

Aquaculture and marine resources: Can there be a salmon in every pot?

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Protecting ocean life through
marine science



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Aquaculture is an increasingly important source of seafood

Almost 50% of all fish directly consumed by people worldwide are farmed, up from 9% in 1980.





Is aquaculture a solution to declining fisheries?



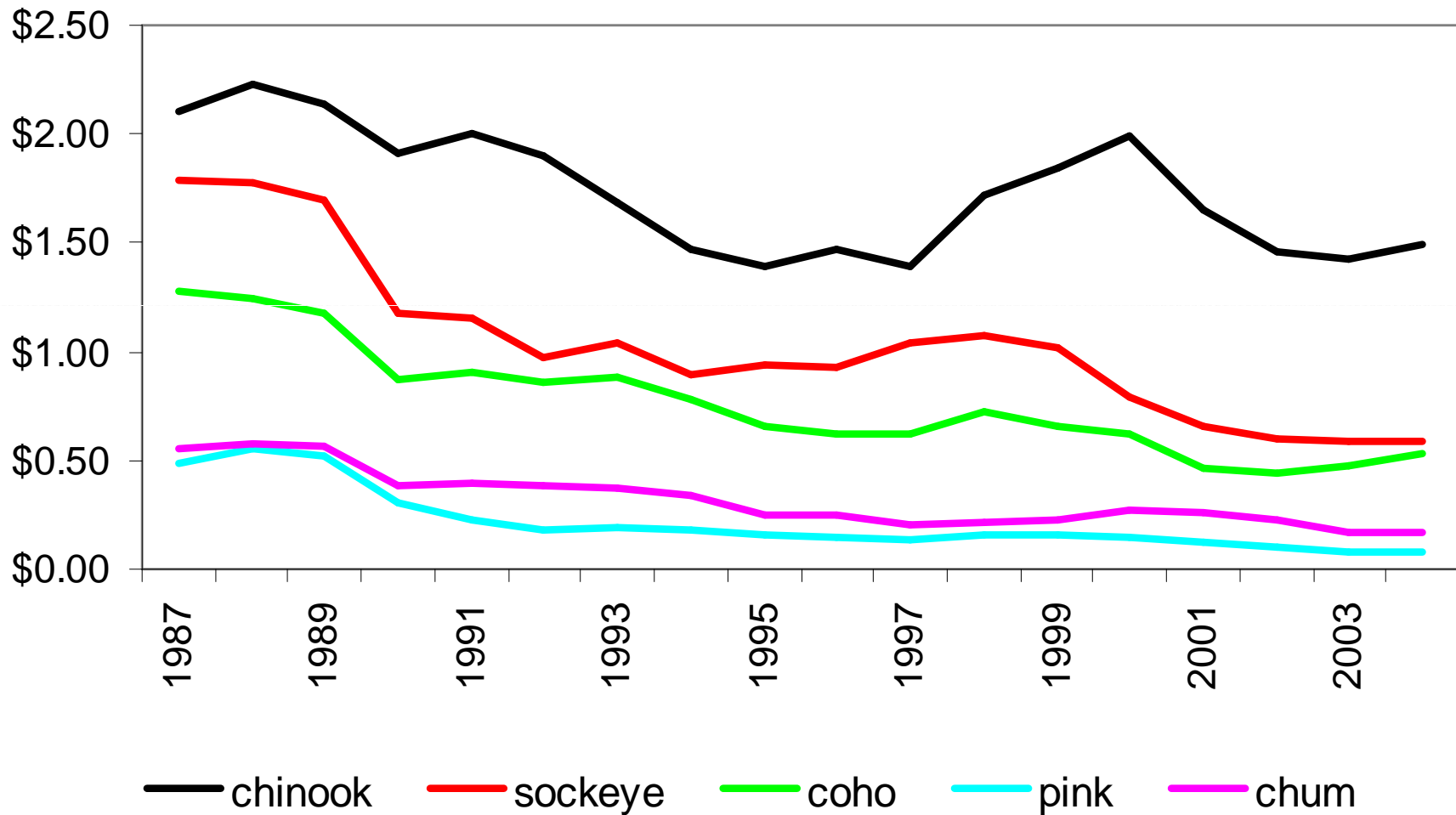


Economic argument why aquaculture may reduce fishing pressure

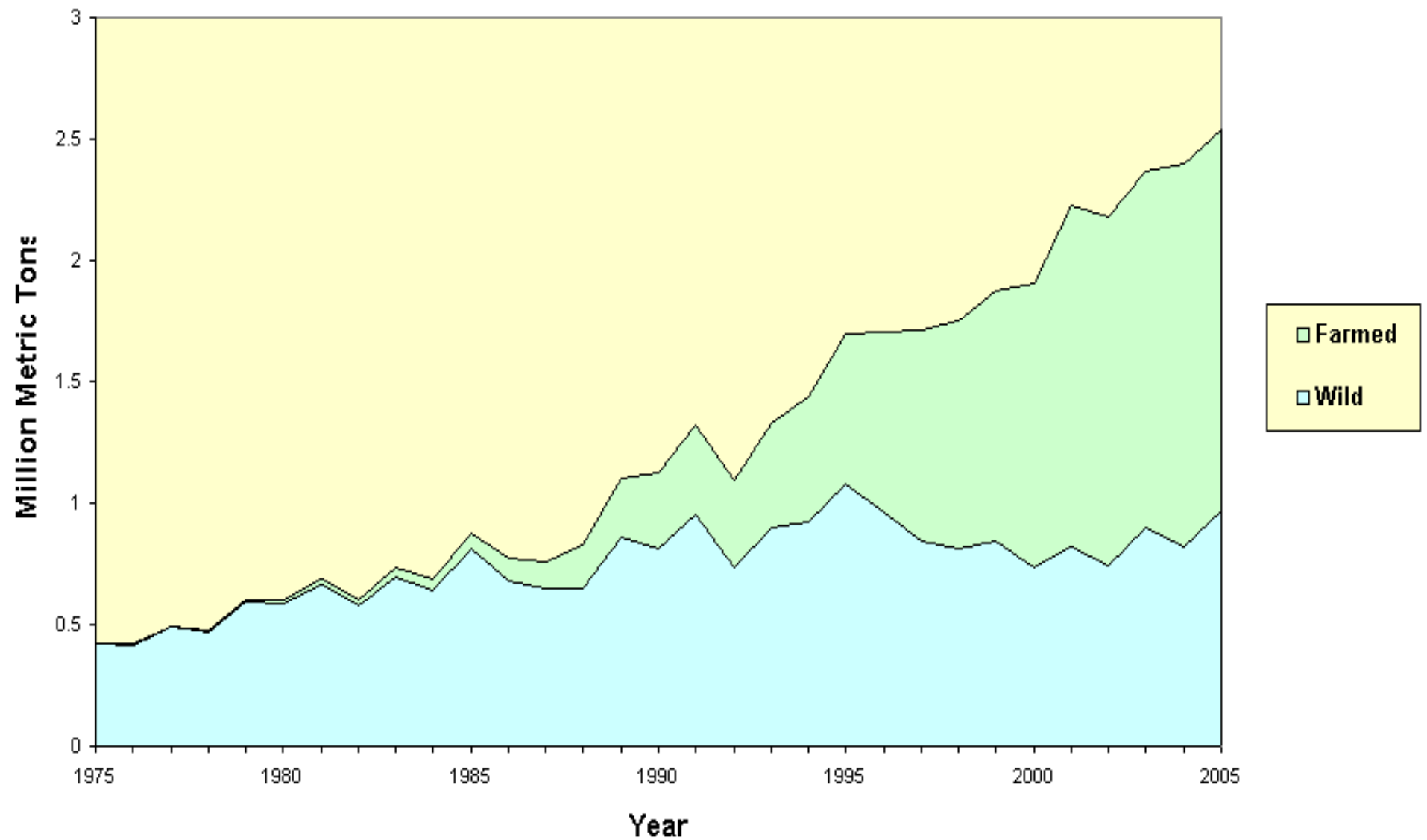
- Aquaculture increases the fish supply
- Price decreases for the fish
- Fishermen's profits decrease and they reduce capture of the fish
- Examine for salmon and shrimp (Goldburg and Naylor 2005; Goldburg 2008)

Impacts of salmon farming

Average ex-vessel price, Alaskan wild salmon (three yr moving avg.)



Global Production Farmed and Wild Salmon





Upshot

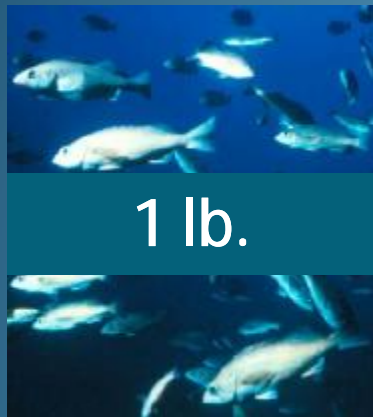
- For salmon and shrimp, no evidence that aquaculture ‘takes pressure off’ of wild fisheries, although fish farming does result in lower prices
 - Increasing population and affluence is increasing global demand for seafood
 - Fishing is relatively inelastic
- Most effective way to recover and protect wild fisheries is via better fisheries management
- Are other reasons to pursue aquaculture

Does aquaculture supplement wild fisheries?

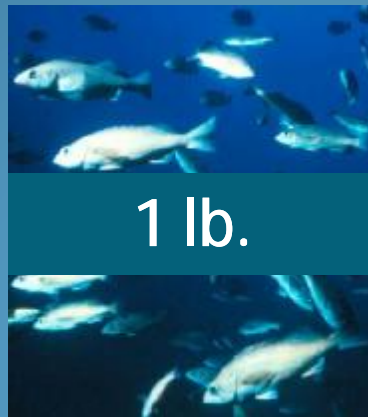


Yes, but . . .

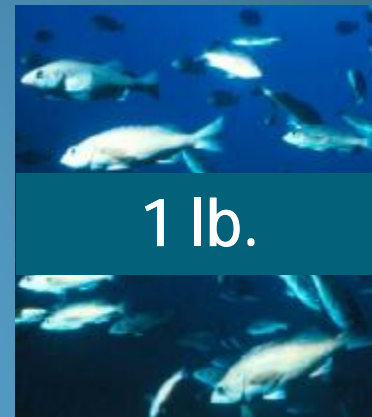
FISH FEED



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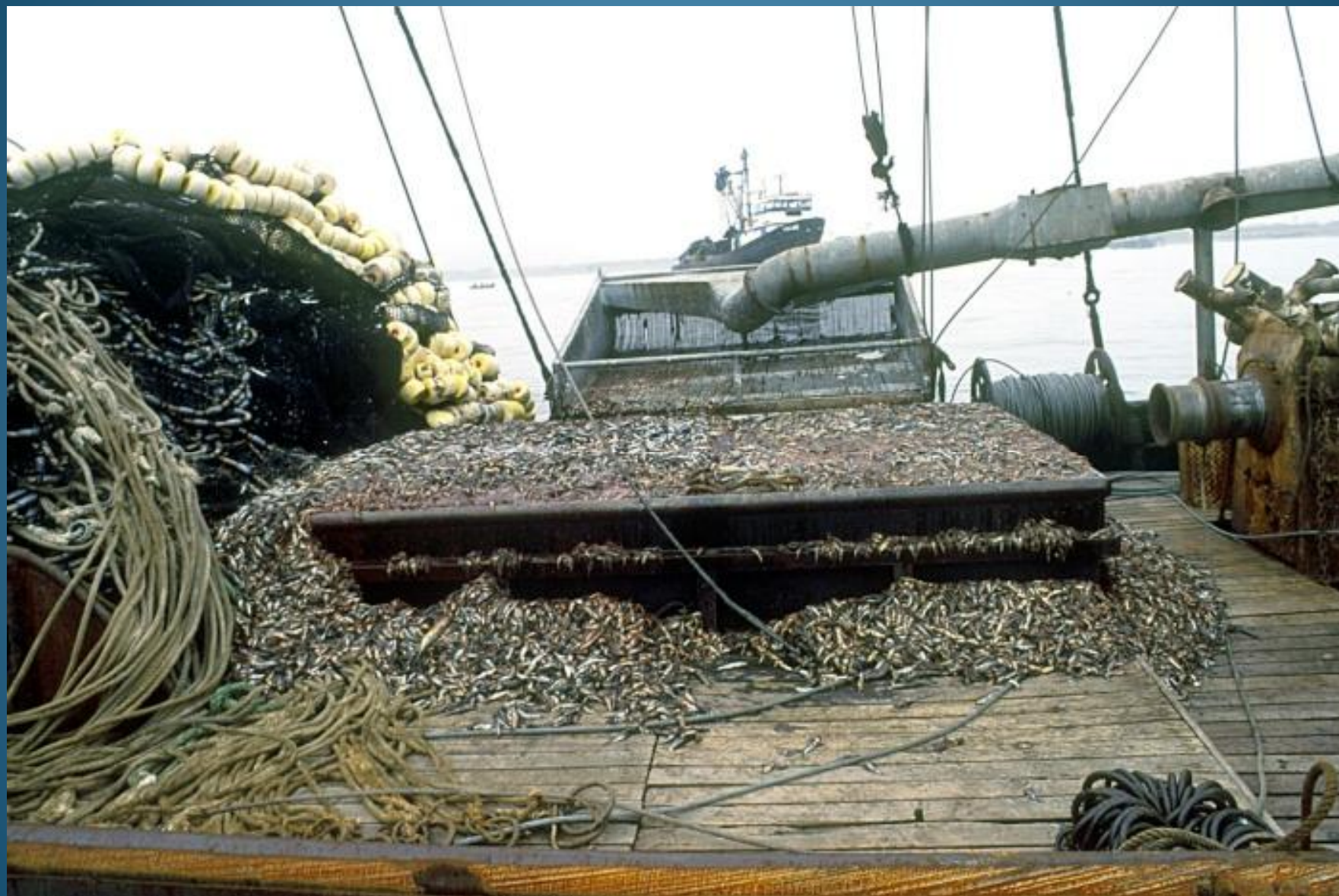
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Proportion global fish meal supplies used for fish farming

1988 -- 10%

1997 -- 33%

2006-- 68%

Challenges from increasing use of wild fish in fish feeds

- Exploitation of new or marginal fisheries (e.g. Antarctic krill)
- Science suggests probably need to reduce catch of many 'reduction' fisheries to leave more fish in the water to support marine ecosystems
- In some cases, competition between using fish for feed and human food





Strategies

Government policy:

R&D -- NOAA alternative feed initiative

Regulation – aquaculture and fisheries

Incentives – USDA organic standards

Marketplace initiatives:

Consumer preferences

CSR initiatives by producers and buyers

Pew-sponsored tool to compare aquaculture standards

