2050

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- **Millennium Ecosystem Assessment (2005) Synthesis**
  http://www.maweb.org/

- **WWF Living Planet Report**

- **FAO Sofia 2004**
  http://www.fao.org/DOCREP/007/y5600e/y5600e00.htm

- **CoML** (Census of Marine Life) **F-MAP**
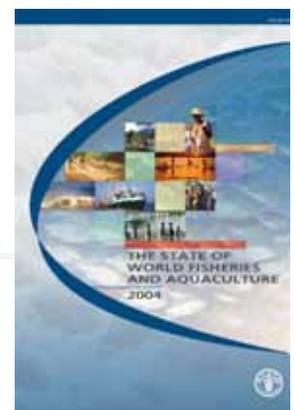
SOFIA 2004

Projections of food fish demand

Forecasts and forecast dates	Price assumption	By the forecast date		Required from aquaculture by the forecast date[4]				
				Growing fisheries		Stagnating fisheries		
		Global consumption	Food fish demand	Total output	Growth rate	Total output[5]	Growth rate	Average annual increase
		(kg/year/capita)	(million tonnes)	(million tonnes)	(percent)	(million tonnes)	(percent)	(million tonnes)
IFPRI (2020)								
Baseline	Flexible real	17.1	130	53.6[3]	1.8	68.6	3.5	1.7
Lowest[1]	and relative	14.2	108	41.2	0.4	46.6	1.4	0.6
Highest[2]	prices	19.0	145	69.5[3]	3.2	83.6	4.6	2.4
Wijkström								
(2010)	Constant	17.8	121.1	51.1[3]	3.4	59.7	5.3	2.4
(2050)	Constant	30.4	271	177.9[3]	3.2	210	3.6	3.5
Ye (2030)								
	Constant	15.6	126.5	45.5[3]	0.6	65.1	2.0	1.0
	Constant	22.5	183.0	102.0[3]	3.5	121.6	4.2	2.9

Trend in utilization of world fisheries production, 1962–2002

Million tonnes (live weight)

Non-food purposes
Canning
Curing
Freezing
Marketing as fresh produce
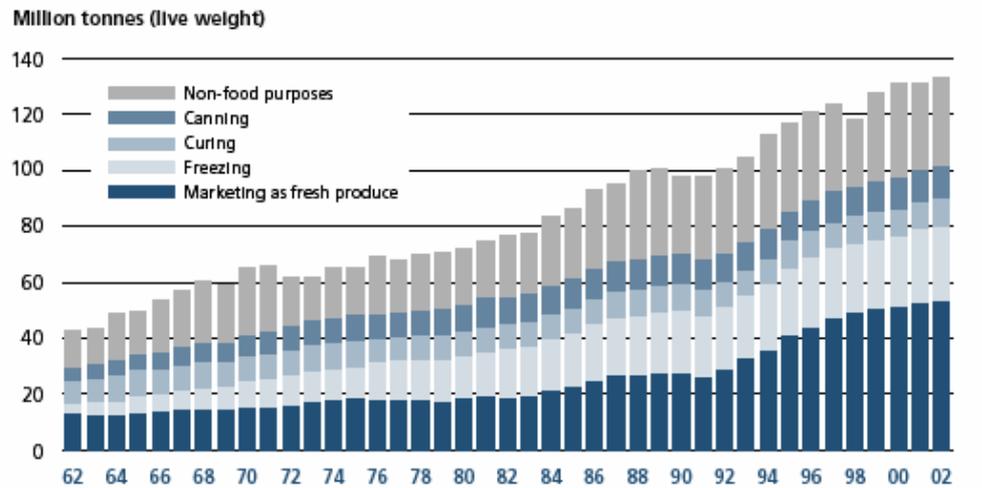
Fish utilization (million tonnes) and
food supply (kg/capita)

Population (billions)

Food
Non-food uses
Population
Food supply
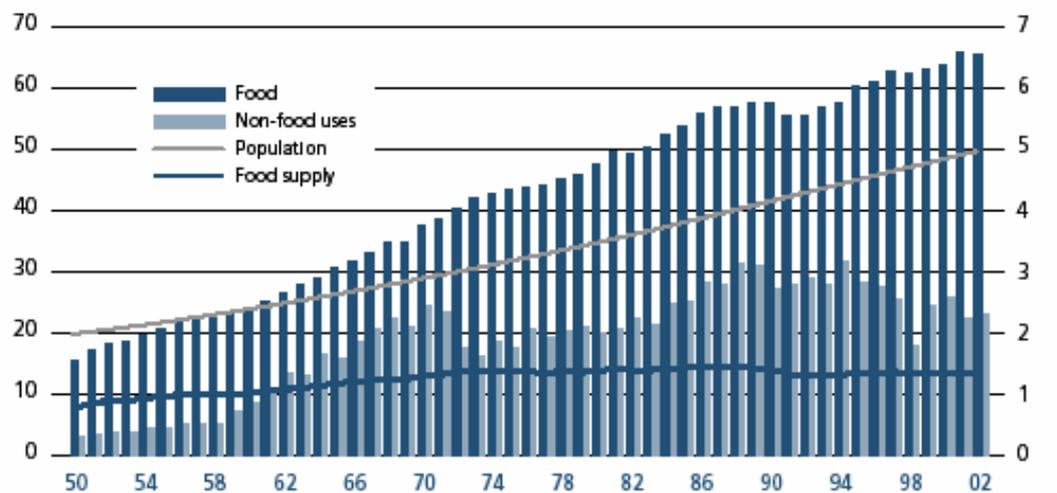
Fish as food: per capita supply (average 1999–2001)
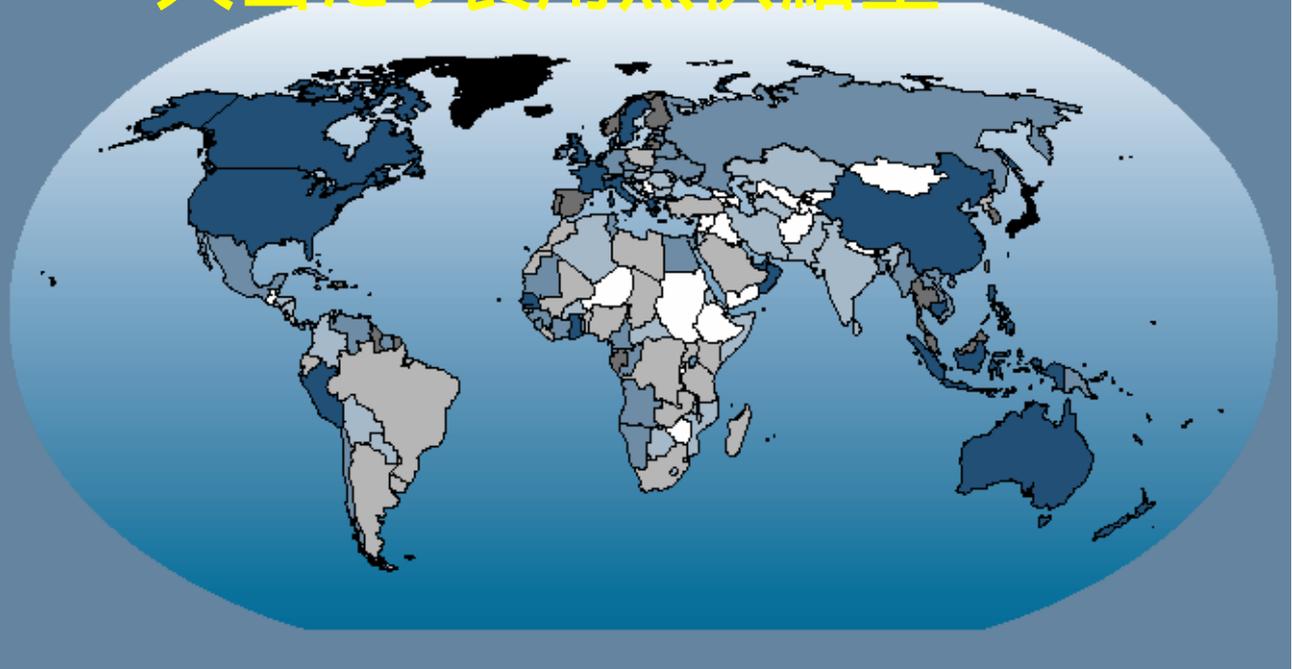
Average per capita fish supply
(in live weight equivalent)

- 0–2 kg/year
- 2–5 kg/year
- 5–10 kg/year
- 10–20 kg/year
- 20–30 kg/year
- 30–60 kg/year
- > 60 kg/year

図Ⅱ－1　食用魚介類の自給率等の推移

％

自給率

15年（概算値）
自給率　57％

39年
自給率ピーク　113％

万トン

うち輸入量

食用魚介類の総供給量

食用魚介類の供給量

食用魚介類の自給率

昭和35　　40　　　45　　　50　　　55　　　60　　平成2　　7　　12 15年

資料：農林水産省「食料需給表」

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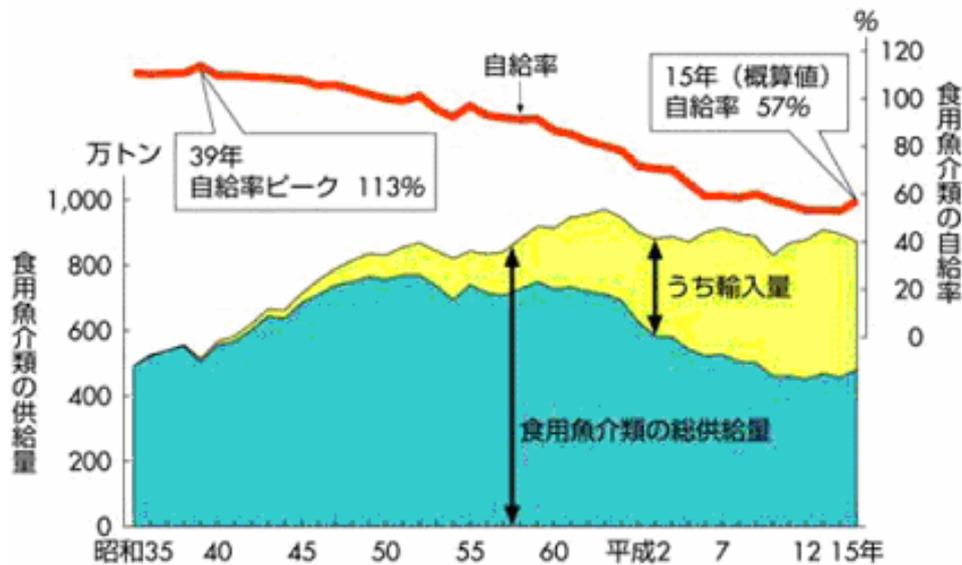
Comparisons of simulation results

| Information source	2000 FAO statistics[a]	2010 SOFIA 2002[b]	2015 FAO study[c]	2020 SOFIA 2002[b]	2020 IFPRI study[c]	2030 SOFIA 2002[b]
Marine capture	86	87		87	–	87
Inland capture	9	6		6	–	6
Total capture	95	93	105	93	116[2]	93
Aquaculture	36	53	74	70	54	83
Total production	131	146	179	163	170[3]	176
Food fish production[1]	96	120		138	130	150
Percentage used for food	73%	82%		85%	77%[4]	85%
Non-food use	35	26		26	40[5]	26

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1980

World capture and aquaculture production
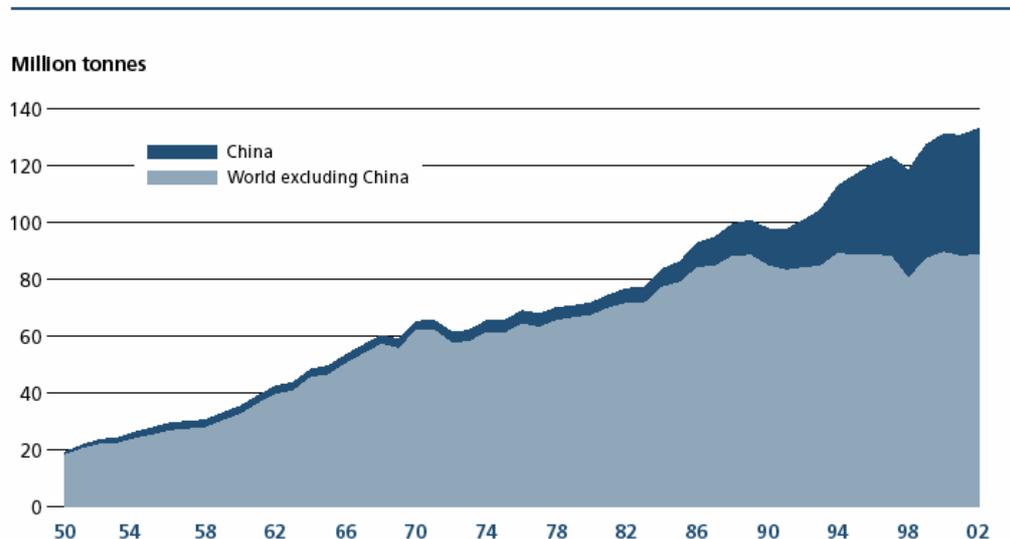
10
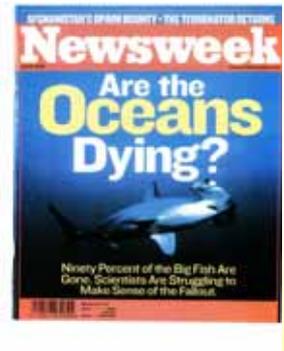
SOFIA 2004

Figure A

World catches of oceanic species (epipelagic and deep-water) occurring principally in high seas areas

Million tonnes

Epipelagic: tunas
Epipelagic: other species
Deep-water species
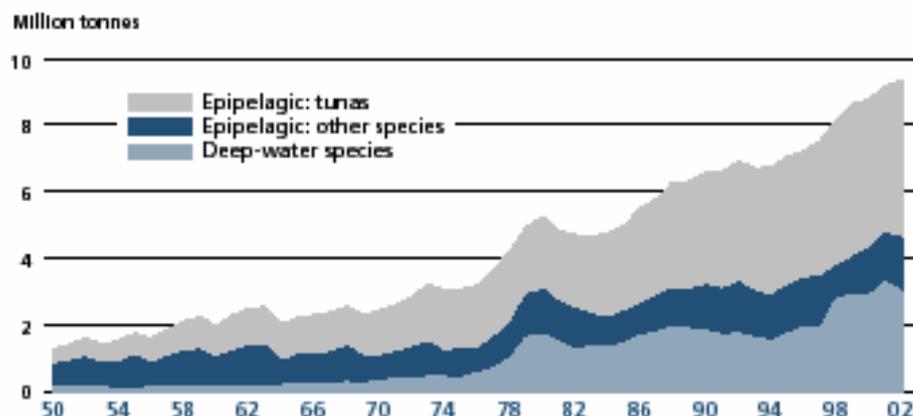
Reported deep-water species landings by oceans and major seas
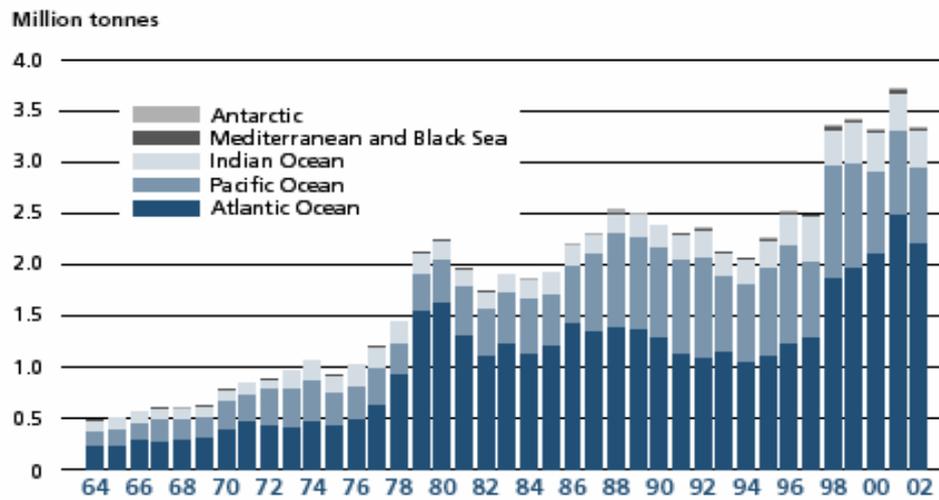
Ocean biogeographic depth zones

Source: Millennium Ecosystem Assessment

Source: Millennium Ecosystem Assessment

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SOFIA 2004
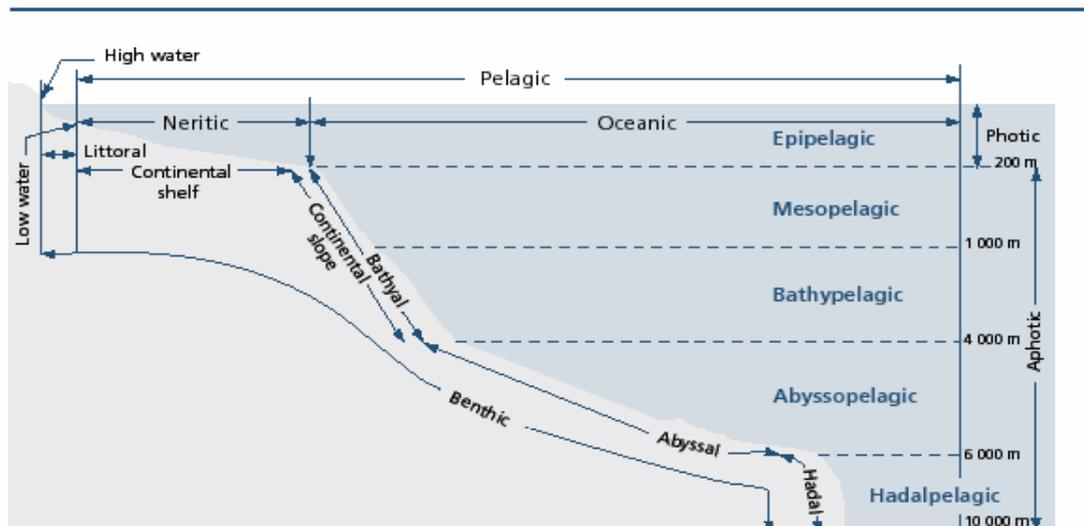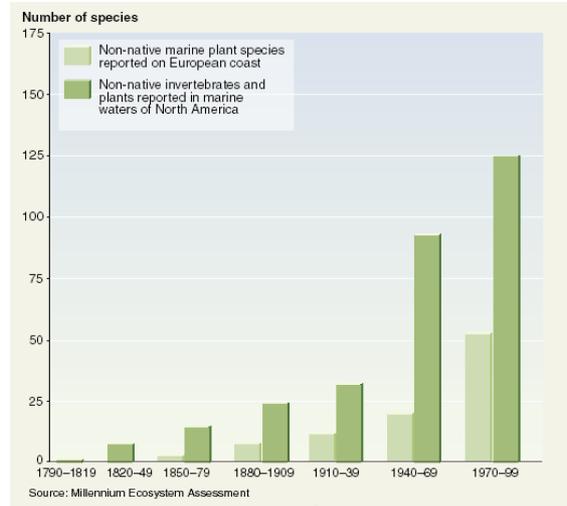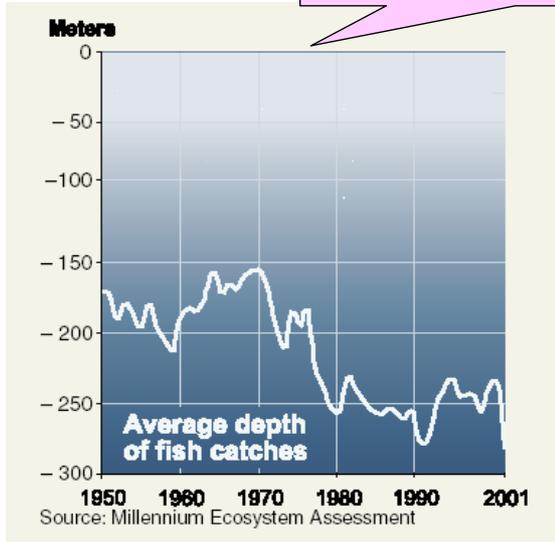
HMS=highly migratory species

Estimated average yearly discard quantities and discard rates in major ocean areas, 1992–2001

		Million tonnes
22%	Central Atlantic	1.7
13%	HMS, all oceans	1.5
13%	North Atlantic	1.1
9%	South Atlantic	0.7
7%	North Pacific	0.6
7%	Western Indian Ocean	0.6
6%	Central Pacific	0.3
4%	South Pacific	0.2
4%	Eastern Indian Ocean	0.2

DISCARDS

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CR　　10　　　　　3　　　　　　　　　　>50%　　MA2005
　　　　　　　　　　　10
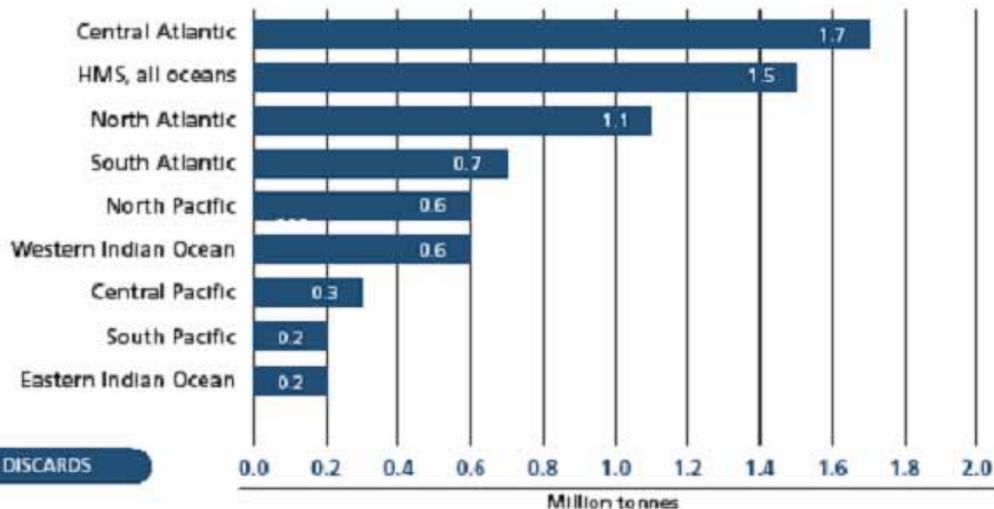
図 2-33　千年あたり、千種あたりの絶滅種数
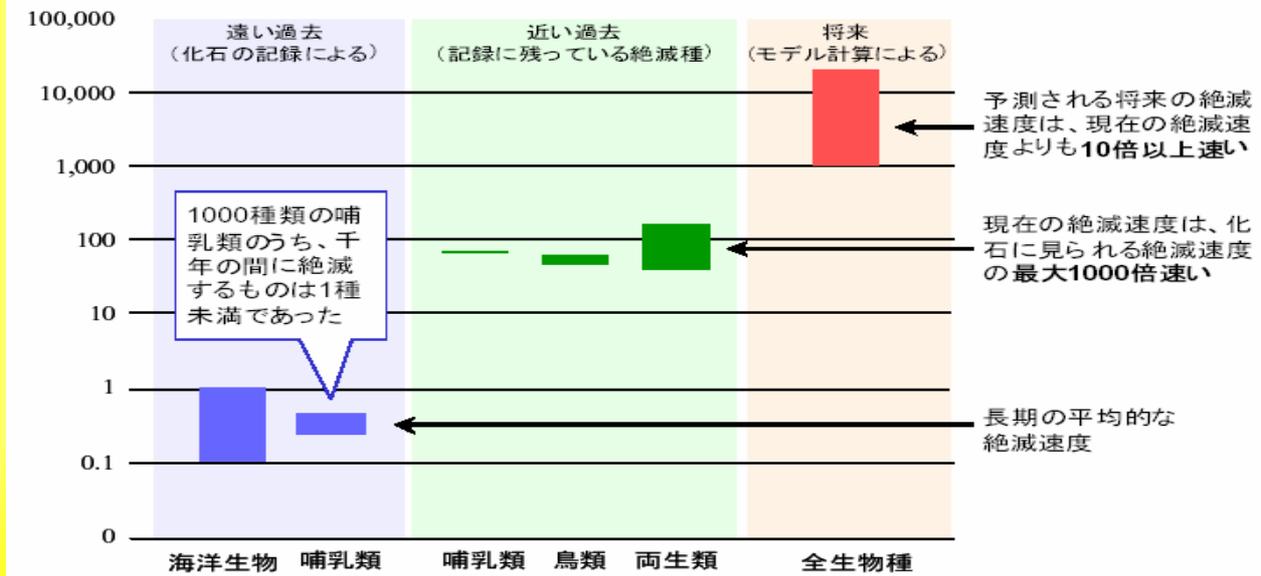
CoML
（　　　　　　　　　　　　　　　　　　　）
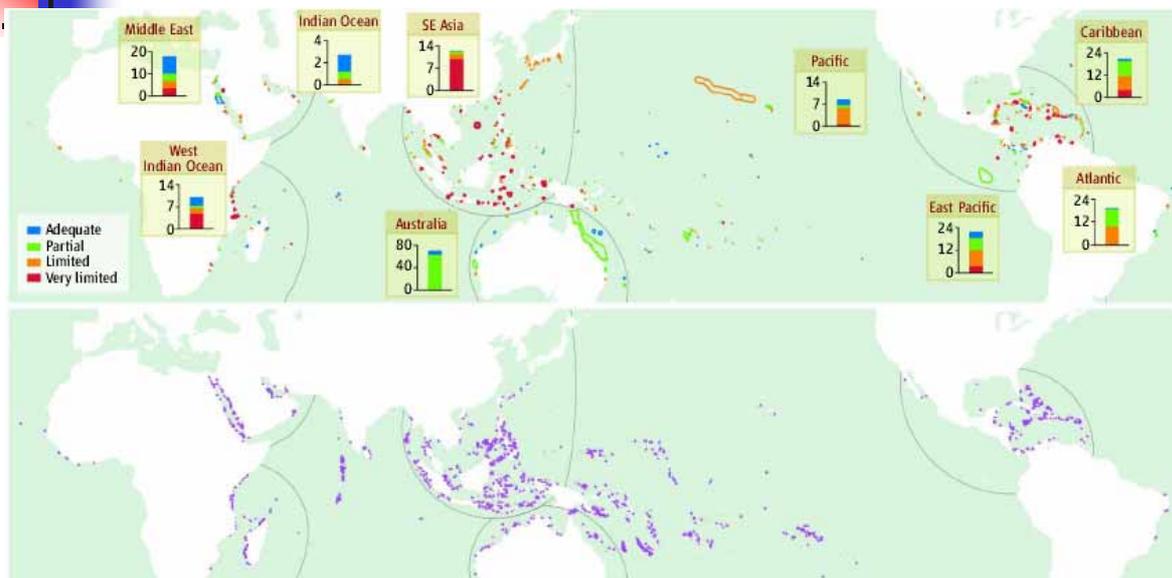
**Conservation of MPAs. (Top)** Status of the global network. Location and shape of all 980 MPAs are shown. Categorization of MPAs was based on the average of the attributes analyzed (9). The percent of coral reefs per region covered by MPAs in those categories is shown on the bar charts. **(Bottom)** MPAs needed for an optimum coverage of the world's coral reefs. Dots represent MPAs of 10 km² and spaced at 15 km from each other.

Mora et al. (2006) *Science* 312: 1750 и1751

Number of species

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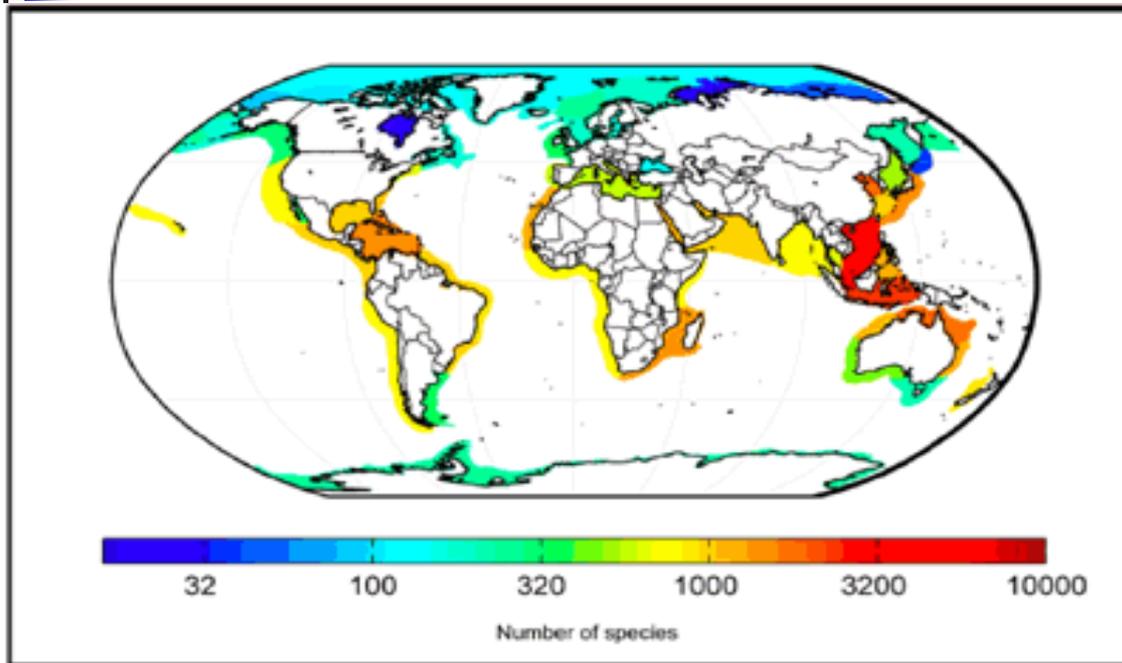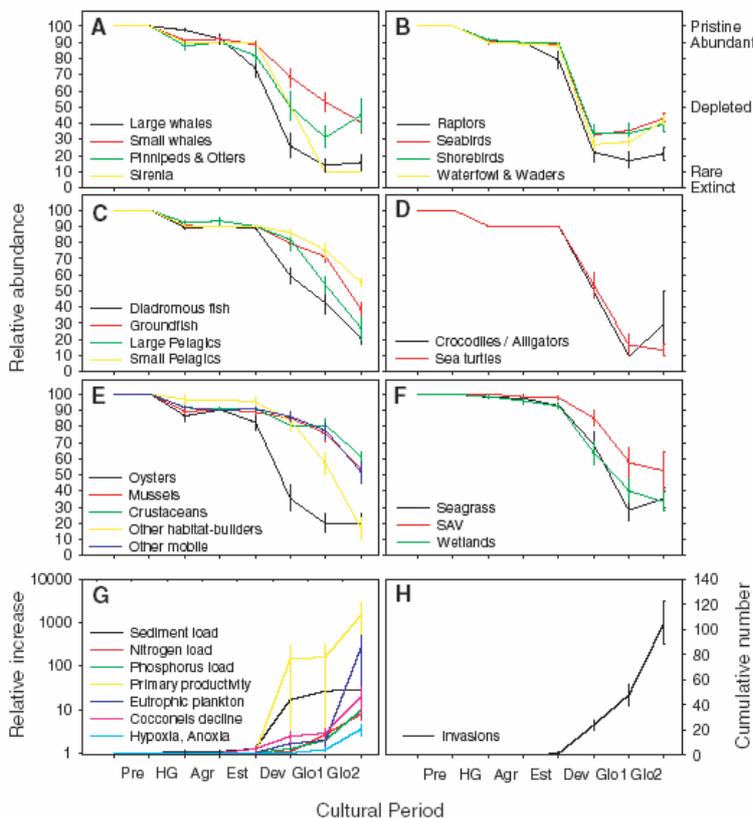
Fig. 2. Common patterns of decline in 22 species guilds averaged over 12 study systems for (A) marine mammals, (B) coastal birds, (C) fish, (D) reptiles, (E) invertebrates, and (F) vegetation. (G) Degradation of water quality as indicated by the relative increase in eutrophication parameters [eight systems (10)]. (H) Cumulative increase in recorded species invasions [five systems (10)]. Data are means ± SEM.

Lotze et al. (2006).
Science 312:1806-1809

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