

The Ocean's Policy Agenda

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Intent of Talk

- A few major issues in depth
 - Multiple views and difficult choices
 - How did the issue get on the agenda
 - What pathways may be available
- Will not address some high profile issues
 - Cases where policy choices less controversial
 - Progress may be difficult for operational reasons
 - E.g. Plastics in the ocean, waste disposal

Blue Economy

- Key Document:
 - World Bank and United Nations Department of Economic and Social Affairs. 2017. The Potential of the Blue Economy: Increasing Long-term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries. World Bank, Washington
- Major UN Ocean Conference overview
 - Gives key Policy “lighthouse” as SDG 14.7.

SDG Target 14.7

- Target 14.7: By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

Key Pillars (Executive Summary)

[Many uses but “understood here as ...

- “comprising the range of economic sectors and related policies that together determine whether the use of oceanic resources is sustainable.”
- seeks to promote economic growth, social inclusion, and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of the oceans and coastal areas.
- The blue economy has diverse components,... and
- The mix of oceanic activities varies in each country,

Pillars bring along Key Challenges

- P1 - use of oceanic resources is sustainable.
 - understand and better manage the many aspects of oceanic sustainability, [fisheries to ecosystem health to pollution.
 - sustainable management of ocean resources requires collaboration across *nation-states and ...* sectors, and on a scale that has not been previously achieved.
- P2 – growth, inclusion, livelihoods but also protection of the ocean
 - decoupling of socioeconomic development through oceans-related sectors and activities from environmental and ecosystems degradation.

Pillars bring along Key Challenges 2

P3..diverse components

- established traditional ocean industries [fisheries, tourism, and maritime transport,
- also new and emerging activities, {offshore renewable energy, aquaculture, seabed extractive activities, and marine biotechnology
- Several key services provided are not monetized

P4 – Mix varies by country but in each case

- provide social and economic benefits for current and future generations
- restore, protect, and maintain the diversity, productivity, resilience, core functions, and intrinsic value of marine ecosystems
- based on clean technologies, renewable energy, and circular material flows ... reduce waste and promote recycling

To Make it happen

- supported by a trusted and diversified knowledge base,
- complemented with [human] resources that help inspire and support innovation.
- anticipate and incorporate the impacts of climate change (scope AND severity)
- low-carbon and resource-efficient paths to economic growth and development designed to enhance livelihoods for the poor, create employment opportunities, and reduce poverty.
- SIDS and LDCs lack the capacity, skills and financial support to better develop their blue economy.

Short Term Priority Concerns

- overcome current economic trends that are rapidly degrading ocean resources
- Invest in the human capital required to harness the employment and development benefits of investing
- strengthening the concept and overcoming inadequate valuation of marine resources and ecosystem services
- Governance of isolated sectoral management
- Lack of capacity to manage sectors and implement UNCLOS & Conventions fully

Key Terms in transition from SIDS to LIDS

- balance the economic, social, and environmental dimensions
- ocean resources are limited and ocean health is degraded / declining
- Considers economic development and ocean health as compatible
- “formula” of considerations for national plans
- Integration of sectoral planning
- Evidence-based decision-making
- Ecosystem-Based Management
- Integrated sectoral management and spatial planning

National Plans for Blue Economies

- how to balance growth and sustainability to enable optimal use of ocean resources with maximum benefit (or at least minimal harm) to the environment.
- Supported by development of plans and policies, sometimes referred to as blue economy plans, for the maritime zones of each country,
- The vision must further be anchored in the provisions of UNCLOS,
- Include two + of four elements of resource efficiency:
 - reducing food loss and waste along the value chain,
 - energy efficiency (reducing the carbon footprint),
 - decent employment, and
 - innovative financing or technologies.

Sectors addressed individually

- Fish harvesting
- Aquaculture
- Processing and trade in (shell) fish products
- Biotechnology & bioprospecting
- Seabed mining (minerals, aggregates. sand)
- Hydrocarbon and renewable energy
- Shipping and transport
- Port infrastructure and shipbuilding
- Tourism (eco and otherwise)
- Carbon capture and storage
- Waste disposal
- Habitat and species protection

Activities to support sustainability

- Monitoring and surveillance
- Ecosystem Approach to sectoral management
- Integrated approach to cross-sectoral management
- Ecosystem assessments
- Spatial management tools including MPAs
- Habitat management for Carbon capture
- New financial mechanisms

**But is that the only perspective on
Blue Economy / Blue Growth**

**REPORT ON THE BLUE GROWTH
STRATEGY TOWARDS MORE
SUSTAINABLE GROWTH AND
JOBS IN THE BLUE ECONOMY
EU STAFF REPORT 2017**

Current status of the Blue Economy in the EU

- FIVE million jobs generating almost EUR 500 billion a year
- Where s employment centers
 - 2010 – 99% of jobs in living resources, non-living resources, transport, shipbuilding and tourism
 - Growth sectors - blue energy, aquaculture, coastal and maritime tourism, blue biotechnology and sea-bed mining
 - By 2016 150,00 new jobs renewable energy
- By 2030 total global value of 2.6 trillion for ocean Industries
 - Insufficient investment to take maritime innovation to the market remains a problem

EU view of the Environment and Knowledge for Blue Growth

- Environment concerns (CO₂ emissions, resource efficient, footprint) “a significant driving force for innovation”
- “Considerable support from EU research and investment programmes”
- “Blue Growth did not rely on regulation but on enabling market forces, by removing those barriers and market failures that prevent innovation and investment”
- 2014-2016, a total of EUR 800 million for research
 - shifting research from the laboratory to the marketplace

EU Actions so far

- Common Fisheries Policy –
 - “EU fishing fleet ... a loss-making position in 2008 to high profitability todaycorrelated to more sustainable fishing”
- Trans-European Transport Network
 - “‘sustainable mobility’ model is seeking to address ... emissions from the transport sector,”
- Ocean Energy Forum
 - “ private-public process to analyse market failures and design action ... mobilize investment
 - “ Offshore wind is the fastest growing activity in the blue economy.

Blue Energy as an example

- Wind power
 - As of January 2017, 12,631 MW of capacity
 - European Investment Bank has helped finance about two thirds of them
 - coordinated development of offshore grid in North Sea; 10 countries signed on
- Currents / tides / waves
 - Carbon Trust estimated its total value 2050 to be approximately EUR 575 billion & 10% of EU needs
 - 2005 – 2015: EUR 150 million in funding for ocean energy research, development and innovation
 - EUR 142 million more by 2020

Enablers of Blue Growth

- MARINE DATA – open access
 - Copernicus MEMS which provides space data and oceanographic forecasts, (144 M over 7 yr)
 - Data Collection Framework - collection and processing of fisheries and aquaculture data (520)
 - European Marine Observation and Data Network (EMODnet) which assembles, processes and distributes all other marine data and data products (seafloor & water column). (funding in development)

Enablers of Blue Growth (2)

- Marine spatial planning
 - Mandatory at national level but “how” is not legislated.
 - Scaling up to major seas (North, Baltic, Med etc)
- Marine Strategy Framework Directive (2008)
 - Meet standards for “Good Environmental Status”
 - “developing and implementing strategies that protect and preserve the marine environment, prevent it deteriorating or, where practicable, restore marine ecosystems”
 - First six year cycle did not resolve definitions , indicators or thresholds
- Skills development
 - Knowledge & Information Communities)
- Maritime security - Navies & coastguard cooperation

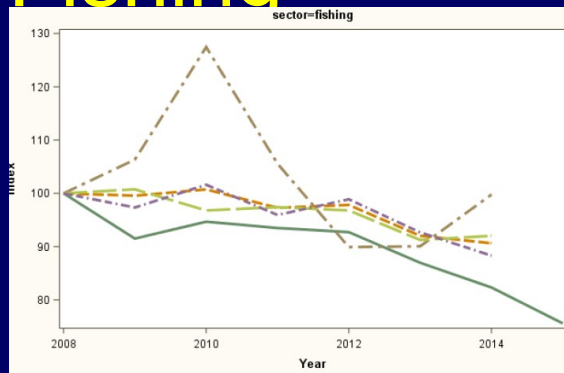
Partnering and Funding from Seas to Global

	2014	2015	2016	2017	TOTAL
Maritime Security/CISE	8,250	3,078	2,190	1,250	14,768
Maritime Spatial Planning	8,230	7,130	7,077	3,500	25,937
Marine Knowledge	5,680	14,270	13,890	11,760	45,600
Ocean Governance	-	0,300	0,250	1,700	2,250
Sea-basin Strategies	0,150	2,496	0,360	1,500	4,506
Skills	0,260	-	3,452	1,500	5,212
Blue economy	1,790	0,640	5,779	10,500	18,709
Communication	1,550	1,186	1,858	2,147	6,741
Environment (MSFD implementation and other environmental topics)	3,260	3,637	4,270	4,270	15,437
Evaluations of the Union's Maritime policy (EMODNet and Atlantic Strategy)	0,150	-	-	0,300	0,450
TOTAL	29,320	32,737	39,126	38,427	139,610

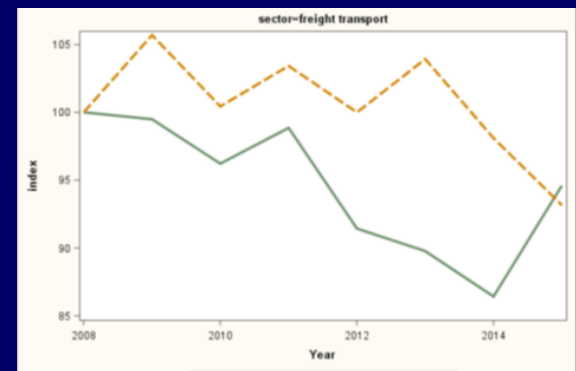
European Maritime Policy - 2014-2020 (EMFF 68014-68152) + MFF 2021-2027

Meanwhile – what is happening to employment (Chapter 5)

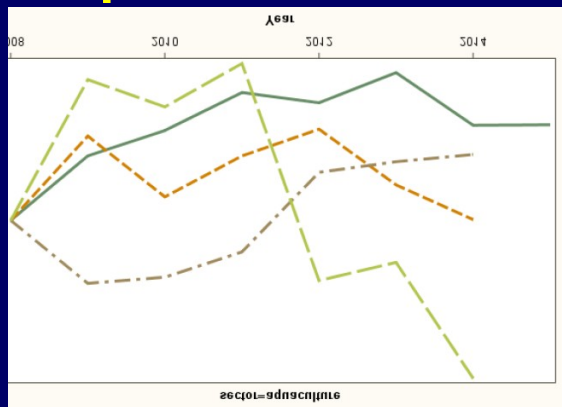
- Fishing



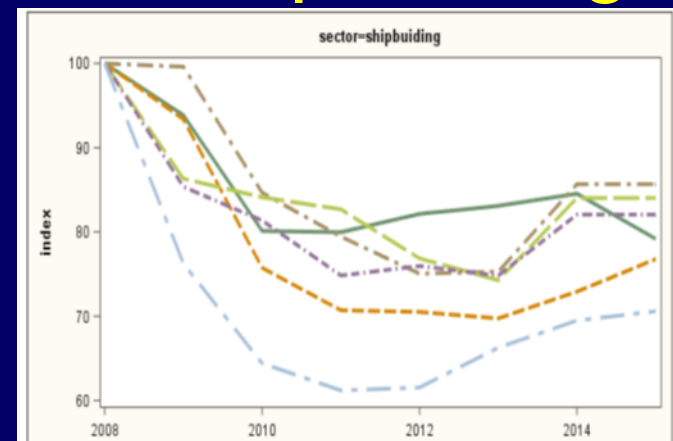
- Shipping (trade)



- Aquaculture



- Shipbuilding



So – Blue Economy

Most to Least developed States have it has very high priority

- What is it?
- What will make it happen?
- How large will the benefits be?
- What will be their nature?
- Where will they occur?
- How will they be distributed?

Biodiversity Beyond National Jurisdiction

Another issue on the global ocean agenda for more than 10 years

BBNJ – what is the core issue

- UNCLOS is the “constitution of the ocean” with many important provisions
 - Established marine jurisdiction out to 200 nm for the water column
 - Differentiated water column from seabed (“the Area”)
 - Entrenched practices like “rights of innocent passage”
 - Empowered sectoral management through Intergovernmental Organizations

UNCLOS considered incomplete

Some shortcomings addressed by two Implementing Agreements

- Seabed Mining Agreement (1994 / 1996)
 - Cost sharing, decision-making, interim institutions
- Fish Stocks Agreement (1995 / 2001)
 - Highly migratory and straggling stocks
 - Greater empowerment of RFBs,
 - Greater duties to cooperate
 - Greater compatibility and coherence of measures
 - Special circumstances and needs of developing States

Some areas still were considered open – Esp BIODIVERSITY CONSERVATION

Scores of summaries of problems – basically

- No clarity on whether or not MGR are “freedom of the seas” or “common heritage of humankind”
- No mechanism to distribute benefits from MGR
- lack of criteria for establishing area-based measures and setting goals for conservation and sustainable use
- No explicit legal basis and mechanism that described *how* to actually establish ABCMs
- Measures adopted by IGOs are enforceable only relative to Parties to the Agreement
- No mechanism to ensure coherence of measures across sectoral organizations

No shortage of measures that can – or MUST be used -UNCLOS

- Preamble
 - “Conscious that the problems of ocean space are closely interrelated and need to be considered as a whole,”
 - “the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment,
- Overarching goals for the ocean’s resources and environment

Part II Article 61 – Coastal States and fish stocks

2. ..., taking into account the best scientific evidence available to it, shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation. As appropriate, [States and IGOS] shall cooperate to this end.

3. Such measures shall also be designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors, including the economic needs of coastal fishing communities and the special requirements of developing States.

4 take into consideration the effects on species associated with or dependent upon harvested species

Part III High seas

Fish stocks and general biodiversity

- Carry over provisions from Article 64 – stocks that overlap EEZ and High seas

Article 87.1.e) freedom of fishing, subject to the conditions laid down in section 2;

Article 117: All States have the duty to take, or to cooperate with other States in taking, such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas.

Article 118 and 119 – repeat requirements from EEZ

In UNGA Resolutions

- 55/8 – Bans High Seas drift net fishing
- From 2004 Annual Sustainable Fisheries resolutions
 - Initially mostly bycatches and IUU fishing
 - 2005 60/31 58. ... as a matter of priority, to strengthen and modernize their mandates to include an ecosystem approach to fisheries management and biodiversity considerations, ,,, to ensure that they effectively contribute to long-term conservation and management of marine living resources
 - 61/105 (and 64/72) -whether individual bottom fishing activities would have significant adverse impacts on vulnerable marine ecosystems' (VMEs) ... and if so prevent or fishing cannot proceed

In FAO Guidance Documents on Fisheries (from Friedman et al 2018)

Instruments

Code of Conduct for Responsible Fisheries 1995

Technical Guidelines for Responsible Fisheries “
Precautionary Approach to Fishery Management”

Guidelines: Integrated management of ... and fisheries 1998

Indicators for Sustainable Development of ... Fisheries 1999

IPOAs - Sharks, turtles, seabirds, IUU fishing 1999

Ecosystem Approach to Fisheries EAF 2002

Guidelines ... Ecolabelling of Fish and Fishery Products 2005

Guidelines ... Deep-sea Fisheries in the High Seas 2008

Guidelines on Bycatch Management and Reduction of Discards 12

Guidelines on Marine Protected Areas and Fisheries 2012

Strategy for Fisheries, Aquaculture and Climate Change 2013

Nevertheless a strong push to negotiating a third Implementing Agreement for BBNJ

- 2004 when the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction
- Series of nine meetings in two phases to “exchange of views on the scope, parameters and feasibility of an international instrument under the Convention prepare for the decision on the development of an international instrument under the Convention”
- Outcome (2015) “decide to establish a preparatory committee,to make substantive recommendations to the General Assembly on the elements of a draft text of an international legally binding instrument”

Two Preparatory Committees 2016, 2017 to agree on the charge

- The Instrument must address “The Package”
 - Access to and benefit sharing from commercial uses of marine genetic resources (MGRs)
 - mechanisms for implementing area based management tools (ABMTs), including marine protected areas (MPAs); and
 - environmental impacts assessments (EIAs) [what about them isn't really clear)
- The charge to negotiate clearly stresses the new instrument should not ‘**undermine existing legal instruments and frameworks and relevant global, regional and sectoral bodies**’”

Why is it going to be hard

Ridgeway – Chapter 10 in Garcia, Rice & Charles

- Governance institutions work to resolve conflicting interests in the use or preservation of environmental resources, inter alia
 - excluding ‘unauthorized’ resource users;
 - affirming entitlements to resources;
 - sharing benefits and costs;
 - monitoring and enforcement;
 - resolving use-conflicts; and modifying governance
- role and distribution of power in resolving these conflicts introduces notions of distributive and procedural justice into environmental decision-making

Why sectoral IGOs can gain the necessary coherence without a new body - legitimacy

- Actors have clear roles and known rationales
- Parameters and modalities of IGOs are established
- Affiliations of advocacy interest groups with IGOs link national voices to international agreements
- Performance standards of IGOs known and ‘tuned’ so evidence-based decisions; reached based on deliberative and mature discourse, with procedural fairness and transparency,
- Respect for sovereignty of States ensured
- Sectors have much progress and want to build on it, not replace it
- So where IGOs see common interests common State Parties drive convergent dialogue and charges to working groups (many examples, e.g. FAO-CITES)

Why a new body is necessary - priority

- New actors want places at the table, when they are not central to sectoral IGOs
- Sum of the scope of the individual IGOs leaves gaps and has large redundancies
- Measures with benefits solely to biodiversity are not part of existing sectoral IGO mandates
- Tools to deliver preferred biodiversity outcomes are not primary tools of IGOs, others have mis-aligned triggers etc
- Compromises among IGOs to increase coherence of outcomes protects core goals of all sectors, so compromises are in margins (often of low biodiversity value)

So what do we expect?

- In what senses is “The Package” really a package of linked items?
- Can the Conservation Biology interests gain enough trust of sectoral IGOs to cooperate and coordinate that a new body is not needed?
- If yet another body with a conservation mandate is considered necessary, should it be an extension of the CBD or a separate body
 - If extension of the CBD, what will it mean to give CBD authority to apply management instruments (MPAs) not just set higher-level policies for national action
 - If not, how will the new body interact with the CBD
 - In either case, what will be its dynamics with sectors?

So far – high level and
conceptual.

How do these dynamics play out
in a real global policy challenge

**FISHERIES, FOOD SECURITY
AND CLIMATE CHANGE**

Climate Change, Fisheries and Food Security

- Many settings with pair-wise discussions of:
 - Climate Change & Global Food Security
 - Climate Change & Conservation of Biodiversity
 - Climate Change & Fisheries
 - Fisheries & Global Food Security
 - Fisheries & Conservation of Biodiversity
- **What are considered *solutions* to problems in one setting are considered *sources of problems* in others**

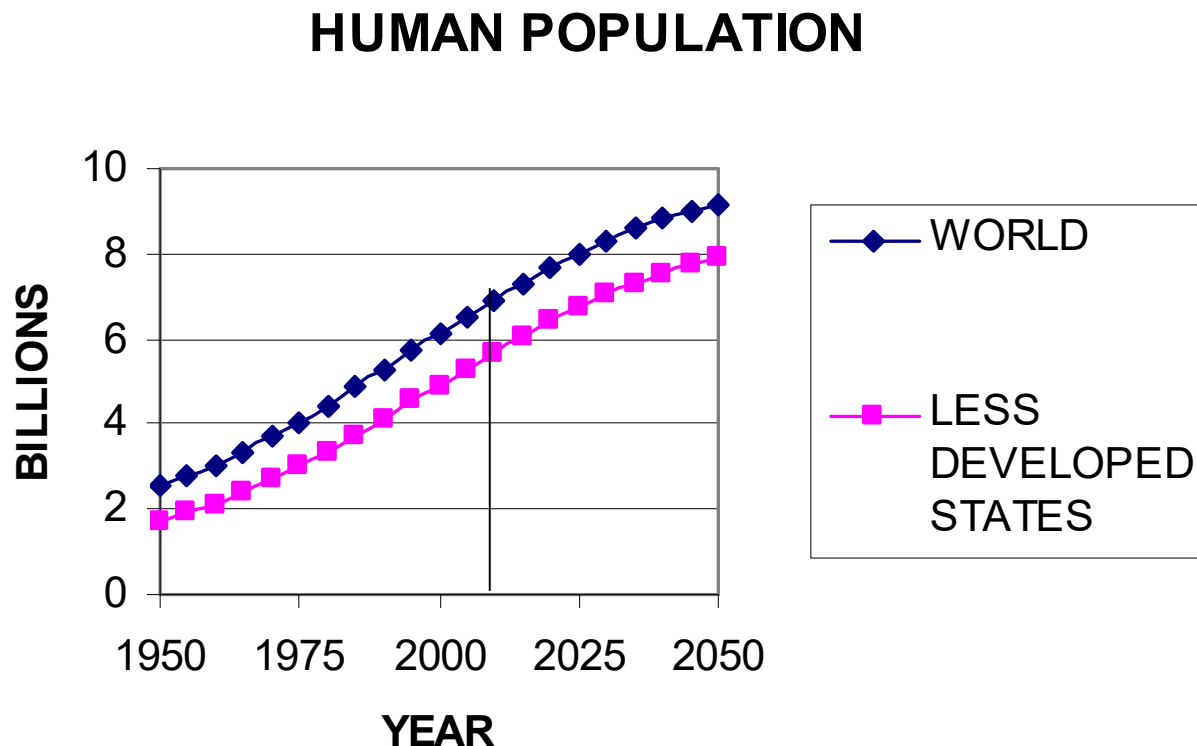
Sources

- Largely based on
 - Rice and Garcia 2010 -scale of challenge
 - Garcia, Rice and Charles 2014- pathways ahead
 - FAO and OECD reports on climate change, food security (2010 and 2011),
 - IPCC AR 5 Report - adaptation AND mitigation.
- APEC Symposium on Climate Change and Food Security Piura, Peru, October 2016
 - [http://apcc21.org/ic/apclist.do?lang=en&bbsId=BBSMSTR_0000000000031;](http://apcc21.org/ic/apclist.do?lang=en&bbsId=BBSMSTR_0000000000031)
- Sources illustrative not definitive,

Scale of Challenge - Expected human population growth

**FROM WHO
HUMAN
POPULATION
PROSPECTS**

**70 % IN
URBAN
AREAS /
MEGA-CITIES**



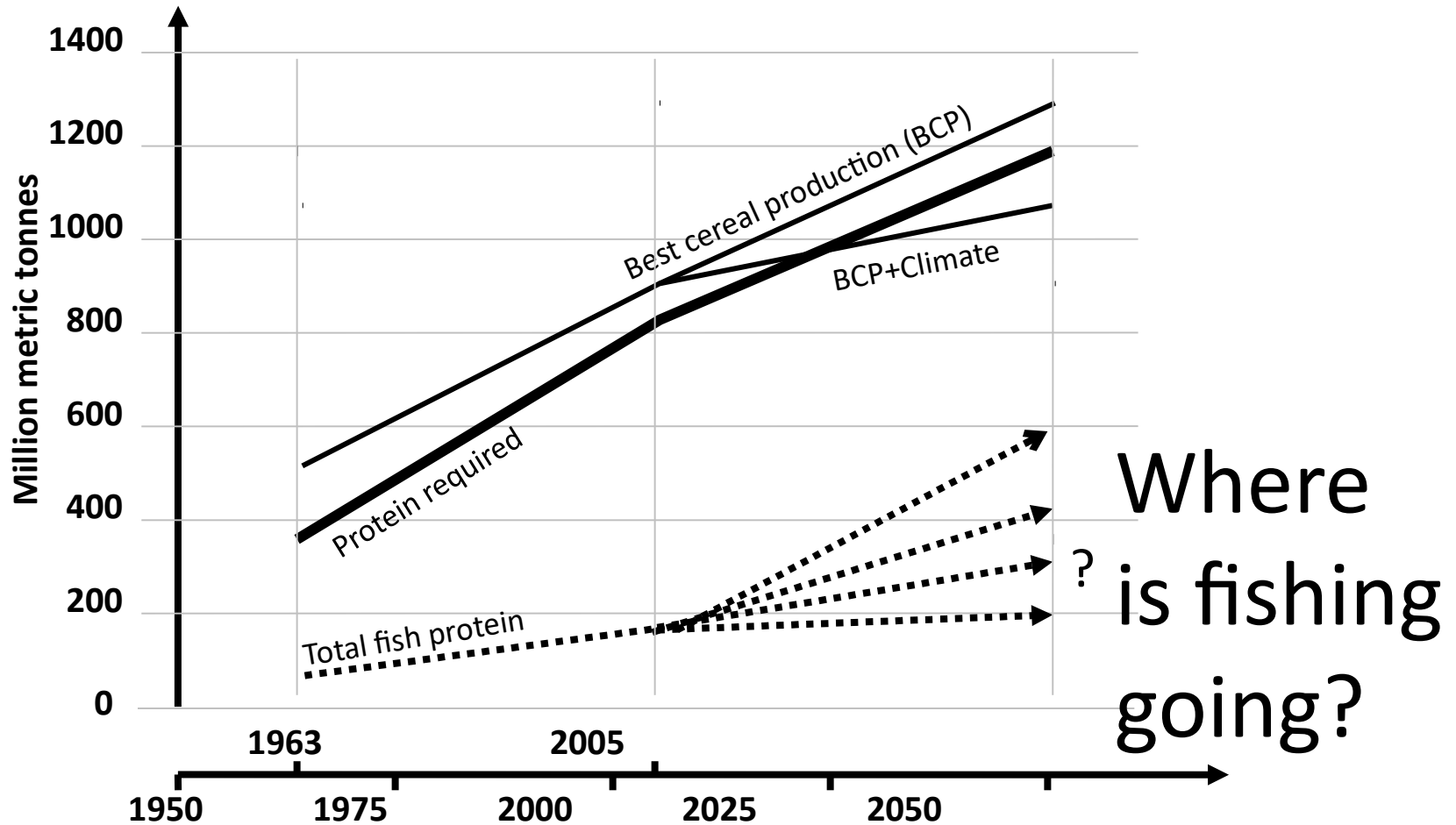
Percent in coastal areas increases from <50 to ~ 70 %

WHAT DOES THIS MEAN FOR FOOD REQUIREMENTS

W.H.O. human nutritional requirements

- Calories needs met largely from grains and vegetables
- PROTEIN from grains, livestock & FISH
 - Fish provides more than 1.5 billion people with at least 20 % of non-grain protein
 - In poorer island and coastal states fish provides 50% or more of the total non-grain protein
 - Also provide essential micro-nutrients & amino acids
- Individual requirements vary with age, gender
 - Assume 60 kg adult (younger = smaller but need more per kg)
- **NEED 3.65×10^8 t OF DIETARY PROTEIN BY 2050 for population increase**

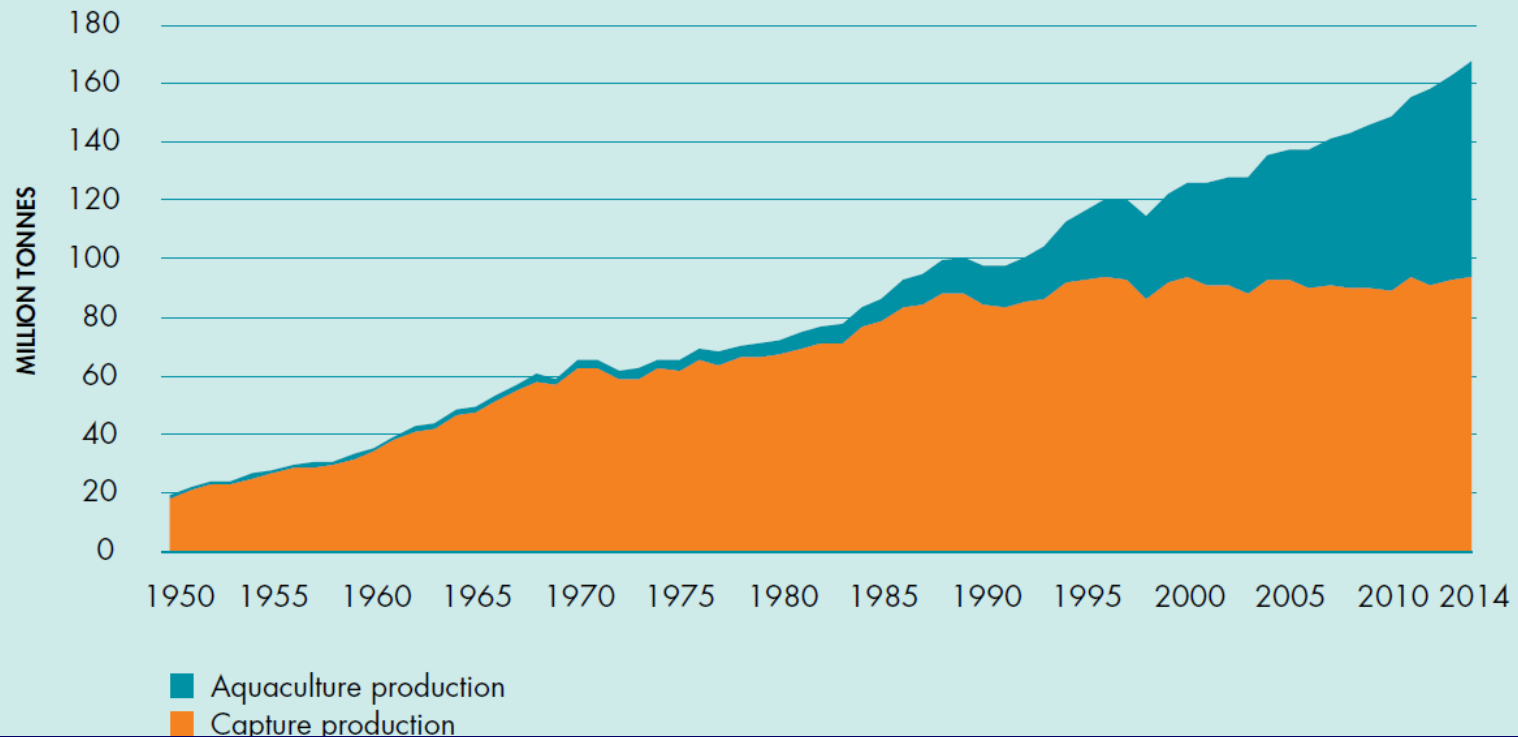
Are FISH the solution? Some think so.



Trends from FAO-SOFIA 2016

FIGURE 1

WORLD CAPTURE FISHERIES AND AQUACULTURE PRODUCTION



How much fish in the future

2016 –

- Capture fisheries stabilized at **85-90 mmt**.
- Aquaculture ~**60-70 mmt** and increasing
- 33 mmt used for oil and animal feed, rest consumed.

• 2050 –

- If fish stays 20% of dietary protein >**70 mmt tonnes**

• **MORE** because

- replace decreasing grain due to climate change
- most of population growth in parts of world where fish is greater % of protein-

Is there scope to increase capture fisheries by 70 mmt?

- SOFIA concluded 100 mmt was unsustainable when reached in 1990s
- 90 mmt could be stable because of sequential over exploitation of stocks globally OR Measures actually limiting catches at levels that are allowing recovery.
- Looked at 300 stocks up to 2015
 - 2/3 of assessed stocks reached record low spawning biomass within last 20 years
 - BUT 3/4 of those stocks now trending upward
 - So 90 mmt may be sustainable boundary

FAO High Level Panel on Sustainability

- Conclusions on Aquaculture

14. ,, the era of severe environmental problems has passed and that aquaculture is on the road of being more environmentally sustainable.

15. As more space is progressively allocated to aquaculture operations ... Conflicts are common when aquaculture is introduced into a region where fishery activities are already established,...

16. As for livestock production, fish diseases ... are a constant threat to production ... The use of antibiotics and chemicals in intensive systems are also sources of concern ..

Most information from large & medium scale operations

What Price to the Environment?

Ecosystem effects of fishing

- Large field with extensive research starting in 1980s and now widely considered.
- Aichi Biodiversity Target 6 sets targets for
 - Bycatches of all species
 - Impacts on seabed & associated biota
 - Special attention to endangered species and vulnerable habitats
 - Impacts on Ecosystem Structure & Function
- **MOST COUNTRIES HAVE LITTLE ABILITY TO REPORT ON PROGRESS**

What Price to the Environment? Ecosystem effects of Aquaculture

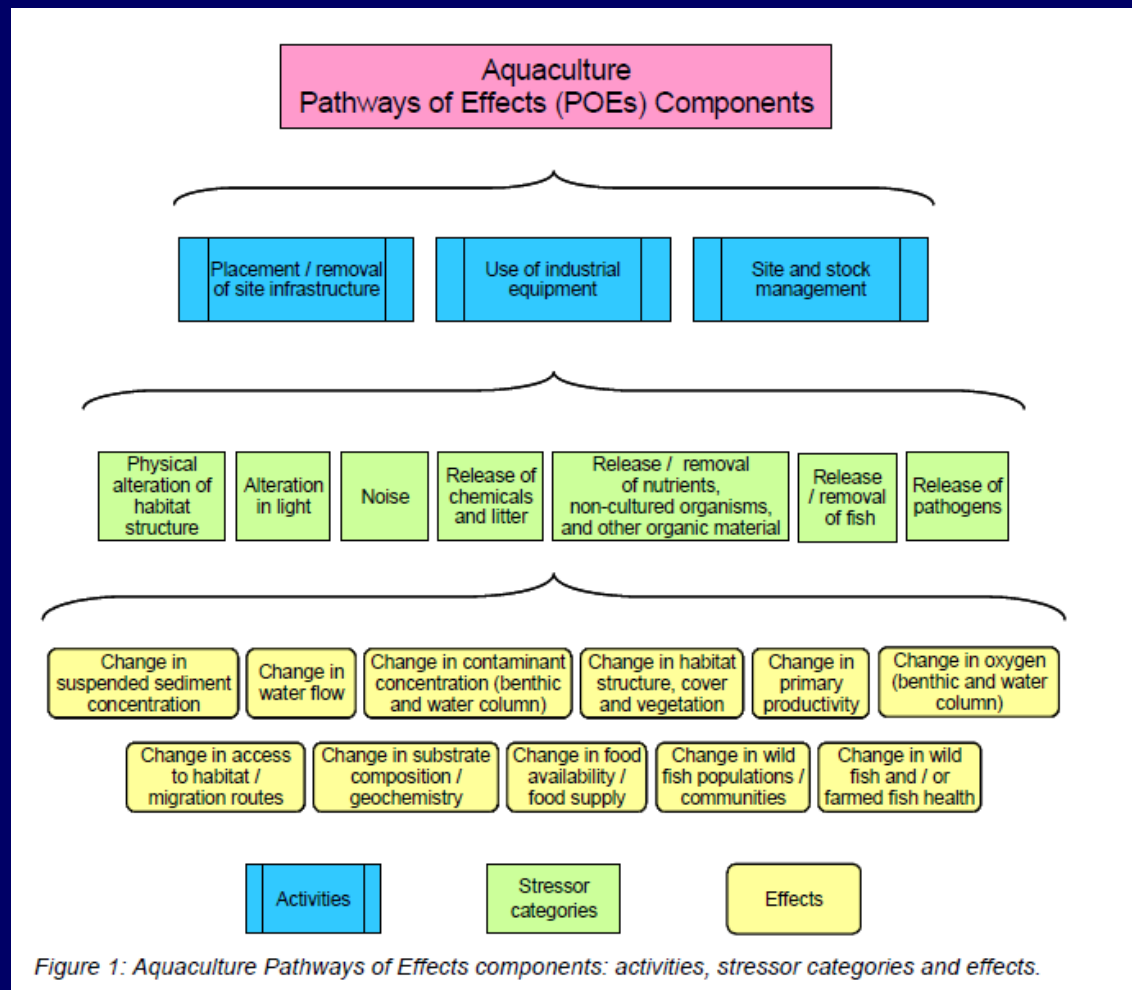


Illustration of types of choices to be made - CONFLICTS

- Activity Food Security Biodiversity

CAPTURE FISHERIES

- Harvest rate Max Sustainable Reduce
- Lower trophic level Fish More Fish Less
- High productivity Areas Fish More Extra Protection

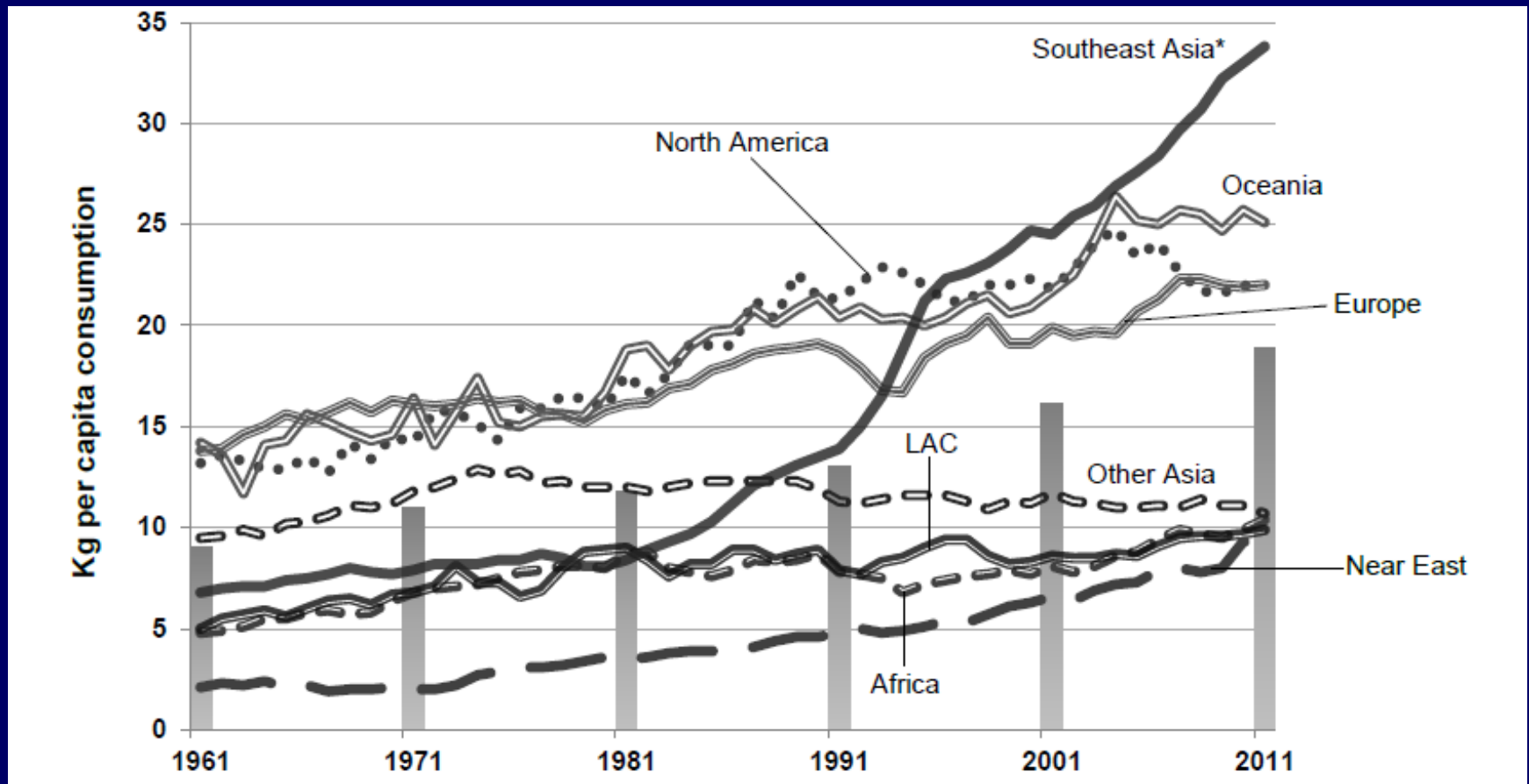
MARICULTURE AND FRESHWATER AQUACULTURE

- Geographic extent Expand Same or reduce
- Areas used Most productive Avoid “hotspots”
- Choice of species Limited and Native species
and strains highly selected natural densities

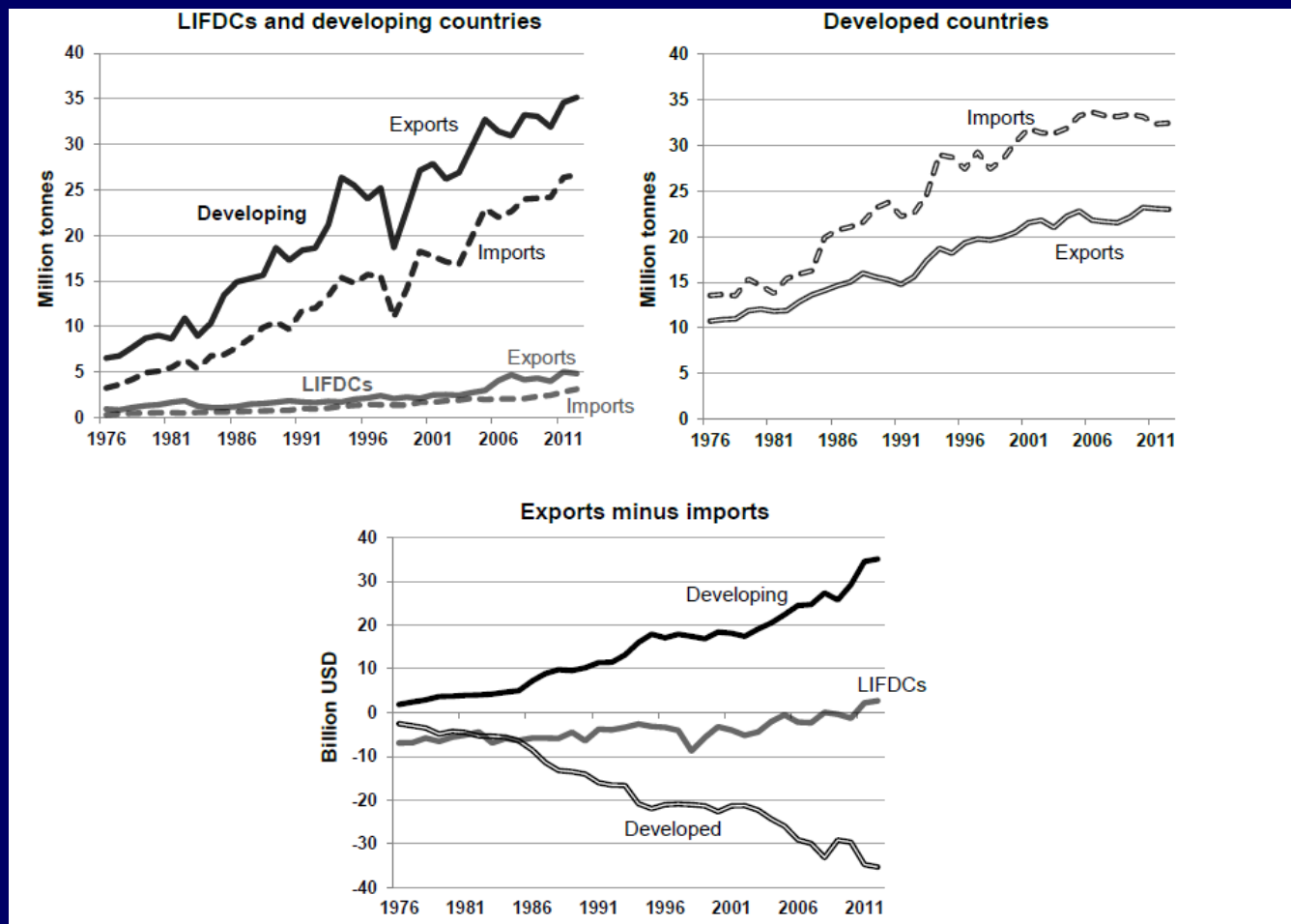
And are fisheries and
aquaculture really focused on
global food security?

Equity of distribution of food and
economic benefits from fishing
and aquaculture

TRADE - The Regional picture on consumption



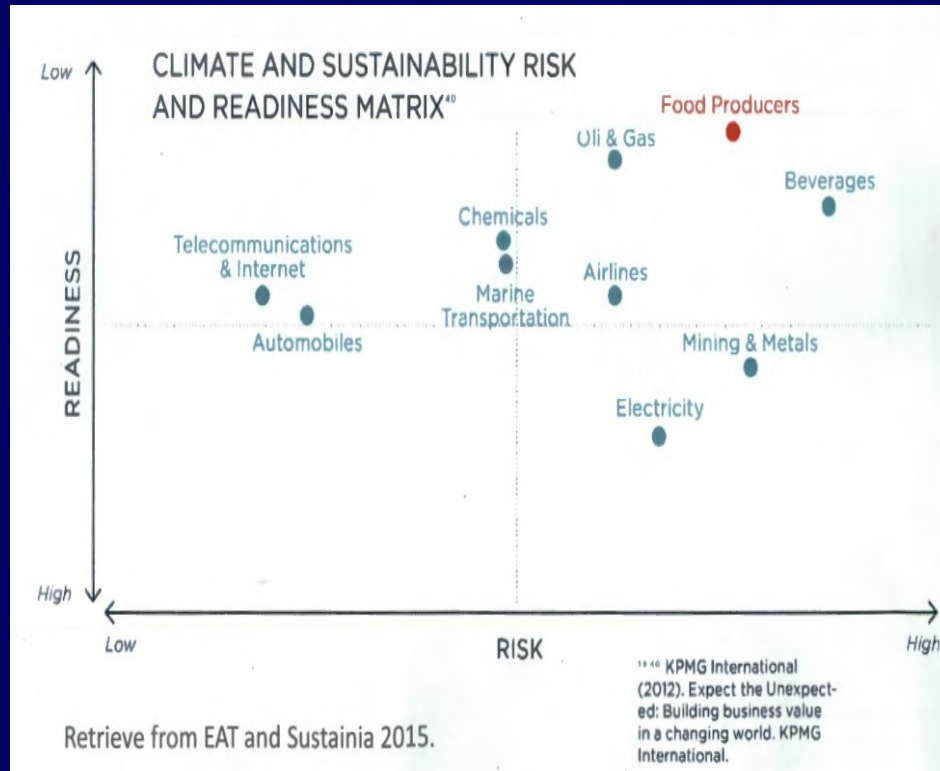
So are the food insecure places fishing for money or food?



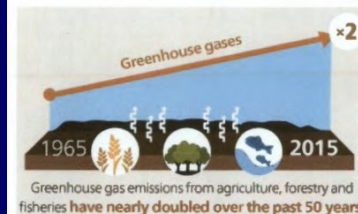
Bring in the Climate Change Dialogue

- **CURRENT global declines in crop production (2005-2015)**
 - Maize -4%, Wheat -5%, per decade (less rainfall & higher temperature);
 - rice ? (data not organized and threat is severe storms so harder to quantify)
- **Forecast 2050 (OECD & FAO 2010)**
 - WHEAT– Irrigation allows stable in NA & Europe - Down 43 to 57% CA & SA; 44 to 97% Africa; 43 to 58% Asia
 - Rice – up to 1/3 of crops lost to severe cyclones

Agriculture isn't ready for climate change, but faces high risks, and is major, growing contributor to GHG emissions



GHG Emissions from Agriculture



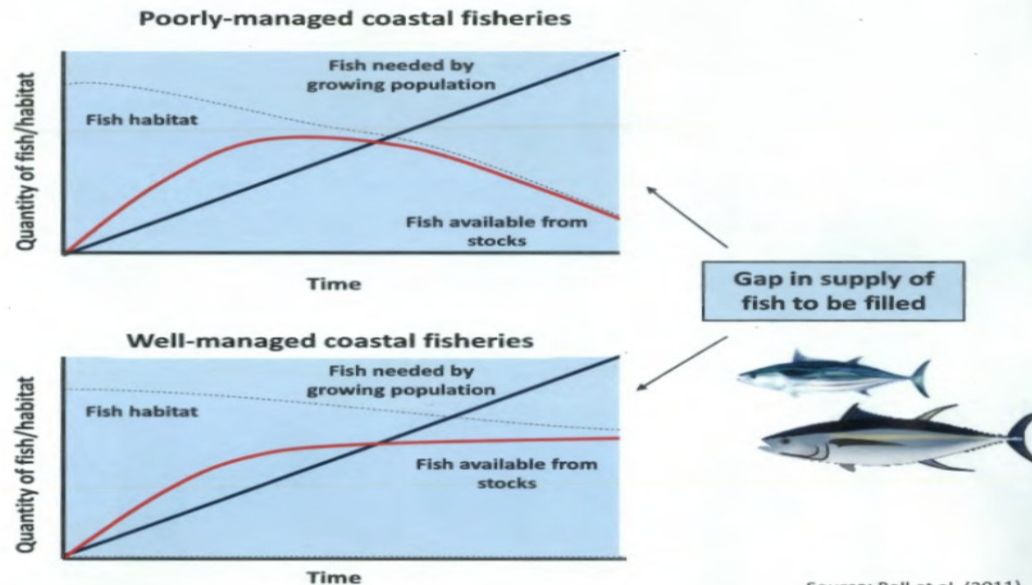
Without greater efforts to reduce them, they could increase an additional 30% by 2050



Implications for Fish Production

- 90-110 MMT realistic to meet needs
 - Will require improved management in poor-management areas

Strategic plans to provide more fish



Implications of other C.C. policies for food security and biodiversity

- Reduce GHG Gas Emissions:
 - Much coastal “alienation” of space for wind farms and tidal/wave energy facilities
 - Demand for Hydropower would take water needed for irrigation (marine renewables?)
- Food Security
 - More coastal alienation for mariculture
 - EXPANDED fisheries – Balanced Harvesting?, more Targeting Lower Tropic Levels?
 - Fewer/smaller no-take MPAS

These types of challenges are met in every ocean policy discussion

- The 2030 Sustainable Development Goals



The Targets for SDG 14

The “Oceans” SDG

14.1 ..., prevent and significantly reduce marine pollution of all kinds,...

14.2 ..., sustainably manage and protect marine and coastal ecosystems ...

14.3 Minimize and address the impacts of ocean acidification, ...

14.4 ... effectively regulate harvesting and...

14.5 ,, conserve at least 10 % of coastal and marine areas,

14.6 ..., prohibit certain forms of fisheries subsidies ...

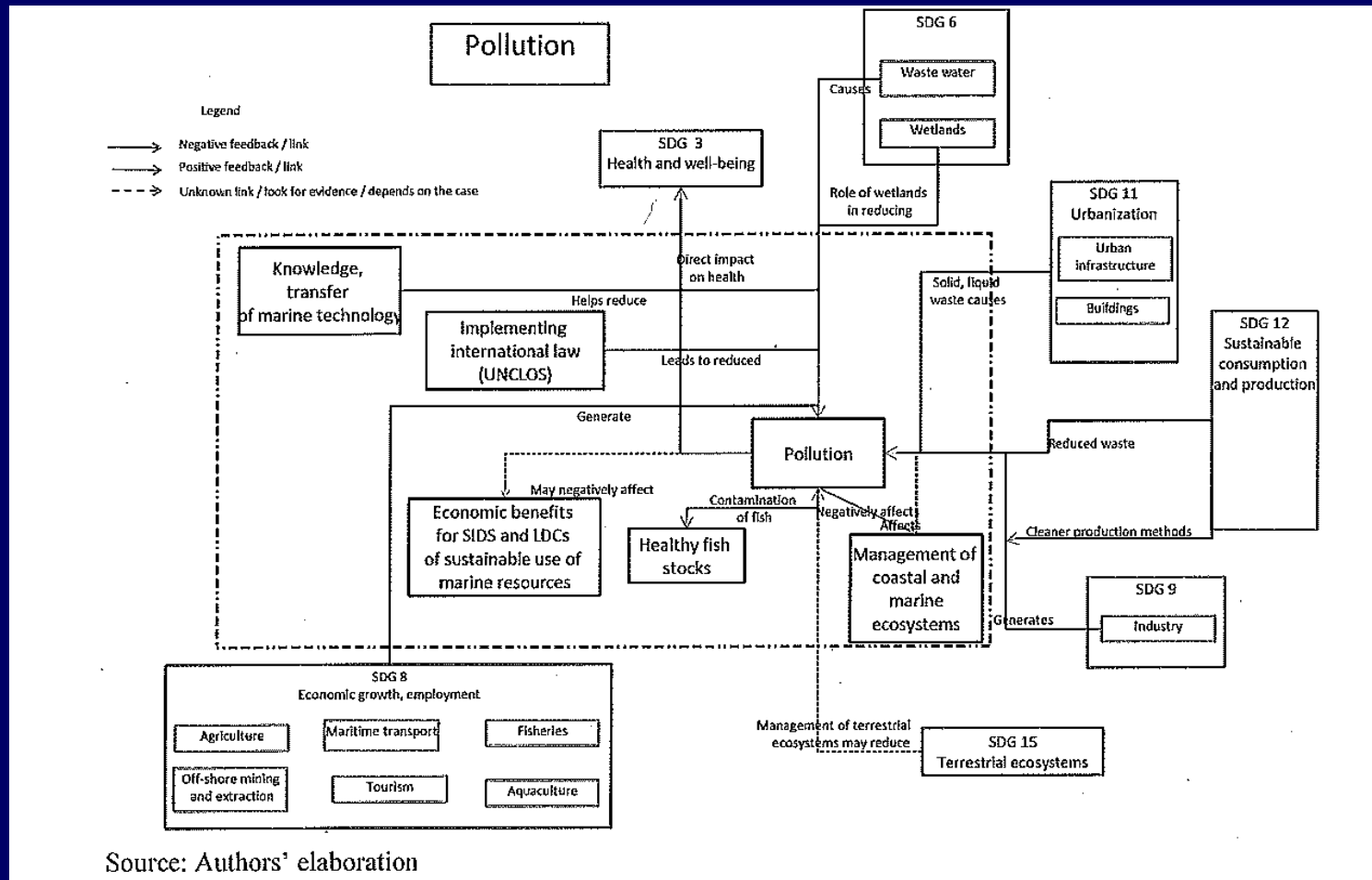
14.7 ..., increase the economic benefits to SIDS & LDCS

Plus increase scientific knowledge, small-scale access and Rule of Law (UNCLOS),

LeBlanc et al. DESA WP 149 2017

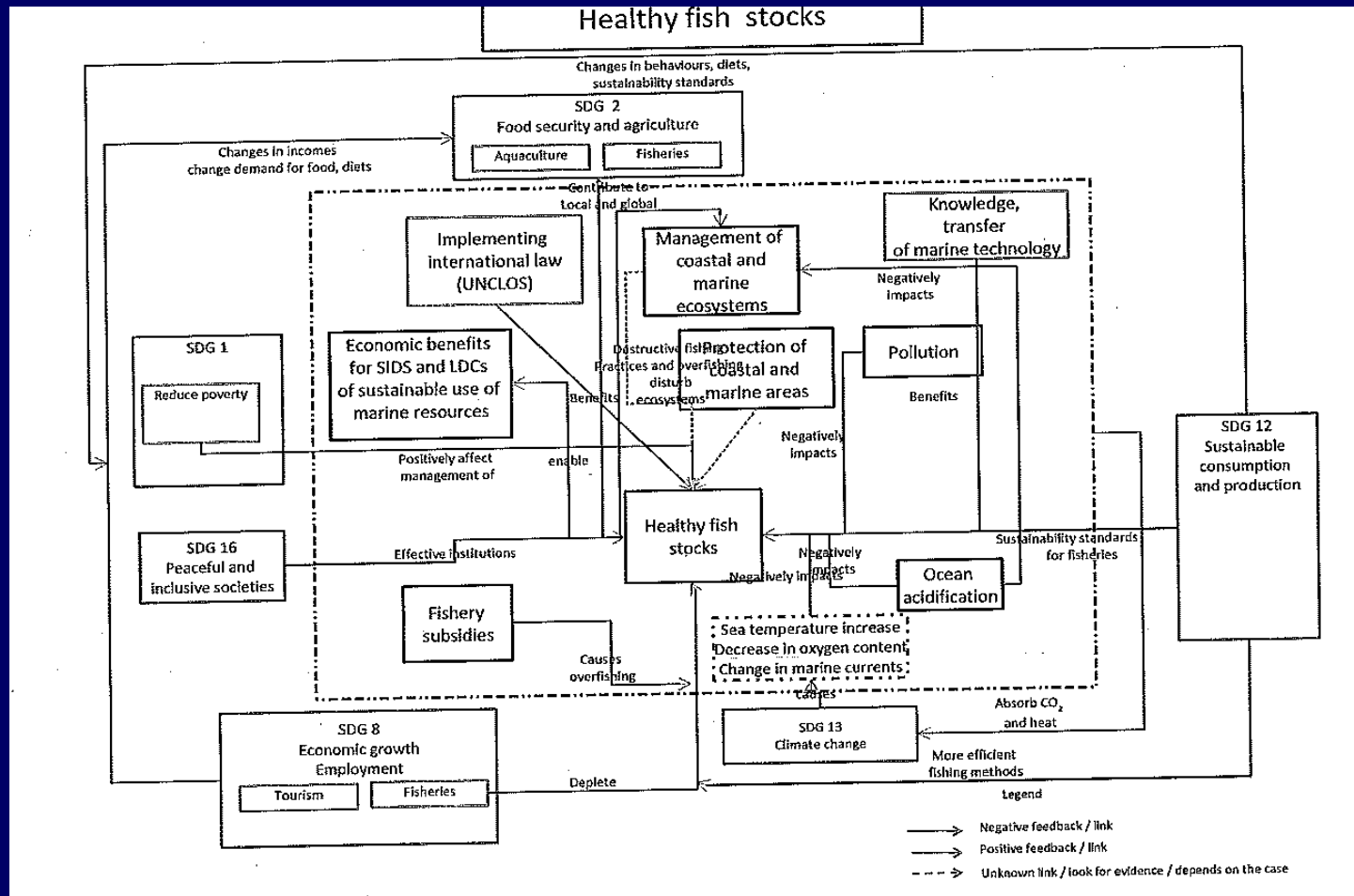
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And each Target linked to many other SDGs – e,g 14.1



14.4 Fish stocks

both from LeBlanc – DESA WP 149 adapted



Overarching thesis:

- For any policies and management measures for food security, conservation of biodiversity, and sustainability of fisheries or any other combinations of goals to succeed,**
- **they all have to be coherent across institutions.**

**TIME TO FACE THE CHALLENGES TO
POLICY COHERENCE ACROSS ISSUES**

Ocean Conference – June 2017

- Great opportunity for dialogue among people from multiple perspectives with a common concern - HEALTHY OCEAN – HEALTHY PEOPLE
- Core messages are about the need for those two goals to be achieved TOGETHER
 - We must increase USE of the ocean to contribute to development
 - We must increase our CARE of the ocean to contribute to its conservation and sustainability

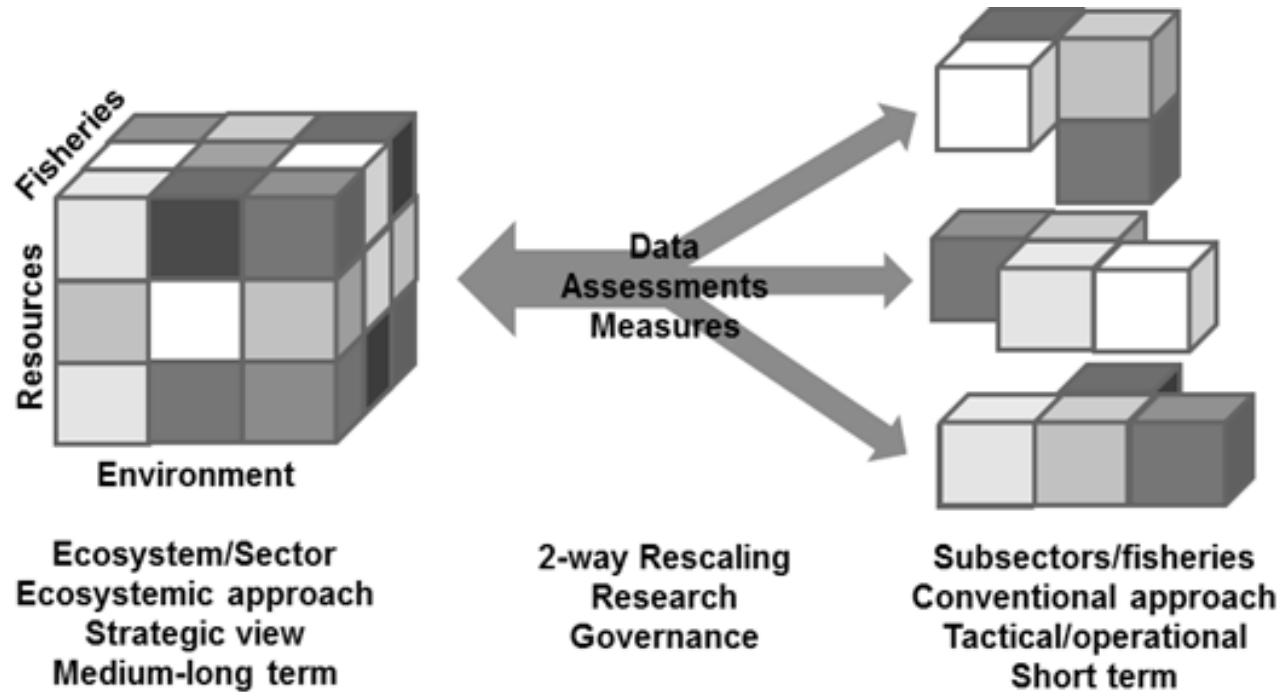
More USE of the Ocean

- Delivery of 17 SDGs, not just SDG 14< Oceans have key roles for :
 - SDG 1 - End Poverty: ~40% of livelihoods learned near the sea
 - SDG 2 – End Hunger: Food security will require 35-50% increase in protein from the sea
 - SDG 7 - Sustainable Energy: IPCC AR 5 WG III lists ocean renewables as least tapped source
 - SDG 8 - Sustainable Growth: other talks
 - Relevant to many others, such as SDG 10 (reduce inequality)

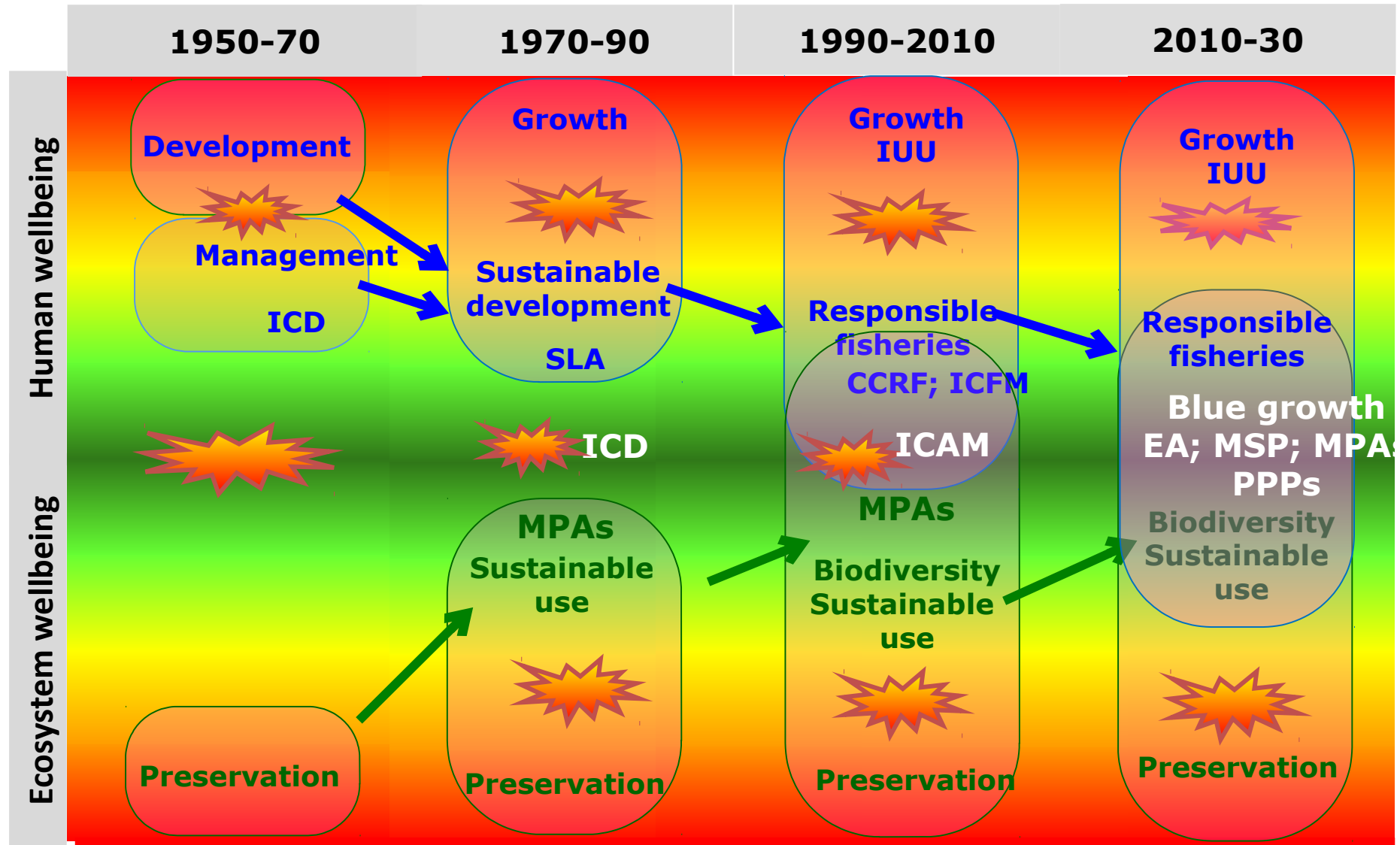
Better PROTECTION of the Ocean

- Goal cannot be just exclude greater areas of the ocean from all uses
- Goal is to use current knowledge in more policy relevant ways to determine:
 - What features make the ocean resilient and most need protection.
 - Precautionary boundaries on perturbations: How much can ocean systems be used without consequences that are serious or irreversible

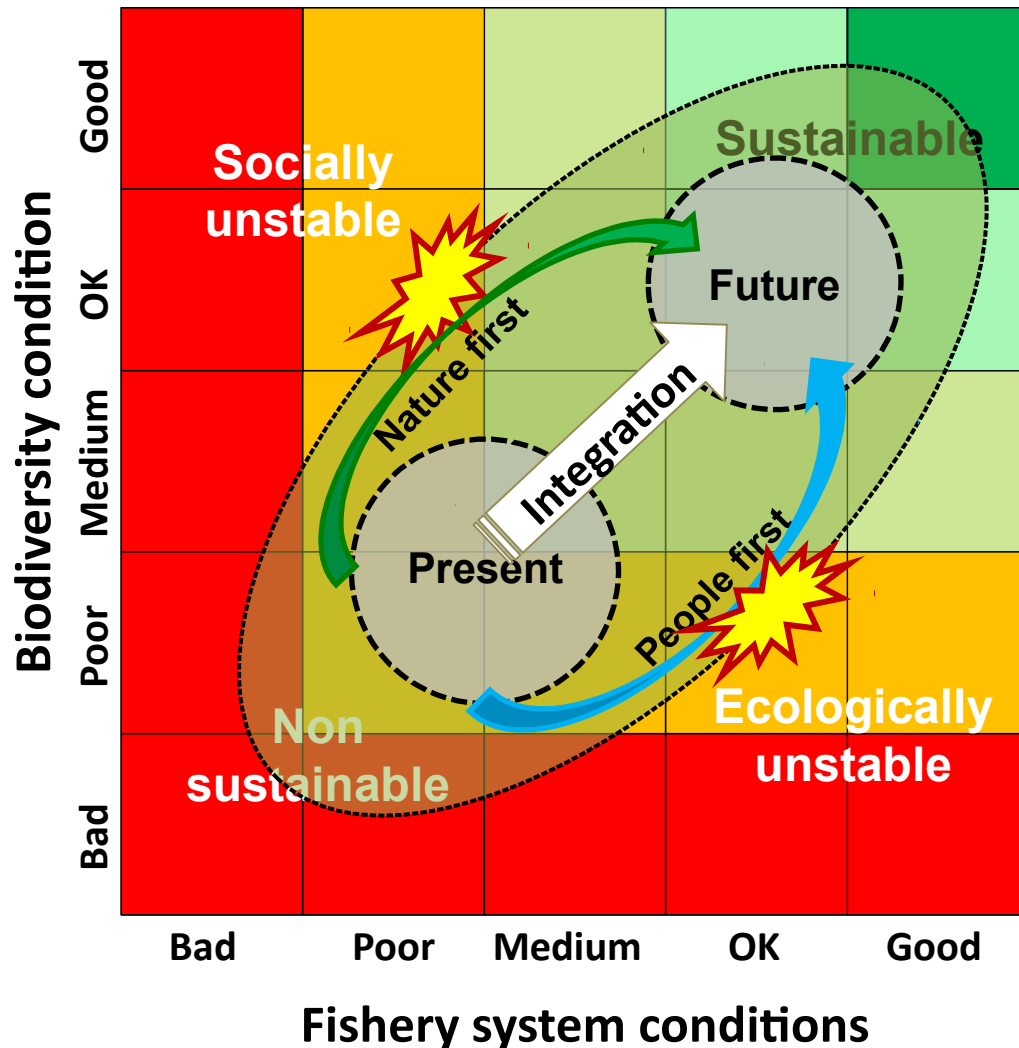
Some success at integrating sectoral governance at local level,



Some actual government institutions actually show convergence



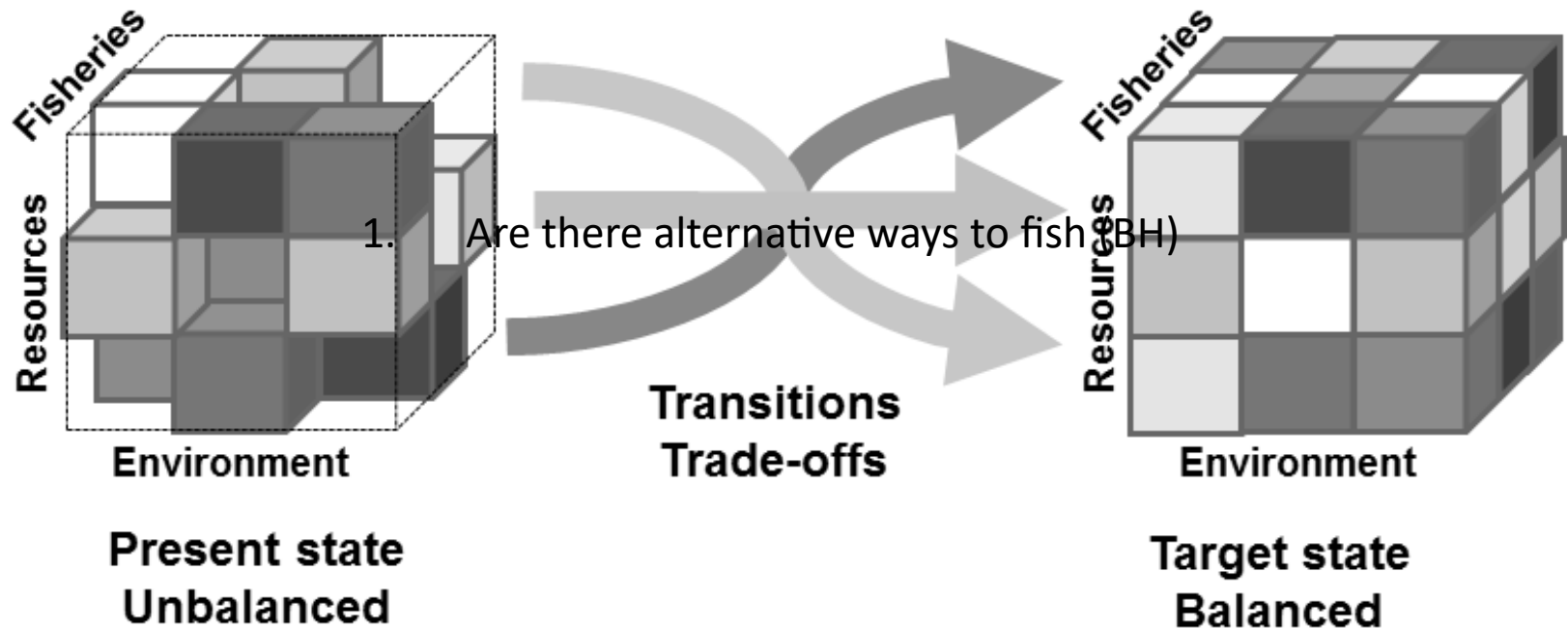
But little Trust among actors, and there are multiple Pathways



Without a better integration of assessment, decision and performance evaluation processes, both streams are likely to fail to achieve their main goals

Redrawn and modified from Garcia (1997) based on Prescott-Allen (1996)

Trade-offs and Pathways can lead to coherence—
but takes patience and creativity
BOTH patience and creativity suffer under
totally top-down policy



Messages

- There are no single “right” society choices
- We are concerned:
 - Science - policy dialogues about climate change and food security and climate change and biodiversity are proceeding in parallel
 - Likely outcomes of dialogues are NOT COHERENT
 - Tension of “Fascist” vs “Socialist” environmentalism

Without a merger of these policy discussions, likely outcome is **failure on both pathways**

OLD problems of fisheries governance – climate change gives new urgency