

Coastal development: for whose benefit?

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- **But Development & destruction are contemporary**
- **Industrial Development is a key to Progress**

GDP Growth – India and other countries



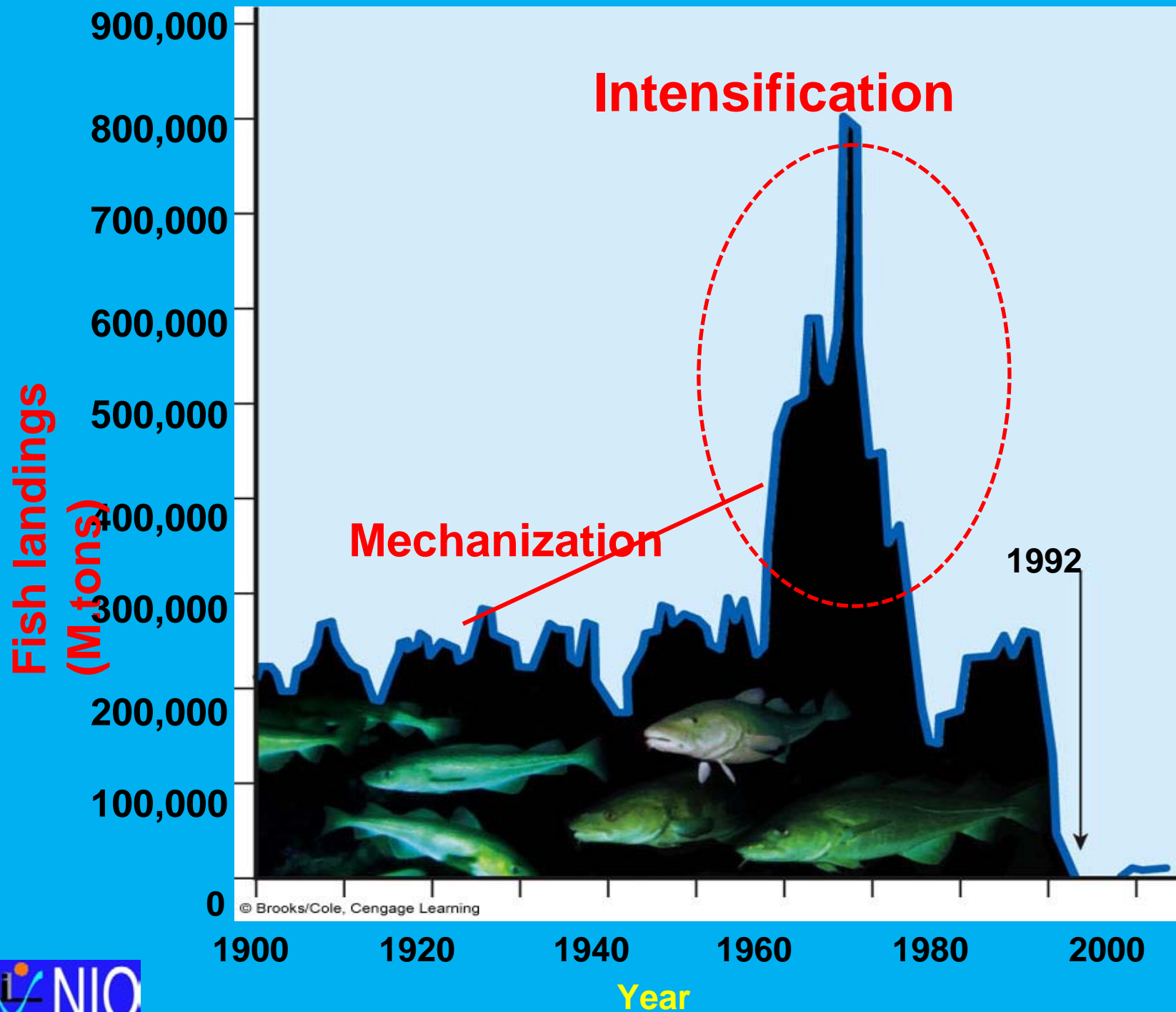
Country		GDP (PPP) (\$ trillion) 2007	GDP (PPP) (\$ trillion) 2006	Percentage Growth
1	US	13.54	12.95	4.5
2	China	11.6	10.14	14.4 (HIGHEST GROWTH)
3	India	4.72	4.23	11.6 (2 ND HIGHEST GROWTH)
4	Japan	4.34	4.15	4.6
5	Germany	2.71	2.58	5.1
6	UK	2.27	2.14	5.7
7	France	2.04	1.95	4.5
8	Italy	1.88	1.80	4.4
9	Russia	1.90	1.73	9.8
10	Brazil	1.72	1.5	0.22
11	Spain	1.31	1.23	6.3
12	Canada	1.21	1.15	5.2
13	S Korea	1.25	1.16	7.5
14	Mexico	1.24	1.18	5.6
15	Indonesia	1.05	0.96	8.9
16	Australia	0.73	0.68	7.1

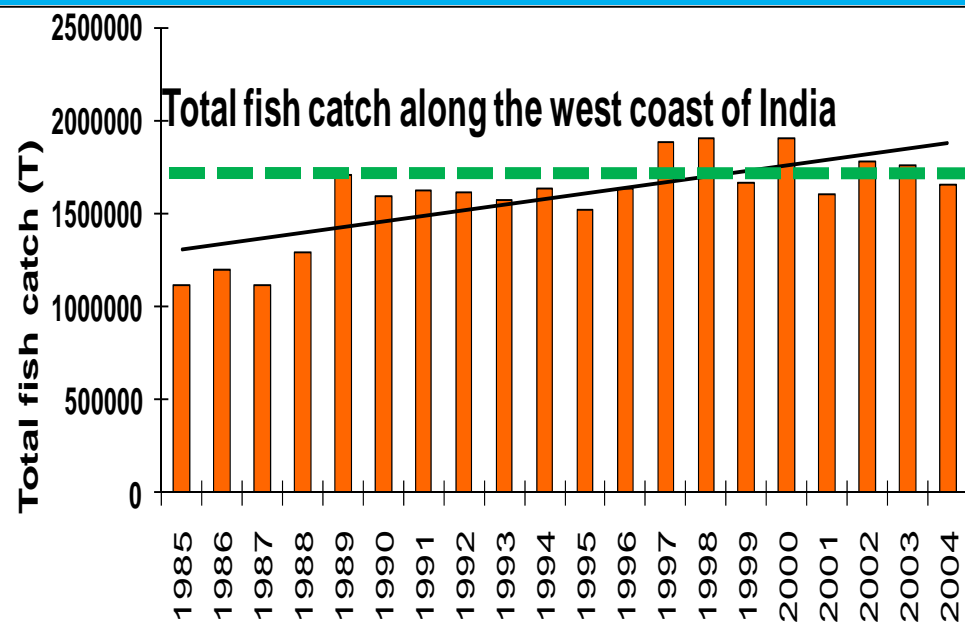
Source : CIA – The World Factbook

**MSC Chitra -
collided MV
Khalijia-II near
Mumbai on 7
August 2010,**



Chita had a cargo of 1,219 containers holding 2662 tonnes of fuel, 283 tonnes of diesel and 88040 litres of lubricant oil. Thirty-one containers had pesticide in them





Source:CMFRI



Sl. No.	Craft-gear combination	1982-87	1988-97	1998-2005
1.	Mechanised trawler	95,949	2,44,458	2,06,981
2.	Mechanised gillnetter	13,943	2,861	2,646
3.	Mechanised purse seiner	8,232	5,559	3,279
4.	Mechanised liner	392	1,725	3,611
5.	OBM-ring seiner	27,194 ^a	1,90,763	2,10,841
6.	Mechanised ring seiner	0	0	46,455 ^b
7.	OBM-gillnetter	22,262	41,023	55,996
8.	OBM-boat seiner	77,114	27,160	8,399
9.	Others	16,070	27,160	33,475
10.	Non-motorised craft-gear combinations	1,07,286	29,856	22,215

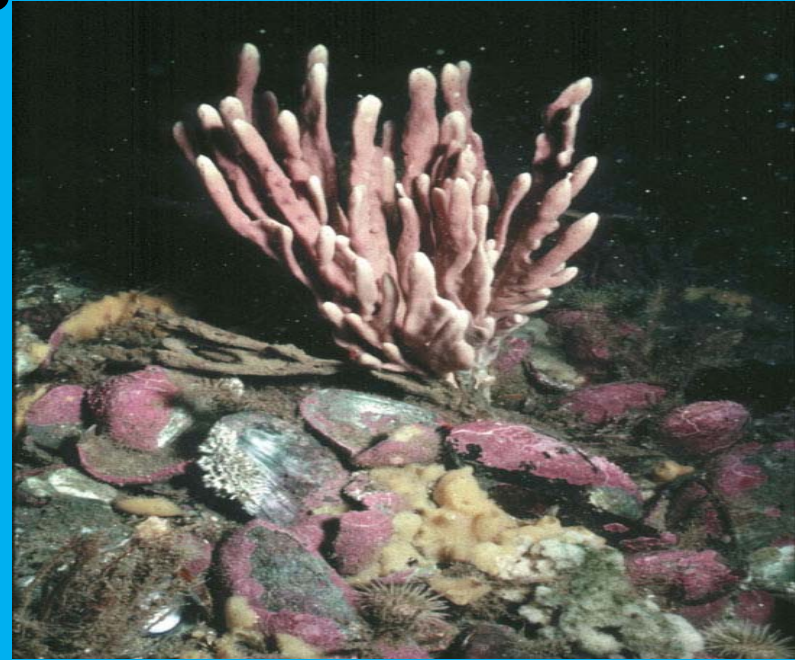
• India ranks 6th among major fish producing countries of the world

Human activities



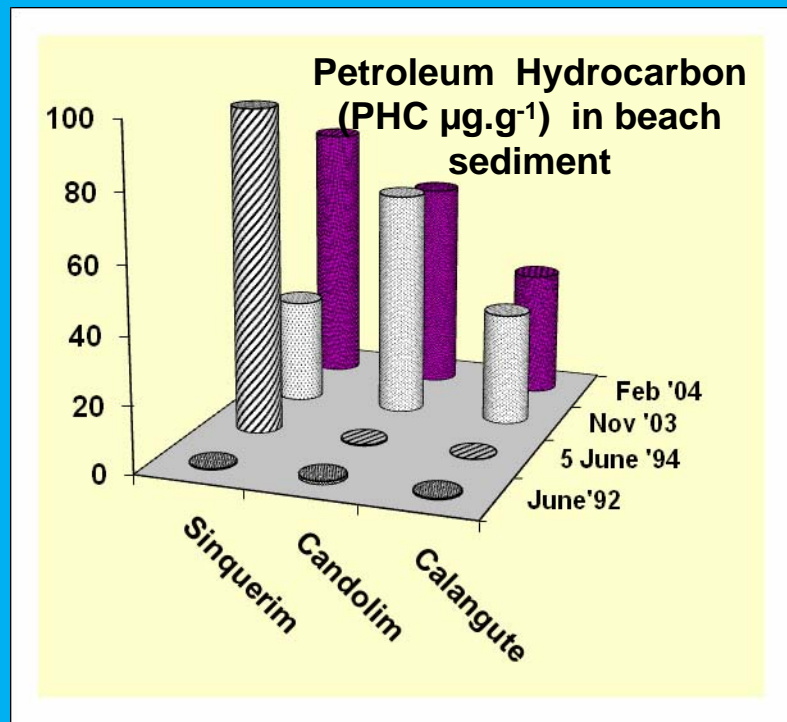
Human Activities Are Destroying Habitats

- Habitat loss and degradation - only 4% of the world's oceans are not affected by pollution



■ Increased incidence of oil spill in the Arabian Sea

Petroleum hydrocarbon in sediment ($\mu\text{g/g}$)

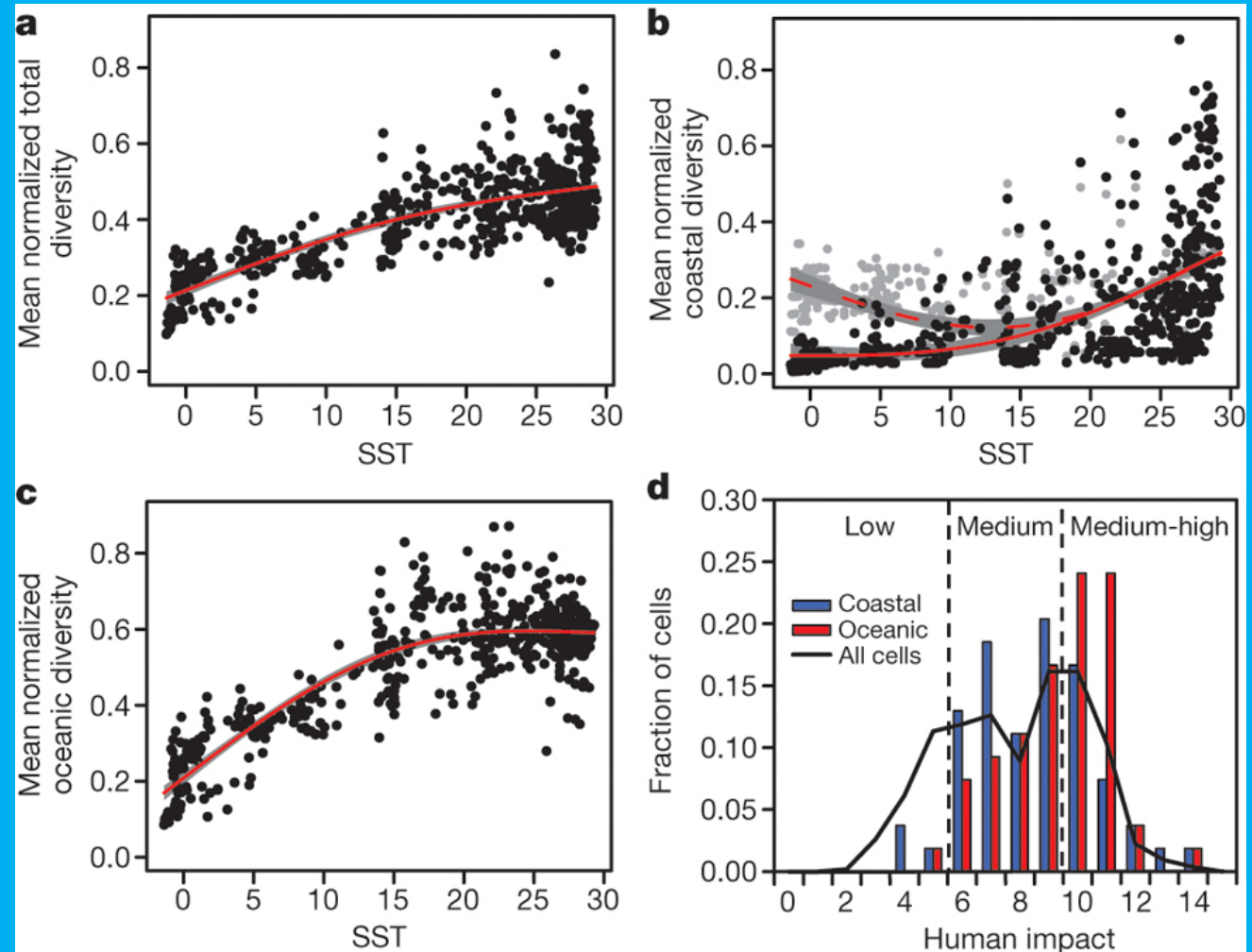


04 incidence of oil spills
in 10 years

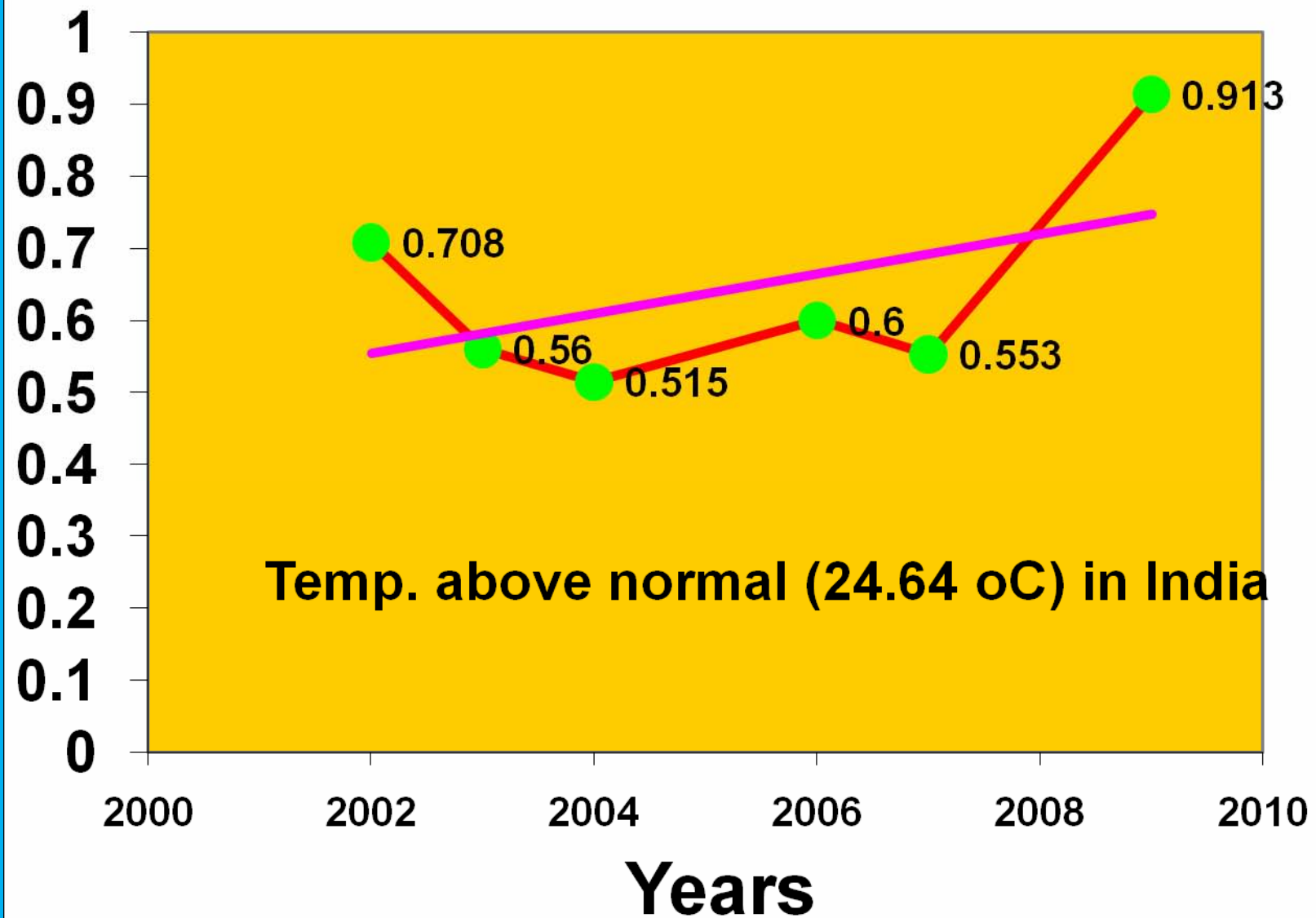
Ingole et al., (2006) Env. Int.32:284-291

Marine Biodiversity Strongly Linked to Ocean Temperature

These results imply that future changes in ocean temperature, such as those due to climate change, may greatly affect the distribution of life in the sea. The scientists also found a high overlap between areas of high human impact and hotspots of marine diversity.



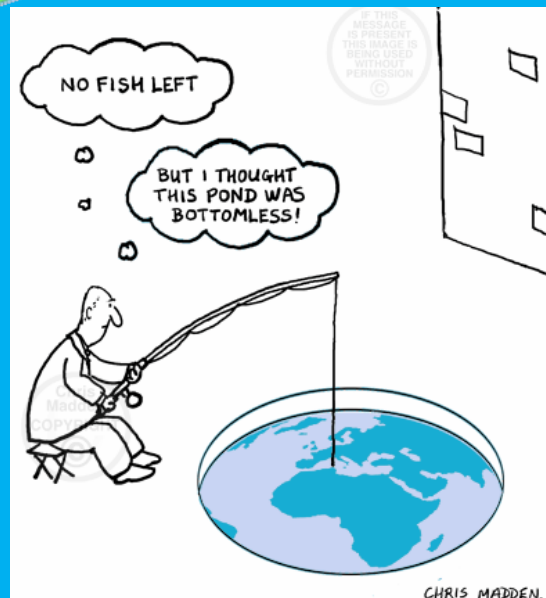
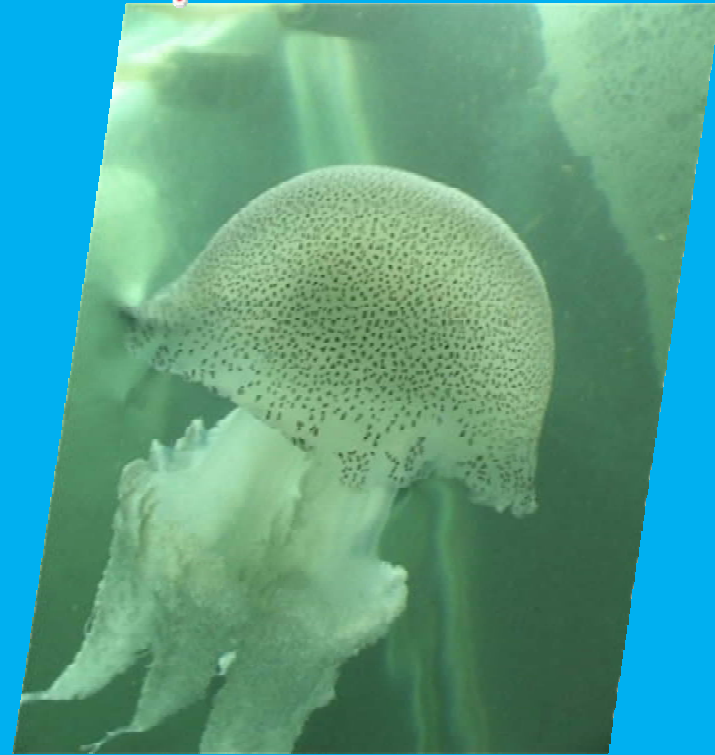
a–c, Relationship between mean normalized diversity and SST for (a) all taxa, (b) coastal taxa without pinnipeds (solid line and black points) and coastal taxa with pinnipeds (dashed line and grey points) and (c) oceanic taxa. Trends (red li...



January (1.43deg) and august (1deg C) in 2009 recorded highest monthly mean since 1901

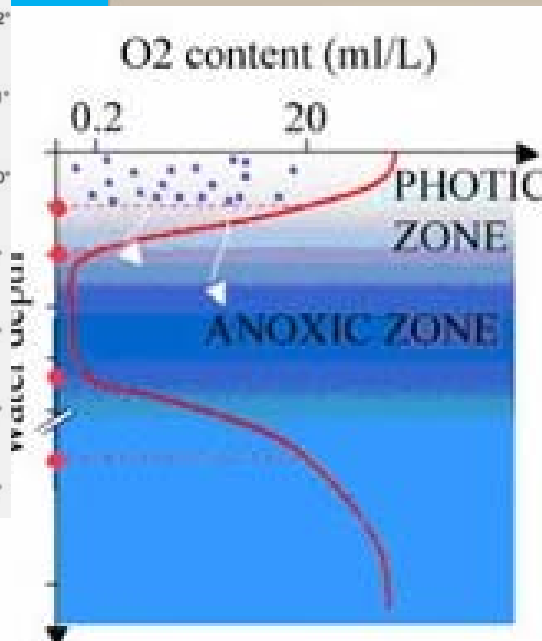
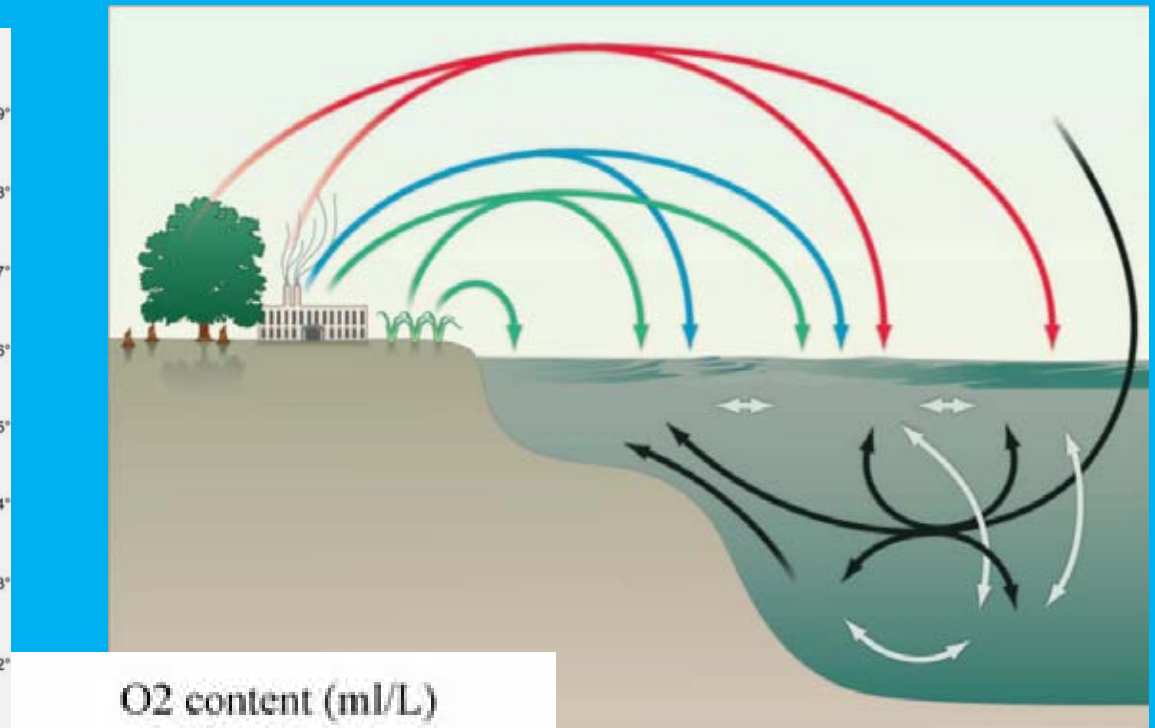
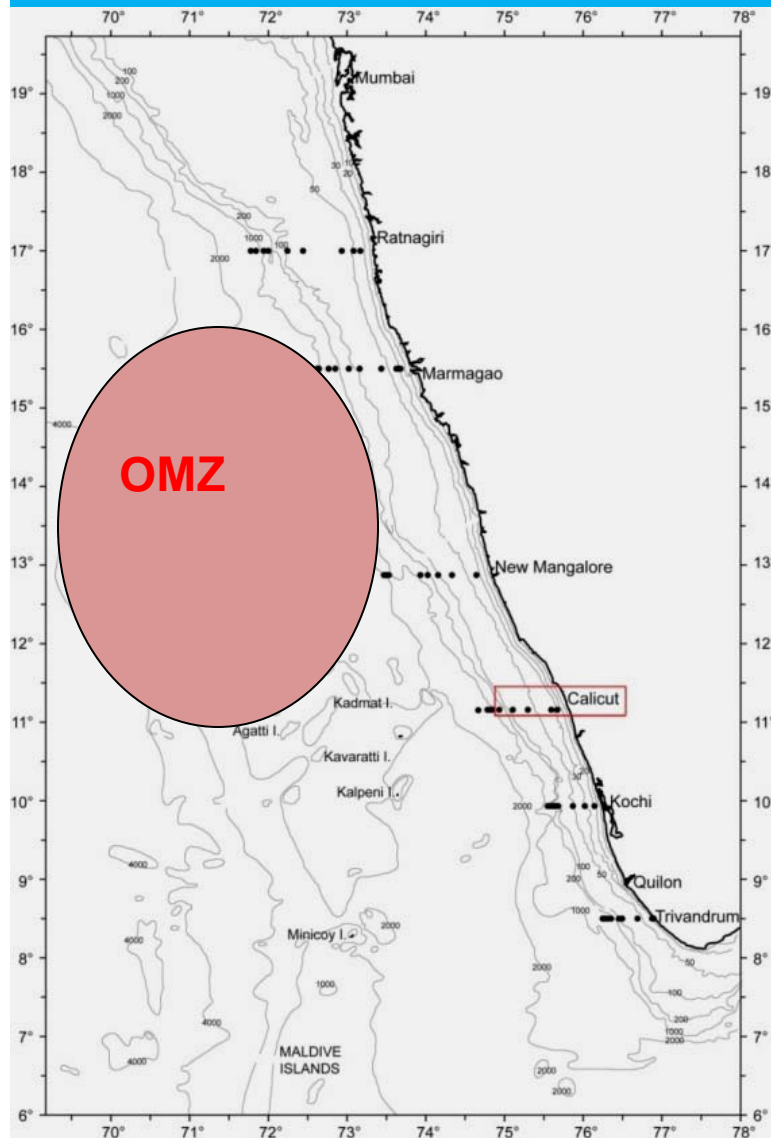
Blooming of Jellyfish

Jelly fishes are the carnivores invertebrate having higher tolerance to environmental stress. Short generation and higher fecundity allow them to faster colonization



Overfishing has reduced jellyfish predators and climate change has increased ocean temperatures. Jellies thrive in empty, warmer oceans.

Expansion of Anoxia in the Arabian Sea – A large Marine Ecosystem



Because upwelling currents transport nutrient-rich but oxygen-depleted water onto shallow seas, large expanses of productive continental shelves can be vulnerable to the risk of extreme low-oxygen events

Frequency of this is on increase

Fish mortality

Recent changes in the relative value of aquaculture to agriculture and meat in Western Europe

