

Blue Fishing & Aquaculture: threats, obstacles and opportunities

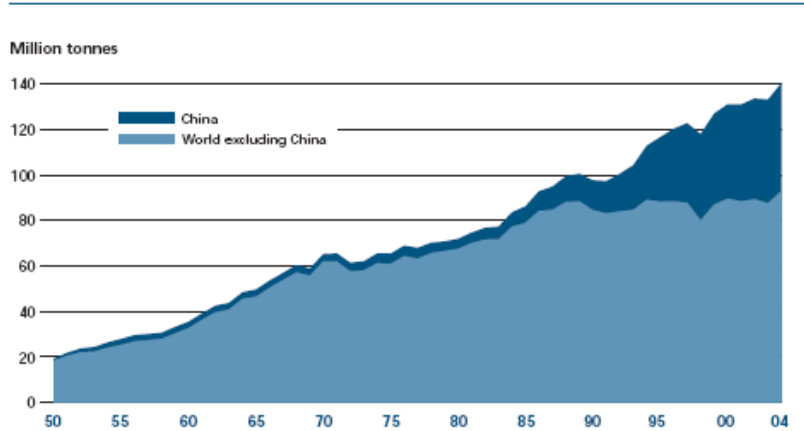
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Coordination thématique « Biodiversité »

BIOMARINE: The life resources of our oceans - 23 octobre 2008

Worldwide Fisheries & Aquaculture figures in 2004 (FAO, 2006)

World capture and aquaculture production



MARINE

Capture	72.0	69.8	70.2	67.2	71.3	69.7
Aquaculture	4.9	5.3	5.6	6.1	6.6	6.6
Total marine	76.9	75.2	75.8	73.3	77.9	76.3

Figure B

Percentage of oceanic epipelagic resources in various phases of fishery development, 1950–2004

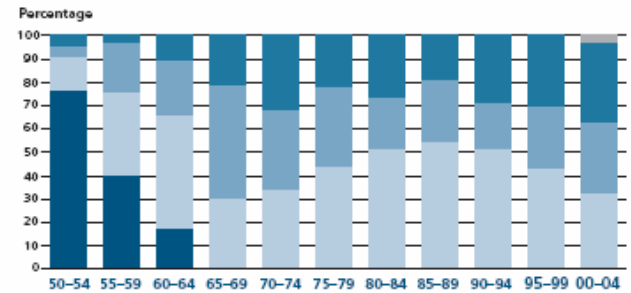
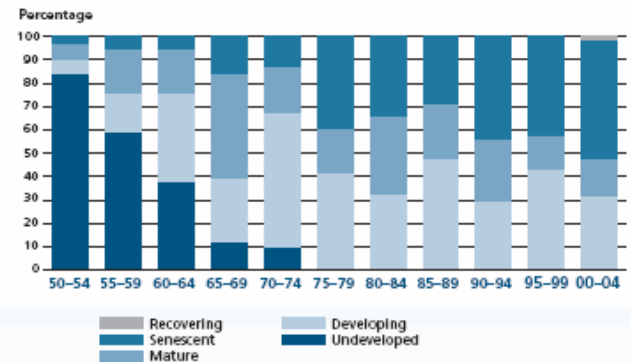
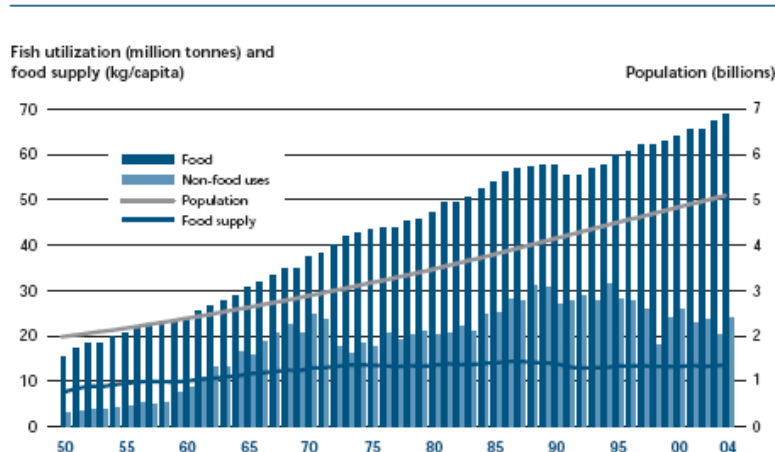


Figure C

Percentage of oceanic deep-water resources in various phases of fishery development, 1950–2004

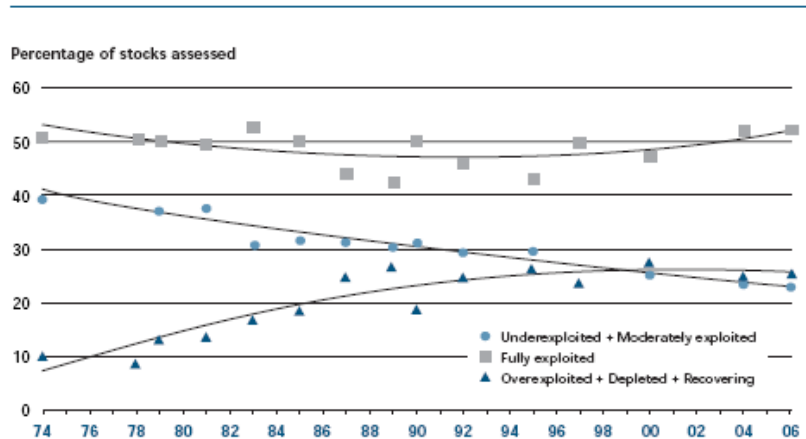


World fish utilization and supply, excluding China

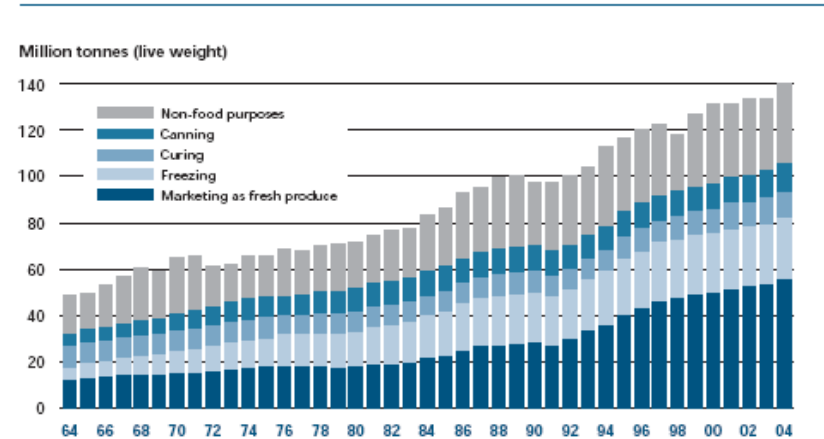


Worldwide Fisheries & Aquaculture figures in 2004 (FAO, 2006)

Global trends in the state of world marine stocks since 1974



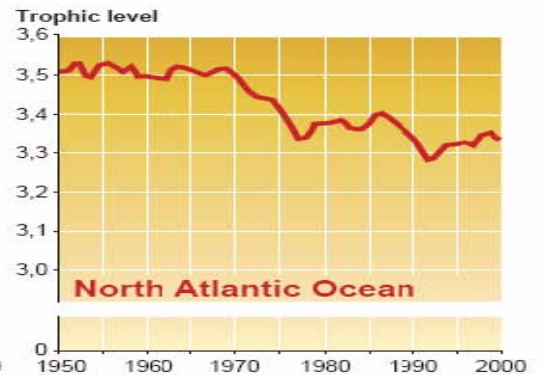
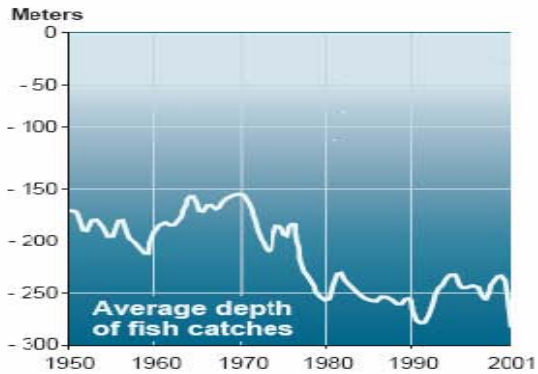
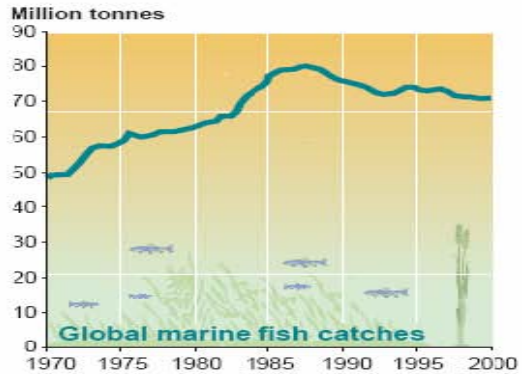
Utilization of world fisheries production (breakdown by quantity), 1964–2004



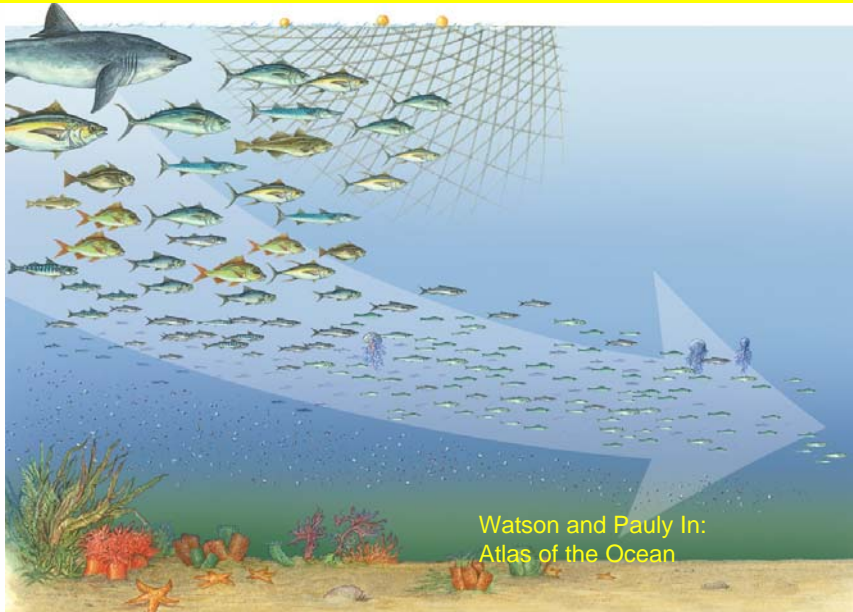
- Total capture fisheries tend to stabilize due to continuous increasing fishing effort
- Aquaculture is & will be a key player in marine food supply

....although both need 'Sustainability'

Major trends for fisheries resources (MEA, 2005)



**Annual increase demand : 2.9%
(25kg/year/1988 - 34,2kg in 2003 !!!)**



Trophic Index

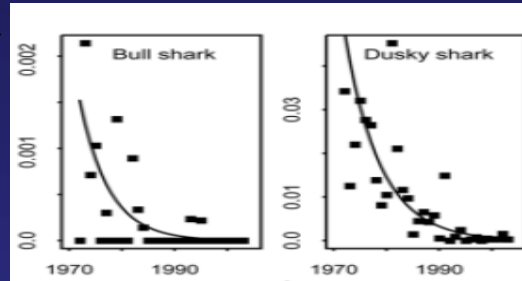
Atlantic North West
USA



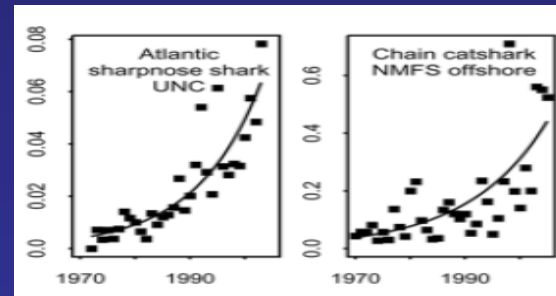
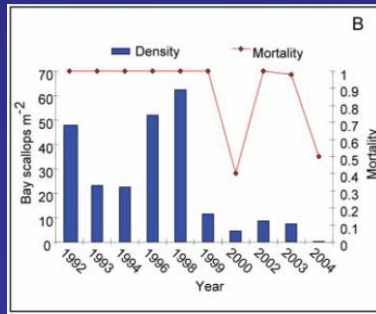
Sharks



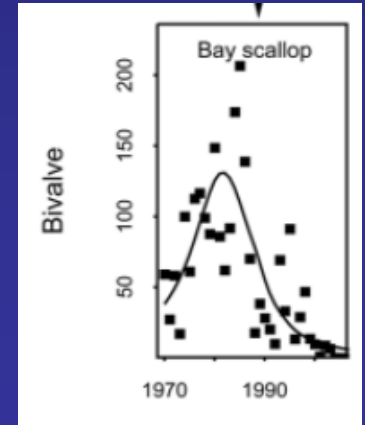
ECOSYSTEM APPROACH : Cascading effects of top predator fisheries on the ecosystem & biodiversity



Catsharks (Raies-Roussettes)



Pectinids - Scallops



'TOP-DOWN' effects – INTERACTIONS are critical !

Fisheries exploitation for non human consumption... Aquaculture – Fishery interactions for fishmeal & fishoil production

Sustainability of Peruvian anchovy fishery A key player for cultured fish food production (2005)

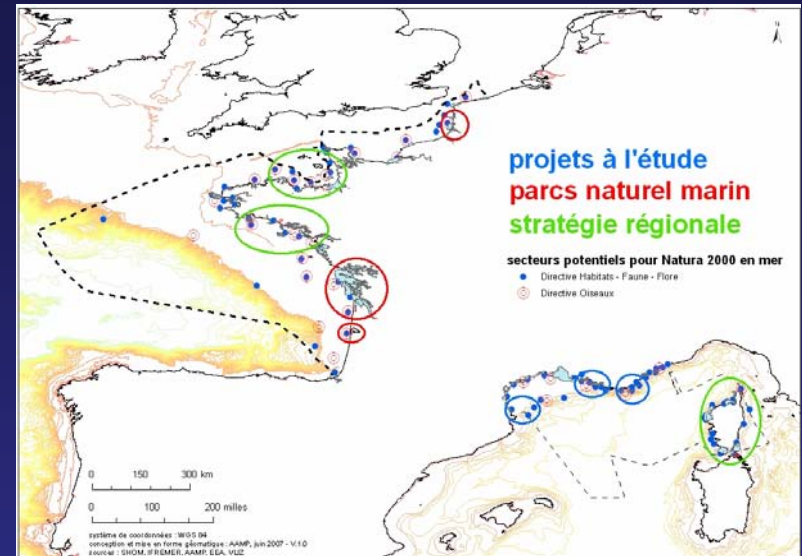


<u>Fishmeal</u>	<u>Production</u>	<u>%</u>	<u>Fish oil</u>	<u>Production</u>	<u>%</u>
S. America	2,083,560	71.4	S. America	351,388	41.3
Asia	1,693,582	99.1	Europe	338,385	66.9
Europe	1,054,700	96.6	N. America	112,211	12.0
N. America	422,307	45.1	Asia	98,308	97.0
Africa	223,884	89.1	Africa	21,284	100
Oceania	42,237	99.0	Oceania	2,850	100
<u>Total</u>	<u>5,520,270</u>	<u>81.8</u>	<u>Total</u>	<u>924,426</u>	<u>55.0</u>

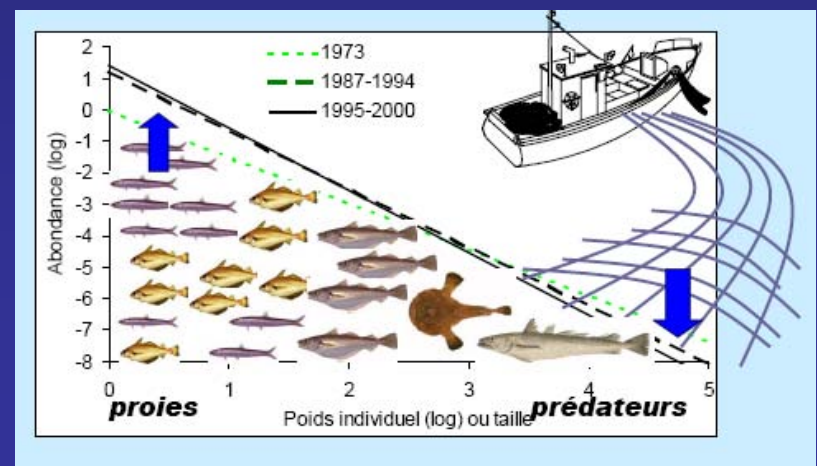
Worldwide production of fishmeal & fishoil (WWF, 2008; FAO, 2003)

How to sustain Ecosystem Services such as Aquaculture & Fisheries ??

1. Target : Fisheries & Aquaculture Sustainability (cf. CBD objectives 2010, FAO code)
2. MPAs management options (cf CBD)
3. Experiment & implement new management options (ICZM, ITQs....)
4. Improve governance on cross-cutting issues : aquaculture regulation vs 'public health' vs 'environment health' - vectors of exotic species introduction
5. Marine Strategy Framework Directive (MSFD) 2008
6. Assess & incorporate Economy of Biodiversity in public policies and develop new markets (cf. CBD, EEB 2008)
7. Develop a platform of Worldwide scientific expertise : new MEA + IMOSEB = IPBES (// IPCC)



French National Agency MPAs' – from 0.97% to 10% of marine areas under French jurisdiction



Interactions between fishing effort & global changes effects....