

# Cost-Effectiveness & Flexibility

- Give vessels flexibility in how they meet environmental goal.
- Allows cost effectiveness
- Gives vessels ability to respond to changes in markets & environment



# II.4. Technological Change



- One of most important conservation measure in long run.

Discussed elsewhere.

Bycatch policies can induce bycatch-saving technological change.

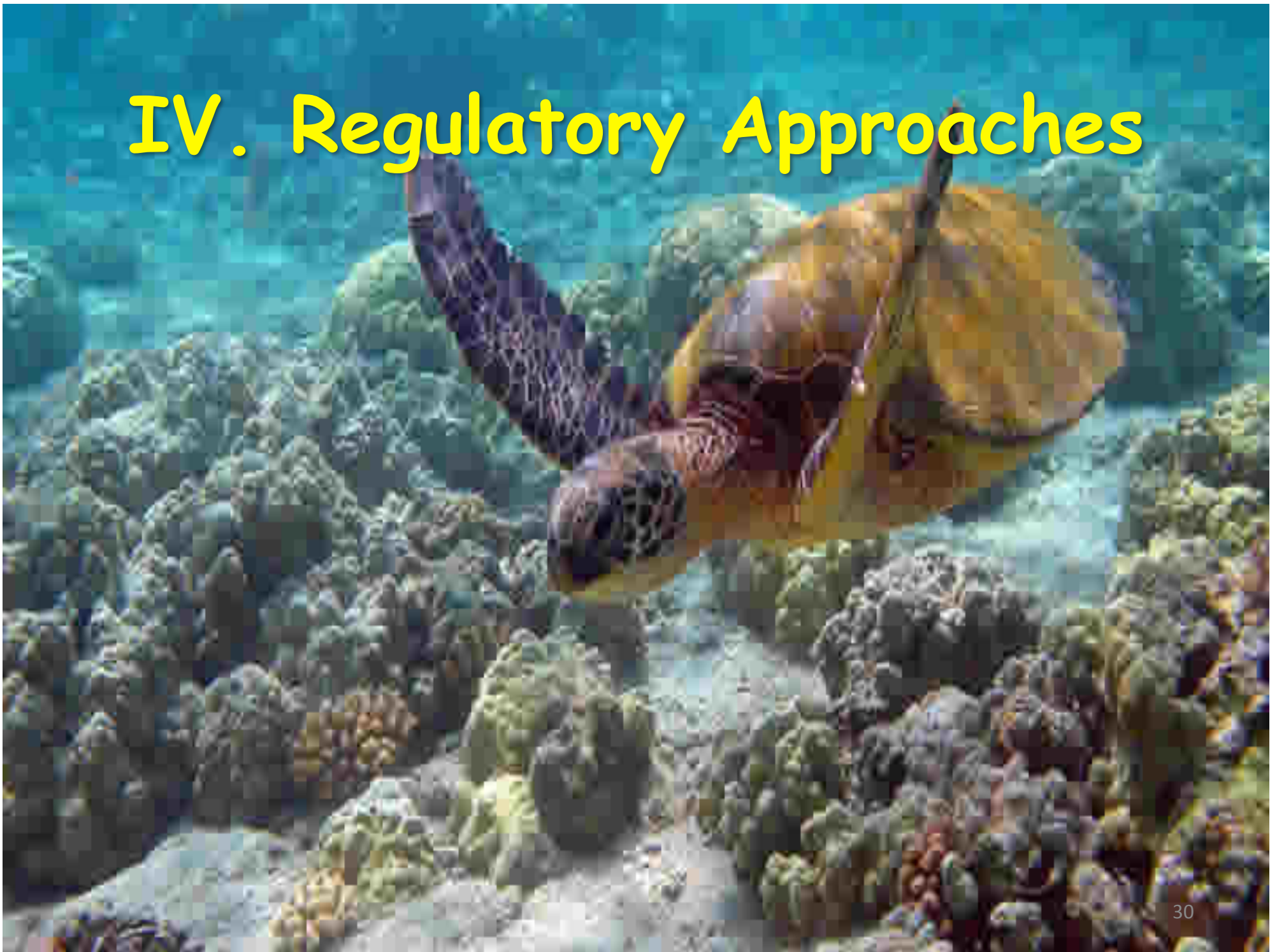
# III. Voluntary Approaches



# Types

- Unilateral initiatives
  - Dolphin-free tuna
  - ISSF full retention policy
  - UK canned tuna market
- Negotiated agreements
  - Regulators vs. fishers
  - Fishers vs. fishers
- Motivating voluntary agreements & compliance
  - Market incentives
    - Access to canned tuna markets
  - Regulatory threats
  - Subsidy payments

# IV. Regulatory Approaches



# IV.1. Output-Based

- Performance Standards
- Caps/quotas/limits
- Imposed on what? Bycatch vs. harvest
  - Bycatch more efficient, since directly addresses issue
- Impose at vessel or industry level?
- Trading
  - Across vessels
  - Across species
  - Allows flexibility and lowers costs

# Industry-Wide Bycatch Cap

- Perverse incentive: "race for bycatch"
- Potential for free-riding behavior by individual vessels on the bycatch-reducing activities of other vessels



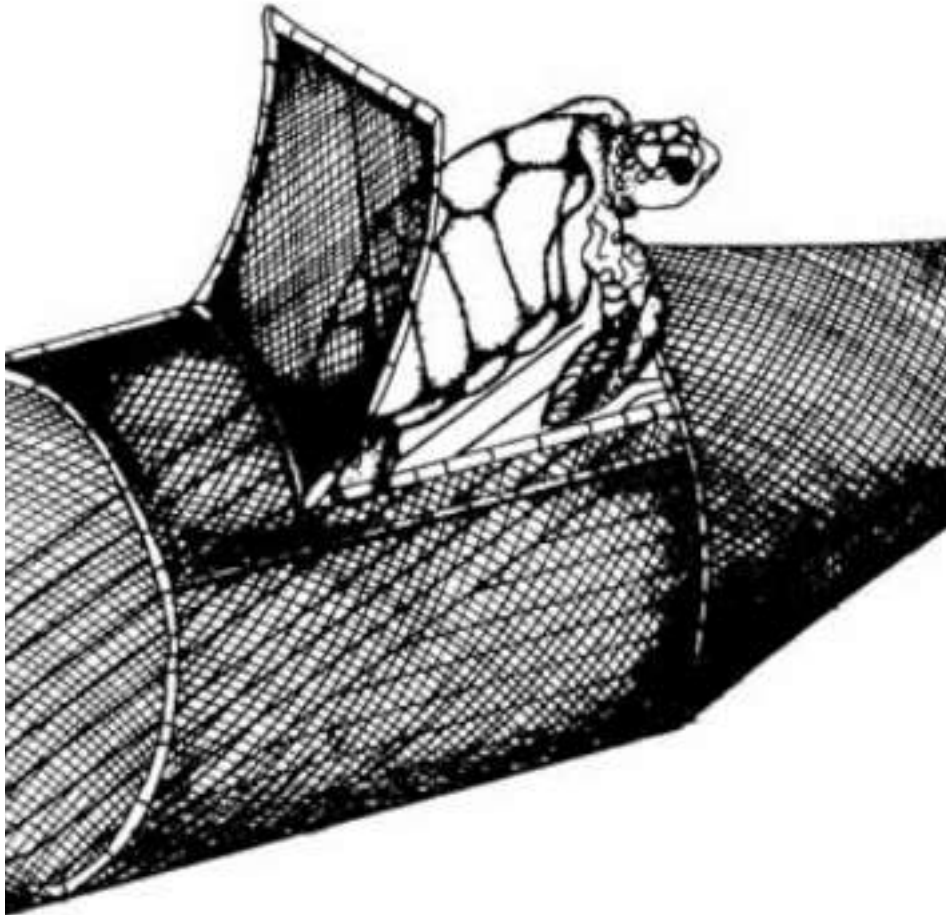


## IV.2. Input Based

- Gear restrictions
- Effort restrictions
- Time-area closures



# IV.3. Technology Standards



# What is a Technology Standard?

- Mandated input usage and fishing practices
- Examples: circle hooks, Tori lines, TEDs
- Can be explicitly designed to force technology
  - CAFÉ standards (miles-per-gallon for cars in USA)

# Cons...(1)

- Not generally cost-effective
- Because they impose same standard across vessels that differ in costs and ability to reduce bycatch.



## Cons...(2)

- Can discourage development and adoption of new technologies.
  - Can freeze technology in place.



# Pros

- Effective, even if not cost-effective.
- Among most easily accepted, monitored, and implemented regulations.



# IV.4. Taxes, Penalties, and Subsidies



# Tax Base

- Harvest, bycatch, vessel?





# Purpose of Tax

- Create incentives for decreased bycatch
  - Hard to calculate & implement
- Versus raise revenue for conservation
  - ISSF, tuna processors, and turtles



# Full Retention: An Indirect Tax

- Creates direct & indirect costs that create indirect incentives to alter behavior
- Complements balanced harvesting
- Direct Costs:
  - Sorting, handling, marketing, disposal of bycatch
- Indirect Costs or Benefits:
  - Retention reduces hold space for target species
  - Net cost/benefit = Bycatch profit - reduced target profit < 0/ > 0

# IV.5. Property Rights on Bycatch Species



# Basic Idea

- Cap-and-trade on pollution ( $SO_2$ ), greenhouse gasses (Kyoto Protocol)
- Bycatch: Dolphin Mortality Limits (DMLs)
- Covered in another presentation

# V. Parting Thoughts



# How important are the differences in costs of the various instruments?

- Tietenberg (2006) summarizes 14 simulation studies. In all but two cases, abatement costs would be 40-95 percent lower under emissions taxes or tradable allowances than under technology mandates, (nontradable) performance standards, and other policies such as requirements that all sources reduce pollution in the same proportion.
- Fischer and Newell (2008), and Newell and Stavins (2003) estimate that, in the power sector, abatement costs would be about 50 percent lower under emissions pricing than under various performance standards.

# Policy Criteria

- Policy evaluation criteria includes economic efficiency, cost-effectiveness, distribution and fairness, political feasibility, ability to address uncertainty and new information, etc.
- No single instrument is clearly superior along all the criteria dimensions relevant to policy choice.

# Trade-Offs in Policy Choice

- Significant trade-offs arise in choice of policy instrument.
  - Example: Reasonable fairness in distribution of impacts, or ensuring political feasibility often requires sacrifice of some cost-effectiveness.
- Selecting the “best” instrument involves art as well as science.
- Government failure.



# Hybrid Policies

- In some cases, high monitoring costs associated with emissions pricing can be avoided by employing a "two-part" regulatory instrument to approximate (and in some cases duplicate) the impact of emissions pricing.
- Sometimes desirable to design "hybrid" systems that combine various instruments that address multiple externalities.
- A system with both quotas and taxes has some advantages in case of uncertainty.

Thanks!...Questions?

