# Proposal for a comprehensive assessment of key shark species

SAR-8-15

Background

- IATTC resolution C-05-03
  - Requires IATTC, in cooperation with scientists of CPCs and, if possible, the Western and Central Pacific Fisheries Commission, to propose a research plan for comprehensive assessment of stock status of key shark species

- In the eastern Pacific, sharks are taken as catch/bycatch in:
    - purse-seine fishery
    - commercial longline fisheries
    - artisanal fisheries

- The IUCN Red List of Threatened species includes the two shark species thought to be most common in purse-seine bycatch:
    - Silky shark ("Lower Risk")
    - Oceanic whitetip shark ("Vulnerable")

- Decreasing trends are observed for shark bycatch rates from the purse-seine fishery, but not in standardized CPUE data of the western Pacific longline fishery
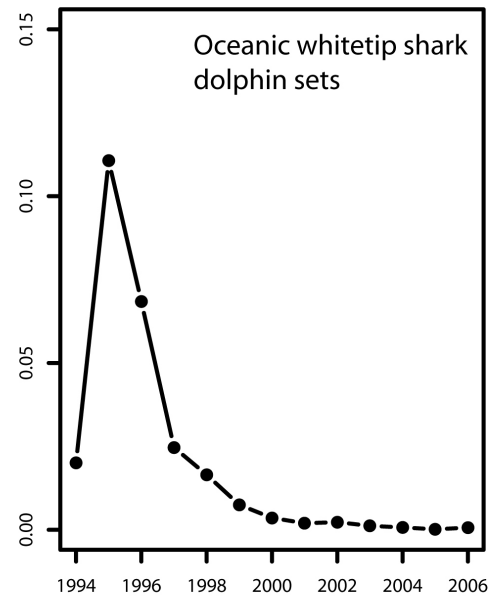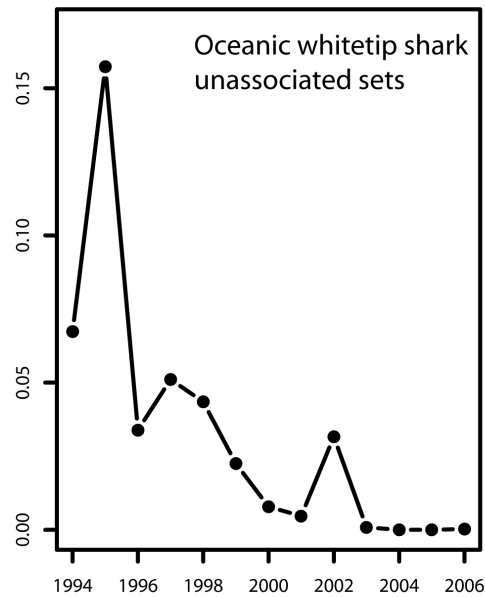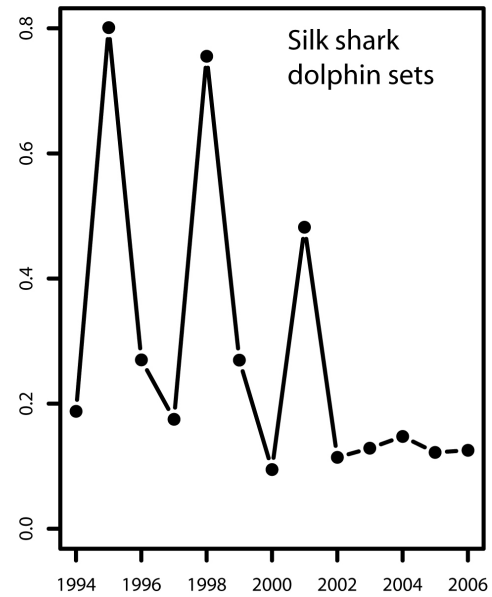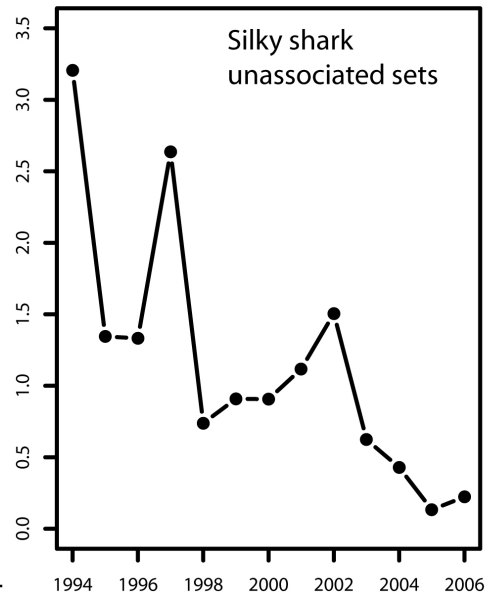
Standardized silky shark bycatch per set (floating object sets)
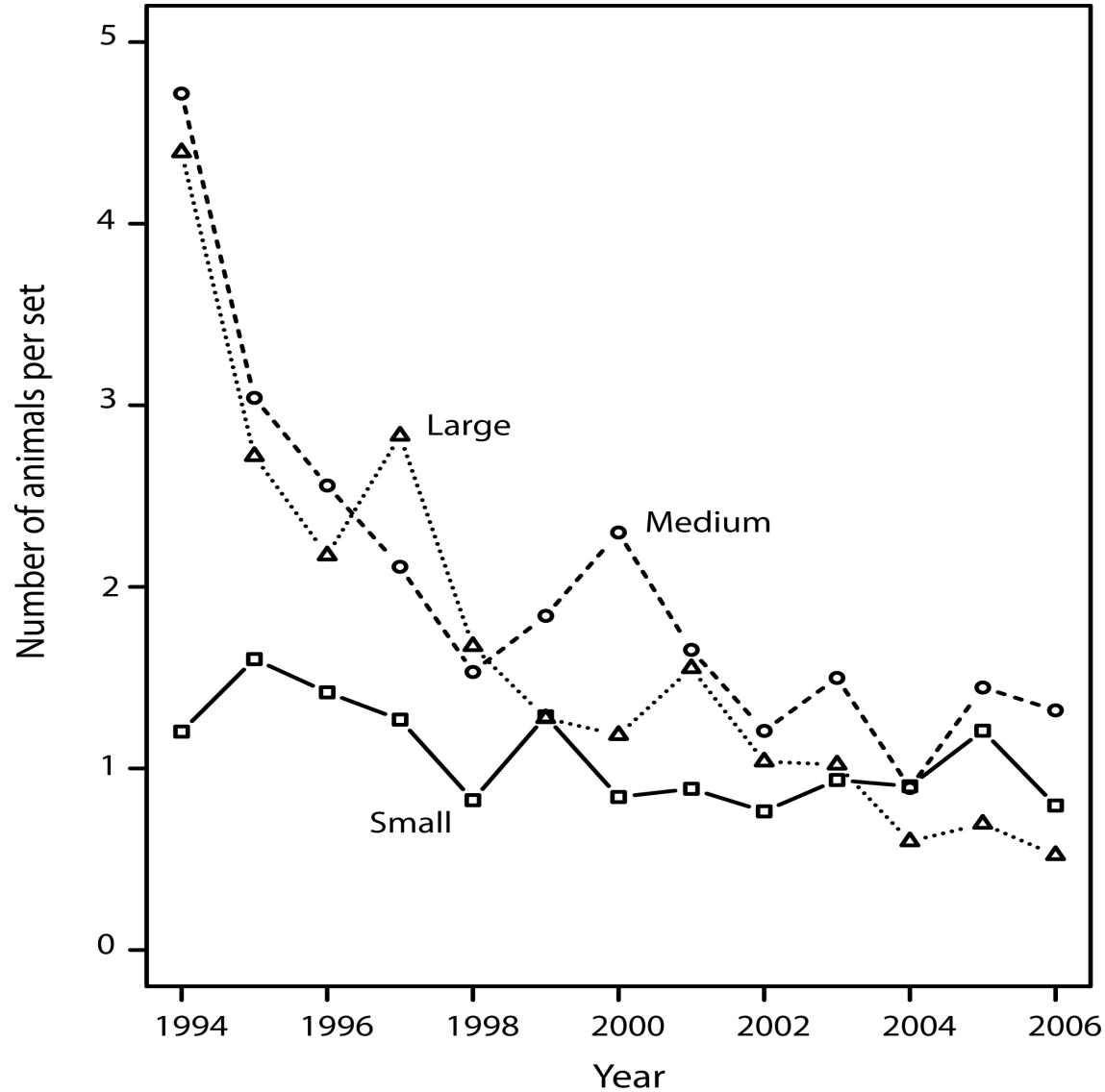
Oceanic whitetip shark (floating object sets)
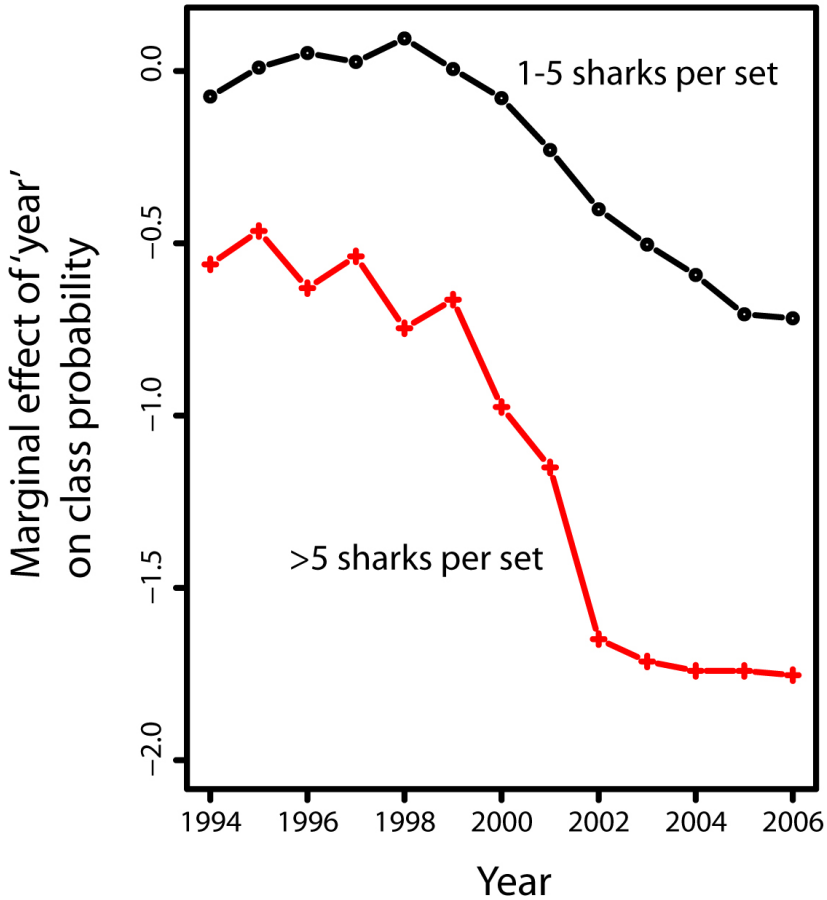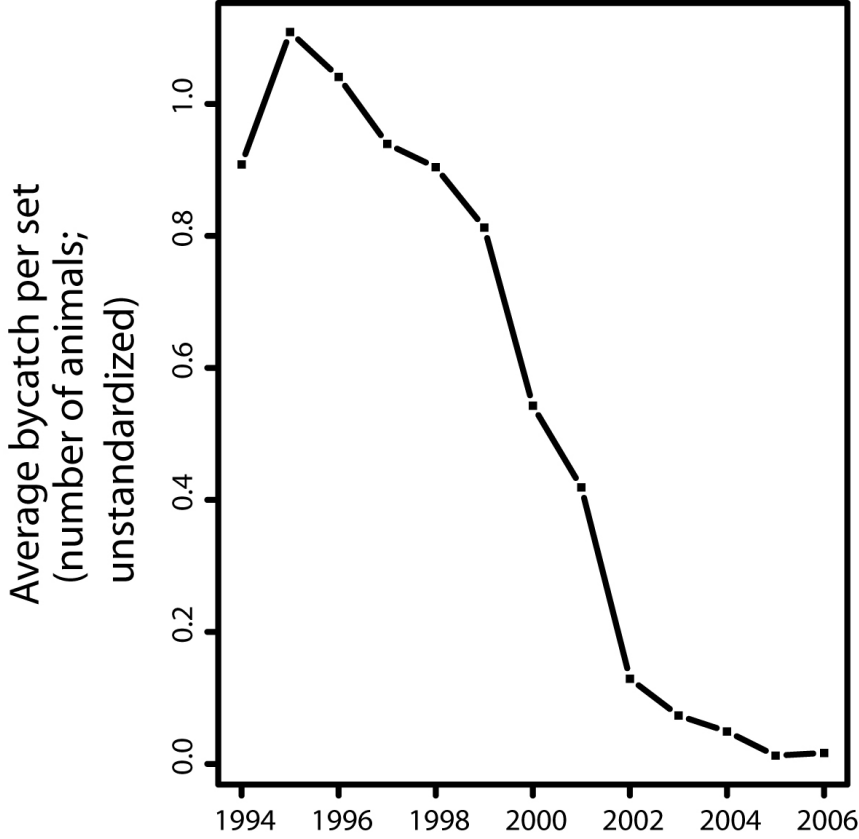
Average bycatch per set (# of animals; unstandardized)

Year

Assessment objectives

- Catalogue current knowledge relevant to an assessment

- Compile and analyze available fishery data
  - Catch, effort, CPUE, length frequency

- Establish research needs
  - Process of modeling highlights research needs (e.g., lack of information on stock structure, life history parameters)

- Determine population status

List of key species

- Proposed species based on involvement in pelagic fisheries, past & present:
  - Oceanic white tip (*Carcharhinus longimanus*)
  - Silky shark (*C. falciformis*)
  - Blue shark (*Prionace glauca*)
  - Shortfin mako (*Isurus oxyrinchus*)
  - Bigeye thresher (*Alopias superciliosus*)

- Other criteria to consider:
  - Availability of data
  - Predation on tunas
  - Potential vulnerability due to life history

Preliminary steps

- Gather and integrate information from different sources
  - Biological data: growth rates, L/W ratios, sex ratios, maturity, fecundity, natural mortality
  - Fishery data: catch, effort, size/age structure of catch, standardized CPUE

- Identify information gaps
  - Stock structure
  - Life history
  - Catch and catch rates

- Identify initial modeling approaches
  - Spatial structure / fisheries
  - Information gaps may require modified approaches by species

Necessary resources

- Additional (temporary) research staff support at the post-doctoral level:
  - Ph.D.-level background in fisheries
  - to be assisted by IATTC staff and Dr. Minami (ISM, Tokyo)
  - could coordinate efforts with experts from national observer programs

- Any catch and effort data for fisheries that take sharks in the EPO

- Any unpublished life history data