University of Sao Paulo
School of Advanced Science on Ocean
Interdisciplinary
Research and Governance

Ocean governance: Millennium Ecosystem Assessment the Regular Process, and Sustainable Developmental Goals

Alan Simcock

Aims of this School

The aims of this School are:

- Setting the context: theoretical and historical background
- Sharing the advances in oceans sciences: processes and connections
- Integrating science and public policies

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2. The relationships of science and policy in this development, with special reference to assessments
3. How some current issues in ocean policy and science are related

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Plymouth

The Policy River & its tributaries

Original stream:

Fish and ships

Tributaries:

1. Sharing the ocean
2. Pollution of the ocean
3. Biodiversity
4. Integrating management of human activities
5. Capacity Building
6. Ecosystem services
7. Sustainable Development Goals

Starting Point

Seventy years ago:

Territorial sea and high seas, but President Truman's proclamations had opened questions

Fish had been seen as inexhaustible, but it was clear that this had ceased to be so early in the 20th century

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The ocean was seen as having an open-ended assimilative capacity

The United Nations had just started

First tributary - Sharing the ocean

- First round of UN negotiations on the law of the sea, leading to
- Four Geneva Conventions in 1958
- Dissatisfaction with this outcome
- “Common Heritage of Mankind”
- Third UN Conference on the law of the sea, leading to
- 1982 UN Convention on the Law of the Sea
- Problems over seabed mining and fisheries
- 1995 Implementation Agreements

UNCLOS in force

More nuanced division of the ocean:

- Internal waters and territorial sea
- Exclusive economic zone
- Archipelagic waters
- Extended continental shelf
- High seas
- “The Area” – but only for minerals
- Regional Fisheries Bodies

Gaps and frictions

High seas for the water column and Extended continental shelf jurisdiction and the International Seabed Authority for seabed

Biota that are benthic and sedentary for part of their life and plankton or nekton for the rest

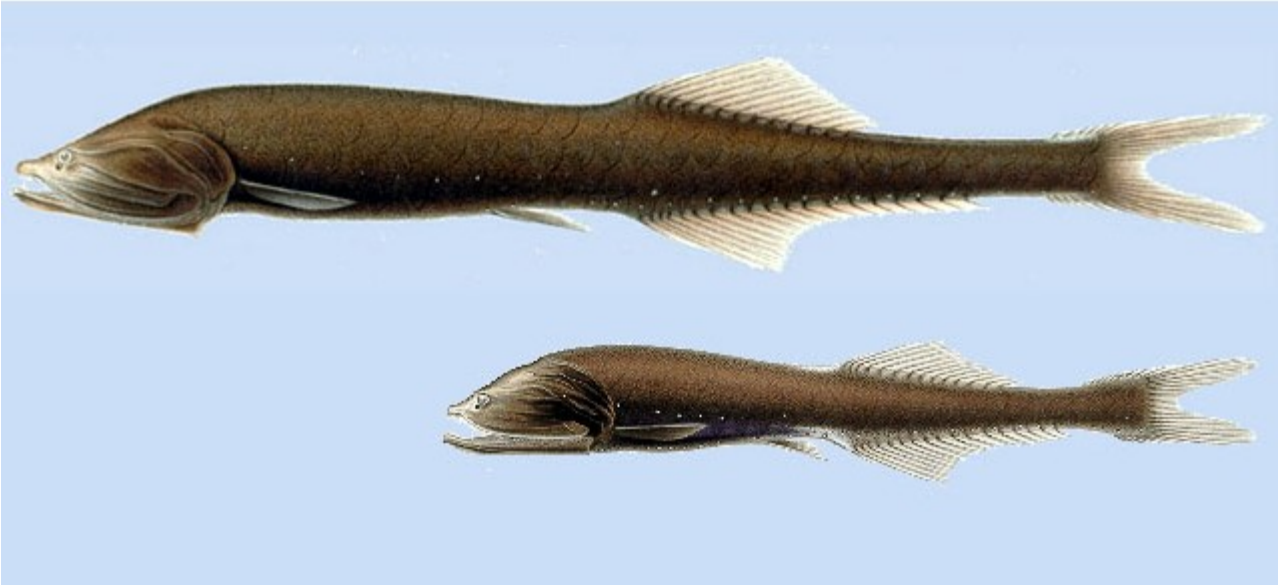
Interaction between fisheries and biodiversity on high seas

Size of Areas Beyond National Jurisdiction (ABNJ)

- 60 % of the surface of the planet
- 90% of the volume occupied by life in all its forms
- Although low density of biota, total mass is large
- For example, bristlefish are the most numerous genus on the planet – estimates put their numbers in the trillions or more
- ABNJs are therefore very significant for biodiversity

Bristlefish (*Cyclothone*)

Cyclothone microdon – length 10 – 15 cm



Ocean linked to atmosphere

- Ocean warming and ocean acidification will have profound and unpredictable effects
- This applies equally to areas beyond national jurisdiction – for example:
  - Distribution of fish stocks and other species is changing
  - Sea-ice habitat is disappearing in polar regions
  - Shellfish will have problems in making their shells in more acid water

Slow processes in deep ocean

- In the deep ocean in areas beyond national jurisdiction, ecological processes are slow

- If they are disrupted by e.g. fishing, mining or climate change:

  - recovery will also be slow

  - resilience will be reduced

BBNJ Future?

Negotiations resume in three weeks' time

Watch this space!

Second tributary - Pollution

In the second half of the 1960s, increasing concern about pollution:

- Rachel Carson's *Silent Spring*
- Increasing control on hazardous waste
- Consequent interest in dumping at sea

Growing carriage of oil by sea and growing concern at beach pollution

Concern about land-based discharges of hazardous and radioactive substances

Two ships, seven + conventions and a conference

The *Torrey Canyon*

120,000 tonnes of oil spilt on the Seven Stones

Results:

1969 Intervention convention

1969 Liability Convention

1971 Compensation Fund Convention

1973/78 MARPOL Convention

1990 Preparedness Convention

The *Stella Maris*

600 tonnes of chlorinated waste nearly dumped in the North Sea

Oslo Convention

London [Dumping] Convention

Paris Convention and other regional conventions

Further development of MARPOL

I. Oil (strengthened in 1992 and 2003)

II. Hazardous & noxious substances in bulk (strengthened 2007). Preparedness and compensation conventions markedly less successful

III. Hazardous packages (in force from 1992)

IV. Sewage (strengthened in 2005 and 2012)

V. Garbage (in force 1988, strengthened 2013)

VI. Air pollution (added 1997, in force 2005, strengthened 2008)

Further shipping pollution issues

- Anti-fouling treatments (2001, in force 2008)
- Wrecks (2007, in force 2015)
- Ballast water (2004, in force 2016)
- Ship-breaking (2009, not yet in force – 70% of world ship-breaking in Bangladesh, India & Pakistan, 22% in China, 3% in Turkey)

Stockholm Convention on the Human Environment

Significant outcomes:

- Setting up UN Environment Programme
- Stockholm Principles: in particular,
  - Duty to prevent marine pollution (7)
  - Transboundary pollution (including pollution of areas beyond national jurisdiction) not acceptable (21)
- Call for what became London Convention
- Regional Seas Programme
- Group of Experts on the Scientific Aspects of Marine Pollution (*now* Protection) - GESAMP

Third tributary - Biodiversity

By 1992, concern about the cumulative impact of human activities was growing strongly

In 1992, the first “Earth Summit” (officially the UN Conference on Environment and Development) in Rio de Janeiro

Among main outputs:

Convention on Biological Diversity (CBD)

Aichi Targets

The main follow-up to CBD are the Aichi Targets.

Those most significant for the marine environment are:

6. By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided,

8. By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

10. By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized

Most are unlikely to be achieved

Fourth tributary: Integration

Regional seas organizations were more and more looking at all the aspects of their areas

GESAMP had recommended comprehensive assessments of the marine environment, covering physical, chemical and biological aspects

A further main product of UNCED was Agenda 21 – the agenda for the 21st century.

Chapter 17 of Agenda 21 led off with a plea for an integrated approach to managing human impacts on the ocean

Promoting integration

- Sectoral approaches are a significant problem – at UN level, the sponsorship of GESAMP is indicative: IMO, FAO, UNESCO-IOC, WMO, IAEA, UNEP, UNIDO, UNDP, ISA. Equally (or more) complex nationally.
- In 1996 and 1998, Brazil and the UK organised two London workshops and science and the oceans
- In the light of those, the 1999 CSD review of progress on the ocean, recommended an informal UN process able to look at any aspect of the ocean
- In 2000, the UN Informal Consultative Process on the Oceans and Law of the Sea (UNICPOLOS) was established. Now into 19th session.

Even more comprehensive

- Several ocean regions saw the need for comprehensive assessments of the state of their regional ocean – eg OSPAR Quality State Reports
- Out of discussions at the Informal Consultative Process came the idea of regular, comprehensive assessments of the state the whole ocean
- The Johannesburg World Summit on Sustainable Development in 2002 recommended “A Regular Process for the Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects”

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Completed 2015

Summary approved by UN General Assembly in December 2015

Printed version published during UN Oceans Conference June 2017

More after coffee break

Fifth tributary: capacity building

- Both Agenda 21 and the Regular Process have emphasised the need for capacity building
- No point in having duties and rights to manage human activities in the ocean if you do not have the capacity to do so
- Consider Kiribati (population 120,000) – more ocean to manage than India
- Growing emphasis on finding ways to help SIDS – or, perhaps better, BOSs
- Other States need it, too!

Sixth tributary: Ecosystem services

- Millennium Ecosystem Assessment
  - Initiative from outside UN system, but quickly adopted by that system
  - Involved UN agencies, CBD, CCD, Ramsar, UNCMS, national governments, civil society representatives and the private sector
  - 1,300 contributors, and thorough review system
  - Published in 2005
- Drew attention to the concept of ecosystem services

Types of ecosystem services

Provisioning	)	(	Security
	)	(	Basic Materials
Regulating	) supporting	(	for Good Life
	)	(	Health
Cultural	)	(	Good Social Relations

Millennium Ecosystem Assessment

- Ecosystems changed more rapidly and extensively than in any comparable period of time in human history, and consequent loss of biodiversity
- These changes have contributed to substantial net gains in human well-being gains have been achieved but at growing degradation costs likely to diminish benefits for future generations
- Ecosystem services could grow significantly worse by 2050
- Major changes in policies, institutions and practices that are needed

Follow-up to MEA

Emergence of the

Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)

Developments: Continental Assessments (Africa, Americas, Asia-Pacific, Europe and Central Asia)

Global Assessment (expected 2019)

IPBES now tends to talk about “Nature’s contributions to people”. Its reports will include possibilities for action

Seventh tributary: SDGs

- Crucial feature – Goals and targets covering **ALL** aspects of the sustainable-development tripod: environment, economics and social asspects
- Wide commitment to achieving them
- Routes to achieving them are uncertain
- For the ocean, the World Ocean Assessments will provide the scientific information, but not proposals for action

Sustainable Development Goal 14

"Conserve and sustainably use the oceans, seas and marine resources for sustainable development"

- All-embracing
- Ocean warming and acidification from climate change will be very relevant
- Each of the ten specific targets needs to be considered separately

SDG Targets 1- 7

Target 1 – Pollution

Target 2 – Management of human activities affecting the ocean

Target 3 – Acidification

Target 4 – Fisheries management

Target 5 – Conservation of specific ocean areas

Target 6 – Fisheries subsidies

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SDG Targets a – c

Target a – Marine science

Target b – Artisanal fisheries

Target c – International law

Links to other SDGs

Delivering SDG 14 will help deliver SDGs 1(No poverty), 2 (Zero hunger), 3 (Health), 6 (Clean water), 7 (Energy), 8 (Work), 10 (Less inequality), 12 (Consumption), 13 (Climate) and 16 Peace & Justice)

Delivering SDGs 5 (Gender), 6 Clean water), 7 Energy), 8 Decent work), 11 (Sustainable cities), 12 (Consumption), 13 (Climate) and 17 (Partnerships) will help deliver SDG 14

Information & Capacity-Building Gaps

Technical Abstract on Agenda 2030

1. ***Pollution*** – inadequate management
2. ***Human activities*** – inadequate knowledge and skills for planning
3. ***Acidification*** – Lack of knowledge and adaptation skills
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6. ***Fisheries subsidies*** – Lack of infrastructure and skills for evaluating fish stocks and economic impact of subsidies
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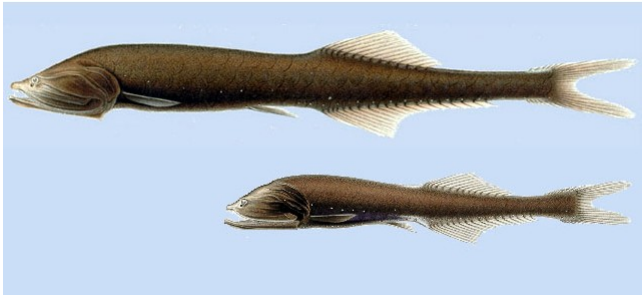

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