

Protected Resources Division Southwest Fisheries Science Center National Marine Fisheries Service, NOAA



<http://swfsc.noaa.gov/prd.aspx>



Southwest Fisheries Science Center
NOAA Fisheries Service





Our Two Primary Mandates

Marine Mammal Protection Act – Maintain populations as functioning elements of their ecosystem

- Estimate population size
- Estimate human-caused mortality
- Determine stock structure

Endangered Species Act – Prevent extinction and recover species

- Estimate population size
- Determine trends in abundance
- Identify “evolutionary significant units”
- Identify and mitigate threats

Note that our mandates require research outside of U.S. EEZ (marine mammals and turtles do not recognize political boundaries)



Our Mission

1. Assess protected species relative to management objectives in US EEZ waters or waters where the US has a vested interest
2. Identify and mitigate threats
3. Support users of our data
4. Educate and build capacity
4. Advance the science of management and conservation



Our Ecosystems

Central Pacific – in support of PIFSC

- 2.2 million km²

California Current

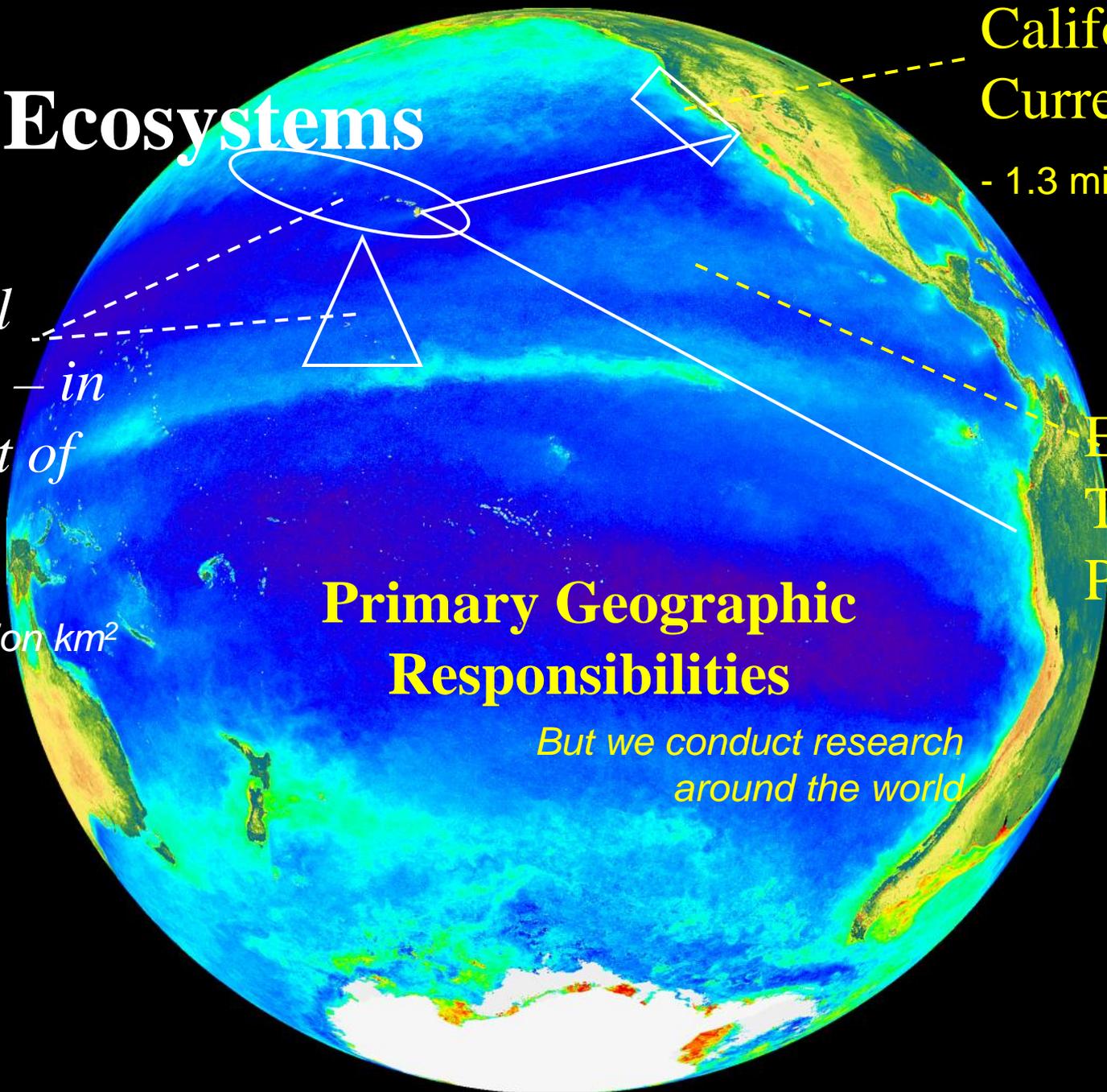
- 1.3 million km²

Eastern Tropical Pacific

- 20 million km²

Primary Geographic Responsibilities

But we conduct research around the world



Our Major Field Efforts

Research Vessel Surveys

Aerial Surveys

Shore-based Surveys

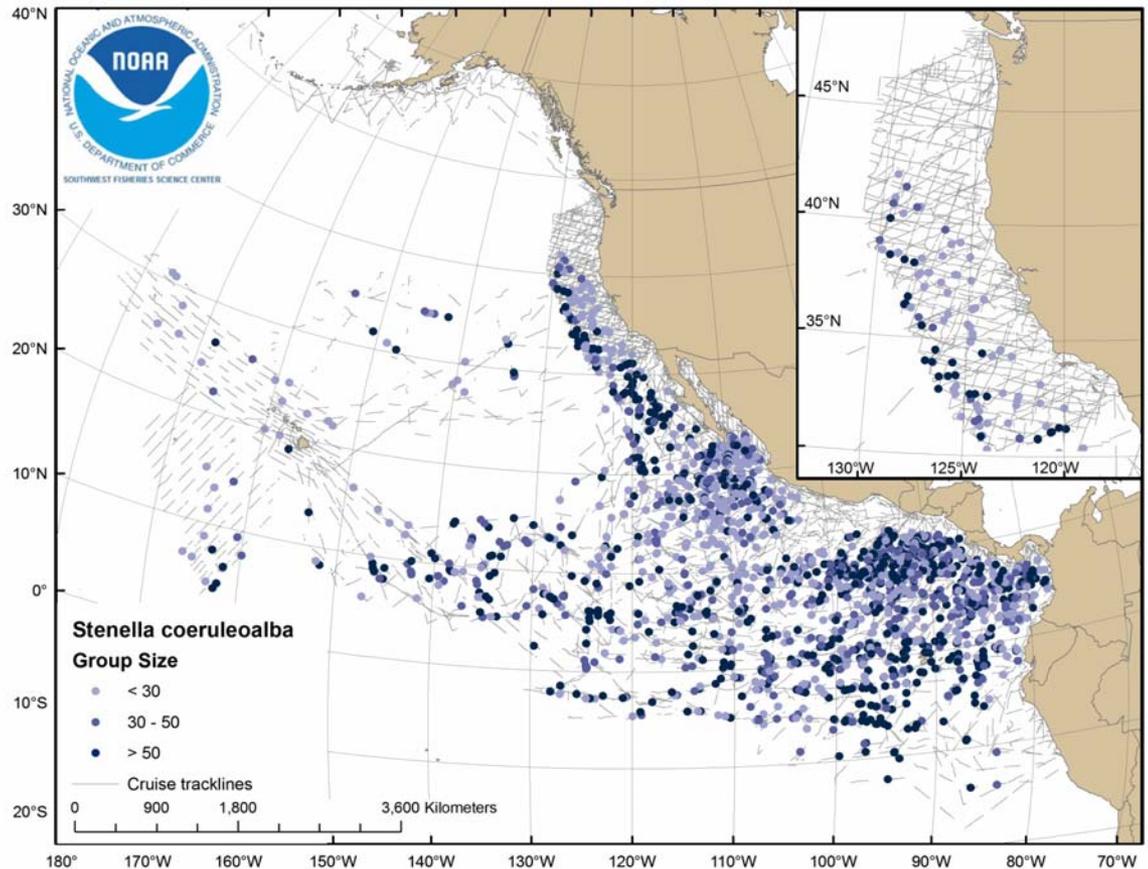
Small boat-based Research



Research Vessel Surveys

i. Abundance and Ecosystem Assessment Surveys

- California Current: 3 to 4-yr cycle
- Eastern Tropical Pacific: 3 to 4-yr cycle
- Central Pacific: irregular



- A Multidisciplinary Approach (since 1986)

Ecosystem Assessment

Abundance

Abundance

School Size
Calibration



Biology

Population
Structure

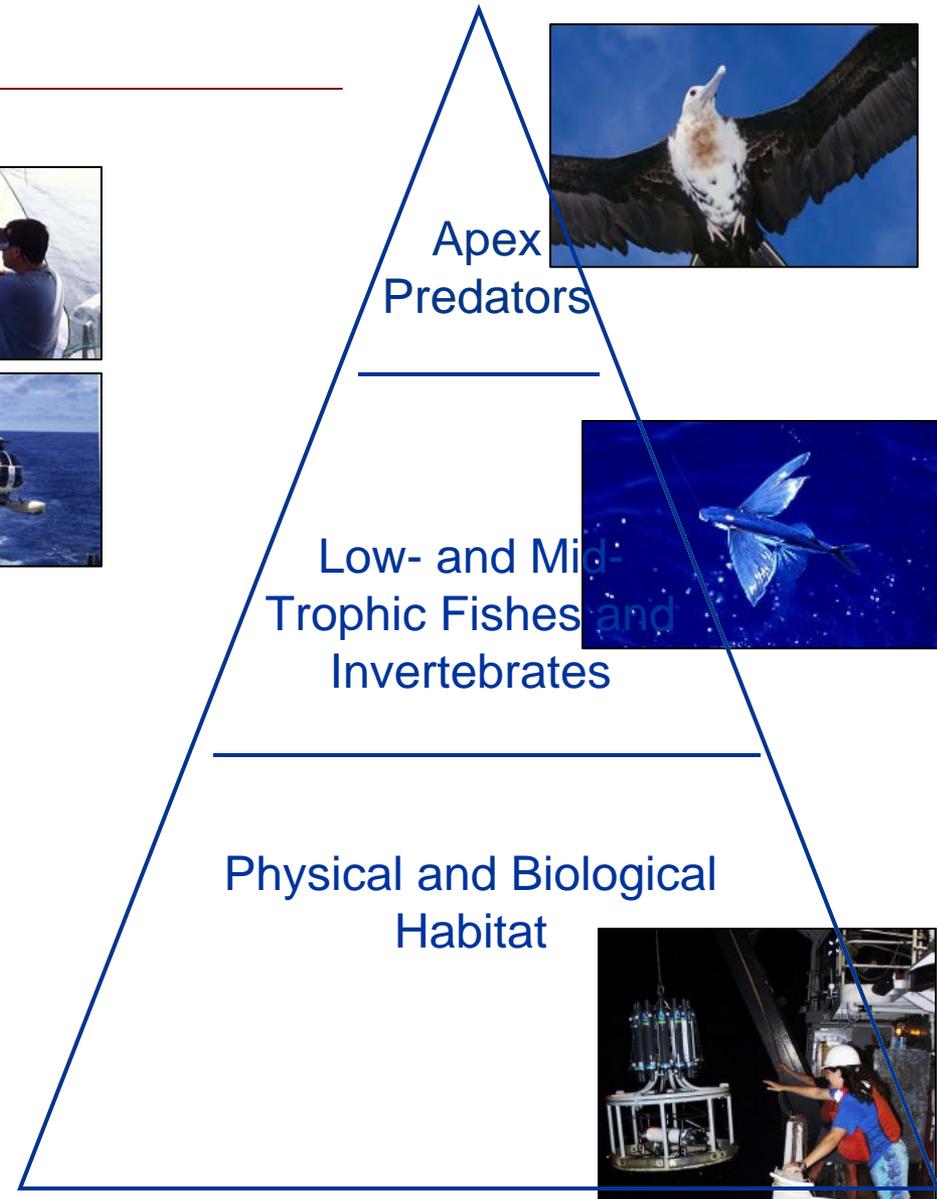
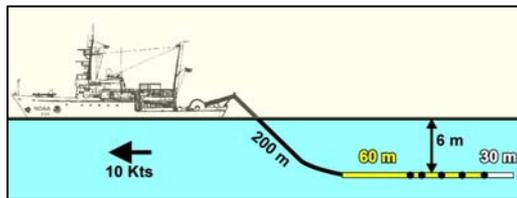
Behavior



Life
History



Acoustics



Research Vessel Surveys

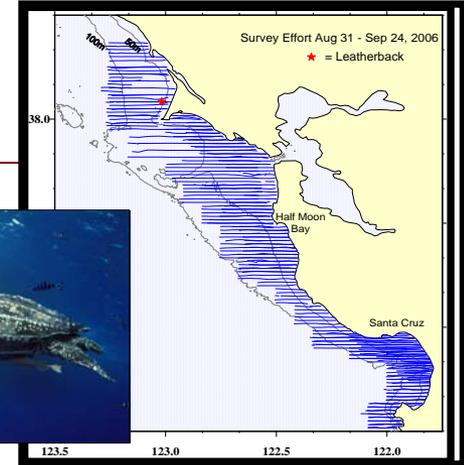
ii. Question-Based Cruises

- What is the abundance, stock structure, health status, and life history of transboundary (US-Mexico) common dolphins? (2009)
- What characterizes preferred foraging habitat of leatherback turtles in Monterey Bay? (2007)
- How many humpback whales are there in the north Pacific (2004)
- What are the indirect effects of yellowfin tuna purse-seine interactions on spotted and spinner dolphins (2001)
- How many sperm whales are there in the northeastern Pacific (1997)
- How do we calculate abundance for cetaceans that dive deep and long? (1995)
- What characterizes preferred foraging habitat of baleen whales in the southern California Bight (1995/96)



Aerial Surveys

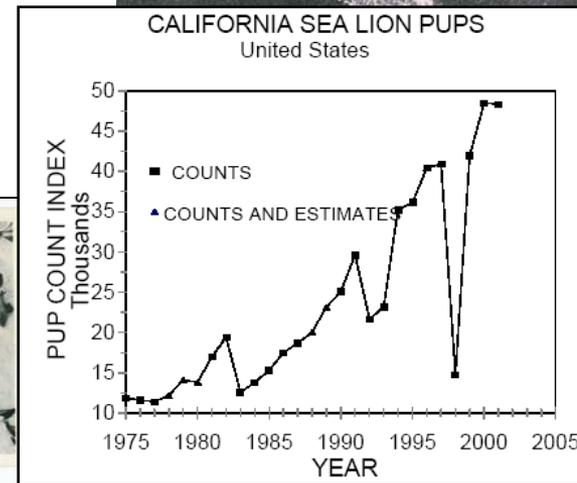
i. Marine turtle distribution & abundance



ii. Cetacean abundance, condition, & life history

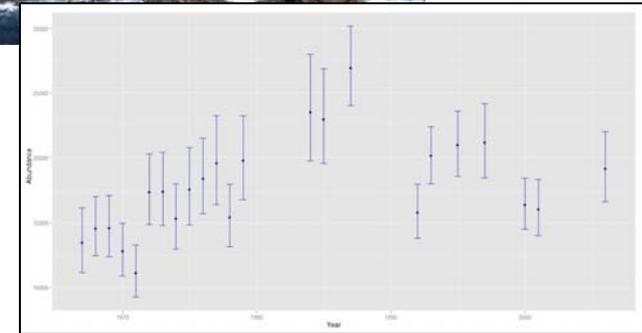


iii. Pinniped abundance



Shore-based Surveys

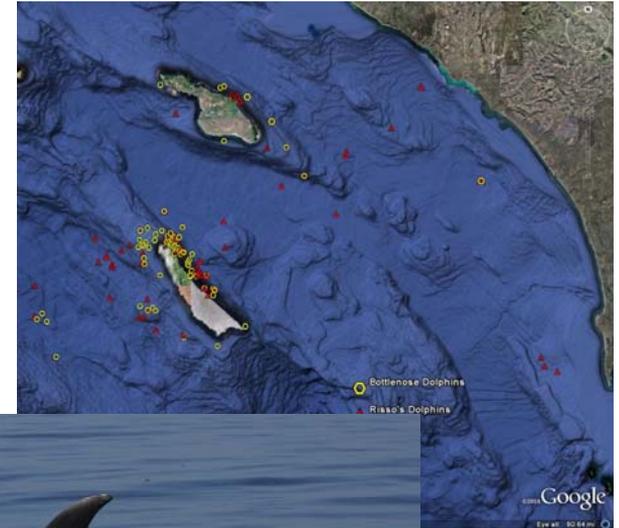
- i. Southbound gray whale population abundance survey (since 1964)



- ii. Northbound gray whale calf production survey (since 1994)

Small Boat-Based Research

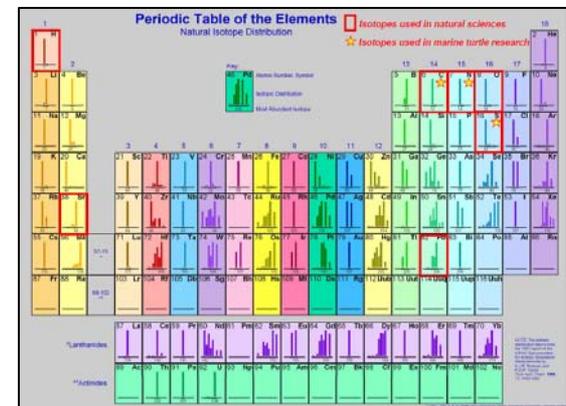
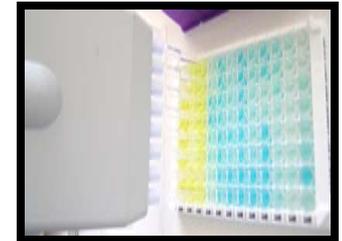
- Dolphin Health Assessment



- Green Turtle Ecology

Laboratory Research

- Molecular Genetics
- Photogrammetry
- Stable Isotopes
- Hormone Assays
- Life History
- Acoustics





Division Scientists

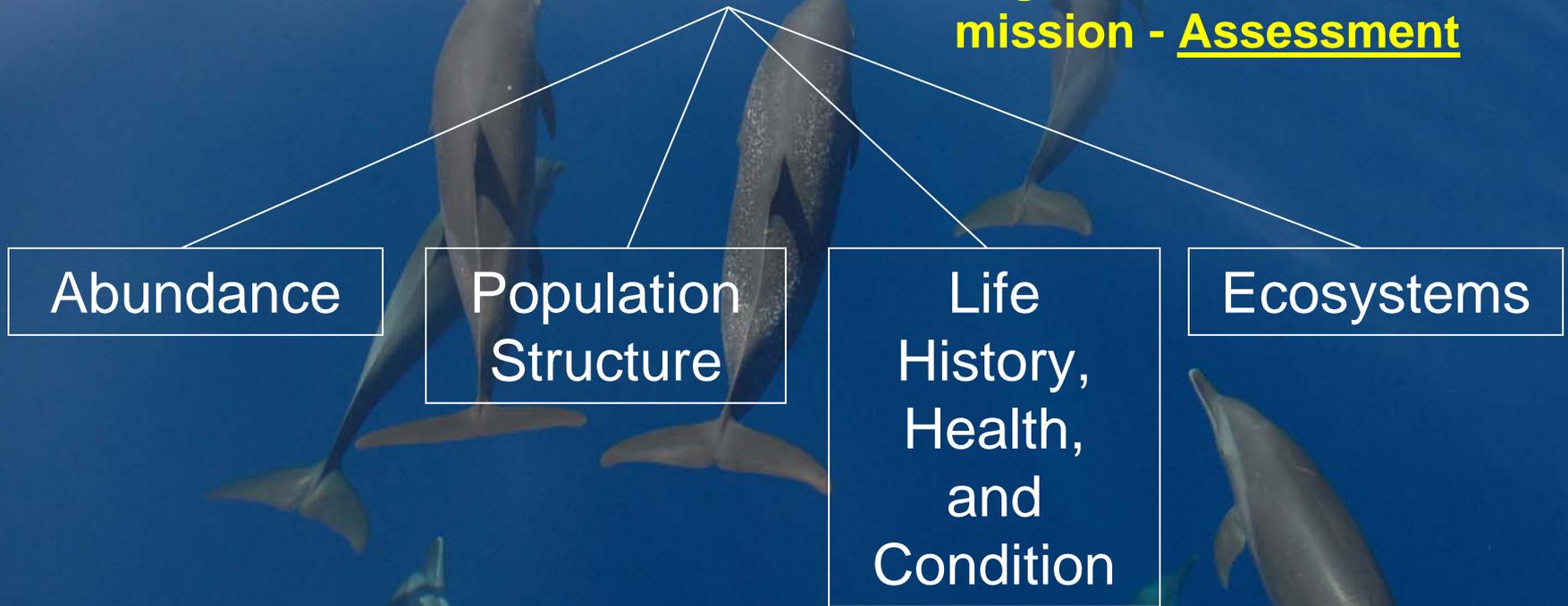
7 Science Programs & 1 Implementation Program

~80 Talented and Dedicated Individuals



Division Structure

- Organized around our core mission - Assessment



- 4 Disciplines (core components of assessment), 2 Taxa
- Designed to implement research activities with maximal collaboration



Division Science Metrics

Ongoing Projects

- 37 - Abundance estimation, assessment, and reducing bycatch
- 58 - Defining units to conserve
- 24 - Life history, condition, health assessment
- 13 - Ecosystem approaches to management
- 15 – Additional strategic research

Graduate Students Advised

Currently: 13 SIO, 25 Other Universities

Past 5 years: 11 SIO, 29 Other Universities

Publications (past 5 years)

280 peer-reviewed publications and book chapters (118 senior-authored)

205 government reports and meeting documents

20 based on sample requests/loans