

UPDATE ON MSEP

- **BLUE NEW DEAL Action Plan** – ‘Turning back to the sea’ <http://neweconomics.org/turning-back-to-the-sea/> and summary document: http://neweconomics.org/wpcontent/uploads/2016/11/BND_BULLETIN_E.pdf
- **MSEP legacy: A marine economics handbook for NGOs**
- All the freely available creative commons resources from the last 3 years of the MSEP project are available for download here: http://b.3cdn.net/nefoundation/fd13ca36cea4cb53b7_xhm6b9tzq.pdf
- **The Infographic Impact Assessment for MCZs** <http://www.mseproject.net/infographic-ia>
The purpose of our this Infographic Impact Assessment (IIA) is to present trade-offs in a visual way and lay out a much more holistic range of criteria to be considered.
[MCZ summary](#) & [Methodology](#)

RELEVANT INFO

- **This election is about Brexit - don't kid yourself otherwise**
<http://www.newstatesman.com/politics/june2017/2017/04/election-about-brexit-dont-kid-yourself-otherwise> NEF blog: **[Forward, not back](#)**
- **EAC Committee finds a worrying landscape in Marine Protected Areas**
The Environmental Audit Committee is disappointed with the government's lack of ambition on designated Marine Protected Areas (MPAs).
<http://www.parliament.uk/business/committees/committees-a-z/commons-select/environmental-audit-committee/news-parliament-2015/marine-protected-environment-report-published-16-17/>
 - [Read the report summary](#)
 - [Read the report conclusions and recommendations](#)
 - [Read the full report: Marine Protected Areas Revisited](#)
- **New interactive MCZ website by Matt Doggett: Poole Rocks MCZ** <http://poolerocksmcz.uk/>
A collaborative project between NEF, Southern IFCA, DWT and MCS
- **Substantial changes in fish distribution identified by ICES**
Answering a request from the European Commission, experts of the Workshop on Fish Distribution Shifts (WKFISHDISH) found that 16 out of 21 species examined have shown changes in their distributions across the northeast Atlantic since 1985, with hake and mackerel shifting the most. Of these, eight species exhibited distribution changes that crossed total allowable catch (TAC) management areas boundaries. Environmental conditions such as sea temperature, in addition to changes in the distribution and intensity of fishing effort, were found to be strong drivers for these patterns of change.
<http://www.ices.dk/news-and-events/news-archive/news/Pages/Substantial-changes-in-fish-distribution-identified-by-ICES.aspx>
- **Seafish ACIG Presentations from April 2017 ACIG meeting:**
 - [Seafish domestic aquaculture update. Seafish](#)
 - [Seafood 2040. Seafood Expert Working Group](#)

- [Brixham Fisheries and Aquaculture Centre. Sustainable Leadership Ltd](#)
- [Sustainable aquaculture in tidal lagoons. Tidal Lagoon Power](#)
- [Development of BBSRC-NERC aquaculture network. ARCH UK.](#)
- [Irish& Celtic Seas: adaptation to climate change in aquaculture and fisheries. Bluefish project](#)
- [Fishmeal and fish oil production. IFFO](#)
- [The impact of El Niño on fish oil supply. Ian Pike](#)
- [UK Aquaculture Initiative. NERC and BBSRC](#)
- [Blue New Deal Action Plan. New Economics Foundation](#)



- **Valuation and proxies** June 20th - [Assigning values to outcomes including identifying financial proxies](#)
- **Sea Scotland 2017:** Securing Progress in Uncertain Times, Sustainable Development of Scotland's Seas. 21st June, Dundee. [Registration is now open](#)
- **Sustainable Earth 2017** – A global forum for connecting research with action (29 and 30 June 2017, Plymouth University). <https://www.plymouth.ac.uk/research/institutes/sustainable-earth/sustainable-earth-2017>
- **Social Return on Investment (SROI) training – summer 2017**
12-13 June, London / 22-23 August, London / 12-13 September, Manchester

PUBLICATIONS

- **Habitat modelling predictions highlight seasonal relevance of Marine Protected Areas for marine megafauna**
According to the European Union Habitats and Birds Directives, EU Member States must extend the Natura 2000 network to marine ecosystems, through the designation of Marine Protected Areas (MPAs). However, the initial status of cetacean and seabird communities across European waters is often poorly understood. It is assumed that an MPA is justified where at least 1% of the “national population” of a species is present during at least part of its biological cycle. The aim of the present work was to use model-based cetacean and seabird distribution to assess the networks of existing Natura 2000 sites and offshore proposed areas of biological interest. The habitat models used here were Generalised Additive Models computed from aerial surveys observational data collected during the winter 2011–2012 and the summer 2012 across the English Channel, Bay of Biscay and north-western Mediterranean Sea. Based on these models, a ratio between species relative abundance predicted within each MPA and the total relative abundance predicted over the French Atlantic or Mediterranean marine regions was computed and compared to the 1% threshold. This assessment was conducted for winter and summer independently, providing information for assessing the relevance of individual MPAs and MPA networks at a seasonal scale. Our results showed that the existing network designed for coastal seabird species was relevant in both marine regions. In contrast, a clear shortfall was identified for offshore seabird species in the Atlantic region and for cetaceans in both regions. Moreover, the size of MPAs appeared to be a crucial feature, with larger MPAs being relevant for more species. Finally, we showed that the proposed large offshore areas of interest would constitute a highly relevant network for all offshore species, with e.g. up to 61% of the Globicephalinae population in the Atlantic French waters being present within these areas. <http://www.sciencedirect.com/science/article/pii/S0967064517300942>
- **Close the High Seas to Fishing?**
The world's oceans are governed as a system of over 150 sovereign exclusive economic zones (EEZs, ~42% of the ocean) and one large high seas (HS) commons (~58% of ocean) with essentially open access. Many high-valued fish species such as tuna, billfish, and shark migrate

around these large oceanic regions, which as a consequence of competition across EEZs and a global race-to-fish on the HS, have been over-exploited and now return far less than their economic potential. We address this global challenge by analyzing with a spatial bioeconomic model the effects of completely closing the HS to fishing. This policy both induces cooperation among countries in the exploitation of migratory stocks and provides a refuge sufficiently large to recover and maintain these stocks at levels close to those that would maximize fisheries returns. We find that completely closing the HS to fishing would simultaneously give rise to large gains in fisheries profit (>100%), fisheries yields (>30%), and fish stock conservation (>150%). We also find that changing EEZ size may benefit some fisheries; nonetheless, a complete closure of the HS still returns larger fishery and conservation outcomes than does a HS open to fishing. <http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1001826>

- **Winners and losers in a world where the high seas is closed to fishing**

Fishing takes place in the high seas and Exclusive Economic Zones (EEZs) of maritime countries. Closing the former to fishing has recently been proposed in the literature and is currently an issue of debate in various international fora. We determine the degree of overlap between fish caught in these two areas of the ocean, examine how global catch might change if catches of straddling species or taxon groups increase within EEZs as a result of protection of adjacent high seas; and identify countries that are likely to gain or lose in total catch quantity and value following high-seas closure. We find that <0.01% of the quantity and value of commercial fish taxa are obtained from catch taken exclusively in the high seas, and if the catch of straddling taxa increases by 18% on average following closure because of spillover, there would be no loss in global catch. The Gini coefficient, which measures income inequality, would decrease from 0.66 to 0.33. Thus, closing the high seas could be catch-neutral while inequality in the distribution of fisheries benefits among the world's maritime countries could be reduced by 50%. <https://www.nature.com/articles/srep08481>

- **Impact of harvesting cleaner fish for salmonid aquaculture assessed from replicated coastal marine protected areas**

Wrasse (Labridae) fisheries have increased markedly in Norway since 2010. Wrasse are being used as cleaner fish in salmonid aquaculture to control sea-lice infestations. However, fundamental knowledge on the demography and abundance of the targeted wrasse populations in Norwegian waters is lacking, and the consequences of harvesting at the current intensity have not been assessed. Here, we compared catch per unit effort (CPUE), size, age and sex ratio of goldsinny wrasse (*Ctenolabrus rupestris*) and corkwing wrasse (*Symphodus melops*) between marine protected areas (MPAs) and control areas open for fishing at four localities on the Skagerrak coast in Southern Norway. The CPUE of goldsinny larger than the minimum size limit was 33–65% higher within MPAs, while for corkwing three of four MPAs had higher CPUE with the relative difference between MPAs and control areas ranging from –16% to 92%. Moreover, corkwing, but not goldsinny, was significantly older and larger within MPAs than in control areas. Sex ratios did not differ between MPAs and control areas for either species. Our study suggests that despite its short history, the wrasse fisheries have considerable impacts on the target populations and, further, that small MPAs hold promise as a management tool for maintaining natural population sizes and size structure. Goldsinny, being a smaller-sized species, also seems to benefit from the traditional minimum size limit management tool, which applies outside MPAs. <http://www.tandfonline.com/doi/abs/10.1080/17451000.2016.1262042?journalCode=smar20&>

- **Integrating supply and social demand in ecosystem services assessment: A review**

As a result of the unsustainable way in which natural resources are consumed, the gaps between the supply and social demand of ecosystem services (ES) are gradually widening. In this regard, studies have increasingly assessed both ES supply and demand comprehensively. This current review covers recent case studies about the integrated assessment of ES supply and demand (IAESSD), which is defined as the application of ES supply and demand assessments in one case study. By combining some key words (e.g., ES, supply or capacity, demand or flow), 38 IAESSD case studies were selected. The “indicator-method-mismatches” in the case studies were then analyzed in detail. The results show that different indicators are applied to distinguish supply and demand. Mapping, participatory methods, and modeling are often used in IAESSD. ES supply–demand mismatches, which have a strong impact on human well-being by causing unsatisfied demand, are influenced by natural and anthropogenic factors. Because of the complex and interactive nature of ecological and economic systems, IAESSD faces challenges regarding the

clarification of different ES components from supply to social demand and the provision of promising methods for the identification of ES mismatches. Thus, a framework for further IAESSD research is proposed. This framework highlights the importance of identifying multi-dimensional mismatches and matching ES supply and demand in practice.

<http://www.sciencedirect.com/science/article/pii/S2212041616304442>

- **When does fishing forage species affect their predators?**

This paper explores the impact of fishing low trophic level “forage” species on higher trophic level marine predators including other fish, birds and marine mammals. We show that existing analyses using trophic models have generally ignored a number of important factors including (1) the high level of natural variability of forage fish, (2) the weak relationship between forage fish spawning stock size and recruitment and the role of environmental productivity regimes, (3) the size distribution of forage fish, their predators and subsequent size selective predation (4) the changes in spatial distribution of the forage fish as it influences the reproductive success of predators. We show that taking account of these factors generally tends to make the impact of fishing forage fish on their predators less than estimated from trophic models. We also explore the empirical relationship between forage fish abundance and predator abundance for a range of U.S. fisheries and show that there is little evidence for a strong connection between forage fish abundance and the rate of change in the abundance of their predators. We suggest that any evaluation of harvest policies for forage fish needs to include these issues, and that models tailored for individual species and ecosystems are needed to guide fisheries management policy.

<http://www.sciencedirect.com/science/article/pii/S0165783617300176>

- **The potential for blue growth in marine fish yield, profit and abundance of fish in the ocean**

The oceans provide food, employment and income for billions of people. We analyzed data from scientific stock assessments, and from a statistical model for other fish stocks, to summarize the past and present status, and the potential catch, abundance and profit for 4713 fish stocks constituting 78% of global fisheries. Three major scenarios of future trends are considered; business as usual (BAU) in which largely unmanaged fisheries move towards bioeconomic equilibrium but where well-managed fisheries maintain their management, maximum sustainable yield (MSY) in which fisheries are managed to maximize yield, and fisheries reform (REF) where the competitive race to fish is eliminated and fisheries are managed to maximize profit. The future prospects differ greatly based on region of the world and product type. This analysis forecasts that yield in major tuna and forage fish species will remain roughly the same as current levels under all three scenarios, while there does appear to be potential for increased yield of whitefish. There is considerable room for increased profit in most of these fisheries from better management. Increased yield will come from rebuilding overexploited stocks, reducing fishing mortality on stocks that are still abundant but fished at high rates, and surprisingly from fishing some stocks harder. Indeed in Europe and North America the primary potential for increased yield comes from fully exploiting stocks that are now lightly exploited. Asia provides the greatest opportunity for increased fish abundance and increased profit by fisheries reform that would lead to reduced fishing pressure.

<http://www.sciencedirect.com/science/article/pii/S0308597X1730074X>



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- OMEGA, “Offshore Membrane Enclosures for Growing Algae,” began as a NASA Advanced Life Support research project to grow algae for biofuels and evolved into an ecosystem of technologies that generate sustainable energy, turn wastewater into drinking water, and provide food without using land. <http://omegaglobal.org/>

- If you have any research, articles or information that relates to socio-economic studies in the marine environment please share them with the network

Thanks, Chris @ NEF