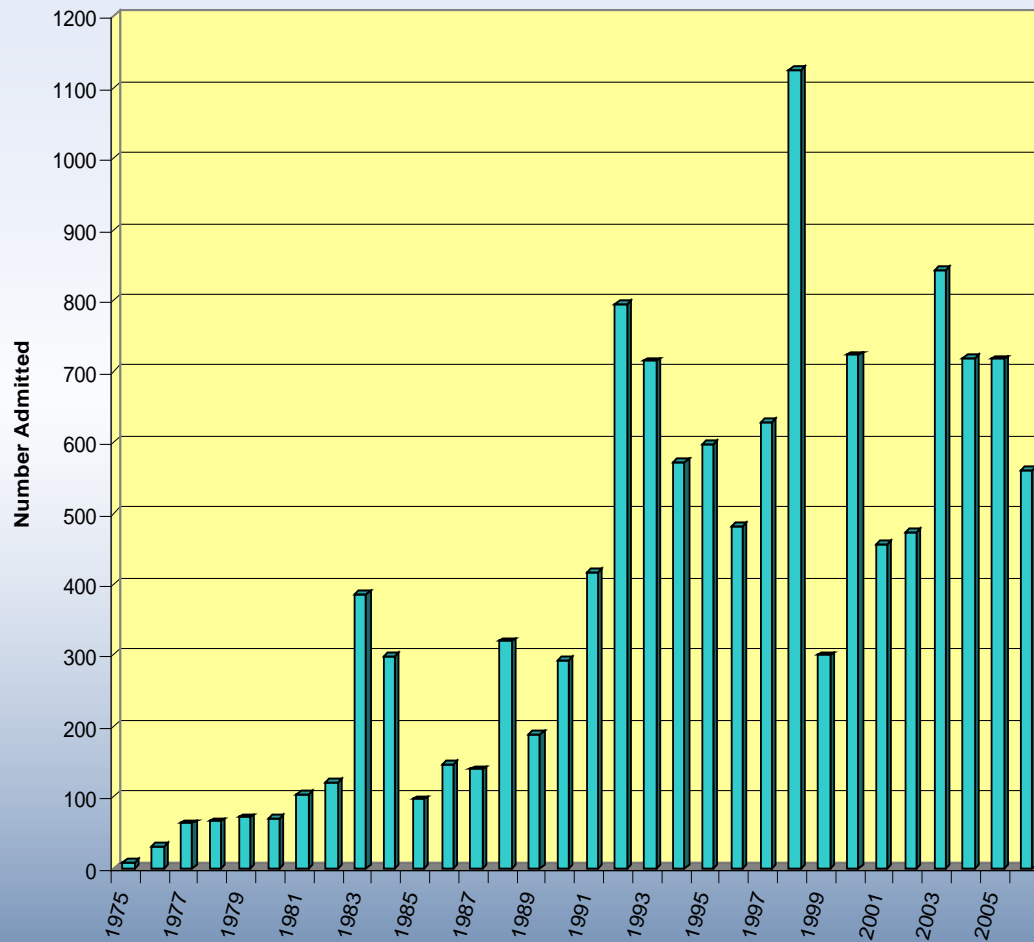


Marine Mammal Health and Strandings: *Implications for Ecosystems and Human Health*



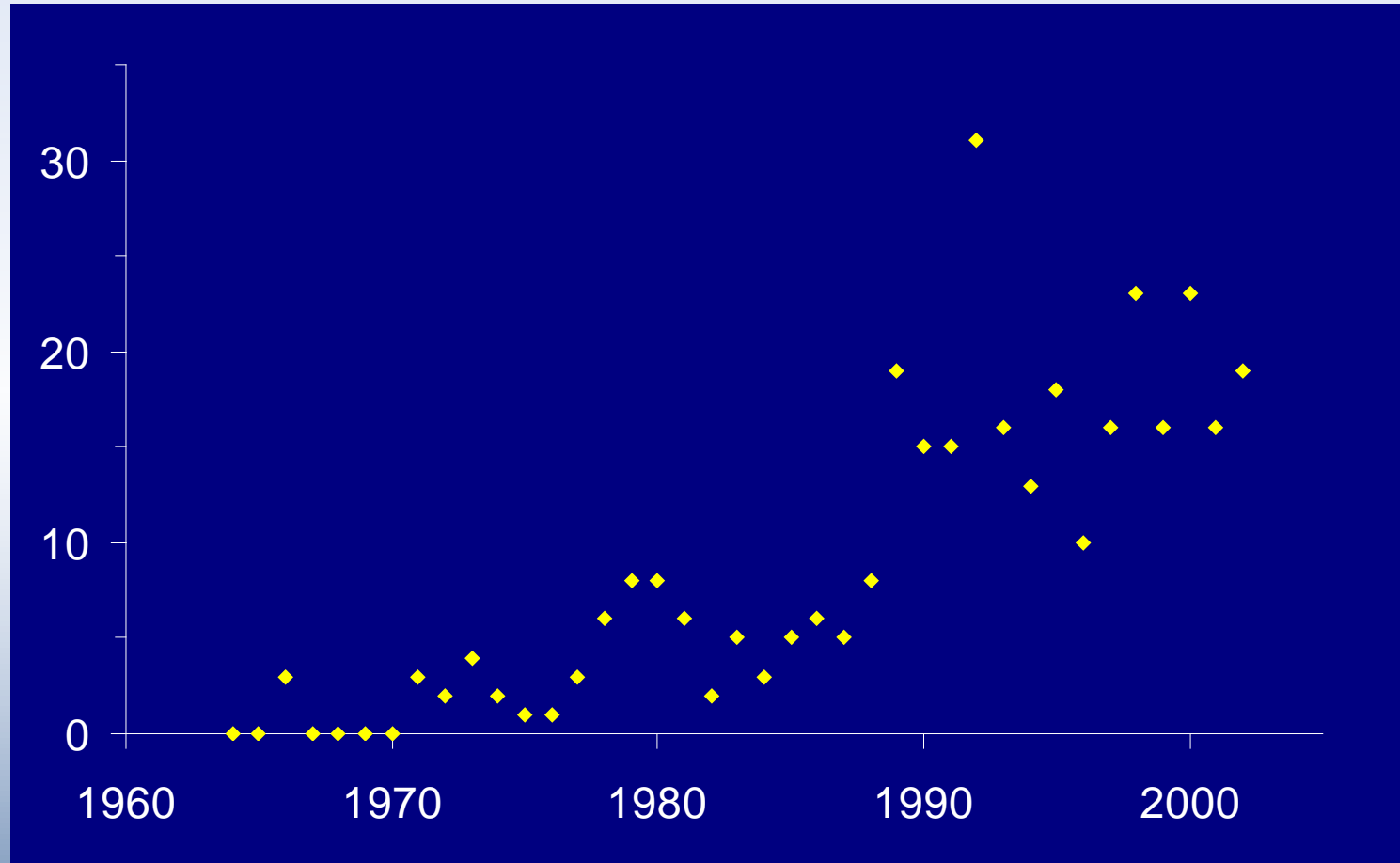
MARINE MAMMAL COMMISSION

Strandings Are Increasing





Increased Papers on Marine Mammal Diseases





Animal Welfare



Marine Mammal Biology



Marine Mammals and Human Health

- Direct transmission of infections
- Similarly affected by ocean change



Zoonoses

- Avian Influenza
 - H3N8 :168 seals in 2011
 - H1N1 : carrier seals
- Brucellosis
 - 25% Gulf dolphin strandings
- Leptospirosis
- Arctic Unusual Mortality Event?



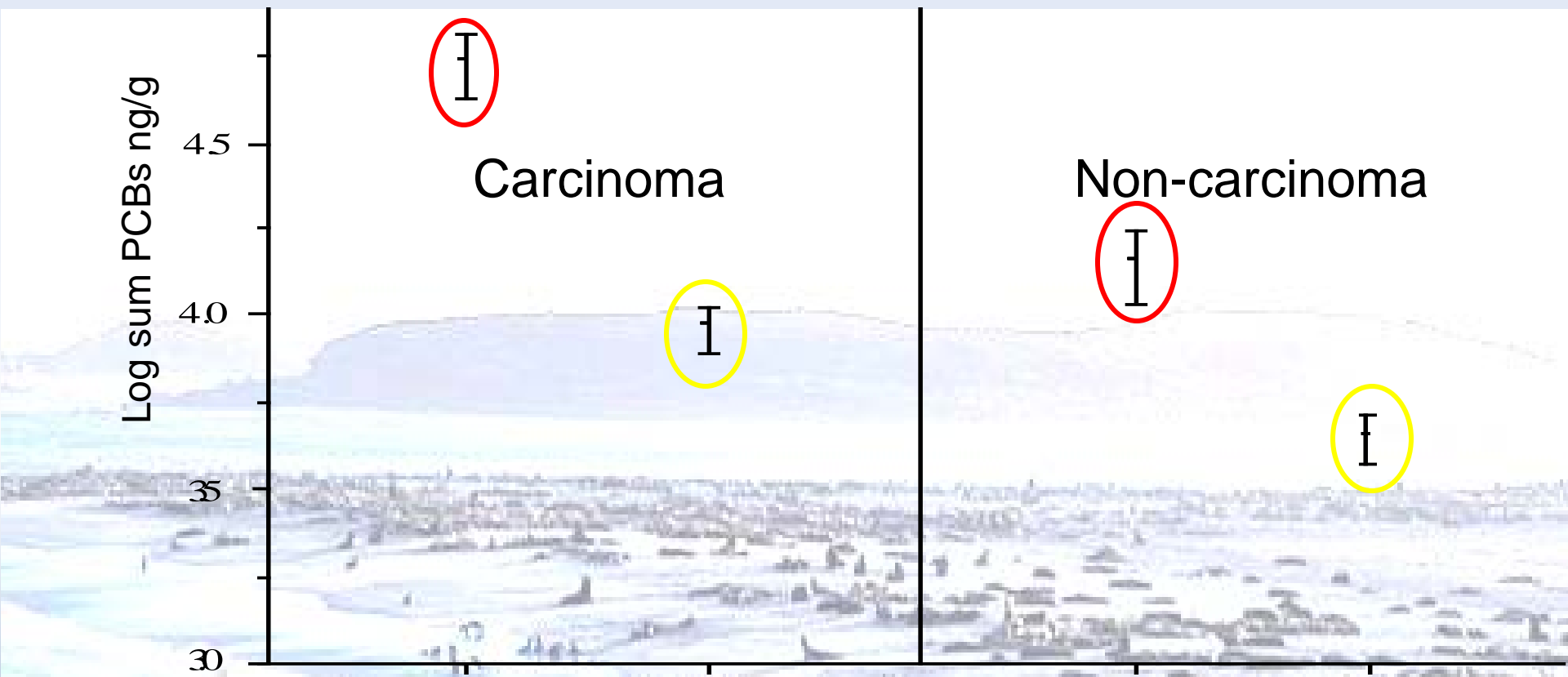
Marine Mammal Health as an Indicator of Ocean Change

- Coastal development
- Ocean utilization
- Climate change





PCBs are Associated with Cancer in 17% Adult California Sea Lions



Lipid weight

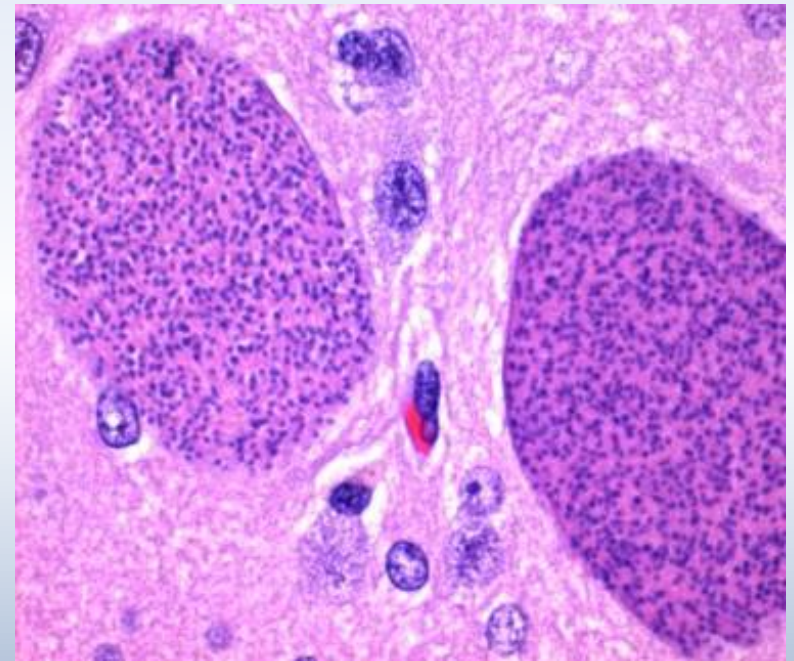
Wet weight

Lipid weight

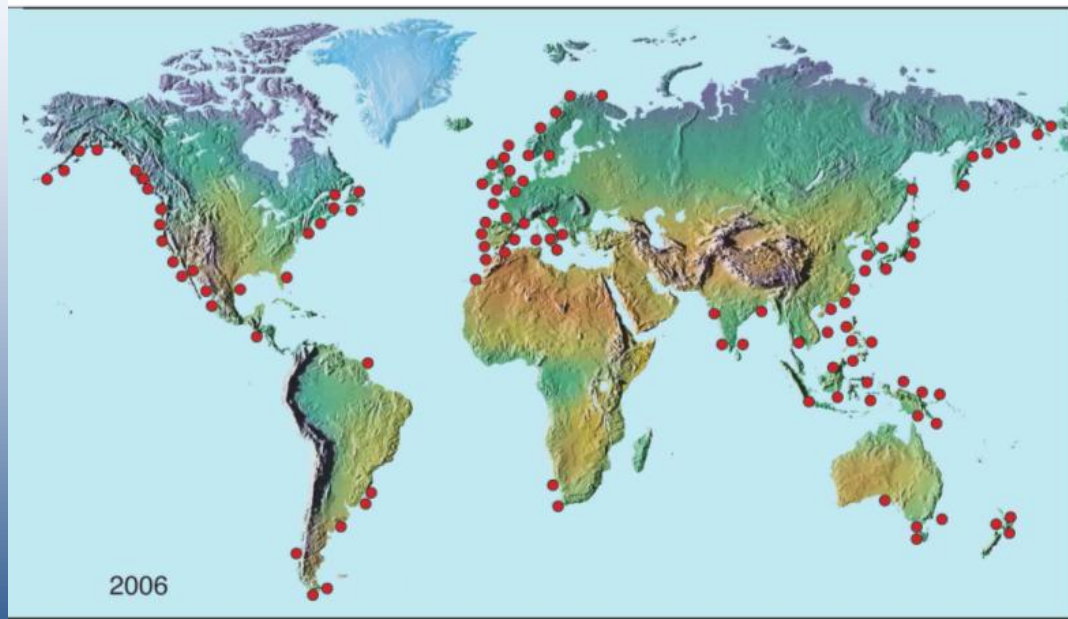
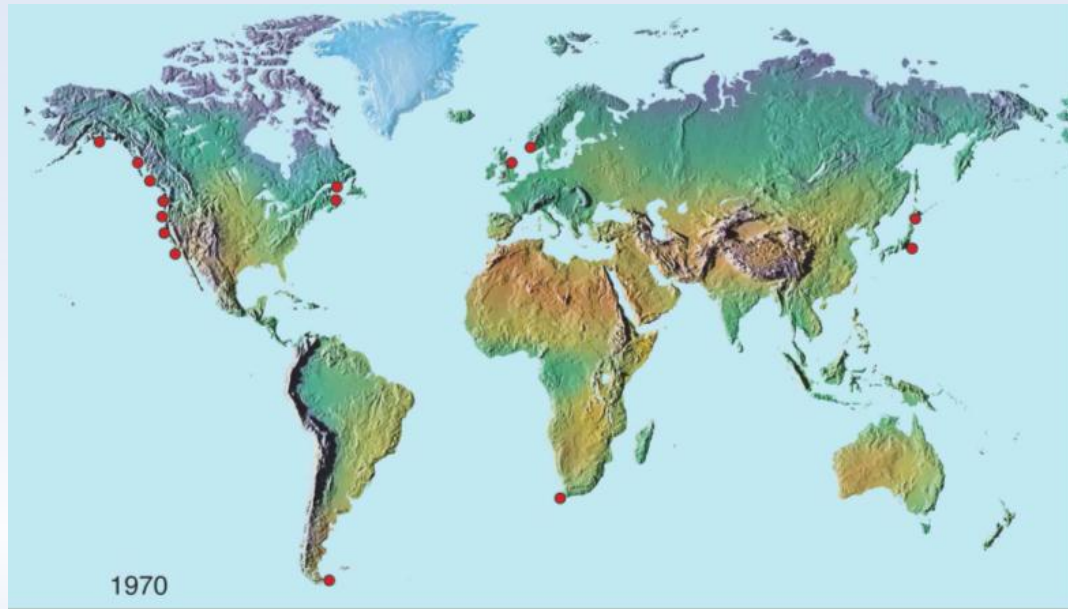
Wet weight



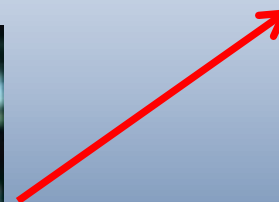
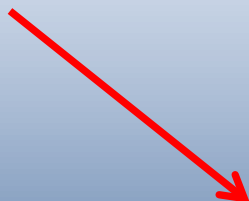
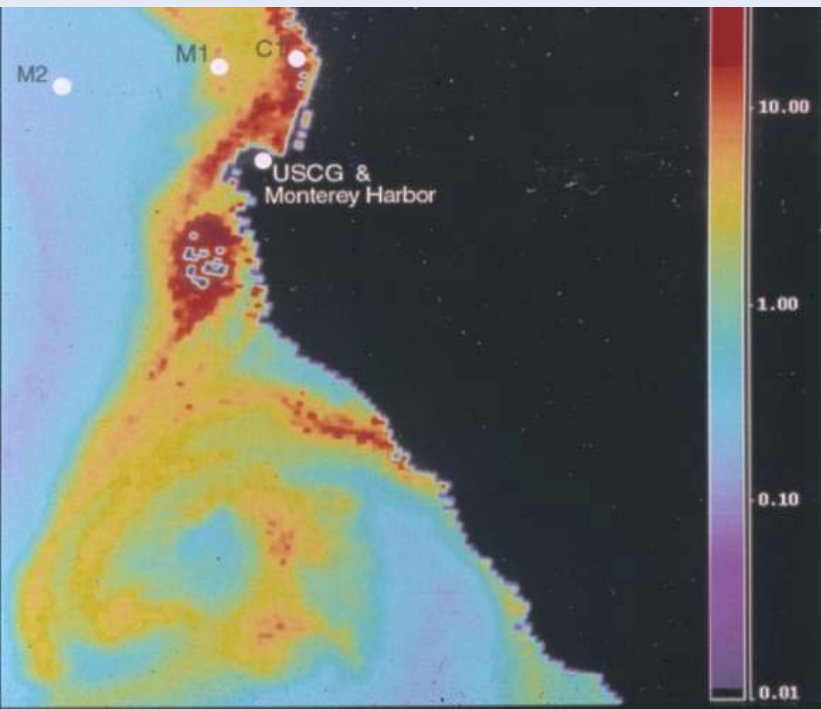
Coastal Urbanization: Pathogen Run-off



Coastal Urbanization: Harmful Algal Blooms



Domoic Acid and Sea Lions



Indian River Lagoon UME





Strandings Reveal Efficacy of Mitigation Measures







1992 Title IV of the MMPA Marine Mammal Health and Stranding Response Program

- Collect and disseminate data on health and health trends
 - Correlate health data with biological, physical, and chemical environmental data
 - Coordinate effective responses to unusual mortality events

