instrument or exclusively regulated under the other implementing agreement of UNCLOS, the UN Fish Stocks Agreement (UNFSA). The question is also whether and how to involve RFMOs in the establishment of High Seas ABMTs/MPAs of the new agreement.

The article lays out how fish relates to the BBNJ agreement's package elements Marine Genetic Resources (MGRs), Area-Based Management Tool (ABMTs), including Marine Protected Areas (MPAs), and Environmental Impact Assessments (EIAs). The fourth element, capacity building and transfer of marine technology (CB&TT) is not elaborated on in this study.

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MGRs	ABMTs/MPAs	EIAs
Fish could be perceived as MGR	Establishment of ABMTs and MPAs could have an influence on current fisheries governance (e.g. fisheries closures)	Activities with respect to fish- ing could require an EIA
Definition of MGR unclear: fish could be MGR if not har- vested, but subject to marine scientific research and bio- prospecting to obtain the ge- netic information; "species-ap- proach" problematic as this would require further explana- tion	Lack of effective marine protection through Regional Fisheries Management Organiza- tions (RFMOs) Lack of central organization entitled to man- age activities; lack of criteria when and how to establish ABMTs/MPAs; to take broader biodiversity concerns into account (apart from the fish species); enforceable only to member states	Uneven geographical cover- age of the duty to conduct EIAs
Difference between excluding fish from the definition of MGRs and from the overall framework of the treaty	UNFSA only includes highly migratory and straddling fish stocks	Remaining questions in the EIA process: what, how and when and who
	RFMOs largely operate on a "sustainable use" basis rather than a more environmental approach	<ul> <li>The new agreement could:</li> <li>Formulate clear duty to conduct EIAs with respect to fisheries</li> <li>Basic criteria to take into account in the EIA process (such as cumulative impacts)</li> <li>Strengthen cooperation (new bodies and existing bodies)</li> </ul>
	Question of legal entity to take decisions on High Seas ABMTs/ MPAs (RFMOs, global in- stitution, various actors, including states, other bodies)	

Overall, the author argues that a more holistic, ecosystem-based approach is needed also considering broader threats and stressors on marine biodiversity, taking into account cumulative impacts. The article emphasizes the need for treating the ocean as an interrelated system while having different legal maritime zones and regional and sectoral organizations with different mandates in place. The author is not expecting extreme options (to exclude fisheries completely, or to establish new institutions for the regulation of fisheries) - but rather a "modest compromise".

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## 2. <u>High-Seas fish biodiversity is slipping through the governance net</u>

#### <u>Text 2:</u> High-Seas fish biodiversity is slipping through the governance net (Crespo et al 2019)

The article portrays that marine fish biodiversity is not currently comprehensively taken care of through existing organizations, and therefore authors call for the consideration of fish and fisheries activities in the High Seas in the new agreement to conserve and sustainably use marine biodiversity beyond national jurisdiction.

See presentation.

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Ina Tessnow- von Wysocki, August 2020

# High-seas fish biodiversity is slipping through the governance net

Stockholm Resilience Centre Sustainability Science for Biosphere Stewardship



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## **#NoFishLeftBehind**

Marciniak, K.J., 2017. New implementing agreement under UNCLOS: A threat or an opportunity for fisheries governance?. *Marine Policy*, *84*, pp.320-326.



"...the PrepCom mandate contains important limitation by including the phrase of not undermining 'existing legal instruments and frameworks (...)'. This problem could become a sui generis 'catch 22' of UNCLOS IA (not only with respect to fisheries). Namely, the more effective and ambitious the future agreement would be, the more likely it becomes that it could be interpreted to 'undermine' existing arrangements (including RFMOs). This, naturally, depends on the interpretation of this term which is far from clear and ultimately depends on the eye of the beholder." (p. 326)



## A REVIEW OF THE IMPACTS OF FISHERIES ON OPEN-OCEAN ECOSYSTEMS



Biosphere

Ecosystem

## FISHERIES IMPACTS ON MARINE ECOSYSTEMS

## **Fisheries impacts on coastal ecosystems**

• Dayton et al., 1995 & Jennings and Kaiser, 1998

"...profound effect on almost all components of associated communities and ecosystems."

"The most sensitive components are rare habitats that serve as nurseries, and species low reproductive rates."

**Trophic cascades** (Estes and Palmisano, 1974; Jackson et al., 2001; Bellwood et al., 2004)

**Regime shifts** – e.g. coral reefs (de Young et al., 2008)

## **Fisheries impacts on deep-sea ecosystems**

• Clark *et al.,* 2016

**Recovery capacity** of the benthos is highly limited and prolonged, predicted to take **decades to centuries** after fishing has ceased.

Declines in faunal biodiversity, cover and abundance.

 Image: With the second secon

(*Hoplostethus atlanticus*) catch in a bottom trawl net. (Photo: Greenpeace nz)

## SPECIES-LEVEL IMPACTS: TARGET & NON-TARGET

Higher levels of depletion for migratory commercial stocks:

- Straddling stocks are overfished or experiencing overfishing at twice the rate than stocks within national jurisdiction (64% vs 28.8%) (FAO, 2009; FAO, 2014).
- 67% of the 48 highly-mobile fish stocks managed by the world's 18 Regional Fisheries Management Organizations (RFMO's) are either overfished or depleted (Cullis-Suzuki & Pauly, 2010).

Increased extinction risk

- 36% of migratory or potentially migratory chondrichthyan fishes threatened with extinction (Fowler, 2014).
- 99% declines for species like the oceanic whitetip shark in parts of their range.
- Several pelagic shark species declined by 70% in the NW Atlantic during 1986–2000 (Baum et al., 2003)



## SPECIES-LEVEL IMPACTS: TARGET & NON-TARGET

### Bycatch threatens non-target species

- Documented declines in >80% Pacific loggerhead and >95% decline in leatherback turtles (Spotila et al., 2000; Limpus and Limpus 2003)
- All 22 species of albatross & 19 of 21 oceanic elasmobranchs are listed as at least Near Threatened by the IUCN with bycatch cited as the main threat.

### Contraction in species' ranges leads to change in community structure (Worm and Tittensor, 2011)

- 9 of the 13 species of tuna and billfish assessed exhibited reduced range with reduced abundances.
- Between 2% and 46% loss of observed range

### Changes in body mass (Ward and Myers, 2005)

- Predator body mass declines & body mass increases in lower TL species
- Reductions in body mass contributed 66% of the decline in the index of community biomass.



http://www.gulfleisure.com/turtlespecies.htm Leatherback Turtle (Dermochelys coriacea)



## SPECIES-LEVEL IMPACTS: TARGET & NON-TARGET

## Reduction in the potential growth rate of the population

• **Reductions in body size and the abundance** of larger age classes may lead to negative effect on population growth rate by **reducing the potential fecundity** (Hutchings & Reynolds, 2004):

## **Genetic Diversity**

- The steep declines in abundance of many of these open-ocean taxonomic groups may be translating into **reductions in genetic variation** at the population and subpopulation levels (Allendorf *et al.*, 2008).
- Loss of genetic diversity **can increase extinction risk**, increase recovery time and decrease adaptability to changing climates (Olsen et al., 2004; Walsh et al., 2006).



## COMMUNITY-LEVEL IMPACTS: TROPHIC IMBALANCES

## Removal of top predators leads to mesopredator release and changes in community structure.

**Mesopredator release**  $\rightarrow$  increases in the biomasses of lower trophic levels caused by the reduction in abundance of their predators

Hinke et al., (2004): Two tuna fisheries in the Central North and Eastern Pacific Ocean (Cox et al., 2002 ;Olson and Watters, 2003)

Abundance of predatory species was reduced by a factor of  $10 \rightarrow$  abundance of lower TL species was maintained or increased.



## ECOSYSTEM-LEVEL IMPACTS

- Research suggests (Folke et al., 2004; Worm et al., 2005; Worm et al., 2006) that regime shifts are more likely to occur when the resilience of an ecosystem is reduced by:
  - removal of functional groups or trophic levels from a community
     reductions of biodiversity (species richness and density)

•Losses in marine biodiversity could compromise the ability that oceanic ecosystems have to provide ecosystem services (Worm *et al.*, 2006)



## UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS, 1982)

## PART V - EXCLUSIVE ECONOMIC ZONE

Article 64- Highly migratory species

## PART VII - HIGH SEAS

Article 87 - Freedom of the high seas

- Article 116 Right to fish on the high seas
- Article 119 Conservation of the living resources of the high seas

**PART XII - PROTECTION AND PRESERVATION OF THE MARINE ENVIRONMENT** *Article 192 - General obligation* 

"States have the obligation to protect and preserve the marine environment."



## UNITED NATIONS STRADDLING FISH STOCKS AGREEMENT (UNFSA, 1995)

UNFSA calls for the use of biological & ecological data, e.g.:

Geographic (horizontal) connectivity: "...*take into account the biological unity of the stocks"* [Article 7.2 (d)] across jurisdictional boundaries.

Trophic/ecological data: "...assess the impact of fishing on non-target and associated or dependent species or species belonging to the same ecosystem" [Article 5(d) & 10 (d)]

Composition – Abundance - Associations - Distribution

(target & non-target)



## UN TREATY ON THE CONSERVATION & SUSTAINABLE USE OF BIODIVERSITY BEYOND NATIONAL JURISDICTION (**BBNJ**)

- UNCLOS does **NOT** explicitly call for the conservation of high seas biodiversity explicitly.
- Over the last 60 years, the UN has pieced together a patchwork of international **sectoral** management instruments with various degrees of involvement in the conservation of high seas biodiversity.
- Cross-sectoral management of biodiversity is rare.
- A comprehensive mechanism/ treaty was missing.





## DO RFMOS PROVIDE ENOUGH COVERAGE?



Tuna RFMOs



Non-tuna RFMOs





Juan-Jordá, M.J., Murua, H., Arrizabalaga, H., Dulvy, N.K. and Restrepo, V., 2018. **Report card on ecosystem-based fisheries management in tuna regional fisheries management organizations**. *Fish and Fisheries*, *19*(2), pp.321-339.





# Defining the first "B" in BBNJ

- ~23,000 species observed in ABNJ
- 639 orders & 216 classes
- 93% (2,854) high seas spp. <10 records</p>
- Sampling heterogeneity
- Southern hemisphere



The face of BBNJ



# Taxonomic spread of BBNJ

~80% are benthic/pelagic invertebrate species – severely understudied



# TaigetnserascfispreaddoverBity



# Managing fish biodiversity

Avoiding institutional redundancies: must not undermine



# Risks of not monitoring ALL biodiversity: cumulative impacts





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# Conclusions

- We do NOT need stock assessments for all 4,052 species.
- RFMOs should define taxonomic mandate.
  - Establish a triage of species requiring a stock assessment vs. other forms of relative abundance/ ecological risk assessments.
- BBNJ to "fill in the gaps"



## 3. <u>Reading Group Discussions</u>

Dr. Crespo identifies a limited impact of science at the current BBNJ negotiations, pointing to limited scientific presentations and discussions at the ongoing negotiations. He is concerned about the debate if fish should be included in the agreement on marine biodiversity, as the fact that fish can be classified marine biodiversity is no question from his ecological perspective. In his presentation, he points to a variety of impacts of fishing on target and non-target species and he emphasizes that commercial fishing is one of the biggest stressors on marine biodiversity. His manuscript challenges the assumption that fish biodiversity "is already taken care of" by existing organizations. Additionally, he points to the large UN Fish Stock Agreement's mandate to take into account all species of the same ecosystem<sup>3</sup> (e.g. Tuna and Plankton being species of the same ecosystem) and that it is difficult to draw the line of responsibilities of certain organizations.

#### **RFMOs coverage**

Here it can be differentiated between **spatial coverage** of geographical areas and **taxonomic coverage**. While the spatial coverage for tuna is regarded sufficient by Dr. Crespo, he identifies large spatial gaps for non-tuna species. While Dr. Crespo underlines that he is not undertaking performance studies of the effectiveness of RFMOs, he seeks to point to the gaps in the existing governance and emphasizes the taxonomic coverage gap with currently 4.8% of fish species being assessed by existing organizations. Within their mandates, RFMOs have improved over the years and best practice examples can be named, among others, the cooperation between NEAFC and OPSAR for the establishment of High Seas MPAs. Different RFMOs can be responsible for the same species and even the same stocks, if there is a migration crossing the legal borders of responsible existing organizations. Dr. Crespo suggests that RFMOs identify their taxonomic mandate and share the list of species they will cover to clarify responsibilities.

#### Lack of Data

Most of the world's ocean's marine biodiversity is still understudied or unknown and little can be said about the existing species and their ecological status. The state of knowledge on fish is currently 4,052 species. While the marine research concentrates on the Central and North Atlantic Ocean, and some local examples, including the Sargasso Sea or the Costa Rica Thermal Dome, there are significant data gaps in the Southern Hemisphere. With the current lack of data, baseline studies, necessary for EIAs, are difficult.

<sup>&</sup>lt;sup>3</sup> "...assess the impact of fishing on non-target and associated or dependent species or species belonging to the same ecosystem" [UNFSA Article 5(d) & 10 (d)]

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#### **Data Collection and Sharing**

Dr. Crespo points to the Ocean Biodiversity Information System (OBIS)<sup>4</sup> as a reliable database for collecting and sharing data. Dr. Crespo points to the possibility to identify fishing activity through satellite data and underlines the opportunity of increased monitoring with this technology for collection of information.

Regarding the question concerning the likeliness of the BBNJ agreement to introduce international standards on data sharing, particularly regarding the different capacities of RFMOs, Dr. Crespo points to the fact that fishing data is highly sensitive data and states will most likely not be willing to share such data with an overarching BBNJ body. Rather, data sharing among RFMOs and between RFMOs and fishing nations should be encouraged. Ministries of the fishing nations have the opportunity to share their fishing data to contribute to the global understanding of marine biodiversity in the High Seas. He acknowledges that there are differences in capacities among existing bodies, as the money from commercial fishing rests with the fishing nations and RFMOs operate under limited funding.

He emphasizes that data platforms already exist that can be used, hence is less supportive of a new clearing house mechanism, currently under consideration by the UN member states in the BBNJ negotiations.

#### **Funding of Marine Scientific Research**

Funding is crucial for research and currently OBIS is underfunded, Dr. Crespo asserts. The UN Ocean Decade of Ocean Science for Sustainable development<sup>5</sup> could offer funding opportunities; however, there outreach for funding will be necessary, as currently there are limited funds available, which hinders research. The role of the private sector in this regard would be interesting to study further regarding opportunities for funding, as well as private interests in steering research, e.g. in EIA assessments for planned sea-bed mining or other activities.

#### **Fishing and BBNJ**

Considering his findings on the impact of fishing on marine biodiversity and current gaps in the current ocean governance framework, Dr. Crespo stays concerned about the BBNJ discussions to leave fish out of the new agreement that seeks to conserve and sustainably use marine biodiversity. He is concerned about the phrase "to not undermine" existing organizations to be used by fishing nations and compete for mandates. Discussions are ongoing and it remains to be seen to what extent the new agreement will change the status quo in regards to marine biodiversity impacts from fisheries and closing gaps in accounting for the full scope of marine biodiversity. He is not too optimistic about the current agreement but indicates that with the newly to established Conference of the Parties (COP), there is hope in the implementation phase.

<sup>&</sup>lt;sup>4</sup> <u>https://obis.org/</u>

<sup>&</sup>lt;sup>5</sup> <u>https://www.oceandecade.org/</u>

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### 4. Suggestions for supporting the conservation and sustainable use of BBNJ

Dr. Crespo recommends the following points for improvement regarding fishing and BBNJ:

- Encourage data sharing among RFMOs and between RFMOs and fishing nations (ministries to share their available fishing data)
- Have RFMOs **identify a list of species for their mandates** to clarify their responsibility towards conservation and sustainable use in BBNJ (potentially leave newly discovered species to BBNJ instrument)
- **Increase funding** for marine scientific research, e.g. through examples such as the Census of Marine Life

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