

OVERFISHING - #1 THREAT TO MARINE ECOSYSTEMS



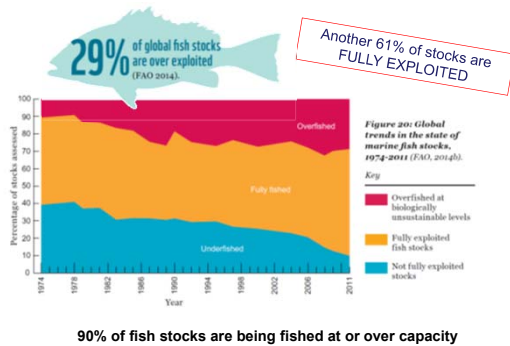
OVERFISHING - #1 THREAT TO MARINE ECOSYSTEMS



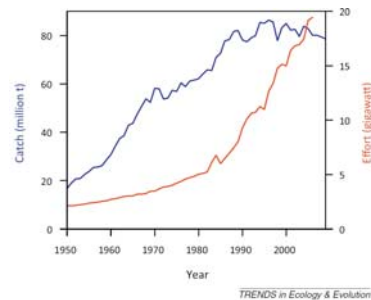
Overfishing is catching more fish than can be replaced by natural reproduction.

Collapsed = A fish population at 10% or less of unfished abundance

Current State of Fisheries



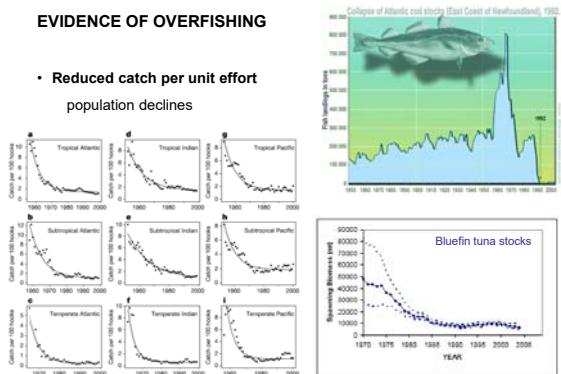
Evidence of Overfishing



Reduced catch per unit effort
Worm et al. 2015

EVIDENCE OF OVERFISHING

- Reduced catch per unit effort
population declines



The New York Times

U.S.

WORLD | U.S. | NEWS | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORTS | OPINION

POLITICS | EDUCATION | TEXAS

Daunting Calculus for Maine Shrimpers as Entire Season Is Lost



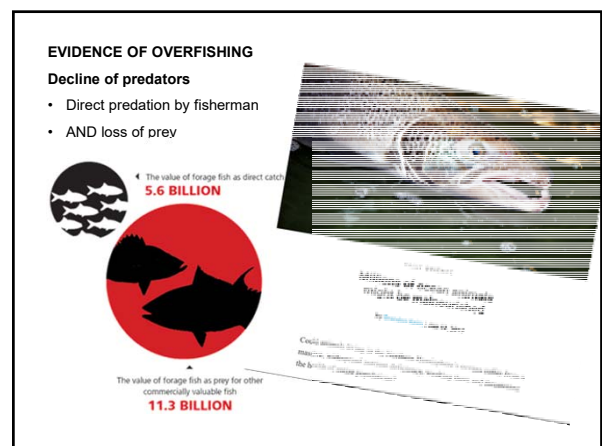
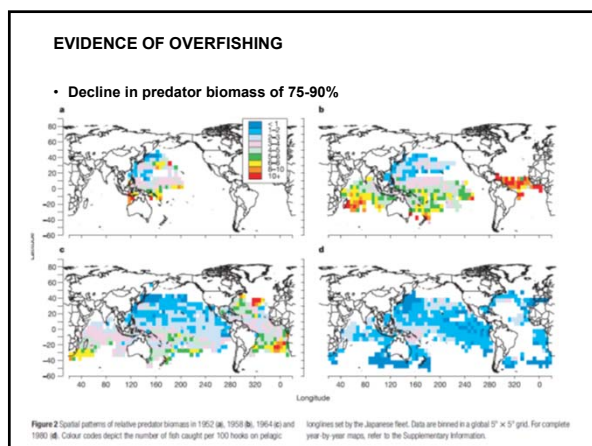
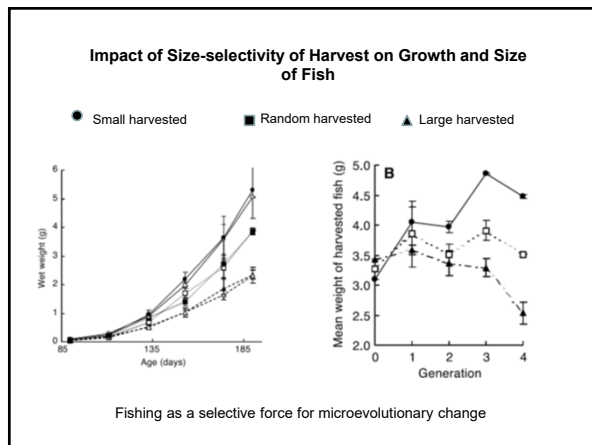
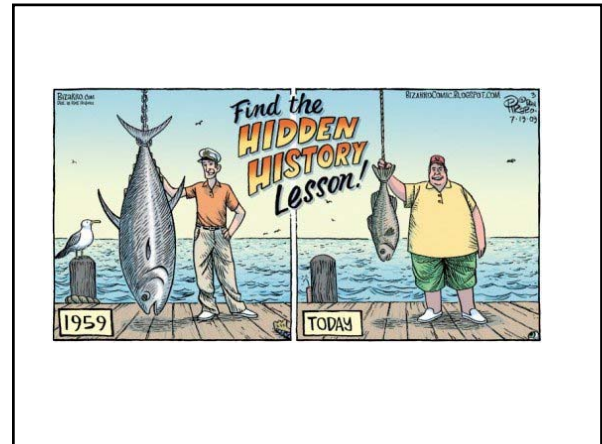
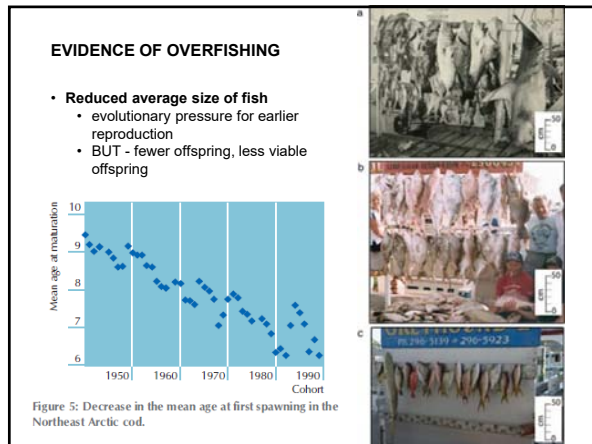
Shrimping boats moored in Port Clyde harbor. Officials closed the Gulf of Maine fishery this season because of low supply.
By JESS ROSENTHAL
Published: December 31, 2013

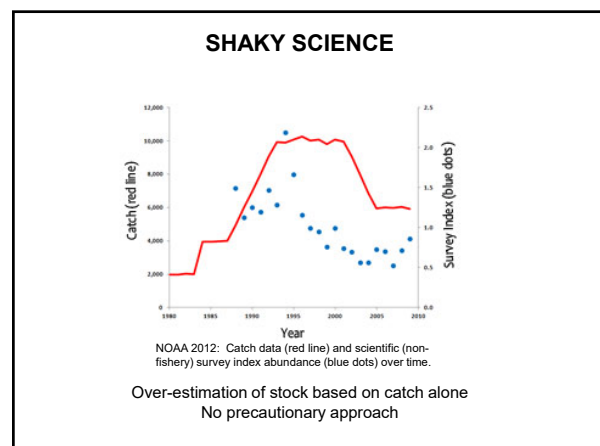
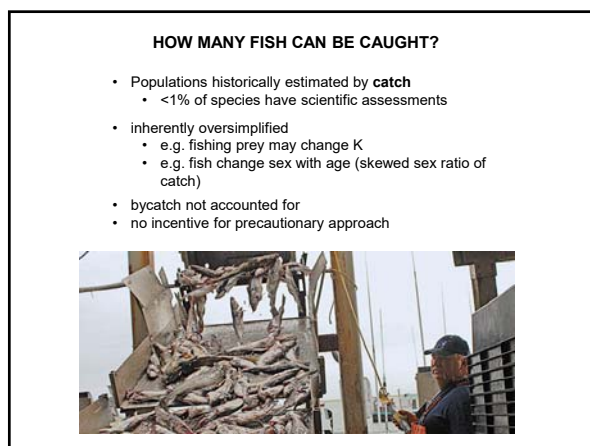
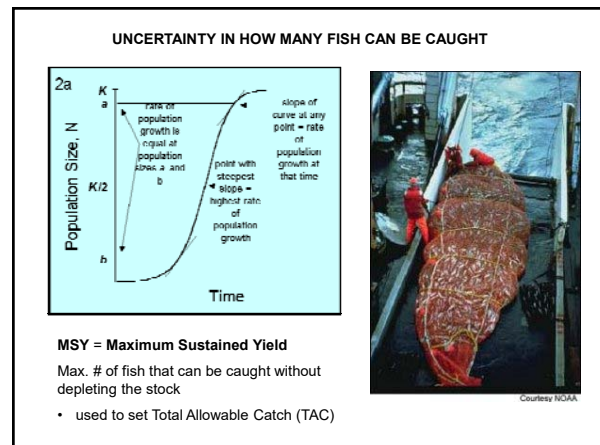
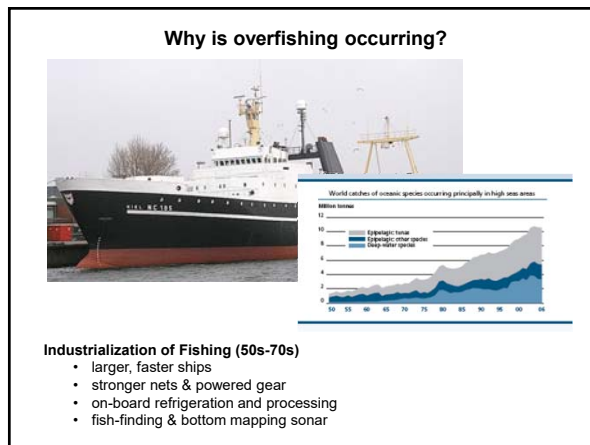
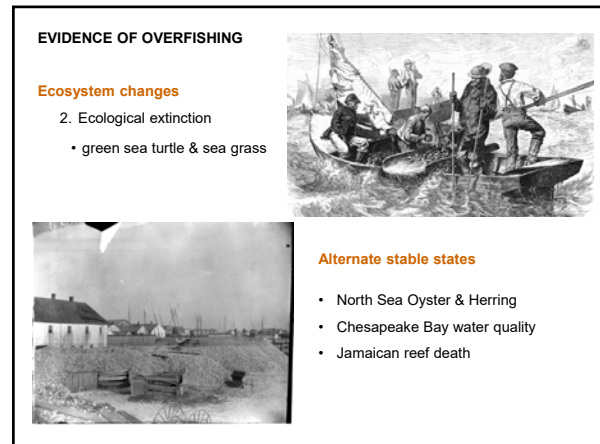
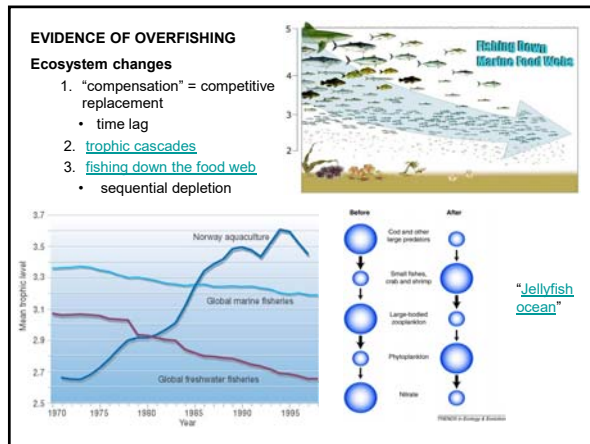
PORT CLYDE, Me. — Shrimping in the Gulf of Maine was so bad last season that Randy Cushman, a longtime fisherman, wondered if there was any point in going out at all.

"I can honestly say it was the worst catch that I've ever seen in my career," said Mr. Cushman, 51, who has captained a boat for more than 30 years. "I was calling people and headliners. Let's shut this fishery down."

Connect With Us on Twitter Follow @NYTimes for breaking news and headlines. Twitter List: Reporters and Editors

FACEBOOK TWITTER G+ DAIL SHARE PRINT REPRINTS





TAC and the "RACE TO FISH"

- TAC up for grabs! = intense competition
- RACE TO FISH – if you don't get it someone else will
- dangerous, risky behavior
- overcapitalization (more & faster boats, more gear, etc)
- chronic overfishing by *everyone*



SUBSIDIES & OVERCAPITALIZATION



WHERE THE MONEY'S GOING

Fuel subsidies	\$7.57B
Management	\$7.14B
Ports and harbours	\$3.46B
Fleet modernization	\$3.30B
Research & development	\$2.71B



Enhance revenue &/or reduce cost
 increase profit margin
 more participation
 greater effort
 "perverse incentives"

Results in overcapitalization
 2x more capacity than supply >>> overfishing
Worsens Race to Fish

TOWARDS SOLUTIONS

- Better Science
- Better Policy & Management
- Better Enforcement
- Habitat Protection
- Education
- Aquaculture



BETTER SCIENCE: STOCK ASSESSMENT

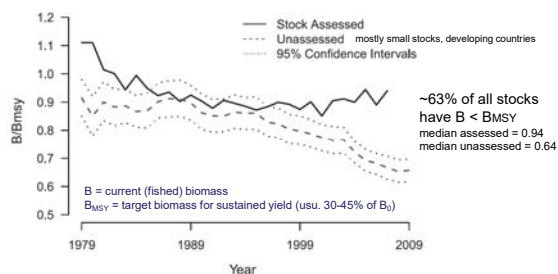
"Counting fish is just as easy as counting trees, except they are invisible and they move" - John Shepherd



20% of catch comes from assessed species; mostly large, data-rich stocks

STOCK ASSESSMENTS

Confirm catch rates have not been sustainable

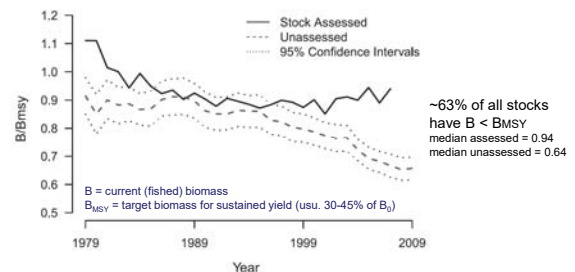


If $B < B_{MSY}$ = overfishing; stock not yielding as much as it could b/c pop. too low
 • if mortality > recruitment, pop. will decline / collapse
 If $B > B_{MSY}$ = "underfishing"; stock yield lower b/c pop. too high
 • but profit may be greater

STOCK ASSESSMENTS

Confirm catch rates have not been sustainable

99% of fisheries representing 80% of global catch are unassessed
 Costello et al 2012 estimated stocks of 1,793 of these fisheries (23% of global catch)



Small, unassessed fisheries worse off than assessed fisheries.
 Mostly in developing countries with little capacity for management.

BETTER POLICY: U.S. Fisheries Management

*stocks managed by fishers
declining yields led to demand for scientific management*

Magnuson-Stevens Fishery Conservation and Management Act – 1976

- National Marine Fisheries Service (NMFS - Dept. Commerce)
- Extended U.S. jurisdiction to 200 nm
- Set up Regional Fisheries Management Councils (RFMCs)
 - dominated by fishermen
 - assess stocks, set quotas, manage licensing, etc.
- Reauthorized in 2007: ending overfishing as primary goal

**1996 Amendment: Sustainable Fisheries Act**

- prevent overfishing, ensure sustainable harvests
- "minimize" bycatch
- conserve Essential Fish Habitat
- Regional Fisheries Management Councils with scientists

Sea to Table partners with fishermen from small scale sustainable wild fisheries, connecting fishermen with chefs.

**Keep America's Fisheries Great Again**

March 12, 2017

Forty years ago America's fisheries were in disarray. New technologies made commercial fishing far more efficient and fish stocks once thought inexhaustible were in full collapse. The passing of the Magnuson-Stevens Act in 1976 began a process that has made America's fisheries and fisheries management the beacon of the world. The new administration has already earned a reputation for dismantling environmental laws. President Trump has proposed a 17% reduction in the NOAA budget including elimination of the NOAA-managed Sea Grant program. A new bill, introduced by Alaska Congressman Don Young, doesn't cut Magnuson-Stevens, but it makes the law much more "flexible".

Biologists fear "flexibility" is a euphemism for "deregulation". "US fisheries management has generally been based on the core principle that we shouldn't be overfishing anything, and if we are, we should rebuild it," says University of Washington's Trevor Branch. "I think that's being weakened quite a bit here."

Although increased flexibility is the bill's headline, one clause would require putting the creation of catch share programs (management schemes that essentially privatize fisheries) to a vote among commercial fishermen. Allowing fishermen to approve catch shares through direct democracy, says Branch, "makes total sense." An interesting new book THE FISH MARKET highlights problems in our current catch share quota system which is driving fisheries control from fishermen to monied interests.

For all lovers of wild seafood, for the fish, the fishermen, and the traditional fishing communities they support, it is critical we get this right.

BETTER MANAGEMENT

IFQs = Individual Fishing Quotas (Catch Shares)

See The Economist but also Sumaila

TURFS = Territorial User Right to Fish

- divides T.A.C. among fisherman
- transferable
- eliminates the "race to fish"!



only works with
conservative catch limits!

**BETTER POLICY & MANAGEMENT**

Set precautionary quotas

Eliminate negative subsidies

Buy back
overcapacity

**BETTER ENFORCEMENT**

Crack down on IUU fishing

- Independent Monitoring (Skytruth: Oceana/Google)

The White House
Office of the Press Secretary
For Immediate Release June 17, 2014

Presidential Memorandum -- Comprehensive Framework to Combat Illegal, Unreported, and Unregulated Fishing and Seafood Fraud

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES
SUBJECT: Establishing a Comprehensive Framework to Combat Illegal, Unreported, and Unregulated Fishing and Seafood Fraud

The United States is a global leader in sustainable seafood. Over the course of the last 6 years, the United States has largely ended overfishing in federally managed waters and successfully rebuilt a record number of stocks depleted by the excesses of the past. At the same time, effective domestic management and enforcement of fishing regulations have supported near record highs in both landings and revenue for our domestic fishing industry. As a result, the U.S. management scheme is recognized internationally as a model for other countries as they work to end overfishing.

Nevertheless, illegal, unreported, and unregulated (IUU) fishing continues to undermine the economic and environmental sustainability of fisheries and fish stocks, both in the United States and around the world. Global losses attributable to the black market from IUU fishing are estimated to be \$10-23 billion annually, weakening profitability for legally caught seafood, fueling illegal trafficking operations, and undermining economic opportunity for legitimate fishermen in the United States and around the world.

Up to 30% of
global catch is
IUU

TOWARD SOLUTIONS

- Seafood Certification (e.g., MSC.org)
- Education & Labelling (e.g., fishwatch.gov)
- Marine Reserves (no-take zones)
- Ecosystem Restoration
- Aquaculture

