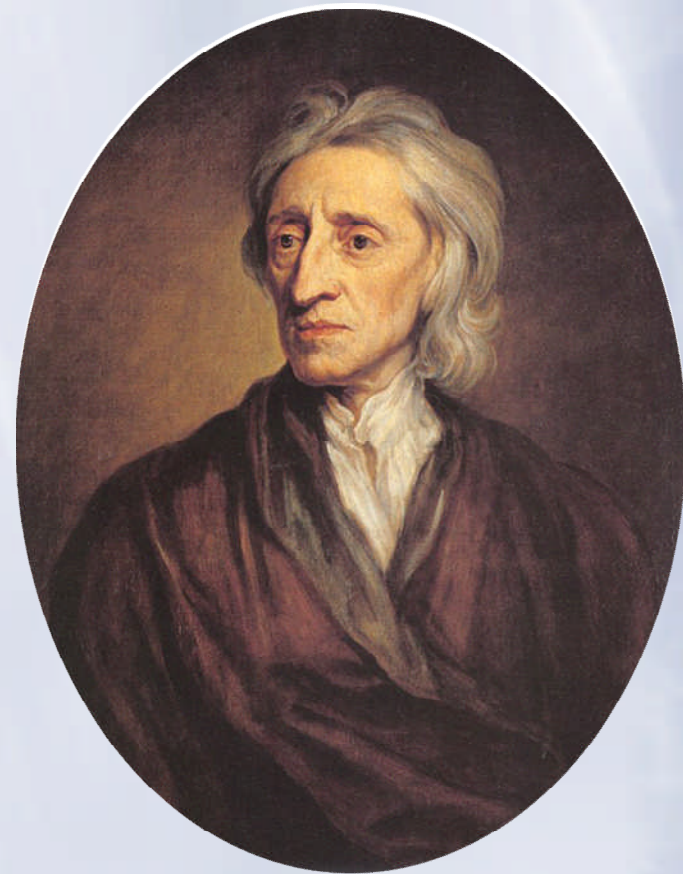


*FishStocks: Non-Exclusive
Resources and the Rights
of Exclusion*

*Professor Hannes H. Gissurarson
Libertad y Desarrollo
Santiago de Chile, 26 May 2009*

The Right to Exclude: How?

- ✧ How can people come to have rights to exclude others from use of goods?
- ✧ Locke: Because those others are not made worse off (indeed much better)



The Right to Exclude: Why?

- ✧ Why should people have rights to exclude others from use of goods?
- ✧ Hume: Because scarce resources have to be allocated so that they can be transferred into their most efficient use





The Feasibility of Excluding

- ✧ Land can be fenced off
- ✧ Cattle can be branded
- ✧ But what about indivisible goods?
- ✧ Radio frequencies?
- ✧ Mountain pastures?
- ✧ Salmon rivers?
- ✧ Offshore fishing grounds?



RadioFrequencies inU.S.

- ✧ In 1920s, radio stations emerged, broadcasting in different locations on different frequencies
- ✧ If locations and frequencies became too close, the stations interfered with one another
- ✧ Courts were beginning to recognise individual rights of exclusion, on principle of first occupancy



RadioSpectrum Nationalised

- ✧ In 1927, Congress decided that radio spectrum should be held by the public
- ✧ After that, broadcasting rights have been allocated by government in a “beauty contest”
- ✧ Money wasted in rent-seeking, i.e. costs of acquiring broadcasting rights
- ✧ Freedom of speech reduced

Mountain Pastures in Iceland



- ✧ In saga period (10th and 11th centuries) 4,000 farmers in valleys, mostly rearing sheep
- ✧ In winter, sheep were fed in barns
- ✧ In summer, sheep grazed in mountains



GrazingRights

- ✧ Mountain pastures: held in common because fencing and monitoring costs too high
- ✧ Temptation for each farmer to keep too many sheep: benefit captured by him and cost imposed on all
- ✧ Solution: Grazing rights or “quotas” defined to each farm
- ✧ The old Icelandic Law Book: Filling the pasture, with the sheep returning as fat as possible

Salmon Rivers in Iceland



- ✧ Salmon feed in sea and travel up their natal rivers to spawn
- ✧ 20-30 riparian farmers share access
- ✧ Temptation for farmers close to sea to harvest



Salmon Fishing Rights

- ✧ Each riparian farmer owns a right to the use of a preset number of rods
- ✧ Together, they form fishing associations which rent the “rod rights” out to recreational fishermen
- ✧ Amounts to private property rights to a part of the salmon fish stock of the river
- ✧ Non-transferable and limited to certain gear, i.e. rods

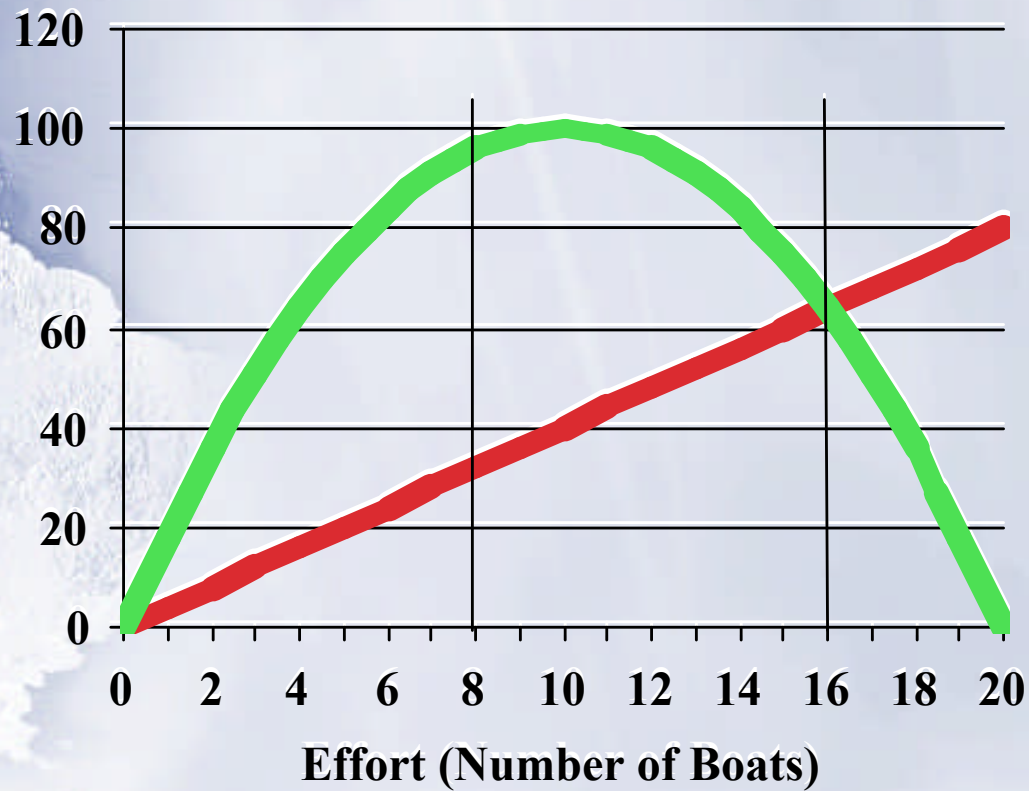


Offshore Fisheries in Iceland

- ✧ Fishing grounds difficult to fence off
- ✧ Resource occurs on an immense scale
- ✧ Some fish stocks (e.g. herring) fugitive
- ✧ Biological overfishing: Herring stock collapsed in 1960s, and cod stock almost collapsed in 1970s
- ✧ Economic overfishing: Too many boats chasing the fish

Economics of Overfishing

— Total Cost — Total Revenue



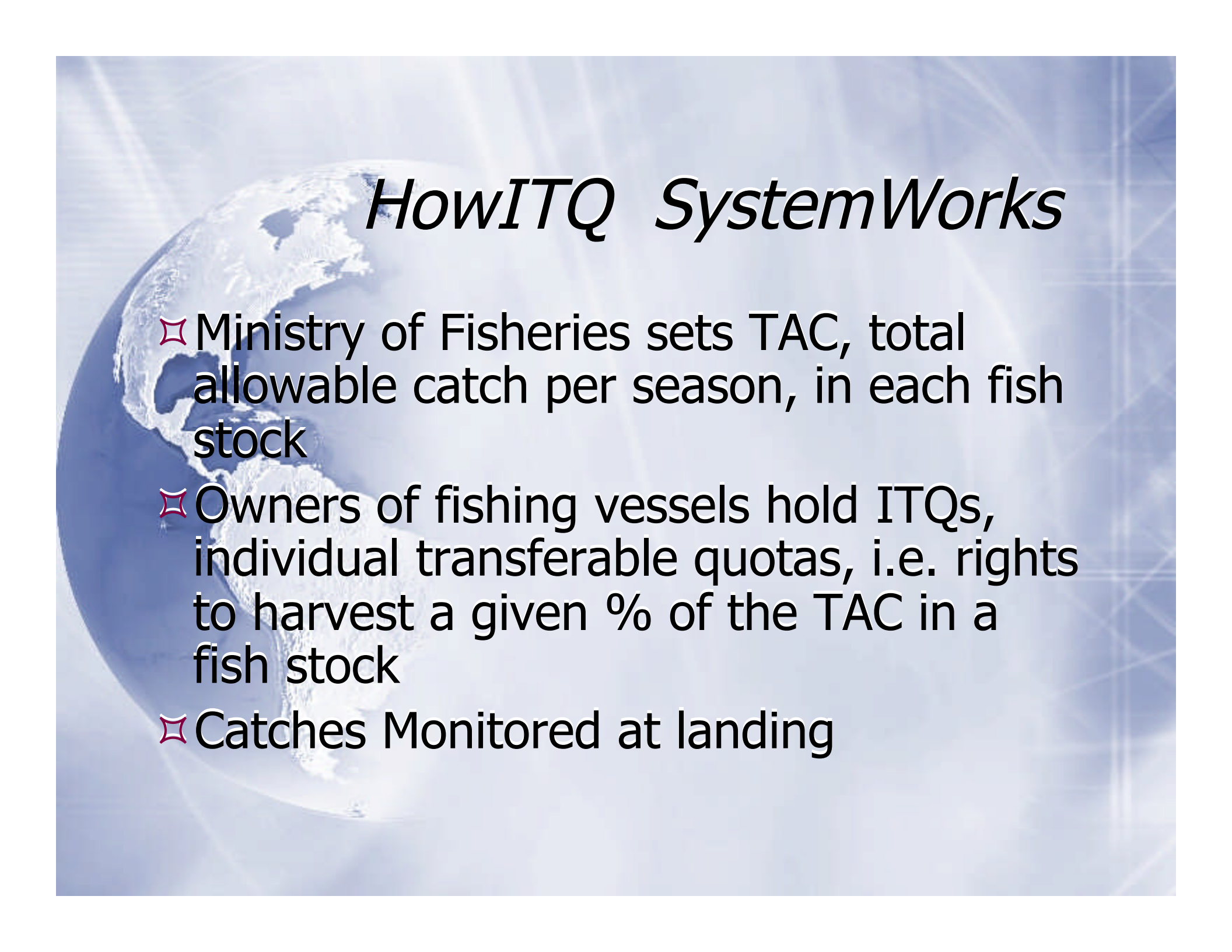


Overfishing: From 8 to 16

- ✧ When access to fishing grounds free, effort (number of boats) increases until revenue goes down to nothing (total revenue equals total cost)
- ✧ Best to maximise profit (difference between revenue and cost), not catch
- ✧ In effect, 16 boats harvest what 8 boats could harvest: Rent dissipated

Development of ITQ System

- ✧ Effort quotas (allowable fishing days) imposed in 1977
- ✧ “Derby”: Costly race to capture as much as possible in allowable days
- ✧ Catch quotas imposed in 1983, allocated on basis of catch history
- ✧ Gradually became transferable, and system made comprehensive in 1990

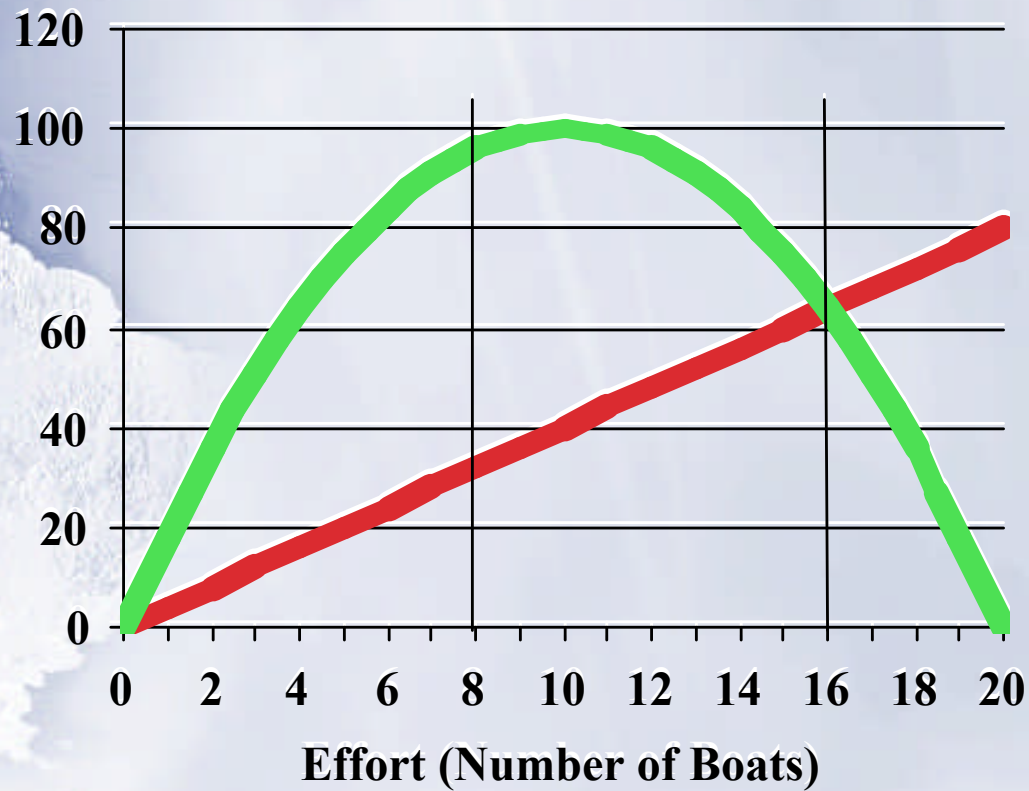


How ITQ System Works

- ✧ Ministry of Fisheries sets TAC, total allowable catch per season, in each fish stock
- ✧ Owners of fishing vessels hold ITQs, individual transferable quotas, i.e. rights to harvest a given % of the TAC in a fish stock
- ✧ Catches Monitored at landing

Another Look: From 16 to 8

— Total Cost — Total Revenue





EfficientSystem

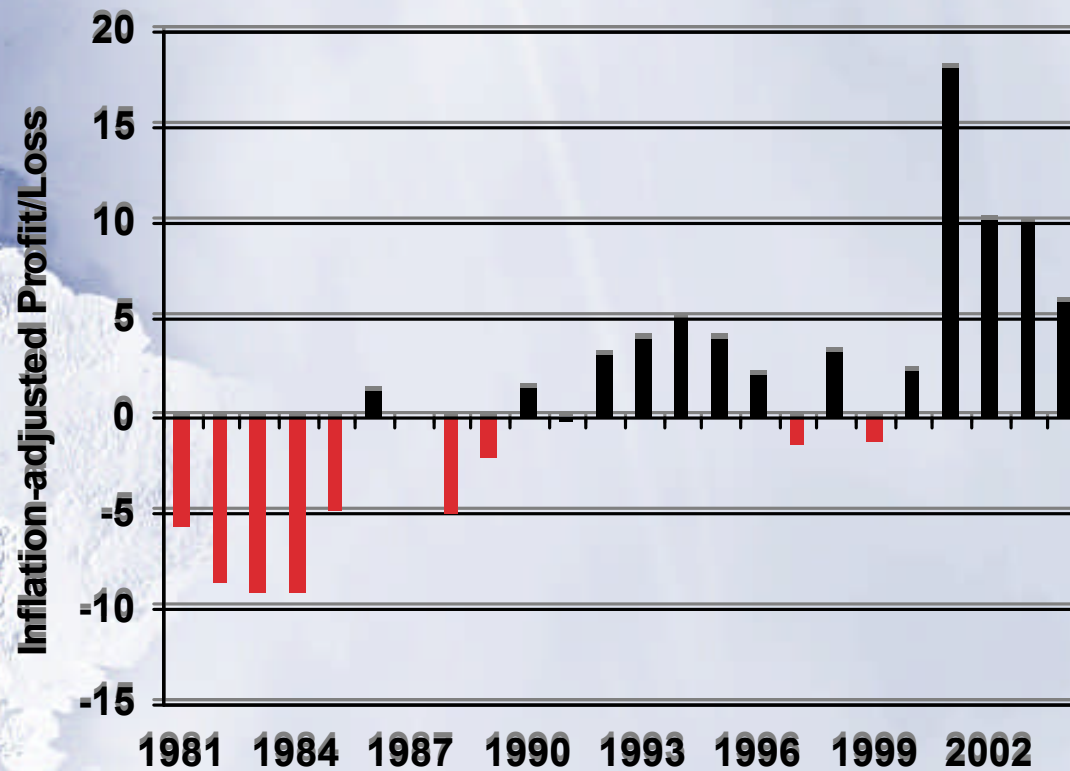
- ✧ Individual: Each bears responsibility for his own operations
- ✧ Permanent: Fishermen have long-term interest in profitability of resource
- ✧ Transferable: The 8 more efficient buy out the 8 less efficient
- ✧ Rent, previously dissipated in excessive harvesting costs, now captured



Icelandic Example

- ✧ Total value of quotas about \$5 billions
- ✧ Reduction of fishing effort (rather than of fishing fleet)
- ✧ Stronger and fewer fishing firms
- ✧ Loss turned into profit
- ✧ Much resentment: compromise in 2002: nominal resource use fee

Lossturned into Profit



Source: Icelandic Association of Fishing Vessel Owners



Initial Allocation by Auction?

- ✧ In theory, same result: reduction of fleet from 16 to 8
- ✧ But who would support enclosure of fishing grounds?
- ✧ And would fishermen have same interest in long-term profitability of resource?
- ✧ And would the rent be as well invested by government?



Lockev. George

- ✧ Georgism: Government should capture all resource rent, because unearned
- ✧ Locke: Some (e.g. vessel owners) can come to hold rights to exclude others from the use of goods (e.g. fish stocks), if those others are not made worse off
- ✧ Lockean Proviso met in Icelandic fisheries



Whois MadeWorse Off?

- ✧ In initial allocation by auction, government much better off, & remaining boatowners in same position, & retiring boatowners in worse position
- ✧ In initial allocation on basis of catch history, government slightly better off, & remaining boatowners better off, & retiring boatowners also better off



Pareto-Optimality

- ✧ Social change Pareto-Optimal, if no-one worse off, and some or all better off
- ✧ Initial allocation by government auction not Pareto-optimal
- ✧ Initial allocation on basis of catch history Pareto-optimal: Fishermen bought out, not driven out; others only deprived of a worthless right



Pigou v. Coase

- ✧ Auction idea Pigovian: Pigou proposed access fees (e.g. road tolls) to eliminate harmful effects (e.g. road congestion)
- ✧ Coase: Why replace one cost (congestion or overfishing) with another one (government tax, fee or toll)?
- ✧ Better to define property rights, such as ITQs



Some Similarities

- ✧ ITQs are rights to a certain use of a resource in a commons
- ✧ Similar to grazing rights in Icelandic mountain pastures
- ✧ Would have been similar to emergent broadcasting rights in U.S. (whose development was hindered by law)



Some Differences

- ✧ Broadcasting interference audible: harmful effects clear to all
- ✧ Economic overfishing invisible
- ✧ Effort quotas in salmon rivers, because it is about leisure
- ✧ Catch quotas in offshore fisheries, because commercial, i.e. about minimising costs



Recent Proposal for Change

- ✧ Proposal 2009: To remove 5% of quotas each year from each fishing firm
- ✧ Auction idea reintroduced
- ✧ Benefits of ownership disappear
- ✧ Presently, fishing firms feel responsible for fish stocks, as owners
- ✧ This would change, if made into tenants



Main Lessons

- ✧ Even if resources are non-exclusive, e.g. fishing grounds, some exclusive use rights in them can be developed
- ✧ U.S. took wrong turn by not developing broadcasting rights
- ✧ Iceland took right turn by developing fishing rights, the ITQs
- ✧ Good fences make good neighbours