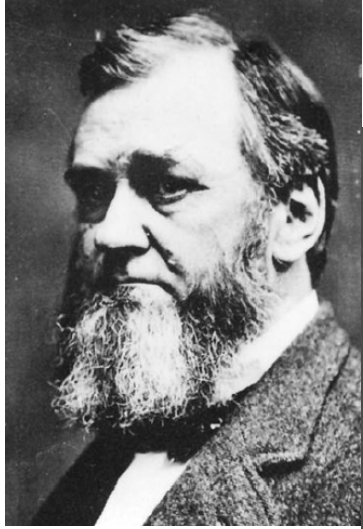


History of Fisheries Oceanography



Spencer Fullerton Baird
(1823 – 1887)



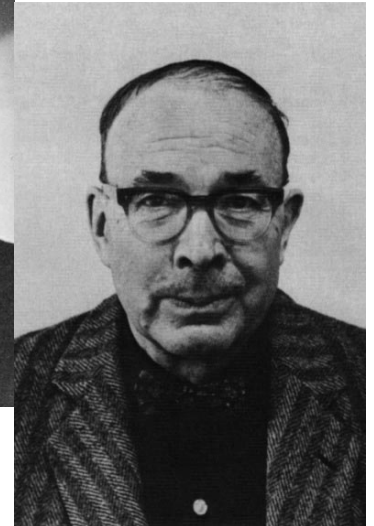
Johan Hjort
(1869 – 1948)



Henry Bryant Bigelow
(1879 – 1967)



Oscar Elton Sette
(1900 – 1972)



Lionel Albert Walford
(1905 – 1979)



William Francis Thompson
(1888 – 1965)

1930: UW Oceanographic Laboratories founded and directed by TG Thompson (formalized in 1951)

1935: UW Board of Regents approves School of Fisheries under Acting Director WF Thompson.

Evolution of Definition

“...any kind of oceanography required for the appraisal or exploitation of any kind of organism useful to Man” (Blackburn quoted by Sette 1961)

No interest in cause, no explicit life history stage(s), **abundance for harvest**

“...is concerned with fluctuations in abundance of fisheries resources, the role of man in producing such fluctuations, and measures which can be taken to achieve and maintain optimum yields from these resources”
(McHugh 1970)

No explicit life history stage(s), interest in variance, **optimum harvest**

NOAA: to better understand the influence of the environment on living marine resources in order to improve management.

Fisheries Oceanography Flavors

Operational Fisheries Oceanography

- relationships of fisheries resources to the environment so fisheries can be prosecuted more effectively (e.g. predict availability of resources using oceanography)

Recruitment Fisheries Oceanography

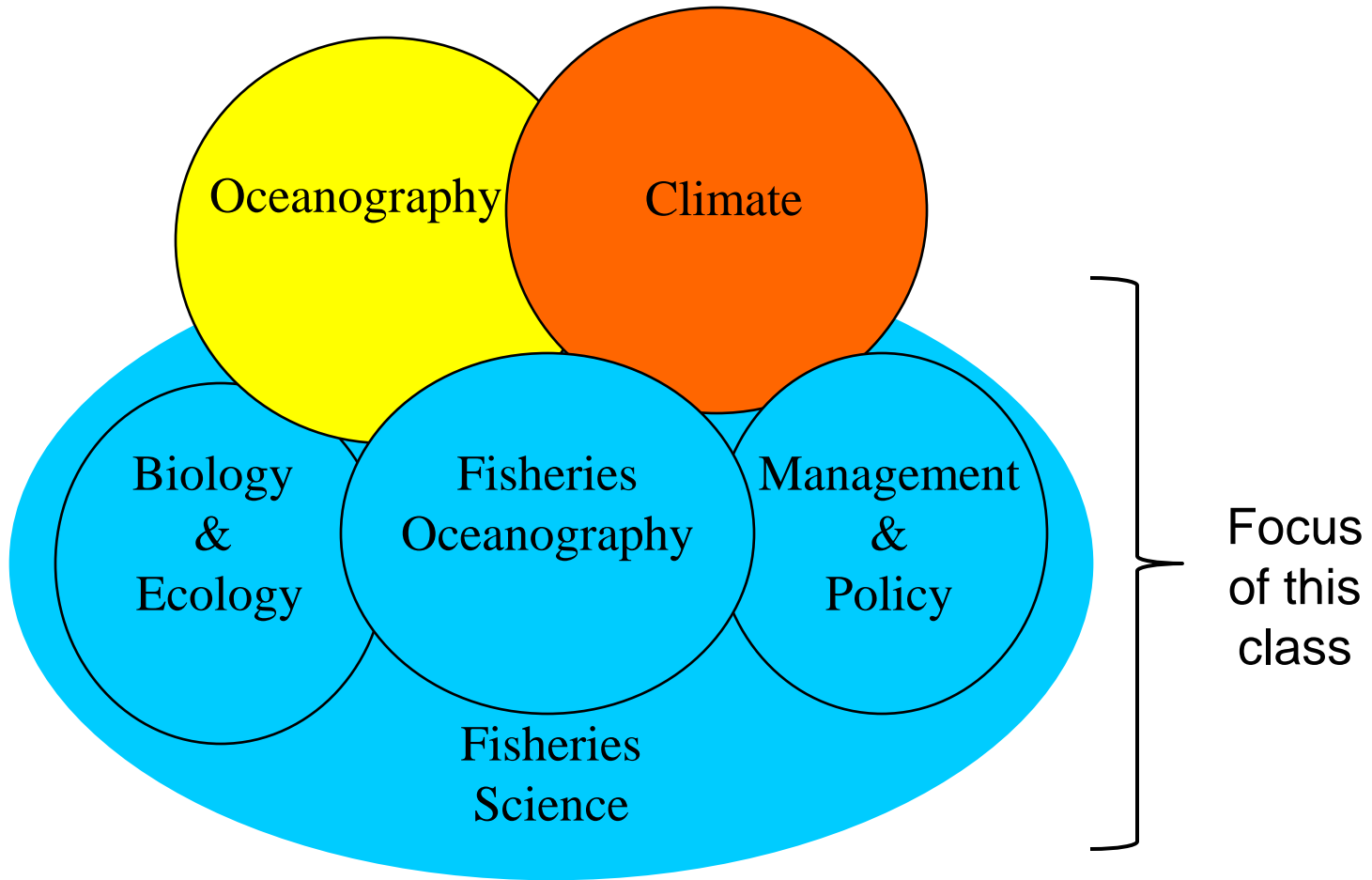
- fluctuations in abundance of fishes, ... through research on causes of variations in mortality of young stages (e.g. fluctuations in year-class strength)

Biological-Physical Fisheries Oceanography

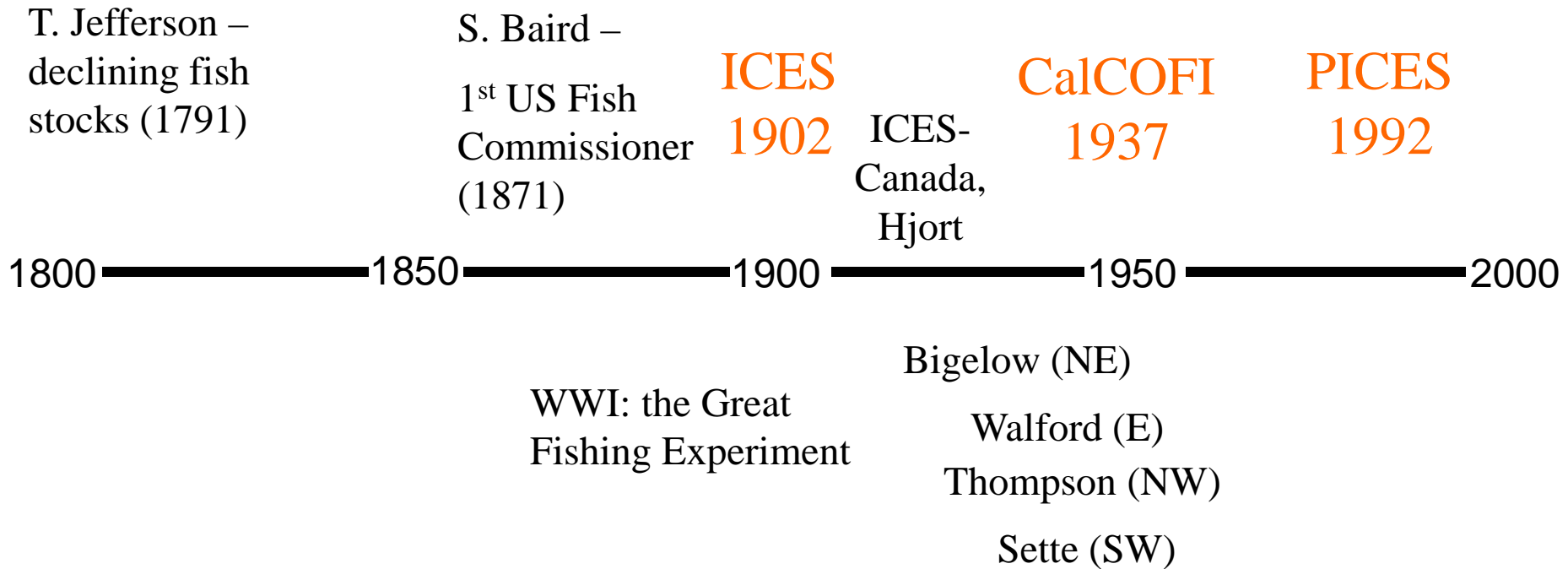
- productivity of the ocean and its effect on fish stocks (e.g. decadal shifts in abundance at boundary currents)

Which one is the best predictor? Why?

Where does Fisheries Oceanography fit?



Historical Timeline



Fishery Science Programs in ICES

Migration Committee (Committee A): initial hypothesis - fish species (herring, cod) undertook large-scale, annual migrations and that spatial and temporal variation in migrations affected local catch rates (i.e. **understand fluctuations in landings due to movements**)

Overfishing Committee (Committee B): TOR – overfishing and destruction of immature fish. Research program focused on a) catch statistics, b) quantitative egg surveys, c) research vessel trawl surveys, d) mark recapture program (i.e. **understand fluctuations in landings due to mortality**)

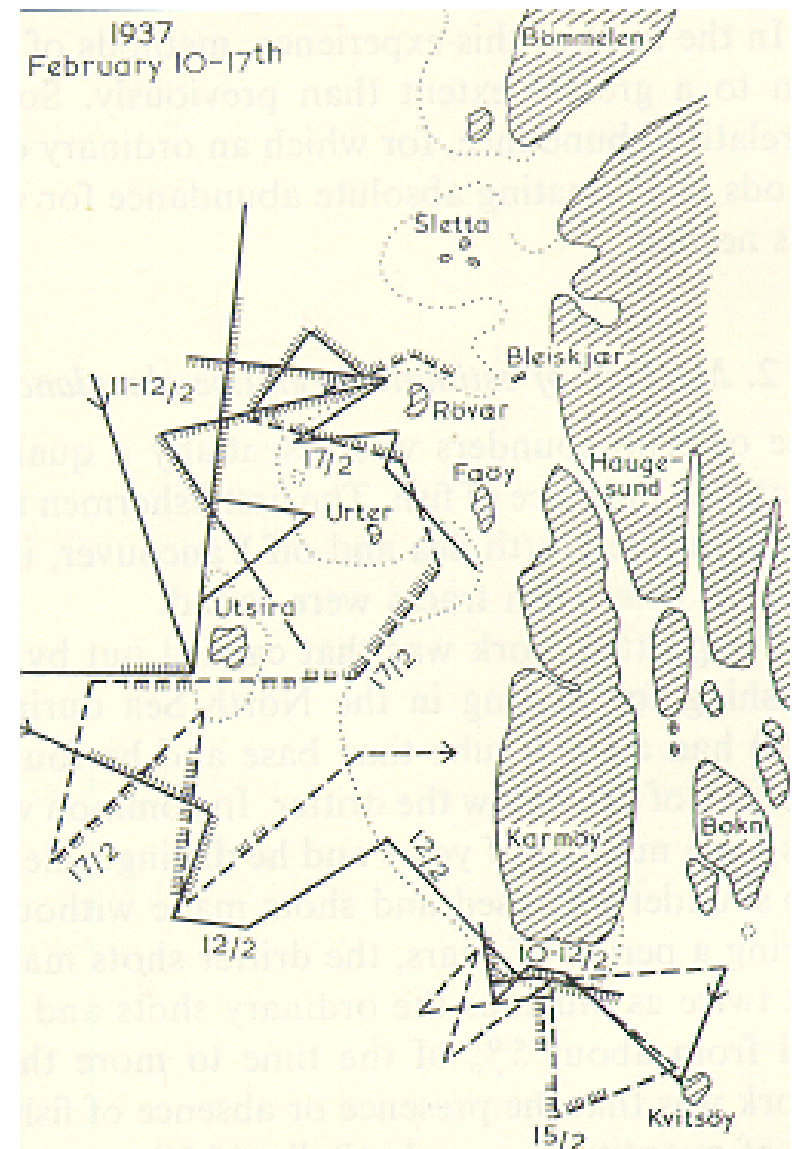
Baltic Sea Committee : Euro-centric, economically important

cf. Smith 1994

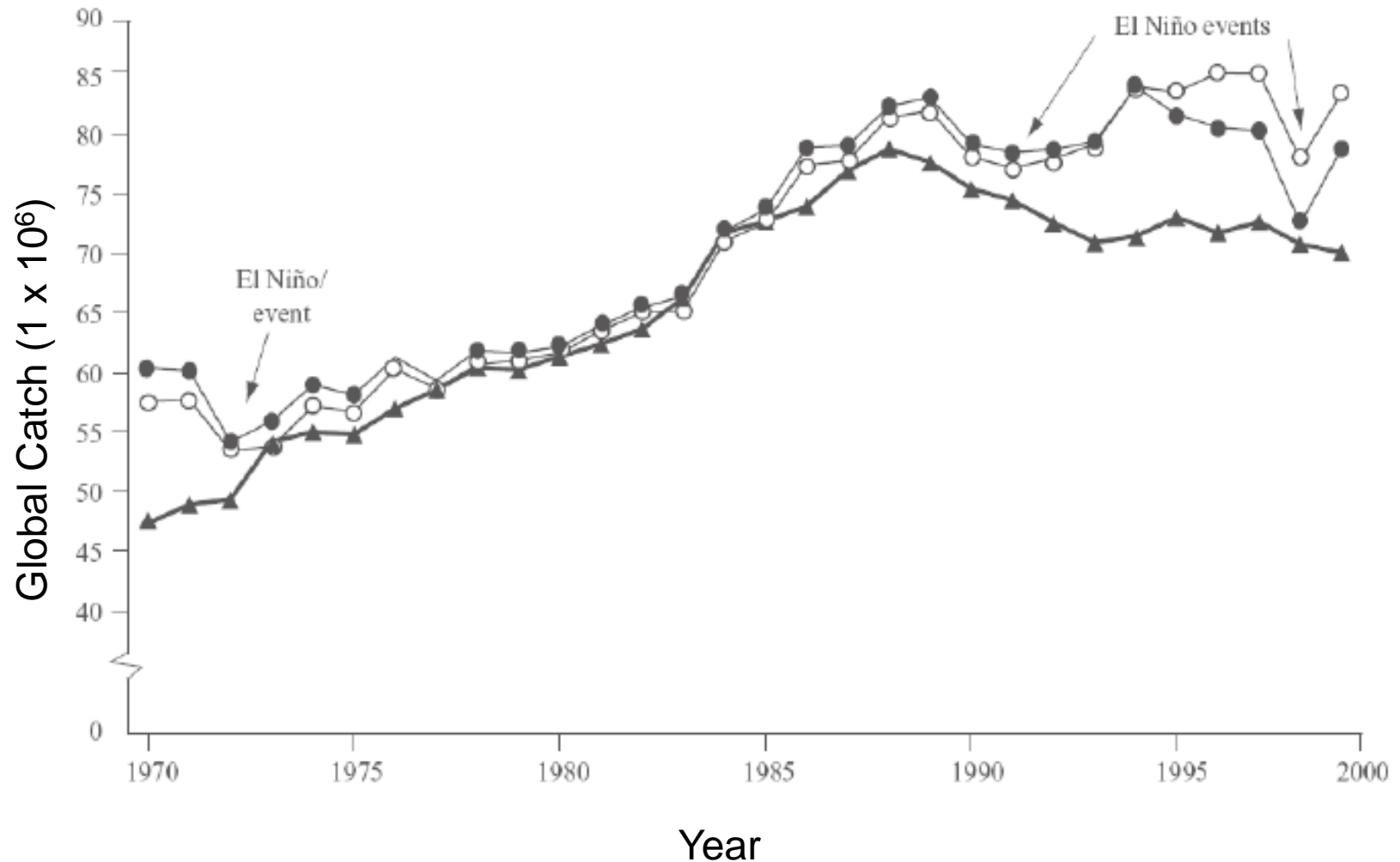
First Dedicated Acoustic Survey

Runnstrøm (1937)

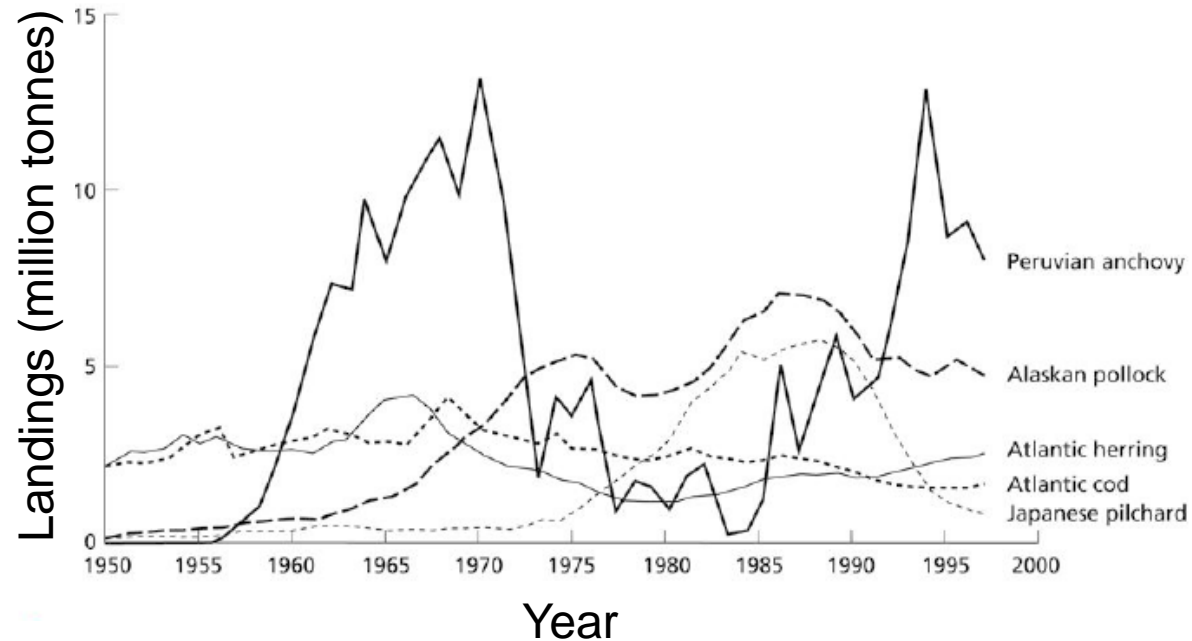
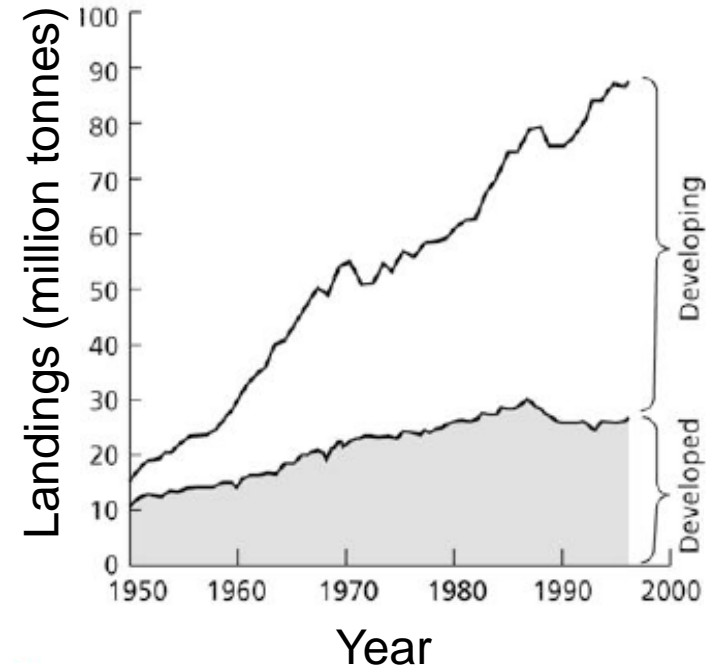
- herring surveys in Norway



World Fish Landings (FAO)

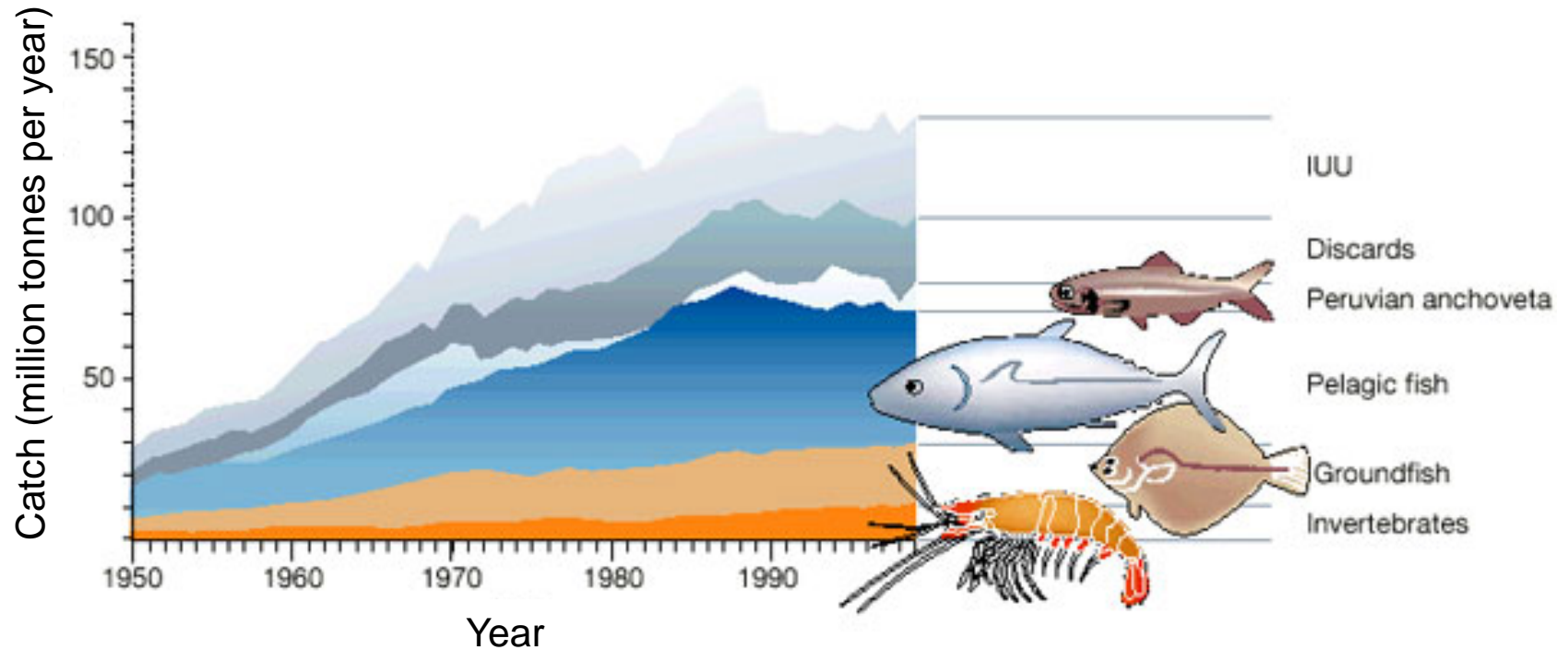


Marine Fish & Invertebrate Landings



Marine Fish & Invertebrate Landings

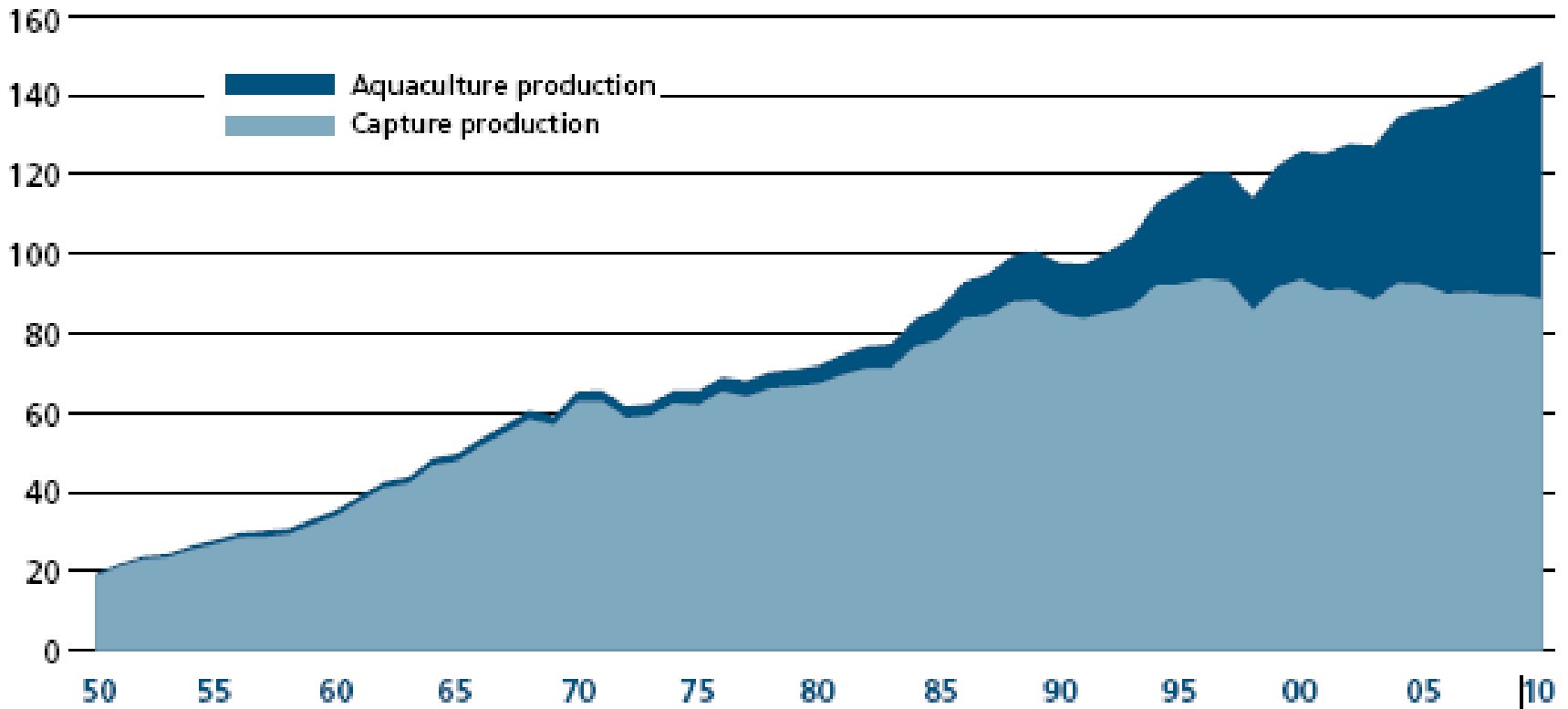
Towards sustainability in world fisheries (Nature 418: 689-695)



IUU – illegal, unreported, unregulated

Increasing Role of Aquaculture

Million tonnes



World Fisheries Production and Utilization

	2006	2007	2008	2009	2010	2011
<i>(Million tonnes)</i>						
PRODUCTION						
Capture						
Inland	9.8	10.0	10.2	10.4	11.2	11.5
Marine	80.2	80.4	79.5	79.2	77.4	78.9
Total capture	90.0	90.3	89.7	89.6	88.6	90.4
Aquaculture						
Inland	31.3	33.4	36.0	38.1	41.7	44.3
Marine	16.0	16.6	16.9	17.6	18.1	19.3
Total aquaculture	47.3	49.9	52.9	55.7	59.9	63.6
TOTAL WORLD FISHERIES	137.3	140.2	142.6	145.3	148.5	154.0
UTILIZATION						
Human consumption	114.3	117.3	119.7	123.6	128.3	130.8
Non-food uses	23.0	23.0	22.9	21.8	20.2	23.2
Population (<i>billions</i>)	6.6	6.7	6.7	6.8	6.9	7.0
Per capita food fish supply (<i>kg</i>)	17.4	17.6	17.8	18.1	18.6	18.8

Typical Fishery Trajectories

