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Marine Protected Areas and the science-policy dimensions

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Introduction

Daniel Suman is a Professor at the Rosenstiel School of Marine and Atmospheric Science in University of Miami. Coastal areas management and community involvement are the main aspects of his work. The class in SPSAS event had as title Marine Protected Area and it was divided into two parts: the first one was about science-policy dimensions, focusing in biological aspects and relevant issues to policy and the second one, about the challenge of governance in marine social-ecological systems. Here is summarized the first part of the class. This summary is divided into main topics and conclusions.

Main topics

Threats to marine biodiversity

Major threats to marine biodiversity includes degradation of habitats, mainly mangroves which has undergone an annual losses of 1.1%, with mangrove deforestation rates are 3 to 5 times greater than global deforestation rates. Just to have an idea the estimate of global mangrove area in 1980 was 19.8 million ha. Some 5 million ha of mangrove forests were lost during this 20 year period amounting to about 25% of the 1980 mangrove area. The degradation of habitat generally implies in reduction of biological diversity.

Another important aspect is global decline in fisheries is considered to be the greatest threat to marine wildlife and habitats. The share of fish stocks not fully exploited has exhibited a downward trend, declining from 30 percent in 1983 to less than 20% percent in 2013. Thus, around 80% percent of fish stocks were estimated as fully exploited level. Of all the stocks assessed in 2013, 20 percent were overexploited.

The global decline in trophic level of fishes has been about 0.1 per decade without a substantial increase in landings. The declines have been greatest in the Northern Hemisphere where industrial fisheries have worked for the longest time. Fisheries managers must rebuild fish populations within large no-take MPAs. This is due to the lack of sustainable fisheries management and the fisheries subsidies, the fishing industry with its improved technologies has caused serial depletions, expanse of range and targeting of lower level species.

In this context of degradation of marine environments, fisheries collapses, biodiversity losses and other threats to marine and coastal ecosystems, Marine Protected Areas may be a solution for this problems.

Marine Protected Areas (MPAs)

First we need to know what are Marine Protected Areas (MPAs) and Marine Reserve. According to IUCN a protected area is a geographic space, recognize, dedicated and managed through legal and other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values. A MPA is any area of intertidal or subtidal terrain together with its overlying water and associated flora, fauna, historical and cultural features which has been reserved by law or other effective means to protect part or all of the enclosed environment. Generally has confusion about differences between MPA and Marine Reserve. However, the last one is a subset of MPAs, defined as an delimited area of the ocean where extractive activities are prohibited, that is, a no take area.

UN Millennium Development Goals

The United Nations Millennium Development Goals (MDG), signed in 2000, endorsed by 191 UN member states focuses on eight goals to combat hunger, disease, illiteracy, environmental degradation, and discrimination against women. The goals were to be achieved by year 2015. Goal seven in particular focussed on ensuring environmental sustainability, by actions to improve drink water, better access to sanitation conditions and protect terrestrial and marine areas. The MDG called for 10% of world's ocean to be classified as MPA by 2010, but till today only about 3.5% of the ocean is categorized as MPA.

CDB and UN 2030 Agenda for Sustainable Development Goals

In 2010, in a context of high global biodiversity losses, occurred in Nagoya, Japan, the Conference of the Parties (COP). The Aichi Biodiversity targets that originated from the COP-10 of the Convention on Biological Diversity (CBD) aims to conserve at least 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services.

In 2015, was adopted the 2030 Agenda for Sustainable Development. This agenda have 17 Sustainable Development Goals (SDG) and 169 targets to transform the world. End poverty, hunger, action to combat climate change and conserve sea and marine resources are some of the important goals of the agenda.

About *Conserve and sustainably use the oceans, seas and marine resources for sustainable development* (Goal 14), according agenda, some targets are sustainably manage and protect marine and coastal ecosystem, conserve at least 10 percent of coastal and marine areas and enhance the conservation and sustainable use of oceans and their resources.

In the end of the first part of the presentation, the Professor explained about and the importance of Marine Reserves, as larval dispersion and resilience of environmental changes to benefit for fisheries, networks, considerations and some criteria for selecting Marine Reserves.

Conclusion

The main issues cited during the first part of presentation were important to make a link between scientific and conservation dimensions and how it can support policy actions to keep safe the marine environmental.