

## EU Common Fisheries Policy reform, from the inside

by Frédéric Le Manach



Members of the European Parliament and scientists discuss the future (if any) of deep-sea fisheries in European waters. (Photo: Frédéric Le Manach)

In 2009, the European Commission initiated the third reform of its Common Fisheries Policy. Although the basic principles of this new framework – which will stay in place for the next 10 years – were adopted in early February by the Parliament, the Commission is still regularly hearing experts on various topics. This process aims to propose specific amendments to this basic framework, before the final decision around June, once the Parliament, the Commission and the Council of Ministers reach a consensus (yes, this is a rather complex system). One of these hearings was held in Brussels on 19 February, and it focused on deep-sea fishing. Claire Nouvian

invited me to attend, and although I was expecting a vivid debate, I was not expecting such vividness.

Claire Nouvian – a Pew Fellow, journalist, director/producer, director of BLOOM ([www.bloomassociation.org](http://www.bloomassociation.org)), but principally woman of action – was one of eight experts heard by European Union (EU) members of parliament (MPs) during a special session on deep-sea fisheries. Other names in this group of experts included Tom Blasdale, chair of the ICES Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP); Phil Weaver from the UK's

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National Oceanography Centre; Pascal Lorange from the French Research Institute for Exploitation of the Sea (Ifremer); and Matthew Gianni, co-founder of the Deep Sea Conservation Coalition. I will not go into much detail about these seven talks. To put it in a nutshell, everybody sort of agreed that deep-sea trawling is harmful to many long-lived species (such as fish, sponges and corals) and fragile ecosystems, and that we know very little about them (there are analytical assessments for only three species, and footage is very rarely available).

Claire introduced the French deep-sea fishery, and the bottom-line of her talk was that despite rather important subsidies, the three companies involved in French deep-sea fishing are all in deficit! The example of Scapêche, which takes between 60 and 86% of the total French deep-sea catch, is staggering: between 2002 and 2011 it received €9.34 million from the state, plus an additional €16.9 million cash-injection from Intermarché, the supermarket chain to which it belongs [1]. (If you are looking for a definition of vertically integrated systems, here you go.) Yet during this 2002-2011 exercise, it had €0.1 million of cumulated net losses after tax. A French MP, co-chair of the fisheries committee, then said something along these lines: "Are you saying that such companies are philanthropic? That they give away money to something that is not worth it? I don't buy it!"

That was it. At this point the extremely politically correct way of telling white lies or saying nothing too controversial was abandoned for a much spicier

and polarized argument. A couple of MPs started to shout, accusing each other of being blind or deaf. Others tried to be more constructive, as one British MP and another French MP said that we should start inquiring upon the use of EU citizens' money, and further refuted the co-chair's argument that because some fishers were relying on this fishery, we should maintain it despite a high risk of collapse for most stocks.

Then, we ran out of time. Big surprise. My personal feeling is that this hearing was designed to restrict the debate. Controversial topics were kept for the end, whereas they should have been at the forefront. As a result, I am actually quite confused about the outcome of this meeting. Of course, its aim was not to make decisions, but rather to propose amendments to the Common Fisheries Policy proposal that is currently being reformed. However, I cannot guess what these amendments will be. Some MPs are definitely pro deep-sea fishing, others are firmly against it, but a number of them remain undecided and they will likely base their vote on who shouts the loudest. (Please remember that empty vessels make the most noise.)

Isabella Lövin, Swedish MP and author of the must-read book *Silent Seas*, managed to get the deadline for these amendments postponed to mid-March. I will follow-up with a report on the progress.

You can listen to the entire meeting at: [www.europarl.europa.eu/ep-live/en/committees/video?event=20130219-1500-COMMITTEE-PECH](http://www.europarl.europa.eu/ep-live/en/committees/video?event=20130219-1500-COMMITTEE-PECH)

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**T**he *Sea Around Us* Project is a scientific collaboration between the University of British Columbia and The Pew Charitable Trusts that began in July 1999. The Pew Charitable Trusts work around the world to establish pragmatic, science-based policies that protect our oceans, wild lands and climate. Pew also sponsors scientific research that sheds new light on the dimensions of and solutions to the problems facing the global marine environment.

# Coastal transects: a tool for marine biology & fisheries visualization

by Daniel Pauly

*Transects are a conceptual tool for reducing maps, which present three dimensions of reality, to two dimensions.*

Coastal and other transects are a conceptual tool for reducing maps, which present three dimensions of reality (latitude, longitude and the dimension of interest, e.g., depth, primary production or fish size and abundance; Figure 1A) to two dimensions (e.g. distance from the coast vs abundance of different life stages; Figure 1B). However, this reduction of dimensionality does not necessarily imply loss of information content. In fact, transects, since their invention by Alexander von Humboldt in the early 19th century, allow the documentation of complex ecological patterns in a manner that is directly accessible.

This is the reason why, for example, the classical *FAO Atlas of the Living Resources of the Seas* [1] contains both maps and transects, both being of great assistance to the then expanding fishing industry in locating fish stocks to exploit. In 2013, however, we are past the stage where scientists produce atlases to show industry where fish concentrations are (fishers nowadays know this better than scientists, thanks to experience and electronics), but the superb atlas that FAO produced remains an inspiration for the clarity of the information it conveyed.

Indeed, this atlas was the reason why we explored transects for summarizing ecological data on marine fish species in FishBase ([www.fishbase.org](http://www.fishbase.org)). One such approach (see Figure 1B) was presented by Zeller and Pauly in 2001 [2], but it was abandoned because it required too much work for each species.

I am thus delighted to present another intuitive approach for the representation of fisheries catches within profiles perpendicular to the coast of the Exclusive Economic Zones (EEZ) of countries, or of Large Marine Ecosystems (LME). The “catch transects” in our new paper (“Coastal catch transects as a tool for studying global fisheries” by Reg Watson and Daniel Pauly [3]), constructed through a new computer routine,

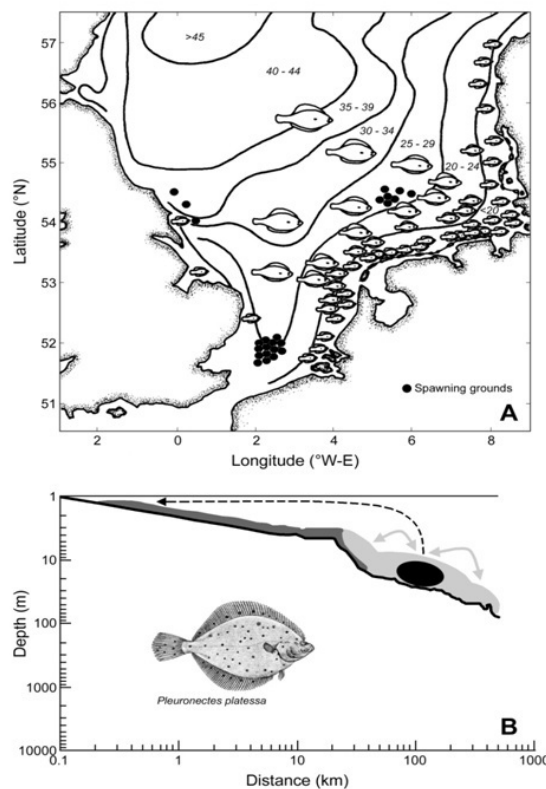
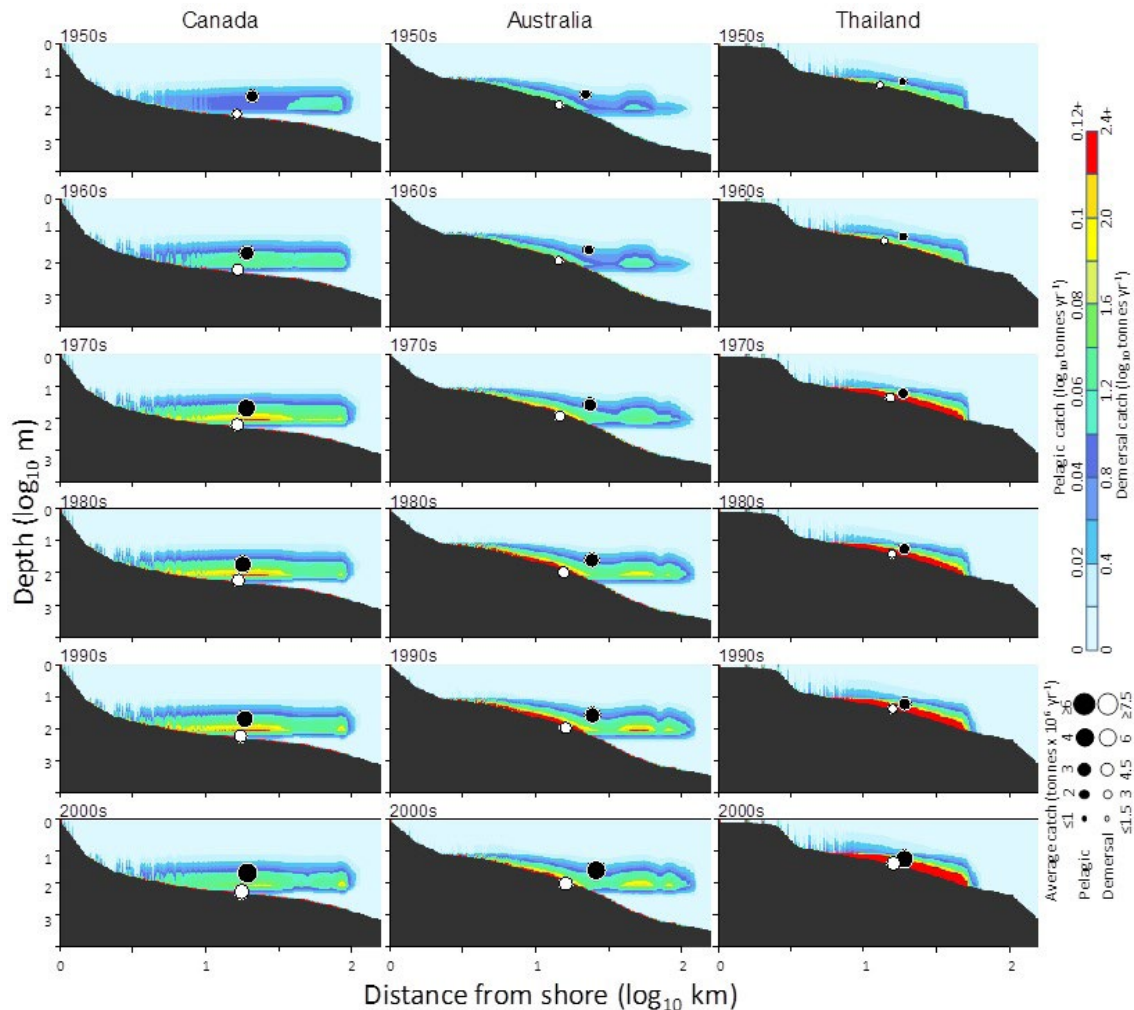


Figure 1. Two modes of representation of the relationships between water depth and/or distance from the coast and the biology of fishes, illustrated with the plaice (*Pleuronectes platessa*) in the North Sea. A: Tri-dimensional map adapted from [6], with mean sizes (TL; cm) given for each isobaths. B: Typical transect (approximately 53° N, 8° E to 56° N, 3° E), dark grey represents juvenile distribution, light grey adult range and black indicates the spawning stocks (adapted from [2]).

which uses the spatialized catch data file that the *Sea Around Us* Project created, show where catch is extracted in the water column as plots of log-bathymetry vs log-distance offshore, and thus allow for representation of the catch density of pelagic and benthic fisheries (Figure 2). Hence, they also allow direct visual comparison of the intensity of fishing through time and space.

The website of the *Sea Around Us* Project presently under reconstruction will, when completed, show



Transects also allow direct visual comparison of the intensity of fishing through time and space

Figure 2. Catch transects for the Exclusive Economic Zones of Canada, Australia and Thailand. Catch densities ( $\log_{10}$  tonnes-year<sup>-1</sup>) are scaled by colour. Demersal catches are scaled differently from pelagic catches (adapted from [3]).

catch transects for all EEZs and LMEs of the world based on “reconstructed catches” (see [4] and [5] for examples); hence they will differ from those presented here in Figure 2 by showing higher catches, notably inshore, as a result of larger small-scale fisheries catches.

They will, however, retain the intuitive nature of Figure 2, and hence collectively be seen, I hope, as worthy successors of the FAO *Atlas of the Living Resources of the Seas*.

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# Marine how-protected areas?

by Lisa Boonzaier

**A**round the world, many marine protected areas (MPAs) – including some very big ones – are being proposed and instituted. Just last year, MPA coverage grew by more than 2.5 million km<sup>2</sup> with the creation of three of these very large MPAs (Cook Islands Marine Park, Coral Sea Marine National Park and New Caledonia), and more are proposed. As countries aim to reach global targets for MPA coverage and compete to stake their claim for having the biggest MPA in the world, the area encompassed by MPAs grows.

*Do all these new MPAs equate to more and better protection for the ocean?*

As we strive to see a larger part of the ocean protected than the current 1% (see sidebar), this growth sounds like a great thing for marine conservation – at least, on paper. But what does it mean for species and their habitats in-the-water? Do all these new MPAs equate to more and better protection for the ocean?

It's widely acknowledged that many protected areas – both terrestrial and marine – are not effectively managed. They are not adequately funded or enforced. They might not even have a management body or management plan. As an example, even though MPAs cover about 19% of the world's coral reefs, it's been estimated that less than 0.1% of coral reefs are within no-take MPAs with no poaching [1].

With these and related issues in mind, the wildlife conservation organisation WildAid ([www.wildaid.org](http://www.wildaid.org)) organised a conference – the first of its kind – on the enforcement of MPAs. The Global Marine Protected Area Enforcement Conference, held during November 2012 in San Francisco, attracted a variety of people interested in MPAs: enforcement personnel, engineers, lawyers, researchers, managers, and students – like me – from more than 30 countries and representing a diversity of types of MPAs.

The overall aim of the conference was to discuss and share information on the MPA “enforcement chain,” considered by WildAid to consist of five links all of which need to function for effective enforcement:

- 1) Surveillance and interdiction: monitoring MPAs, detecting violators and intercepting them.
- 2) Systematic training: not only of enforcement personnel, but also of prosecutors and judges.



*The Global Marine Protected Area Enforcement Conference was held for the first time during November 2012 in San Francisco. (Photo: Lisa Boonzaier)*

- 3) Prosecution and sanction: a judicial system that appropriately punishes violators, ultimately leading to deterrence and compliance.
- 4) Outreach and education: changing people's behaviour involves communication through outreach and education.
- 5) Sustainable finance: underpins successful implementation of the first four links.

The conference sent an overarching message that there's a need to think beyond the first step of establishing MPAs, and consider how to go about fostering sustainable, effective protection. The case studies revealed that many MPAs need help in a number of different but generally overlapping ways. During a session of case studies from around the world, we heard about the coupled problems of illegal fishing and drug trafficking in Latin America, that one large MPA in the Pacific has enough funds for a single patrol per year, and how enforcers struggle to control geoduck fishing in Puget Sound MPAs.

This message was balanced by the up-side that came from seeing the varied paths that different types of people have already identified for tackling the problems, and while every MPA's context is unique, there is a strong collaborative environment and opportunity for sharing knowledge and ideas.

The most exciting aspect of the conference was the showcase of several technologies for monitoring and surveillance, including more traditional tools, such as vessel monitoring systems (VMS)

## Marine protected areas

What are they?

Marine protected areas (MPAs) in the broadest sense provide some level of protection to a defined area of the marine environment. There are more specific definitions and the one most commonly applied, which comes from the IUCN, specifies that conservation should be the protected area's primary objective.

(If you'd like to read more about the debate on how to define MPA, see the November/December 2012 issue of MPA news; [www.mpanews.org](http://www.mpanews.org))

How much is protected?

According to a 2008 study from the *Sea Around Us* Project [2], 2.35 million km<sup>2</sup> representing about 1% of the marine environment is protected. This value has increased since then, particularly given the recent rapid rate of expansion thanks to the very large MPAs that have been established in recent years. Even so, the figure is likely to be not much more than 1%. Of this 1%, about 13% is within no-take areas (according to the 2008 data), that is, areas where all extractive activities, including fishing, are prohibited.

*The most eye-catching device on display: a snazzy, yellow, unmanned robot called the Wave Glider*

and automatic identification systems (AIS), and new technologies, like unmanned vehicles. The most eye-catching device on display: a snazzy, yellow, unmanned robot called the Wave Glider (<http://liquidr.com>). Because the Wave Glider runs on wave and solar energy, and requires little maintenance and no on-board personnel, it's capable of year-long, continuous surveillance missions providing real-time data via satellite. Using an underwater microphone and on-board camera, it's able to sense vessel activity, but can also be tasked with environmental monitoring, like recording occurrences of marine mammals. And while it was eye-catching in the conference exhibition room, apparently it's tough to see on the ocean, so offenders will likely be unaware that their activities are being recorded. Other tools that could help

with monitoring large, remote MPAs include unmanned aircraft, underwater autonomous vehicles and balloons.

There were more innovative ideas raised in other spheres of the conference. One such idea was presented from my home country, South Africa, where an initiative has been piloted to unify small-scale fishers through the creation of fishing cooperatives in coastal communities where people struggle to make ends meet and illegal activities, such as poaching for high-value and protected abalone, are often widespread. In one town, directed funding and training have resulted in the creation of 12 small businesses that employ 118 people – decreasing unemployment there from 85% to 68%. Additional outcomes include improved safety for fishers, and increased stewardship and compliance as users came to understand and defend their resources.

*The Wave Glider, from Liquid Robotics, runs on wave and solar energy, and requires little maintenance and no on-board personnel. (Photo: WildAid.org)*



The good news is that MPAs do work. There's a growing body of evidence showing that increases in biomass, diversity, spillover and larval export are all possible (for examples see [3-6]). And I'd like to emphasise, that although it's important to recognise the problems with our MPAs so that we can improve them, we must not to lose sight of the fact – highlighted by Graham Kelleher at the conference – that an imperfect MPA is better than no MPA at all.

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## Daniel Pauly receives Honorary Doctorate

by José L. Sánchez Lizaso

On 28 January, Dr Daniel Pauly received an Honorary Doctorate at the University of Alicante, Spain. During the ceremony, the head of the Department of Marine Sciences and Applied Biology, Dr José L. Sánchez Lizaso, summarized the work of Dr Pauly first at the International Centre for Living Aquatic Resources Management (ICLARM; now known as WorldFish) in the Philippines, and after that at the Fisheries Centre at the University of British Columbia. Dr Lizaso explained that the models and tools Dr Pauly developed, and the new concepts that he introduced had a huge impact on fisheries management. The commitment of Dr Pauly and his efforts to preserve our oceans are the reason that the University of Alicante's Faculty of Sciences unanimously proposed him to receive the Honorary Doctorate.

In his acceptance speech, Dr Pauly reviewed the importance of marine resources in the history of humans. However, he also stressed that the biodiversity we have exploited for millennia is now threatened, as are the very ecosystems in which these resources and species are embedded. He emphasized that overfishing is not due to a lack of biological knowledge about the fish stocks that are exploited, but rather a lack of proper incentives to do the right thing, and he explained the need for influencing policies to make exploitation sustainable. He also remembered



Daniel Pauly receives his Honorary Doctorate at the University of Alicante, Spain. (Photo: Roberto Ruiz - University of Alicante)

the many colleagues who helped him reach this point and acknowledged being on the same list as Mario Varga Llosa, Ramon Margalef, Jane Goodall and others who have also been so honoured by the University of Alicante.

As result of his presence at the University of Alicante, Dr Pauly has been invited to participate in the next edition of the International Master in Sustainable Fisheries Management, a graduate degree that the University of Alicante organizes in collaboration with the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM).

Dr José L. Sánchez Lizaso is head of the Department of Marine Sciences and Applied Biology and a senior lecturer at the University of Alicante.



*The new concepts that Dr Pauly introduced had a huge impact on fisheries management*