Fisheries Management and Governance Challenges in a Changing Climate

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Purpose of Paper

- Provide overview of key challenges facing fisheries & aquaculture in world of increasingly warm & acid ocean.
- Context & focus: large-scale capture fisheries; small-scale coastal fisheries & aquaculture; open ocean beyond national jurisdiction & coastal ocean within EEZs.
- Trigger for paper: concern that root causes of decline of commercially important fish stocks lie in failures of coastal state governance.

Defining Fisheries Governance
FAO: http://www.fao.org/fishery/topic/2014/en

- Basic meaning is "…the exercise of economic, political, and administrative authority." Including:
- Conceptual & operational guiding principles & goals.
- Organization & coordination of system.
- Institutional infrastructure (sociopolitical, economic, & legal).
- Decision & action processes (nature & modus operandi).
- Actors & roles.
- Policies, plans & measures produced (Outputs).
- Outcomes (consequences) of decisions & actions.
- All of above critical for allocating power, resources, & benefits & maintaining system capacity to learn & change.

Plan of Paper: Basic Questions

- What are the major failures of fisheries governance and what actions are necessary to correct them?
- What are the causes and consequences of large-scale environmental change occurring in the world ocean? What is new about them and how do they affect governance systems for fisheries management?
- What elements of traditional governance systems for fisheries and aquaculture must be maintained and why? And what new elements must be introduced and why?
- Cont'd.

Basic Questions, cont'd.

- How can we be sure that, having made the recommended changes, governance systems will be able simultaneously to contribute to sustainable & responsible fisheries?
- How can fishery policy making and management be strengthened, keeping in mind the key elements of fisheries governance and the political economy perspective?

Identifying the Major Failures of Fisheries Governance

- 1970-1992: Period of serial depletions of fish stocks, primarily in Northern Hemisphere.
- Growing world population increasing demand for fish and shellfish. Opportunities lead coastal states to subsidize world fleet resulting in substantial overcapitalization. Growth in harvesting capacity substantially in excess of available resource base.
- Declines in rates of increases in total catch documented by FAO in biennial reports on status of world fisheries.
- No notable progress in achieving reductions of fishing capacity, curbing harmful subsidies, & matching fishing capacity with sustainable harvest levels in most coastal states.

Failures cont'd.

- Problem of bycatch: currently amounting to loose estimate of ~23% of world catch. Attempts by countries that represent substantial markets for spp caught in wasteful fashion to control access for such products to protect turtles, shrimp, and other spp. Some success here. But less charismatic spp "…remain a source of unregulated and unreported fishing mortality (FAO. 2008)".
- Problem of Illegal, Unregulated, and Unreported (IUU) fishing, 1990s to present.

Success in Governance combined with Failure in Performance

- Plugging the holes after UNCLOS III 1992-1995: Straddling Stocks; Highly Migratory Stocks, & IUU fishing on the high seas: Combining “hard” (treaty) law with Codes (“soft law” standard setting documents). Going beyond the Law of the Sea Convention re fishing on the high seas.
- UN Fish Stocks Agreement (Treaties re Straddling Stocks & Highly Migratory Stocks.
- FAO Compliance Agreement combined with Code of Conduct for Responsible Fisheries.
- FAO International Plan of Action (IPOA). Implementation advice.

Failures Combined with Success, cont'd.

- Success in law-making re illegal fishing on the high seas. Major advances have done away with status of fishing on high seas as a traditional freedom of the sea.
- All high seas fishing must be regulated by flag state. Ocean so large, enforcement capacity limited. So illegal activities are state failures; either lack of capacity or lack of will.

Major Environmental Threats in World Ocean

- Step-level change in scale of multiple stresses problem = combine high levels of overfishing up to 1990s with massive human development of the coastal zone.
- Land-based pollution of the coastal zone becoming one of the super-drivers of multiple stresses problem on marine ecosystems and providers of ecosystem services.
- Land-based pollution now combining with changing thermal structure of world ocean and increasing acidification.

Policy Implications of Threats

- If no agreement in short term on measures to reduce rate of human emissions of CO_2, ➔ faster and larger magnitudes of change.
- Major implications for marine ecosystems—both bottom up (at levels of primary productivity) and top down (major predators and forage fish.

What Elements of Traditional Governance Systems should be Retained and What New Ones Introduced?

- Managing coastal development and coastal ecosystems are no longer separate activities. They must be merged.
- Adoption of marine spatial planning in which plans for ecosystem-based fisheries management are embedded an obvious alternative approach to pursue.
- Retain place-based fisheries management planning with regional focus.
- Driver of population growth and growth in demand for fish & fish products raising question whether at some point in future, there will be trade-off between increasing aquaculture production vs maintaining or increasing production from capture fisheries.

Changes in Aquaculture

- Aquaculture developing in private sector culture dominated by for-profit incentives. Highly decentralized. Seafood for export trade the dominant objective.
- Where countries not suffering from undernourishment of animal protein intake, effective governance systems developed. Where such suffering a characteristic feature of national situation, weak governance systems developed.
- Institutional design and structure not adequate to jobs to be done.

How Assure that Changes Actually Allow Governance Systems to Contribute to Sustainable & Responsible Fisheries & Aquaculture?

- Sustain resilience of fish populations through emphasis on preserving their age & geographic structure & not only biomass (Brander, 2007).
- Essential tools of fisheries mgmt.(Worm, Hilborn et al. 2009):
- Controlling exploitation rates.
- Closed areas & gear restrictions.
- Controlling total fishing effort.
- Community co-management in developing countries.
- Catch shares & capacity reductions
- Effectiveness varying with characteristics of particular region, ecosystem & governance system, but crucial to realign economic incentives with resource conservation.

Changes Required in Aquaculture

- Draft legislative framework ensuring property rights; be explicit about licensing, monitoring, & control (FAO, 2008; Smith et al. 2010).
- Transparent administration of regulations combined with rapid & equitable processing of licenses.
- Governmental regulations re planning & access; water & waste water, seed, feed, investment, & quarantining brood stock and fish movement for disease control.
- Adequate number of skilled governmental personnel to monitor & enforce legislation & regulations.

Strengthening the Fisheries Policy-making Process (Grafton et al.2007)

- In implementation & monitoring of a changed process of policy-making, develop system of "benchmarking for fisheries governance.
- Essence of benchmarking focuses on accountability, transparency, incentives, risk assessment & management, & adaptability.
- This a ***de minimis*** list of things system must do to keep abreast of dynamic changes in populations & fisheries & to manage uncertainty.

References

- Brander, K. M. (2007), Global fish production and climate change. *PNAS,* Vol. 104, no. 50, pp. 19709-19714.
- FAO Dept. of Fisheries. Fisheries Governance, Rome, n.d. Accessed April 21, 2010.

http://www.fao.org/fishery/topic/2014/en

FAO. Fisheries and Aquaculture Dept. *The State of World Fisheries and Aquaculture, 2008 (FAO SOFIA).* Rome.

Grafton, R. Quentin *et al.* (2007), Benchmarking for fisheries governance. *Marine Policy,* Vol.31(4), (July), pp. 470-479.

- Smith, Martin, D. *et al.* (2010), Sustainability and Global Seafood, *Science,* Vol. 327 (12 February), Washington, D.C., pp. 784-786.
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Worm, Boris *et al.* (2009), Rebuilding Global Fisheries. *Science,* Vol. 325 (31 July), Washington, D.C., pp. 578-585.