Concepts and empirical space in sustainability research

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Sciences and Arts for Sustainability asbl

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Structure of the talk

- Sustainability research as more than multi-disciplinary enquiry
- Critically engaged interaction between research and practice
- Public domain knowledge and narratives to create new capacities for consensus and action

Getting started

- Sustainability research as more than multi-disciplinary enquiry
- Critically engaged interaction between research and practice
- Public domain knowledge and narratives to create new capacities for consensus and action

Sustainability Research (1)

Is driven mostly by the need to stop the misconception of eternal growth: reality check

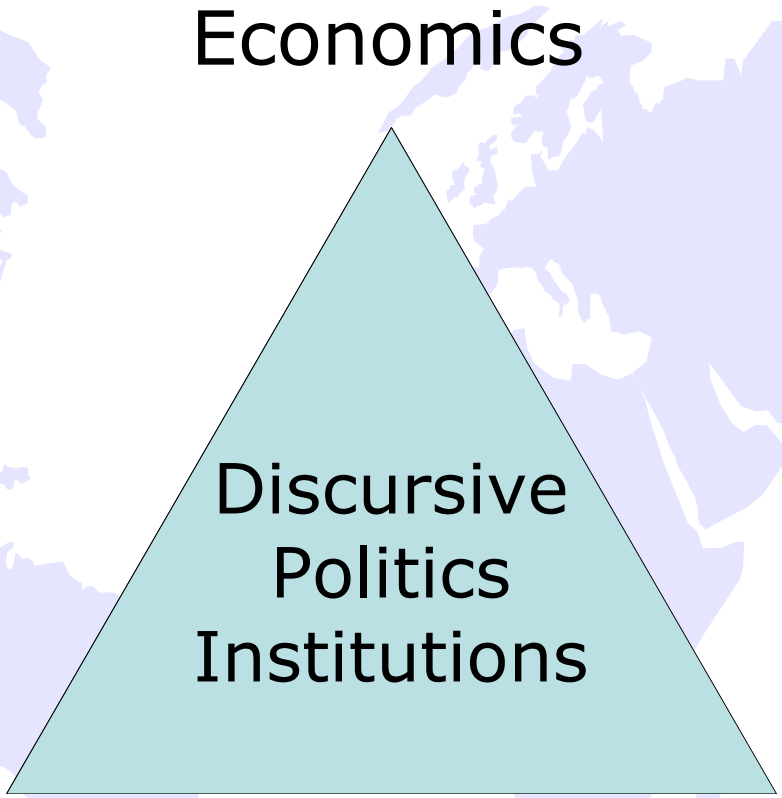
- The resources on Earth are finite, even though we are very ingenious in finding new technical fixes - right now by borrowing from the future
- Our Earth is quite unique within the accessible parts of the universe, we better make it work
- We produce enough food to feed everybody, but 1 billion is obese and 1 billion is hungry
- Shifting baseline or a unifying narrative?

Sustainability Research (2)

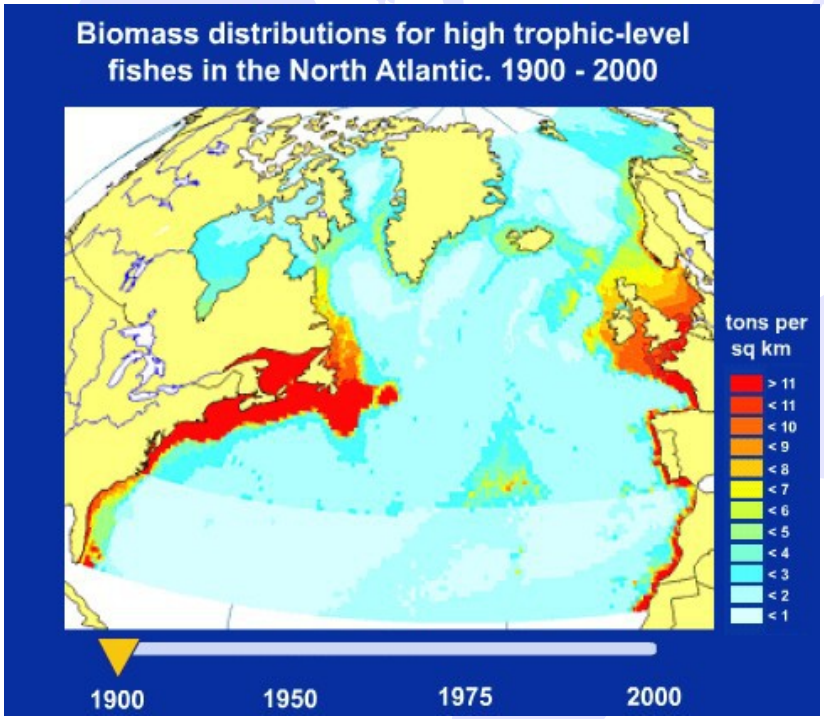
Consilience between different areas of equiry of the world around us - natural and social sciences

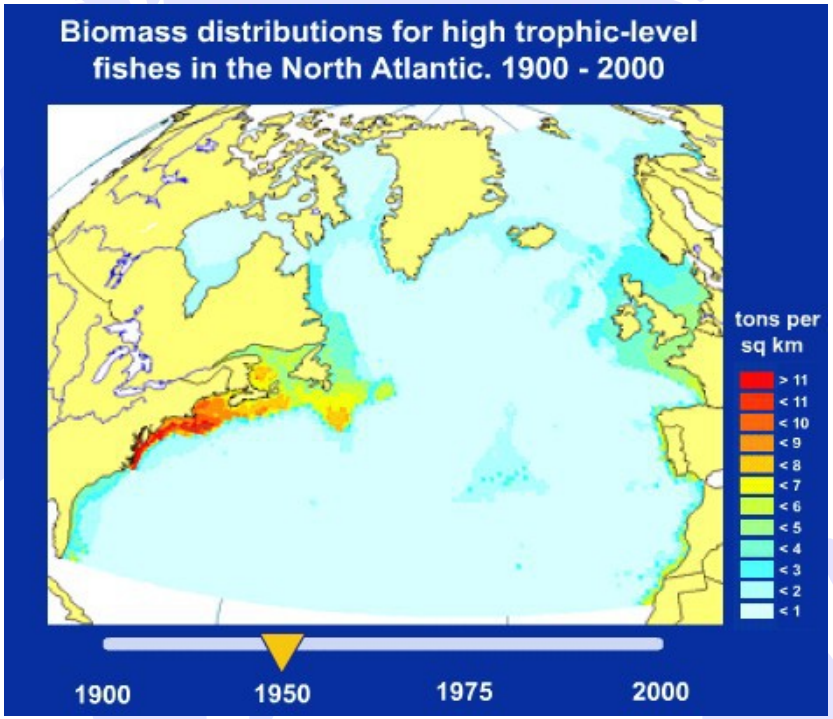
- This is a another way of approaching the sustainability triangle, the relationship between economic, social and environmental dimensions, eventually mediated through institutions and the political process, but requiring greater effort by science
- Addressing shifting baseline to ensure we have a future
- But some baselines need to shift.

Sustainability Research (3)



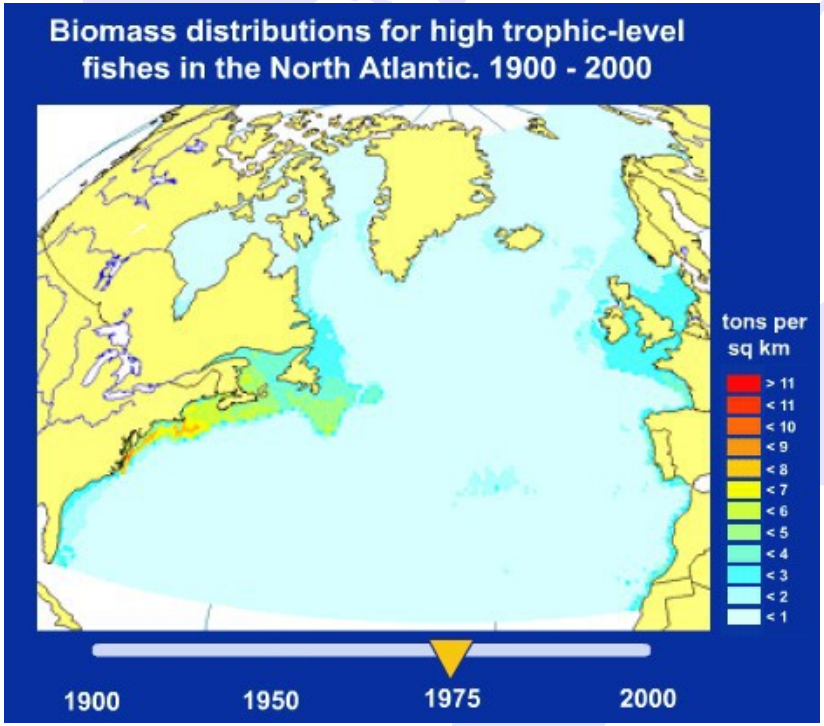
An example: the global fisheries crisis (1)

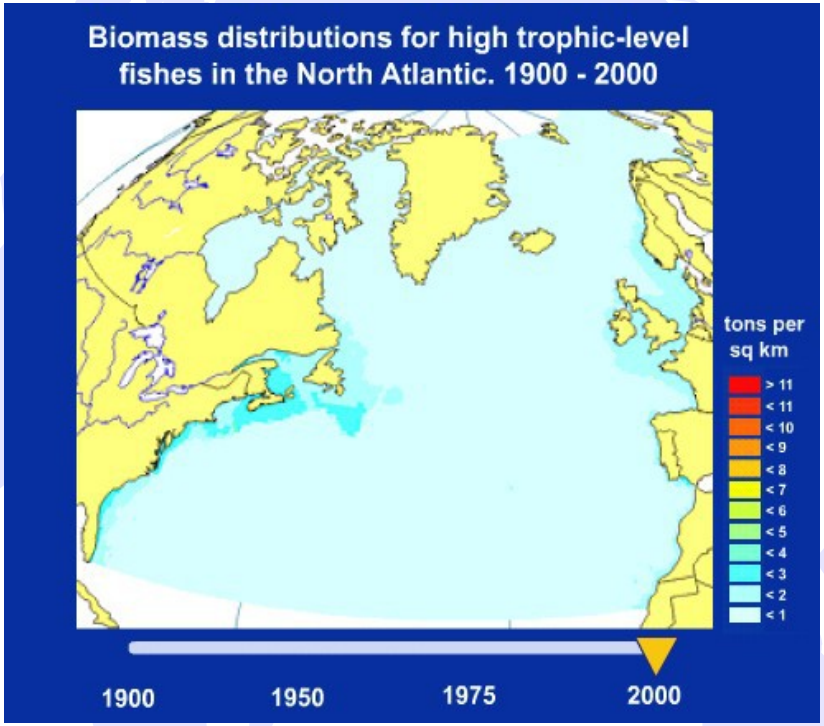




Christensen, V. *et al.*, 2003. Hundred-year decline of North Atlantic predatory fishes. *Fish and Fisheries*, 4:1-24.

An example: the global fisheries crisis (2)





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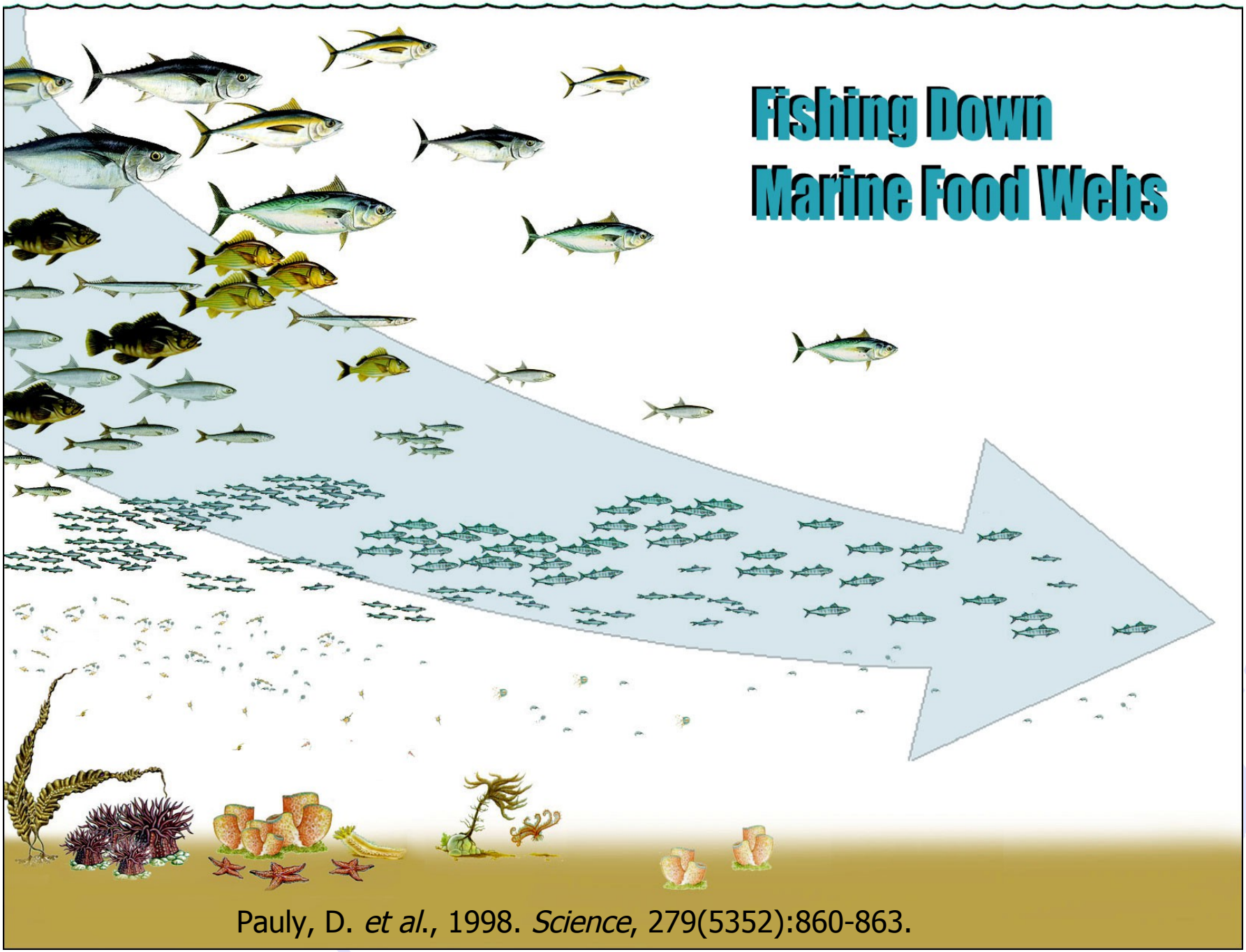


Pauly, D. *et al.*, 1998. *Science*, 279(5352):860-863.

An example: the global fisheries crisis (4)

Challenging 'official discourse' based on wrong statistics through reconstruction of past ecosystem states and catches:

- quantifying huge 'errors' in catch figures
- demarginalising 'small-scale' fisheries and their actors, who produce much more than admitted, if not most
- revealing growing illegal, unreported and unregulated fisheries undermining the future
- concomitant attention to the economic and the (under-researched) social dimensions.

An example: the global fisheries crisis (5)

A recent confrontation of such catch reconstructions with the results of sociological and ethnographic research produced a richer picture for interpreting observed data and looking for alternative courses of action (MARE Conference, June 2013):

Next …

- Sustainability research as more than multi-disciplinary enquiry
- Critically engaged interaction between research and practice
- Public domain knowledge and narratives to create new capacities for consensus and action

Critically engaged interaction between research and practice (1)

There is no shortage of worrying research results about the massive degradation and collapse of marine ecosystems and the fisheries they once supported.

There is growing awareness about that, but despite international conventions, such as on Biological Diversity (CBD), prohibition of trade in endangered species (CITES), the Law of the Sea, efforts towards reform of the Common Fisheries Policy (CFP) in Europe … progress is agonisingly slow

Critically engaged interaction between research and practice (2)

We are not alone to note the long impact times of research results, particularly concerning the environment and nature protection.

Ten years after the first, the European Environment Agency put out the update of its earlier report "Late lessons from early warnings" (2013). In many areas it often takes decades or longer, before action is taken.

Food and health attract more attention.

Critically engaged interaction between research and practice (3)

We understand that
(a) we fail to grasp the advanced state of degradation, it's too complex
(b) in the richer countries, purchasing power "makes the water flow uphill", buffering many from the immediate effects of nature consumption, at least for food availability.
(c) we have forgotten past states
(d) urbanisation and fast pace of life create a disconnect from nature and from ourselves
(e) research results coached in specialist language remain elusive for the many.

Critically engaged interaction between research and practice (4)

We underestimate the time it takes to contextualise specialist knowledge.

Contextualisation means grasping the specialist knowledge and subjecting it to scrutiny from different angles and trials. That's more a social than a scientific process.

When citizens, the impact specialists, are associated with research in critically engaged ways, that process is helped. We saw in practice an accelerated uptake and use.

Critically engaged interaction: an example (1)

Using fish rulers as a trigger to create awareness about wide-spread catch of baby fish and juveniles of other species and stimulate action.

* as part of teaching aids in pilot schools in coastal regions of Gambia and Senegal
* as an entry for engaging fish mongers in supporting conservation measures (let the baby fish live, be in business tomorrow!)
* combining policy advice and dialogue with action on the ground.

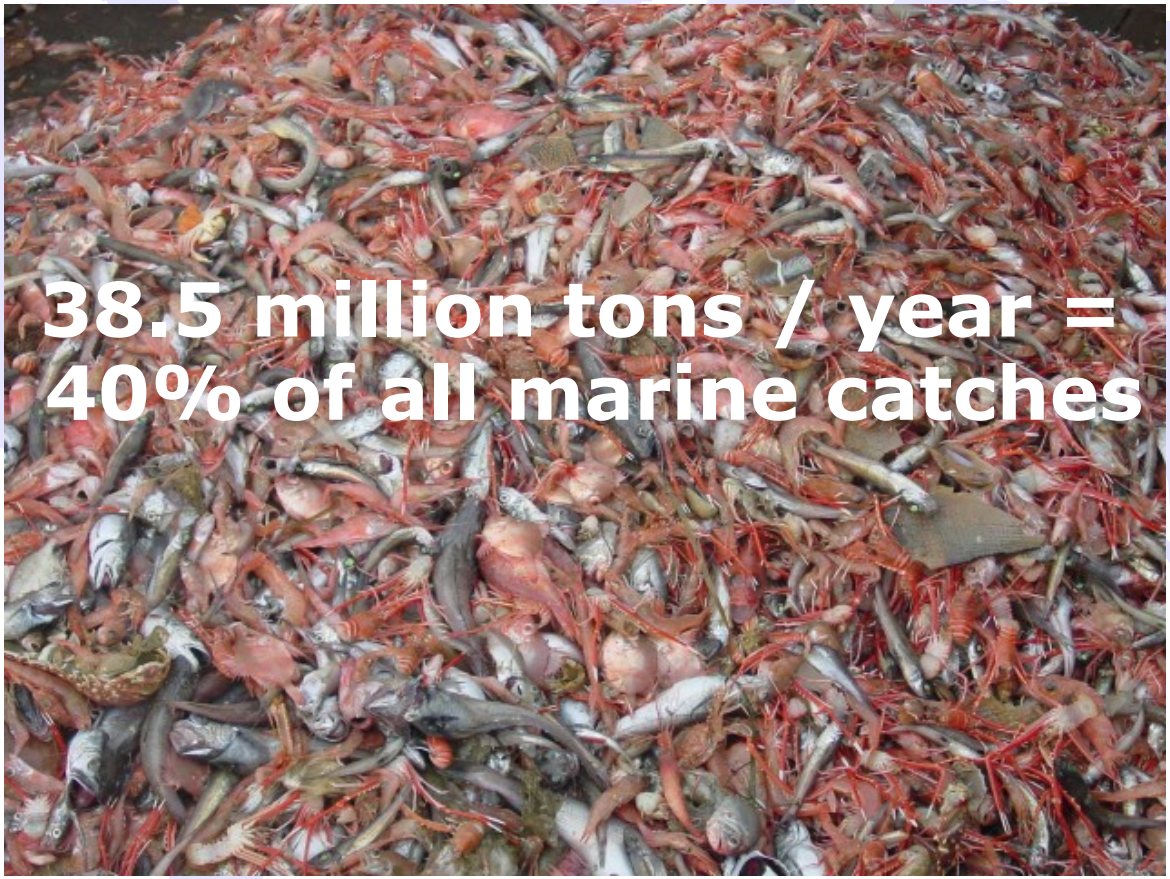
Critically engaged interaction: an example (2)

Fish rulers as teaching aids for more active learning in (almost) real life situations, here a market

Demonstration to the fish mongers is not enough; they suggest government endorsement and dialogue

Critically engaged interaction: an example (3)

The most extreme area of catching and destroying juveniles before they have reproduced is shrimp by-catch [and discards]



DAVIES, R.W.D., *et al*., 2009. Defining and estimating global marine fisheries bycatch. *Marine Policy*, doi:10.1016/j.marpol.2009.01.003

What else?

- Sustainability research as more than multi-disciplinary enquiry
- Critically engaged interaction between research and practice
- Public domain knowledge and narratives to create new capacities for consensus and action

Public domain knowledge and narratives (1)

We have unprecedented access to many fields of scientific enquiry. In the aquatic realm, FishBase (www.fishbase.org) provides biological information about now 32,700 species of fish, which serves between 0.5 and 1 million users/month.

SeaLifeBase is working on the replication of this successful model for all organisms in the oceans (www.sealifebase.org)

Wikipedia is increasing efforts to beef up formerly weak coverage of science.

Public domain knowledge and narratives (2)

Www.seaaroundus.org Provides corrected marine catches by country worldwide to counter wrong reporting to FAO.

At current trends in overfishing worldwide, we will not have the fisheries we know today by about 2050. (Worm *et al*. 2006, Science DOI: 10.1126/science.1132294)

Namibia, a country in Southwest Africa (between South Africa and Angola) had an estimated **15 million tons of fish biomass** which could have sustained good catches.

Overfishing led to the collapse of this resource, now Namibia has an estimated **12 million tons of jellyfish** and much less fish (3.8 million tons) to go around. (Lynam *et al*., 2006. Jellyfish overtake fish in a heavily fished ecosystem. *Current Biology*, 16(13):R492-R493).

Public domain knowledge and narratives (3)

53 countries (96% of global fisheries) do not respect the Code of Conduct for Responsible Fisheries adopted in **1995**

Pitcher, T., D. Kalikoski and G. Pramod (eds.), 2006. updated April 2008. Evaluations of compliance with the FAO (UN) Code of Conduct for Responsible Fisheries. UBC, *Fish.Centre Res.Rep*., 14(2):76 p.

Since the collapse of the famous cod fishery in Canada in the early 1990s, general public media started to report more about the crisis in fisheries.

Twenty years on we note progress in public understanding, but still insufficient support for more decisive action and enforcement: IUU fishing is up

Public domain knowledge and narratives (4)

In an even wider arena, we are in ecological overshoot since 20 August 2013, earlier than 2012 and years before: www.footprintnetwork.org

Yet, too few people make the connection between eroding ecosystems on land and in the sea and the growing gulf between rich and poor, not only in so-called 'developing countries', difficulties in health and public health and large-scale food insecurity.

We believe that there is a strong argument in favour of closer collaboration and seeking greater consilience between the natural and social sciences and developing narratives engaging citizens, not only specialists.

Public domain knowledge and narratives (5)

We have made some progress in telling stories based on research results, yet we need a lot of more work, including empirical and experimental work on connecting local experience with global trends.

In this conjunction, work on institutional arrangements that enable people to **act** on the understanding they have achieved seems particularly critical.

We think that new types of blending different disciplinary enquiry (both natural and social sciences) with arts (our emotional selves) and practice offers promising avenues to navigate the complexity, rebuild capacity for consensus and positive change.

What makes good narratives (1)

Give experienced community leaders a voice, putting a human face on the numbers and conceptual knowledge in the sciences;

Connect such local experience to larger trends;

Oppose manipulation, e.g. posturing as 'science' to neutralise people's willingness to act by faking controversy.

What makes good narratives (2)

Reflection of complexity in real life that brings together strands from food, environment, health, social networks and more – weaving together several strands of knowledge;

Stories that are multi-dimensional and show the connectedness of different issues and resisting the temptation of reducing real life to narrow disciplinary specialisation;

In processes to select the most relevant research questions, researchers focused on narrow and precise questions, while policy makers, practitioners and civil society representatives posed broad-based questions.

New deal between science and society for alternative practice – work in progress, not a conclusion

Critical engagement that gives back to people their history to be designers of their futures (and helping to reduce/avoid shifting baseline and getting used to the wrong things)

Critical reflections on alternatives that invite experiment and trial to exercise diversity (needed change in baselines)

Participatory working methods that help empower people.

Whatever makes us pay attention to longer-term and not only to a gain (or loss) right here and now.

For more ...

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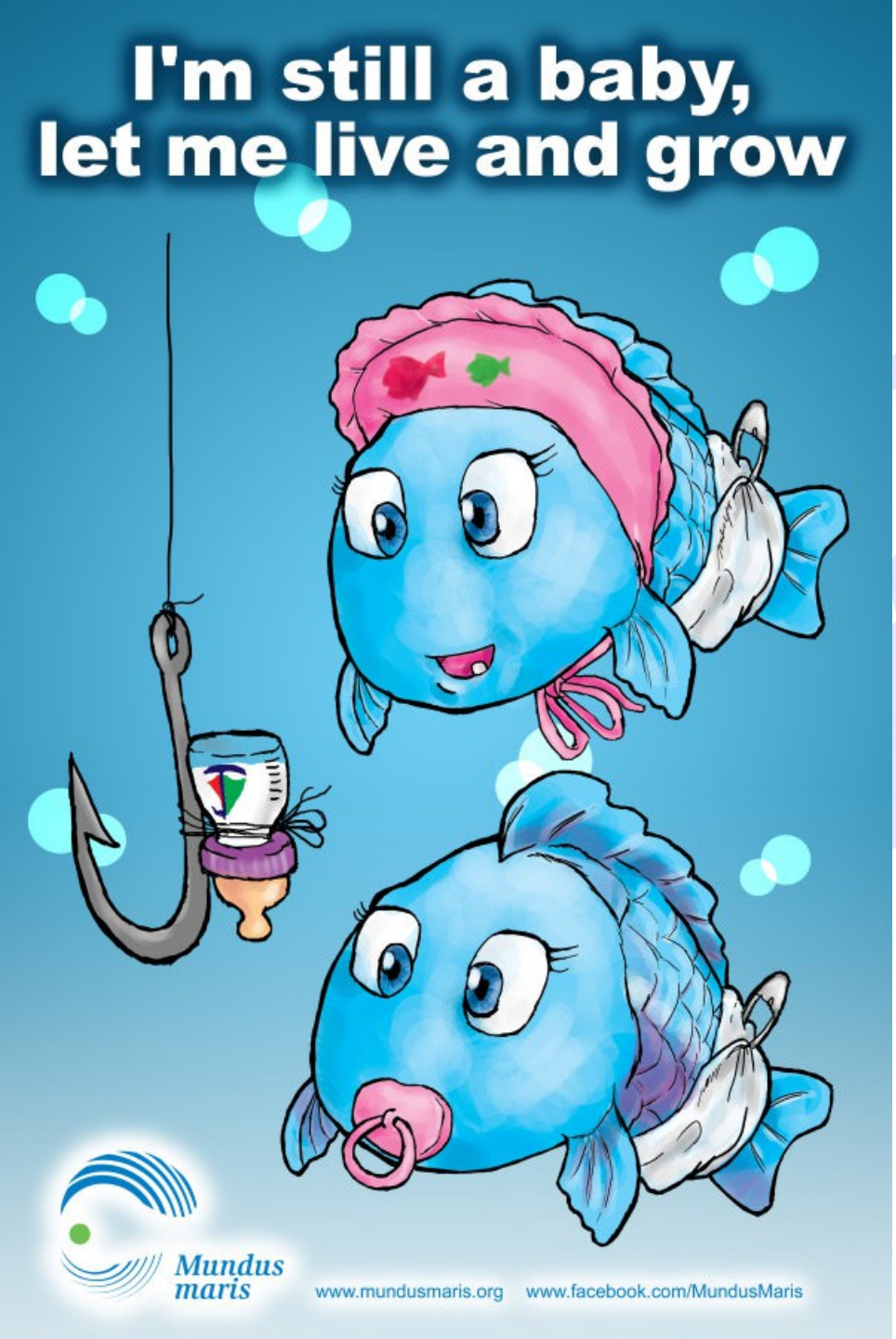
We encourage and welcome cooperation

for the exploration of new avenues of critically engaged sustainability research in combination with experimental work and practice, creating opportunities for young people



Thanks!

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