



UNIVERSITY OF ICELAND

The Politics of ITQs

Lessons from Iceland

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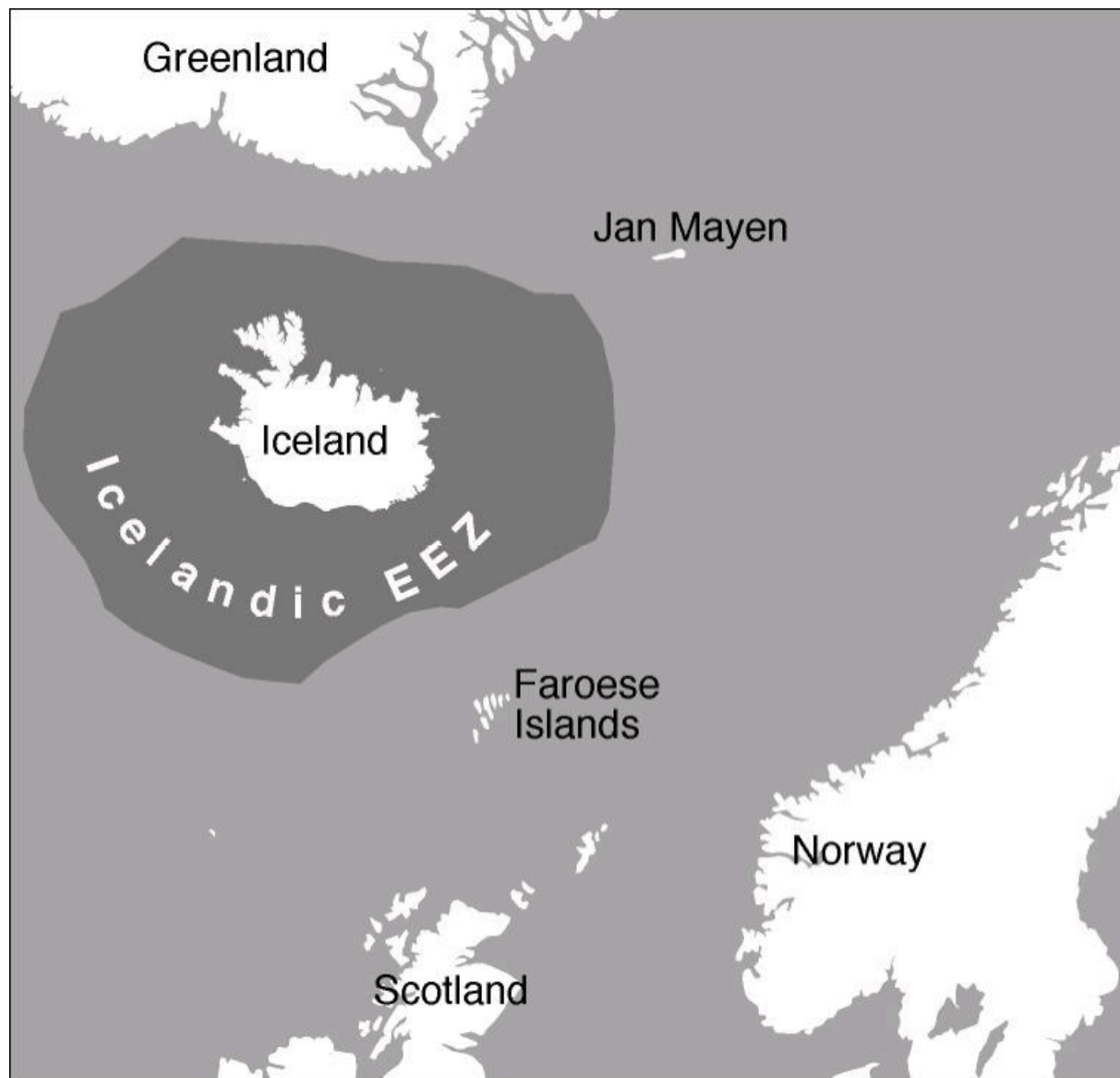
Peruvian Ministry of Production

Lima 25 January 2016

Icelandic Fisheries

- Iceland settled in 874–930; Commonwealth 930–1262; Norwegian-Danish Dependency 1262–1918; Sovereign state since 1918; Republic since 1944
- Fertile fishing grounds; utilised by foreign fleets since early 15th Century; also by Icelanders since 19th Century
- Four extensions of EEZ by “Cod Wars” with UK: 1952; 1958; 1972; and 1976

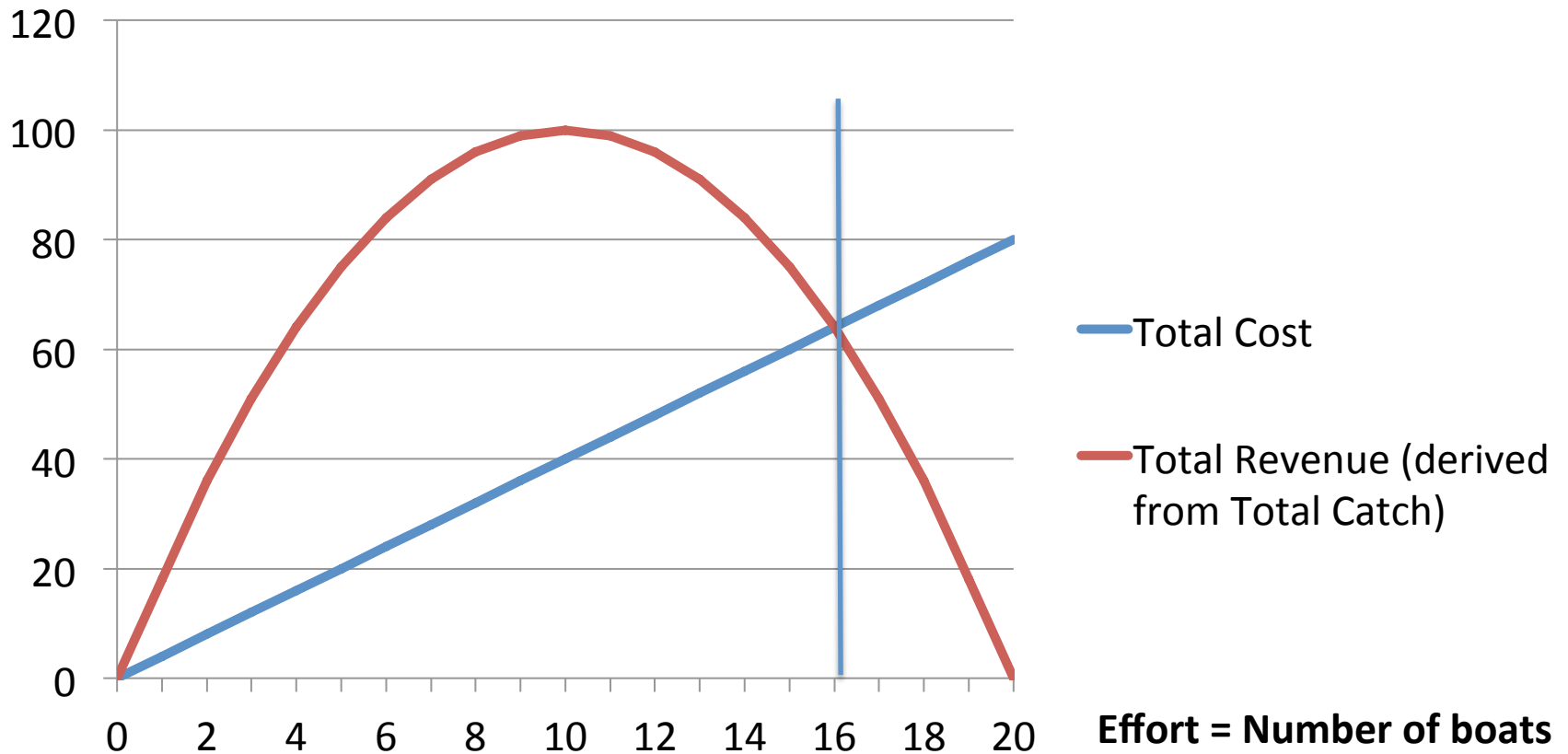
Iceland's EEZ since 1975



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

Gordon's Model of Overfishing



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)
- In this example, when effort amounts to 16 boats
- Maximum catch (and total revenue) at 10 boats, but maximum profit at 8 boats (difference between total revenue and total cost)
- In effect, 16 boats harvest even less than what 8 boats could harvest: Rent dissipated, in excessive cost

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 (grandfathering)
- Gradually became transferable, and system made comprehensive in 1990
- Trial-and-error-process, practice guiding theory

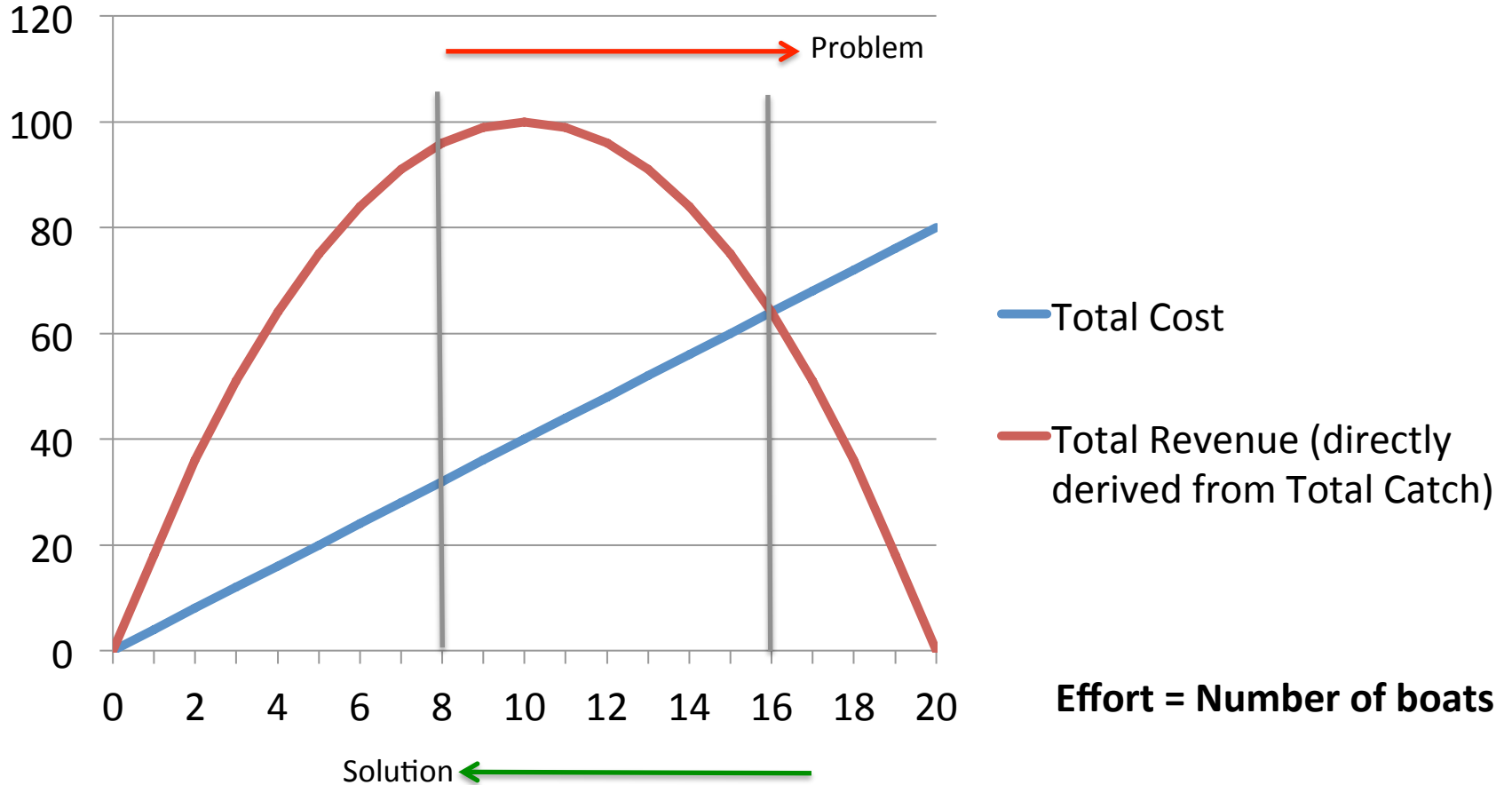
My personal involvement

- In 1980, I suggested developing private use rights in fisheries
- In 1983, I published an article on this in Economic Affairs, while a postgraduate student at Oxford
- In 1990, I published a book in Icelandic supporting the ITQ system
- In 2000, I published a monograph for IEA on fisheries
- In 2015, I published a collection of papers on this

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
- Fugitive species, e.g. herring: share in TAC negotiated with others, and allocated as ITQs

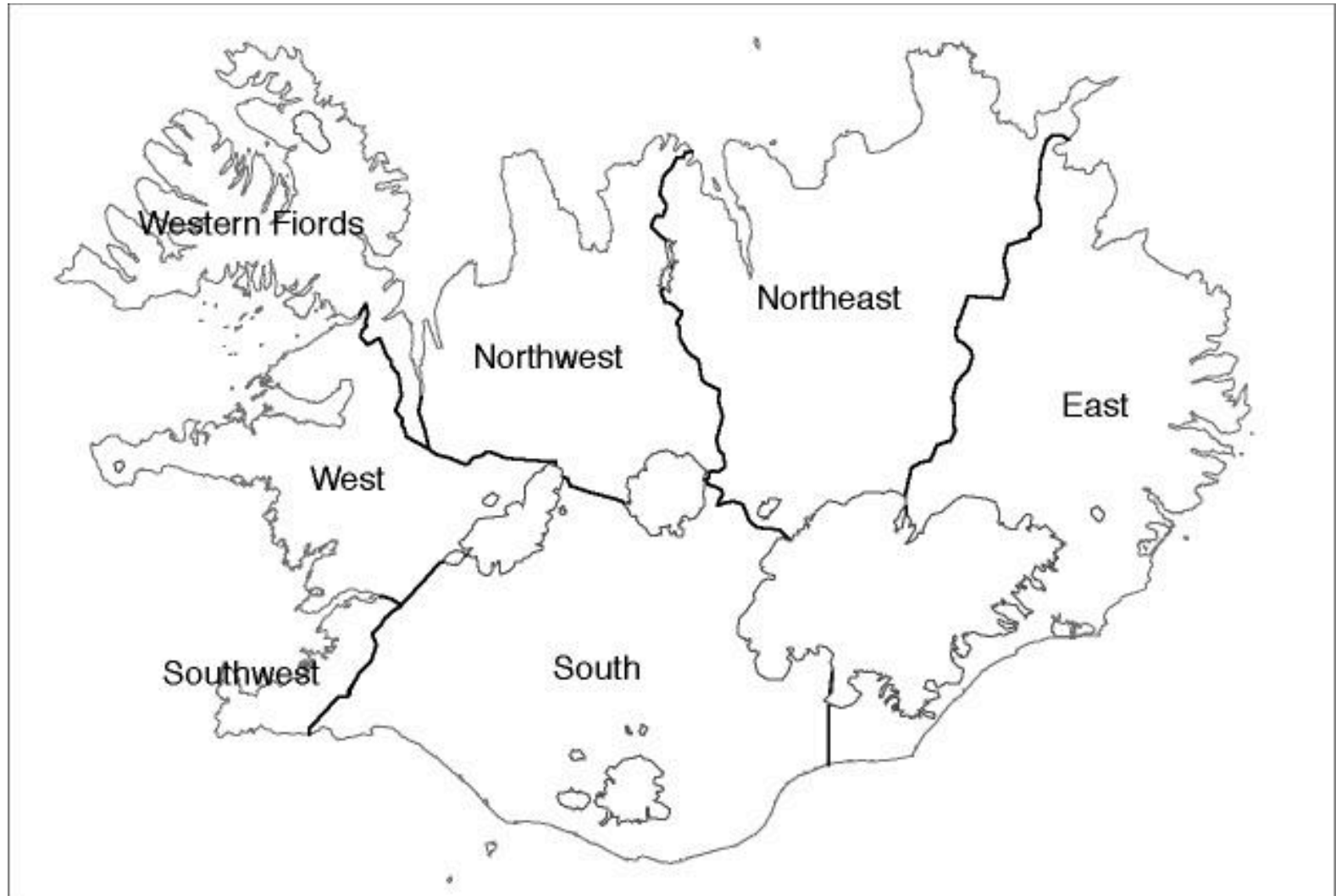
The Problem and the Solution



Efficient System

- 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

80% of ITQs Outside Reykjavik Area



2014 Fish Catch by Species

Species	Metric tonnes
Cod	238,000
Saithe	46,000
Haddock	36,000
Redfish	58,000
Herring	101,000
Capelin	106,000
Mackerel	170,000

Fisheries in 2014

- Total catch of Icelandic fishing vessels 1,077 thousand tonnes
- Value 136 billion ISK \approx US\$ 1.1 billion
- Employs 2.5% of workforce; and fish processing 2.6%
- Gross domestic factor income 4.9%
- Marine products 41.3% of export
- Main customers: UK, US and EU

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 professional politicians?

Who is Made Worse Off?

Grandfathering

- Owners of eight boats remaining better off
- Owners of eight boats leaving better off (bought out)
- Government somewhat better off (more tax revenue)
- Public better off with a productive economic sector

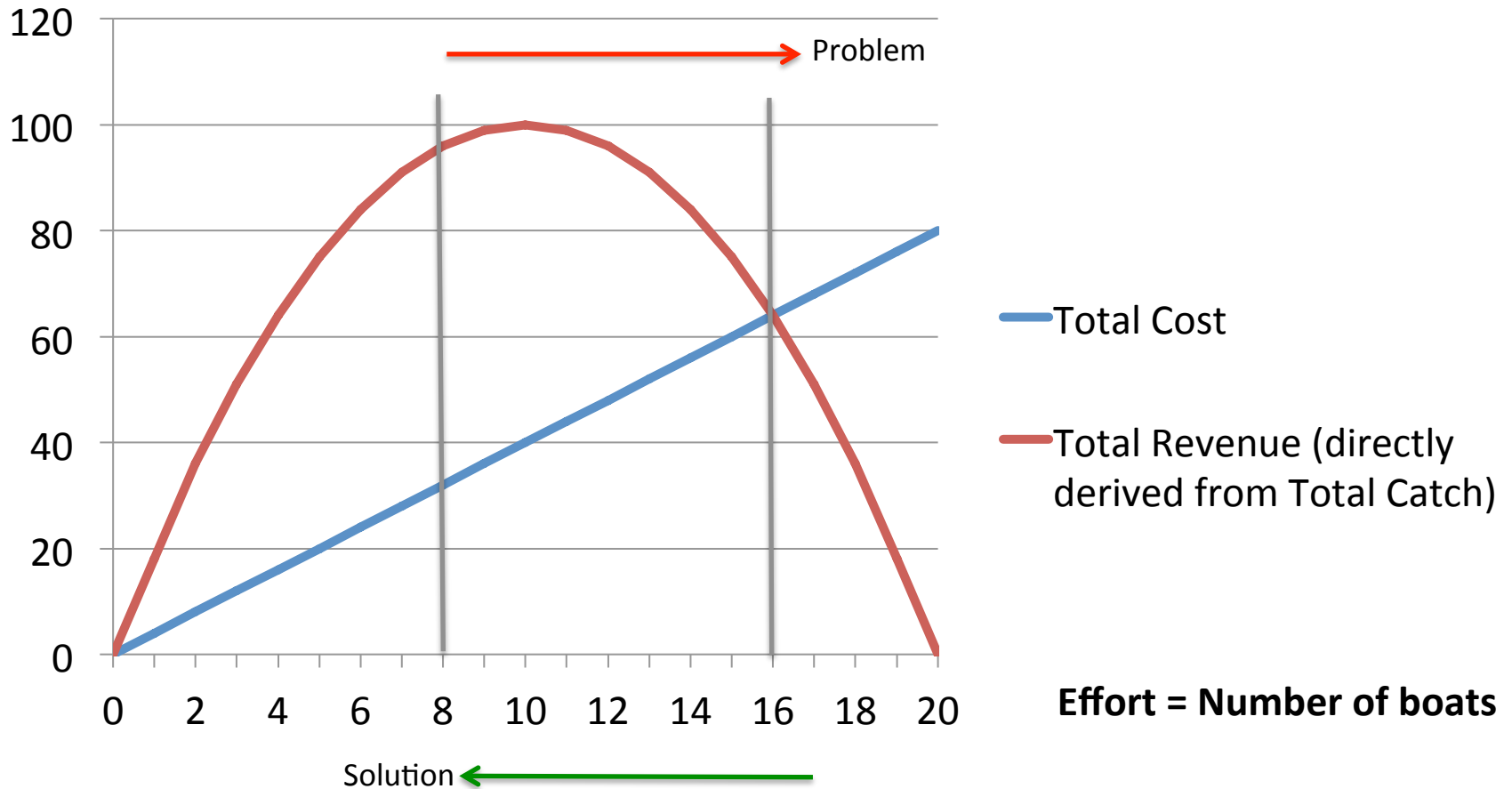
Auction

- Owners of eight boats remaining neither worse nor better off
- Owners of eight boats leaving worse off (investment worth nothing)
- Government much better off
- Public better or worse 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 (grandfathering) Pareto-optimal: Fishermen bought out, not driven out; others only deprived of a worthless right (i.e. the right to harvest fish at zero profit)

Remember Gordon's Model!



Main Problem of System: Success!

- Highgrading and discarding problems, but not great ones
- Exceptions to system (inshore handline) and limitations on transfers problems, but not great ones
- Main problem: political insecurity of ITQs because of the system's success
- Profits of fishing firms (and buyouts of such firms) greatly resented
- Resource charge introduced as a compromise

Others Benefit from Rent Capture

Rent from fisheries is not “eaten” by owners of fishing vessels. Shared indirectly by rest of society by:

1. Higher wages in fisheries
2. Increased demand leading to higher incomes
3. Increased tax revenue
4. More investment and growth
5. More favourable exchange rates

Arguments for Special Tax on Fisheries

- Auction out of question for political reasons:
Not acceptable to fishing community
- *A posteriori* resource rent tax, after system starts to produce results, a distinct possibility
 1. One argument that profits are generated by resource, not by owners of fishing firms
 2. Another arguments that tax is non-distortionary, because tax on rent

First Argument Fallacious

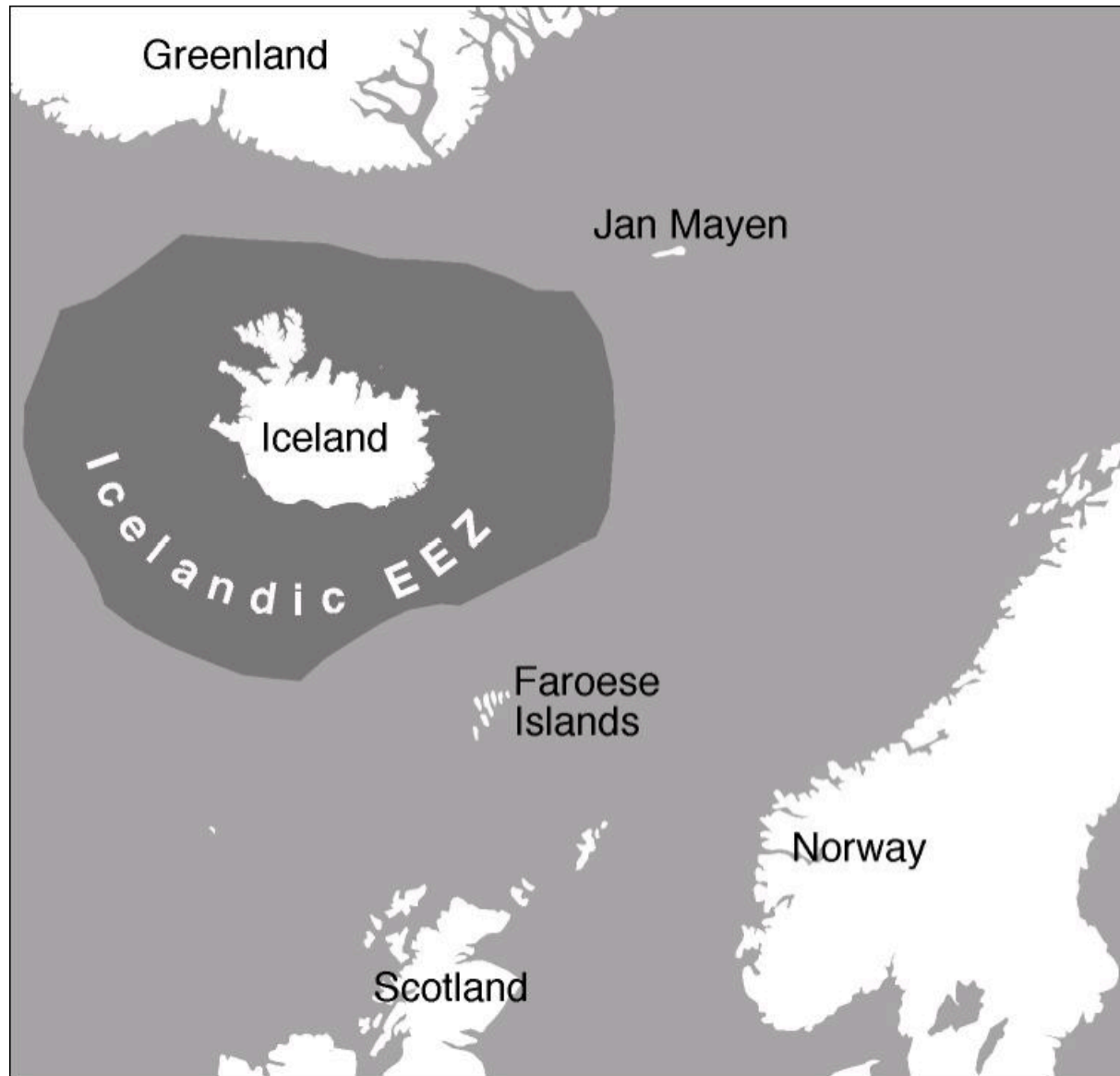
- Resource necessary, but not sufficient, for generating profits
- If resource generated profits, why then little or no profits, or rent, in 19th Century? Or in the 1970s–1980s, before introduction of ITQs?
- ITQ system facilitates protection of fish stocks; minimisation of costs; better service (quality) for customers; more profitable investments

Second Argument Fallacious

Resource rent tax on fisheries distortionary:

1. Owners of fishing vessels no longer with incentive to support rational TAC decisions
2. Capital removed from fisheries
3. Less research and development, no long-term perspectives: static view, not dynamic
4. Disadvantage in international competition
5. Government worse at investing the rent

International Disputes



Whale Dispute



Relevant Facts

- 44,000 Minke whales and 26,000 Fin whales in Icelandic waters
- Only a small amount harvested
- Eat 6 million tonnes of seafood, including 1.5 million tonnes of fish; the Icelanders harvest 1.5 million tonnes of fish
- Two possibilities: whales eat from man, or whales find and process food which man has been unable to find and process

Economic Analysis of Whaling

- Gordon's 1955 model in *Journal of Political Economy*: exclusive use rights solve problem
- Colin Clark in *Science* 1973: no, because whale rate of growth lower than social discount rate
- Grafton, Kompas and Hilborn in *Science* 2007: Clark not correct, because cost rises for effort unit
- Costello, Gerber and Gaines in *Nature* 2011: defining exclusive use rights to whales

Ethical Considerations

- Preservation or conservation?
- Whale preservationists conducted campaigns against Icelandic companies unrelated to the whaling company: shot “innocent bystander”
- Now they impose costs on Icelandic fishermen and whalers
- Similar to you driving “your” cows into my meadow to graze there, but refusing to compensate for it
- Whale preservationists deny people ample, healthy, nutritious food which whales provide

Mackarel Dispute



Relevant facts

- Mackarel not charismatic megafauna like whale, but tasty food, much in demand
- Because of sea warming, migrated from EU waters to Icelandic waters; 30% of stock there
- Able predator, eating krill, crustaceans, small fish, growing rapidly, gaining weight, eats 3 million tonnes (estimate)
- Like a Biblical “plague of locusts” (grasshoppers)
- EU doesn’t want Icelanders to harvest more than a small proportion of mackarel stock; threatens trade sanctions

Ethical Considerations

- EU not exemplary in fisheries conservation, witness CFP
- EU wants to “graze” mackarel in Icelandic “meadows”, but not to allow Icelanders to benefit from it
- Case of harmful effect of economic activities
- Iceland has unilaterally set share of total catch, allocating it to fishing vessels on basis of catch history (but only for one year at a time)
- Only fair solution by international negotiations

Conclusions

- ITQ system solves the “Tragedy of the Commons” problem
- Enormous possibilities in utilising marine resources
- Auction less feasible politically for introducing the system than grandfathering
- Only real problem the system’s success
- Special tax unnecessary and distortionary

