Confessions of a Convert

My transformation:

From fishery biology

Population Dynamics

To historical marine ecology

Tim D Smith

Growing up

Where: Camp Creek, Oregon, USA

When: 1946-1965

What: Biology and Maps

Time: Time began in 1890

Authority: There to help us

Universe: In equilibrium

Undergraduate Education

Where: Pacific Lutheran Univ., Puget Sound

When: 1965-1969

What: Mathematics & marine biology

Time: Began 14 billion years ago

Authority: “Breakdown in communications” VS irrational

Universe: Expanding

The March of Folly
From Troy to Vietnam

Barbara Tuchman

Graduate Education

Where: U. Washington, Seattle

When: 1969-1973

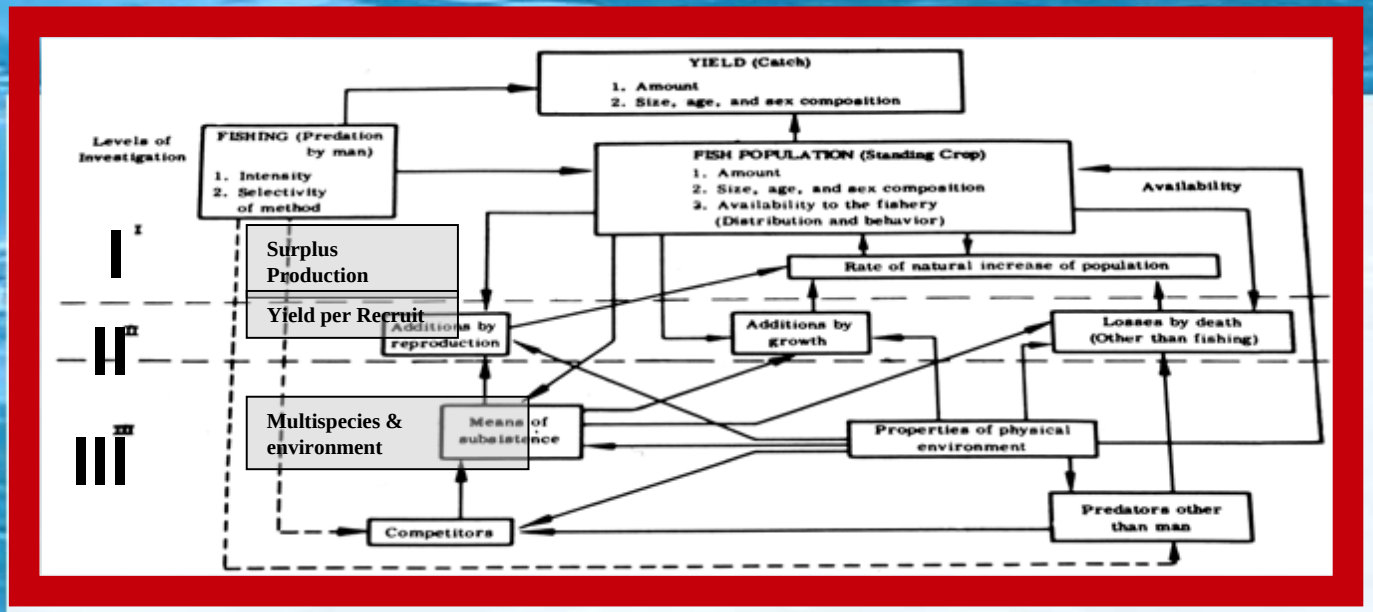
What: Biology & Mathematics

$$N_t = r(N)\, N_{t-1} - C_{t-1}$$

Time: Integrate it out

Authority: Need to inform

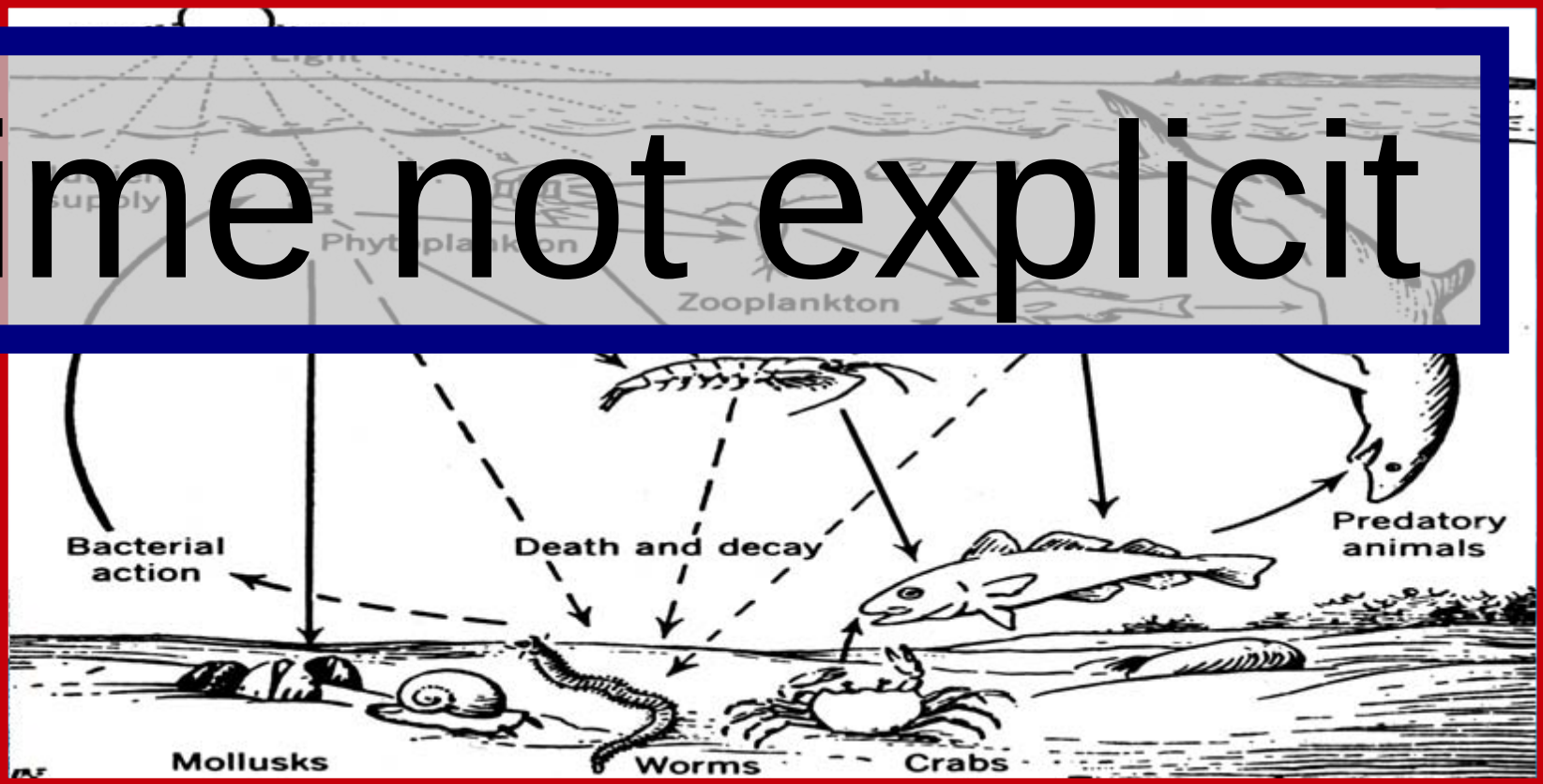
Universe: Expanding at increasing rate



Schaefer's (1955) diagram of fisheries research.

Clar… (194…): Geor…ges Bank ecosy…

Time not explicit



Integrating Time Out

Where: 3 Oceans

When: 1973-1998

What: Fishery Biologist: NOAA; U. Hawaii; U. Rhode Island

Time: Nuisance

Authority: We are manipulated by

Universe: Deterministic

Pacific:

Alaska fur seals; striped bass; **yellowfin tuna & dophins**

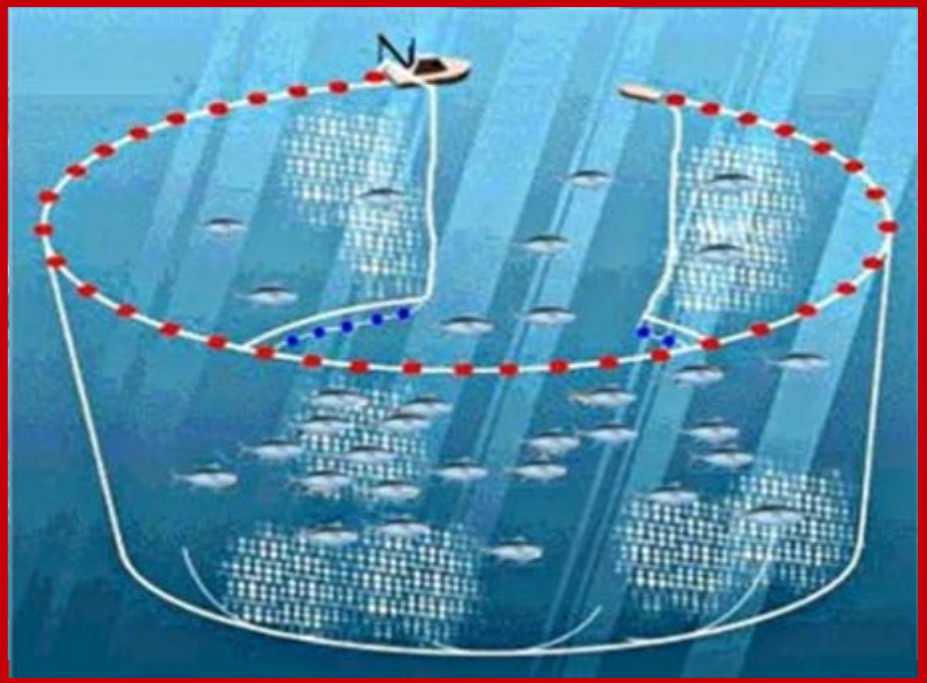
Antarctic:

baleen & sperm whales

Atlantic:

cod, porpoise, Cape fur seals, bottom fish, minke whales, pilot whales, humpback whales

My unraveling Over Time



Even More Unraveling Over Time

Frozen harbor porpoise killed and discarded in New England waters in drift gillnet fisheries, circa 1990s.

Facing into Time

Where: Woods Hole, Mass.

When: 1983-84

What: Sabbatical to repair my unraveling

Time: Began in 1871

Authority: Archival documents

Universe: Free choice

Why is fisheries biology failing me?

Fisheries science has a history.

But it is not a discipline!

FIS-P-6784 Tatiana Tunon and Gottfried Pestal Authorship patterns in 30 years of DFO research documents: Is applied fisheries research like other sciences?

“Not history, but useful to historians”

Disciplines & Eco-Rhetoric

History of Science

Political History

Economic History

Archaeology

Conservation biology

Ecology

Population Dynamics

Ecosystem Dynamics

Fishery Biology

Maximum Sustainable Yield

Fisheries Management

Systemic Management

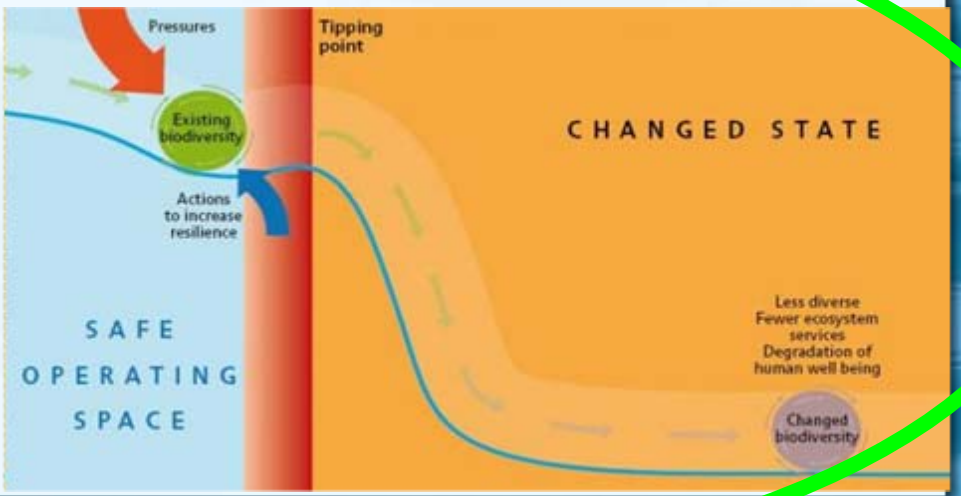
Ecosystem Management

Fisheries Co-Management

Ecosystem Collapse

Biodiversity Loss

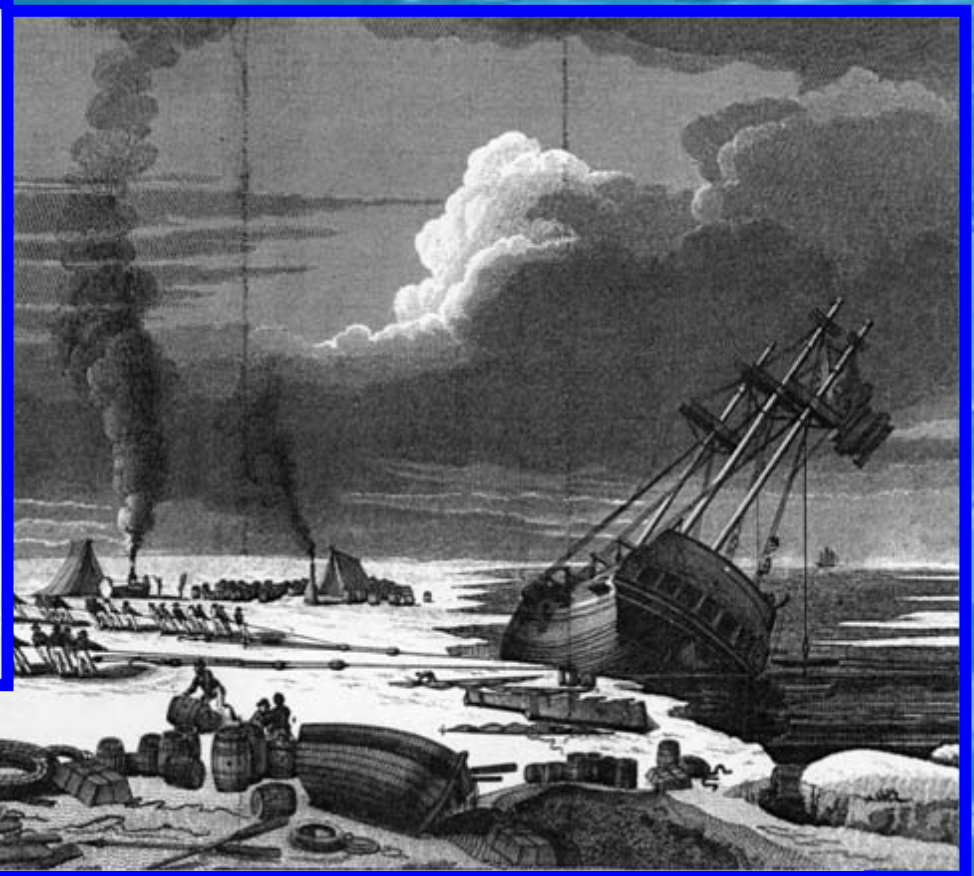
Population Bomb



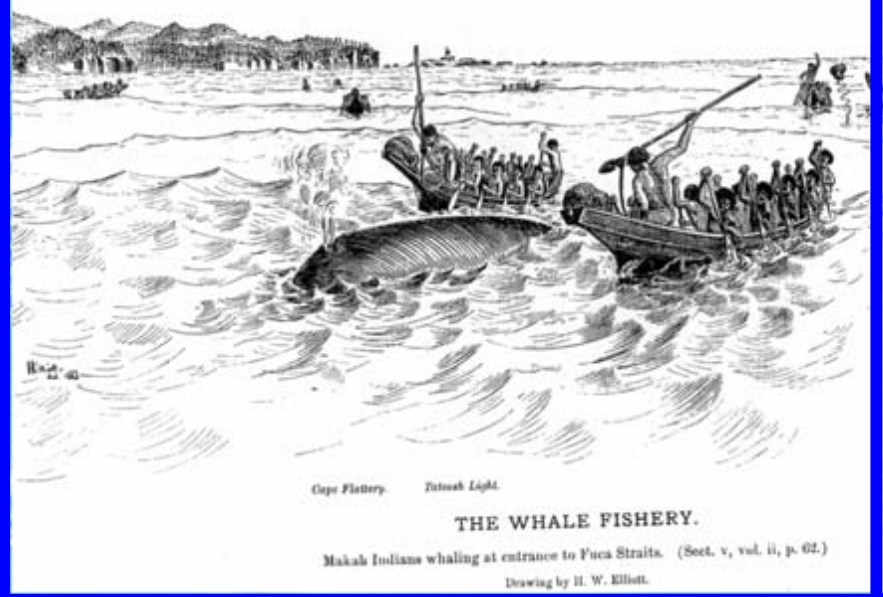
Civilization Collapse

Food from the Sea

Global Climate Change



Pre-20th Century



20th Century

Census of Marine Life

History of Marine Animal Populations (HMAP)

Where: The world's oceans

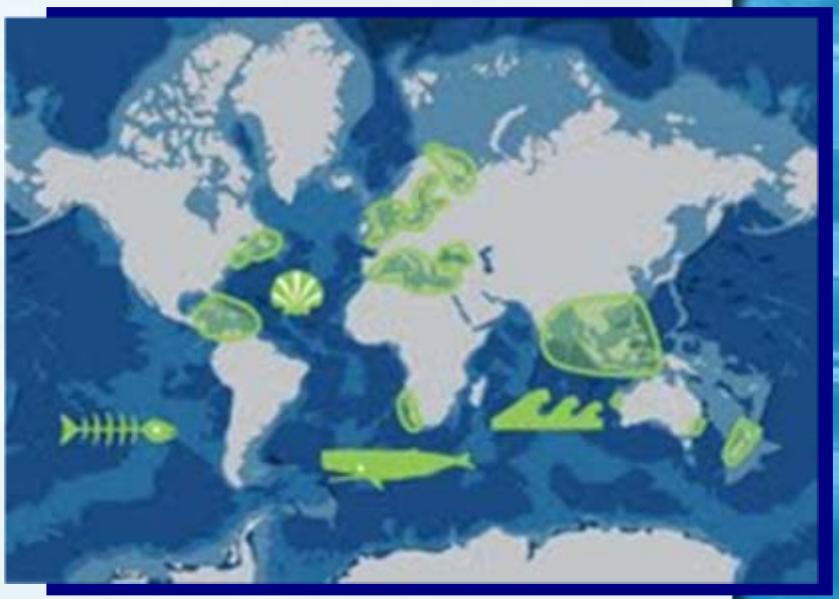
When: 1998-2010

What: Searching for resolution

Time: Began in 1500 AD

Authority: Archives

Universe: Free choice and grace



HMAP Goals

- Multidisciplinary research network

historians, ecologists, archeologists

- Datasets of historical records

fishing effort, fish catches, paleoecological measures of fish abundance

- Testing of ecological and historical development theories

HMAP Projects

Regional

Asia
Baltic
Caribbean
Gulf of Maine Cod
Mediterranean & Black Seas
New Zealand
Newfoundland & Grand Banks
SE Australia
SW African Shelf
Wadden Sea
White & Barrents Seas

Global

World Whaling
Human-Mollusk Interactions
Fish Bones
Near Shore Biodiversity

HMAP RESULTS

Useful historical records more abundant than we expected.

Ocean changed far earlier than we expected.

Changes are continuing.

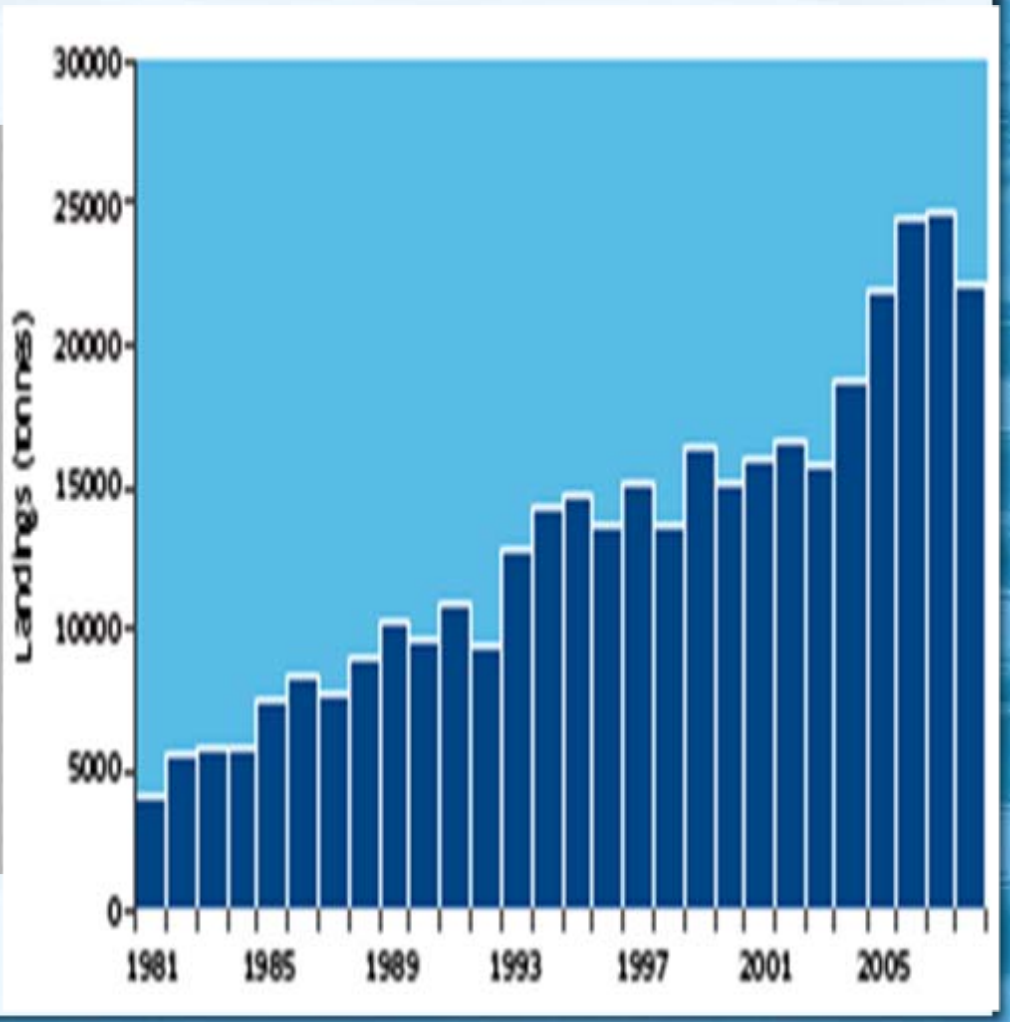
Historical information is affecting management.

Historical and scientific disciplines are different, but not incompatibly different

Students trained in marine environmental history and in historical marine ecology.

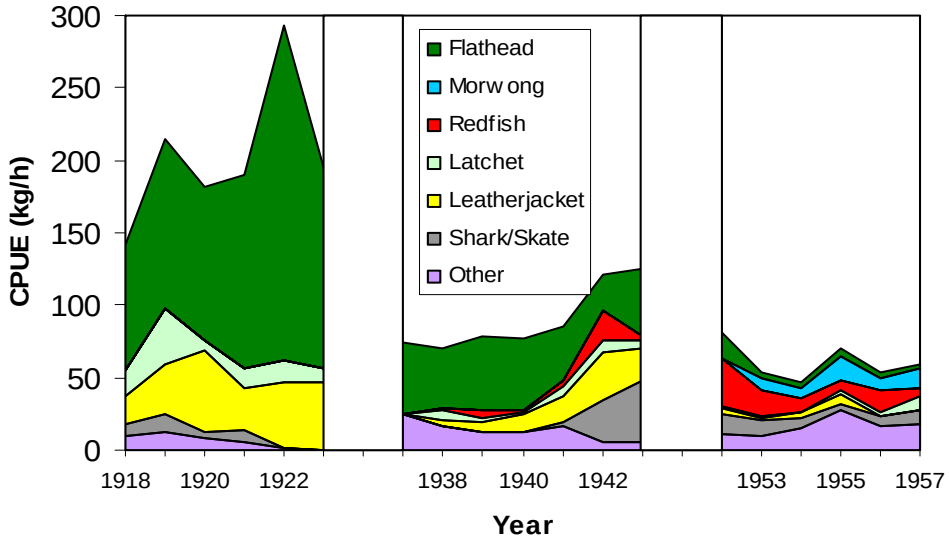
Red Funnel Fleet: SE Australia

Nephrops Landings

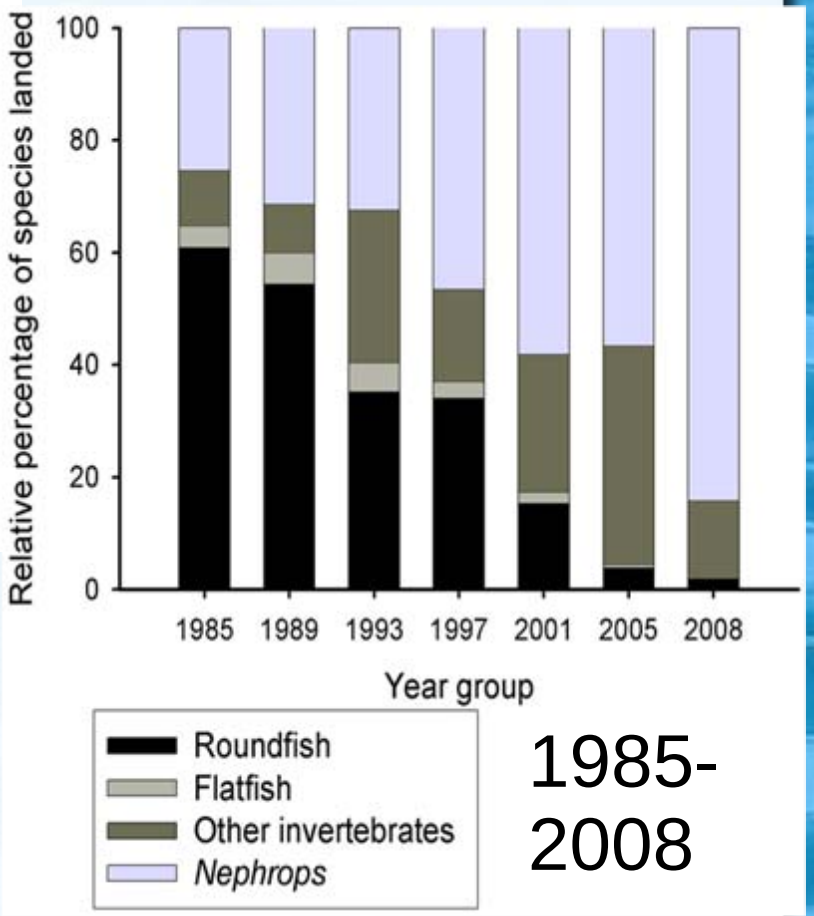


Changes in Species Composition

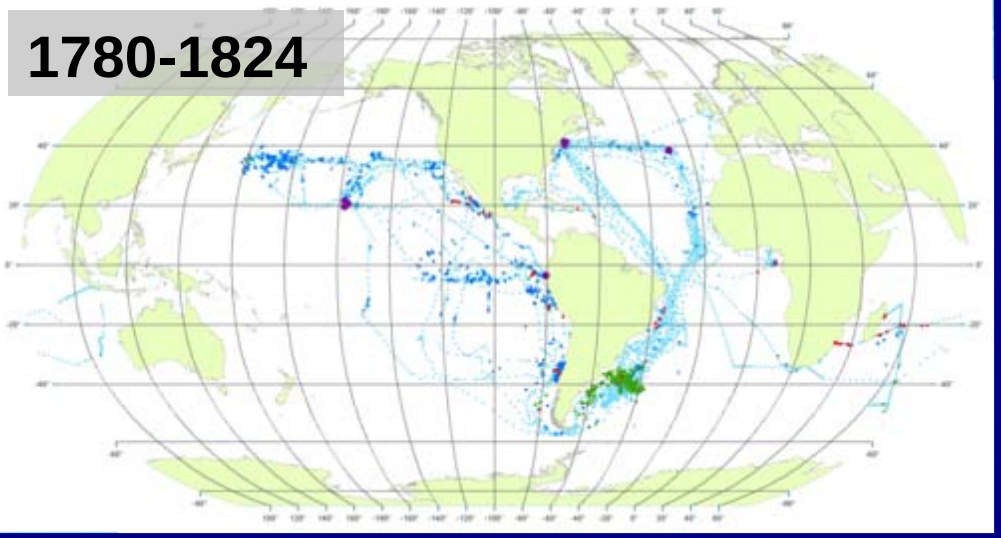
Firth of Clyde

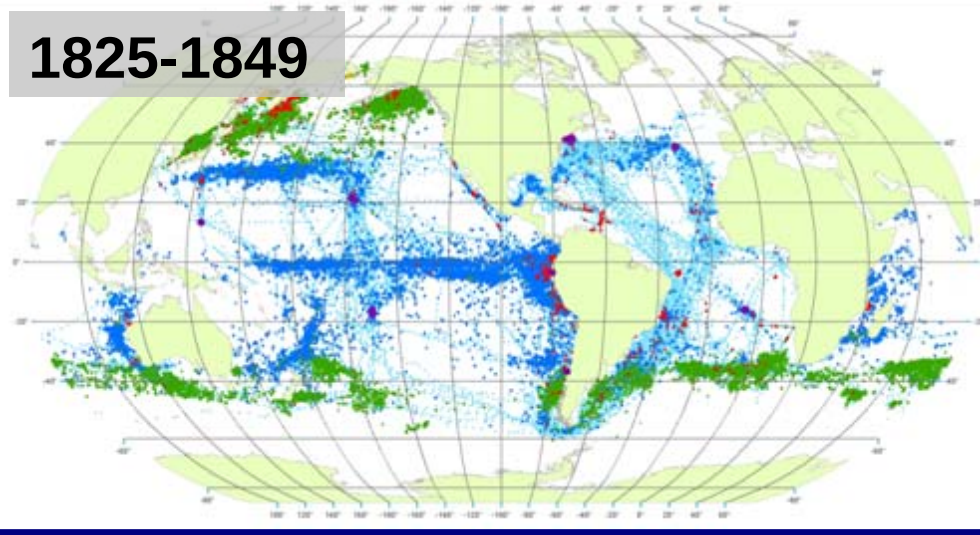


SE Australia
1914-1957



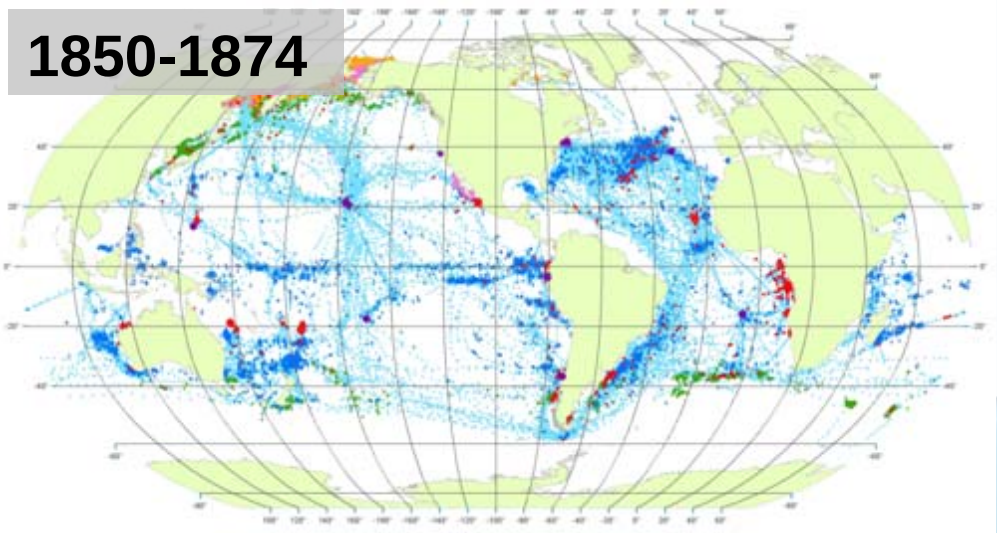
1985-
2008

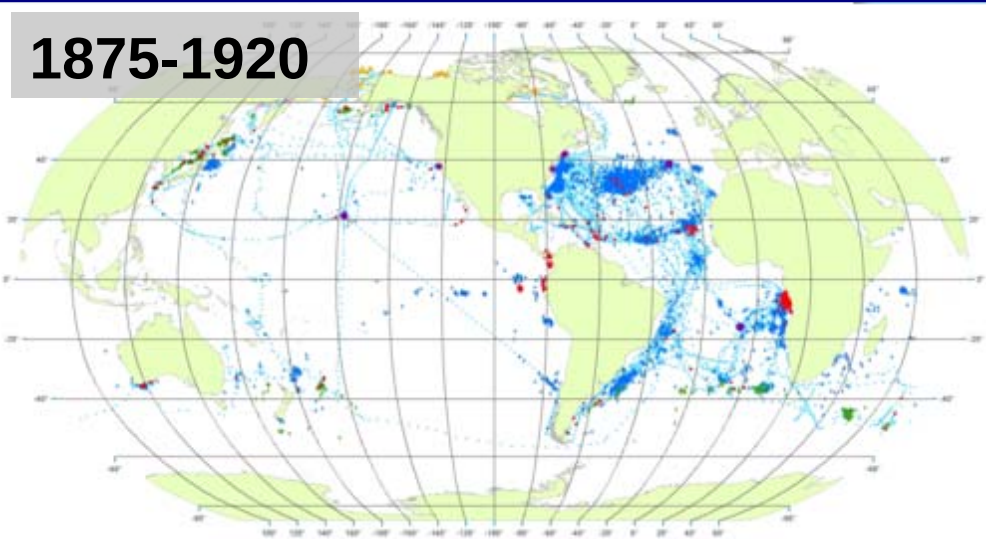




Light blue: no whales
Dark blue: sperm whales
Dark green: right whales
Red: humpback whales

Changes in species and areas of 19th C American whaling





Gap in North Pacific Rim

S8-6820 Ann E. Edwards and Shannon Fitzgerald
Predicting resilience to ecosystem change in a far-ranging, pelagic, generalist forager

S4-6516 Hiroko Sasaki, Keiko Sekiguchi and Sei-Ichi Saitoh
Cetacean habitat distribution in the eastern Bering Sea and Chukchi Sea

Implications of HMAP Conclusions

Pristine marine ecosystems no longer exist

Recovery to pristine states is a mythical goal

Ahistorical management goals are inconsistent with reality

More projects are possible: N. Pacific Rim, South America, Africa, Indian, large pelagic fishes, coastal margins everywhere

Can Organize Disciplines and Eco-Rhetoric

Disciplines & Eco-Rhetoric

Marine Environmental History

Historical Marine Ecology

Historically Informed Eco-Rhetoric

Conservation biology

Ecology

History of Science

Ecosystem Dynamics

Fishery Biology

Political History

Maximum Sustainable Yield

Fisheries Management

Systemic Management

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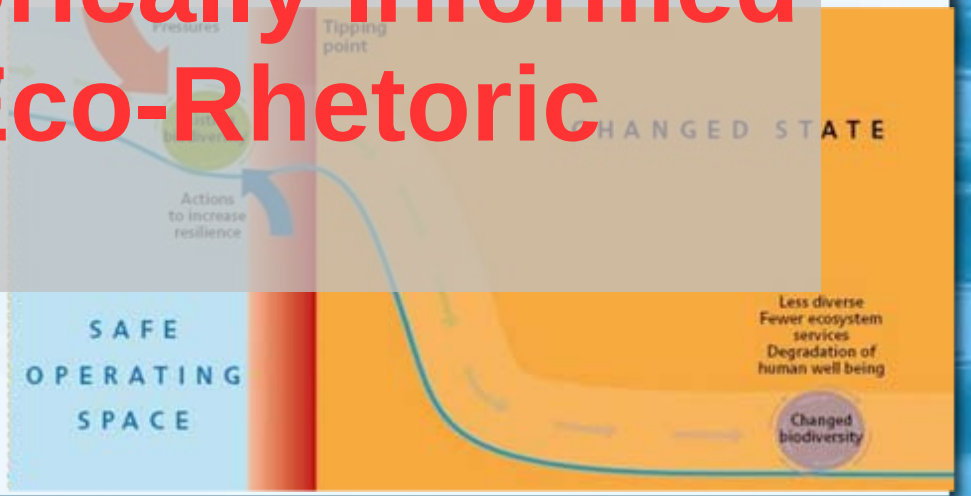

Grace:
ecosystem can heal!