An economic perspective on overcapacity in fisheries

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Outline of talk

- Evolution of fishery management and institutions
- Overcapacity as a symptom
- Policies that address causes of overcapacity and overfishing
- Discussion

How did we get here?

- Post WWII: Ship building boom, transfer of technology and ship designs from war efforts, expansion of high seas fishing fleets, relatively "healthy" fish stocks
- 1950s: Fleet expansion continues with signs of overfishing
- 1960s: Few controls on domestic fleets within territorial sea (out to 12 miles), foreign vessels operating outside limits
- 1970s: global marine harvests quadrupled
  - Increasing demand for seafood and greater catches lead to conflicts between domestic and foreign fleets (e.g.,"cod wars" between Iceland and Great Britain)

cont…

- This growth came about largely through chaotic and unplanned increases in fishing capacity rather than careful rational management
- 1970s-80s: Expansion of territorial waters out to 200 miles
  - Coastal nations now control of most of the world's fisheries
    - Converted global commons into a system that effectively gave coastal nations ability to manage fisheries

Impacts of jurisdiction extension

- Shuffling of world production and trade
- Coastal nations took different approaches to manage their fisheries, and the record is mixed
  - Restricting access is a precondition for rationalizing management
    - Many countries simply replaced foreign with domestic capacity, often accomplished with vessel construction subsidies and loans
    - Result was continued growth in harvesting power and large-scale handling and processing

Mixed record (cont.)

- Not all fish stocks were “privatized”, fish don’t always stay within political boundaries
- Many less-developed countries did not have the resources for managing, monitoring, and enforcement
  - In some places, foreign fleets were allowed to come in and “mine” local fishing grounds

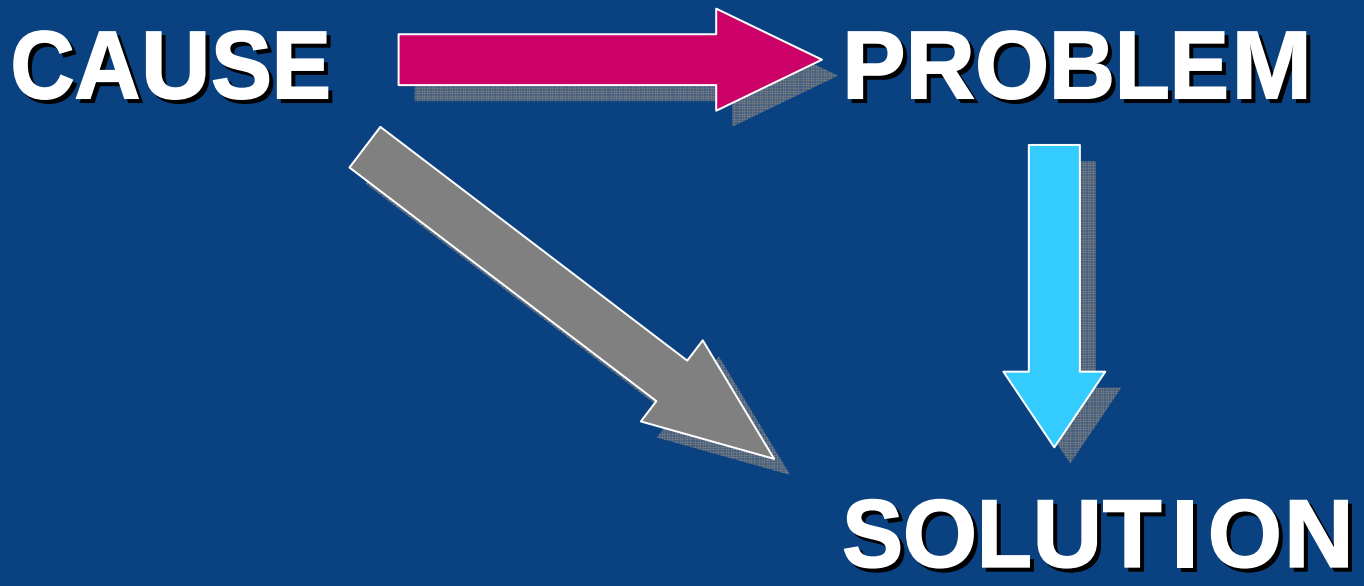
Legacy of the extension

- On the biological side, it depends on who you ask
  - “glass half full”: ~2/3 fully or under exploited
  - “glass half empty”: ~2/3 fully or over exploited
- On the economic side, even the most charitable opinions conclude that most of the world’s fisheries are providing little or no economic return

The world's fisheries profit/loss statement

- Revenues $100B
- Costs $132B
  - Maintenance $43B
  - Insurance $10B
  - Fuel $20B
  - Supplies $26B
  - Labor $33B
  - Net Loss$ -32B
- This is worse than it looks as there is no contribution to wealth

What is the popular characterization of the fisheries policy problem?



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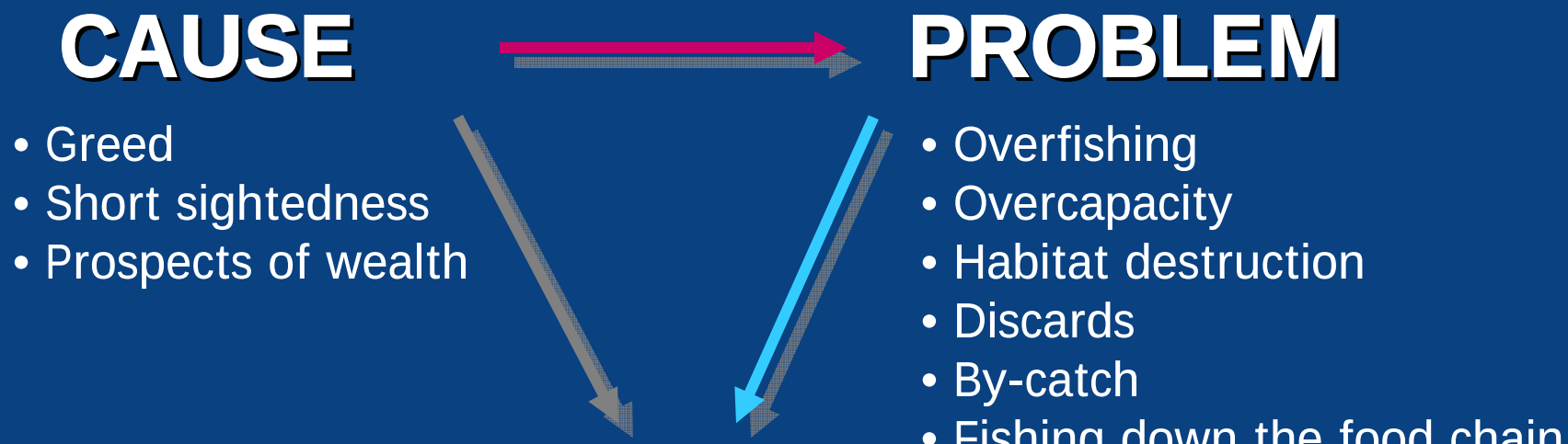
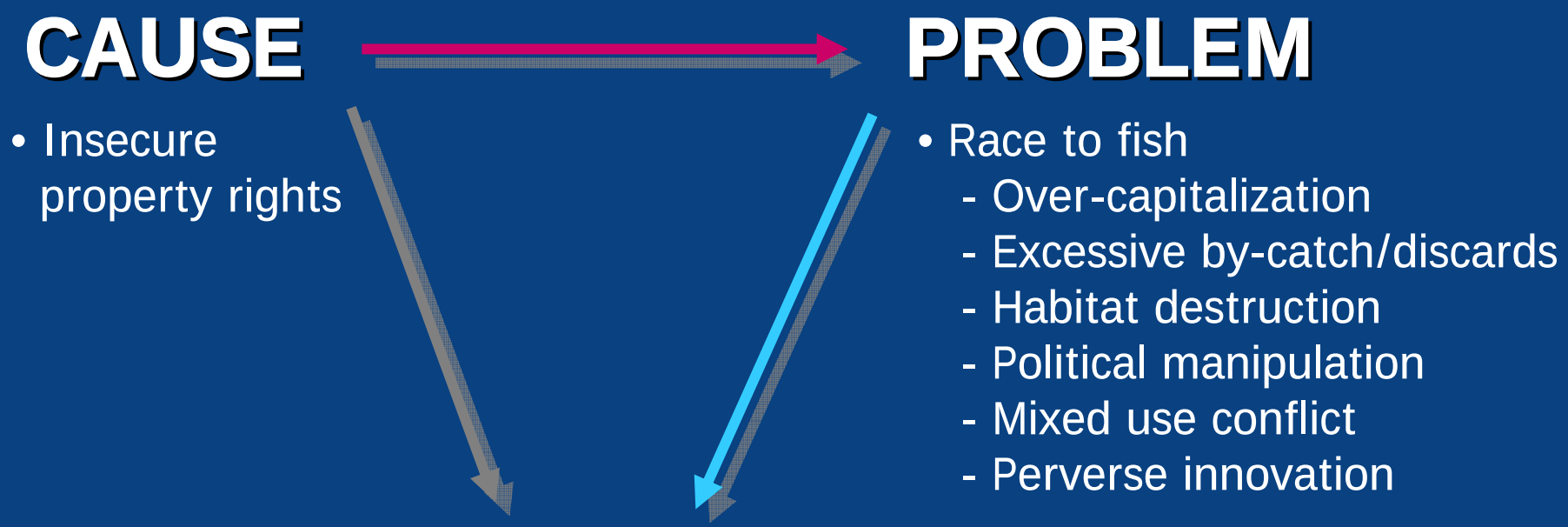


Some notable quotes

- "…the shortsightedness and greed of humans underlie difficulties in management of resources."
- "…wealth or the prospect of wealth generates political and social power that is used to promote unlimited exploitation of resources."
- "…management authorities must design, justify (politically) and administer (enforce) a collection of restraints on fishing activity."

How do economists characterize the fisheries policy problem?



Getting the story right

Greed or insecure property rights?

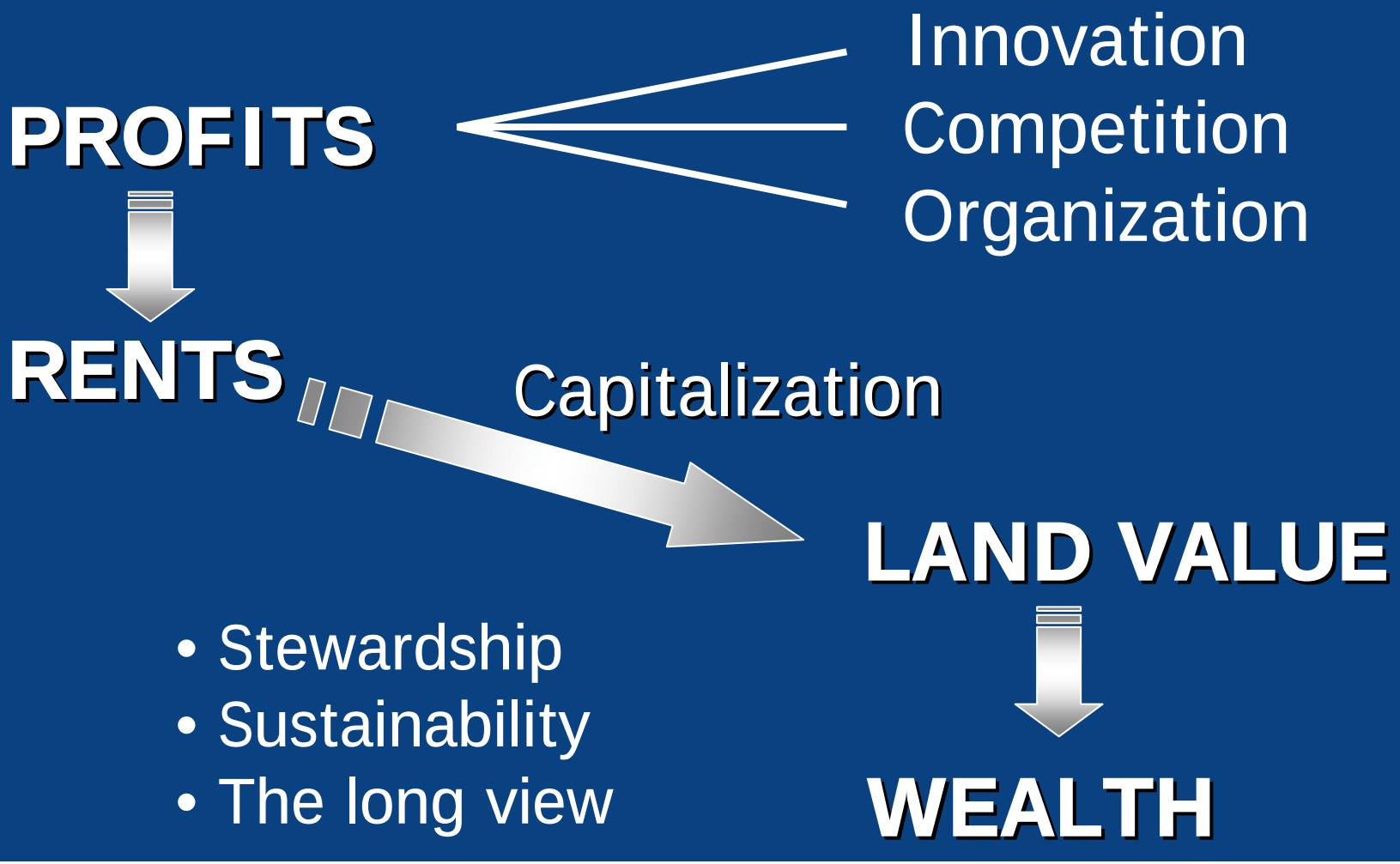
More top down controls, or different governance systems?

Technical problems or incentive problems?

Is behavior rigid, or can behavior be altered by changing incentives?

Evolution of farming as we know it

Wealth, stewardship, and innovation



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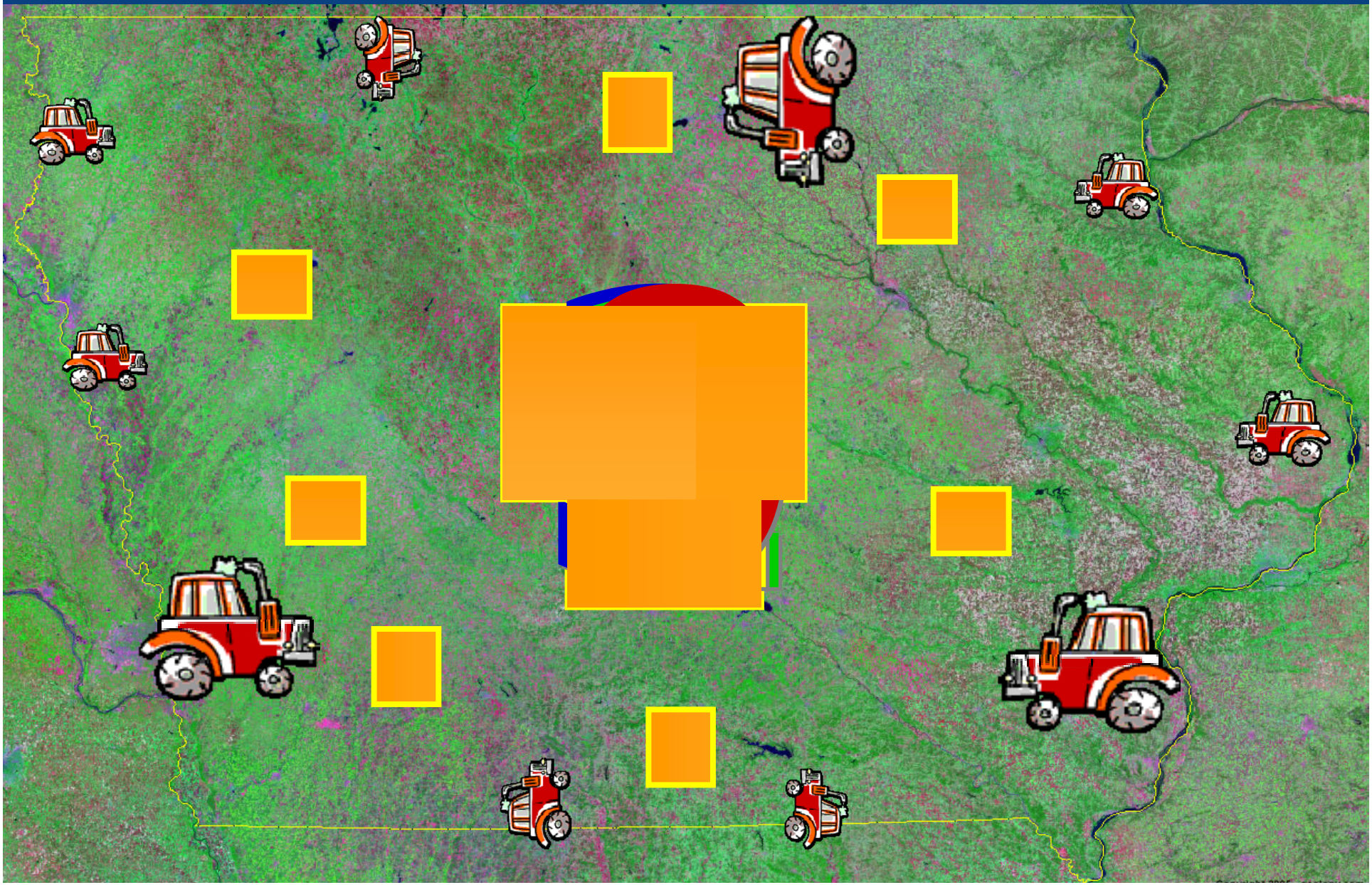
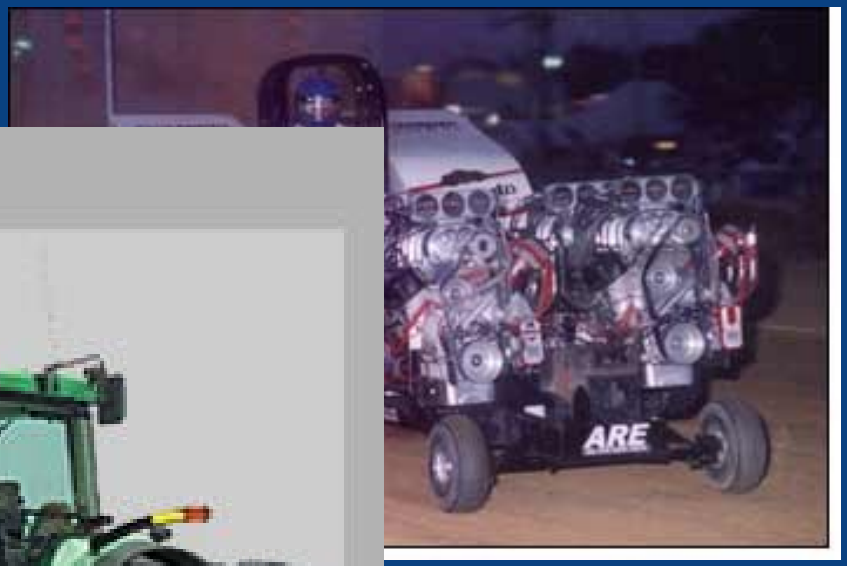


The race to farm



Farming with insecure access rights…

- Excessive capacity
- Resource degradation
- Low valued products
- Regulation
- Perverse innovation

- Zero surplus
- Zero land value

Fisheries today

- In most fisheries, there is no wealth, nor are there prospects for generating wealth.
- Reason: perverse governance systems

Without secure access privileges, fishermen devote all their competitive and innovation efforts to maximizing CATCH, rather than maximizing surplus VALUE. This drives costs up to revenues.

Fixing the problem: addressing the cause

- Individual fishing quotas (IFQs)
  - Iceland (all fisheries)
  - New Zealand (most fisheries)
  - Australia, Canada } (some fisheries)
  - U.S. (six fisheries)

What are IFQs?

- Cap and trade (like SO2 tradable permit system)
- Set a total allowable catch (TAC)
- Allocate quota (rights to fish)
- Allow quota trading

Realized benefits from IFQs

- Race to fish replaced by race to create value
- Slower fishing (value vs. volume)
- High-valued end markets
- More selective gear (less bycatch/discards)
- Reduced habitat destruction
- Generation of wealth (value of the quota is akin to value of the land)

Dynamics of wealth creation in IFQs

WEALTH CREATION

Constituency concerned with:

- Sustainability
- The long-view
- Innovation that increases value

- Reduced conflicts over TACs
- Pay for management
- Cooperative science
- Stewardship ethic

Other instruments

- Territorial use rights (TURFs)
  - Chilean management and exploitation areas (shellfish fisheries within 5km of coast)
  - Japan's fishery management organizations (sedentary, mobile species)
- Harvester cooperatives
  - Bering Sea Pollock, Pacific Whiting
  - Baja (Abalone and lobster)
- Not an either/or…cooperatives are often part of operations in TURFs and IFQs

Discussion

- Popular characterizations of the “fisheries problem” tend to focus on the symptoms rather than the cause of overfishing/overcapacity
- Economic performance should not be a secondary objective to be pursued after the primary objective of biological sustainability
- Generation of wealth creates a constituency for maximizing **value** *not* quantity from the fishery, which depends on the “health” of the marine ecosystem ➔ stewardship incentives!

Additional readings and acknowledgements

- Sanchirico, J.N. and J.E. Wilen, Global Marine fisheries resources: status and prospects, ***International Journal of Global Environmental Issues***, Vol. X: 2007
- Wilen, J.E., Why Fisheries Management Fails: Treating Symptoms Rather than Causes. ***Bulletin of Marine Science***, 2006.
- Sanchirico, J. N and S. Hanna. Navigating U.S. Fishery Policy Into the 21st Century, ***Marine Resource Economics,*** 19(3): 2004.

- Farming and cause and effect slides courtesy of James Wilen, University of California Davis

FAO Definition of Fishing Capacity

- “the amount of fish (or fishing effort) that can be produced over a period of time (e.g. a year or a fishing season) by a vessel or a fleet if fully utilized and for a given resource condition”,
  - “full utilization means normal but unrestricted use, rather than some physical or engineering maximum.”