

# Commercial Herring Fisheries in Southeast Alaska

2015 Report to the Alaska Board of Fisheries

February 23 – March 3, 2015  
Sitka, Alaska

by

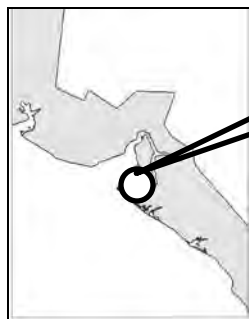
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# Topics

- Historical review of fisheries
- Review of herring management plan
- Threshold and harvest rate approach
- Stock assessment and results

# Location of Spawning Areas



Yakutat

Lynn Canal



Seymour Canal

Tenakee Inlet

Hobart Bay

Hoonah Sound

Ernest Sound

Sitka Sound

Craig

West Behm Canal

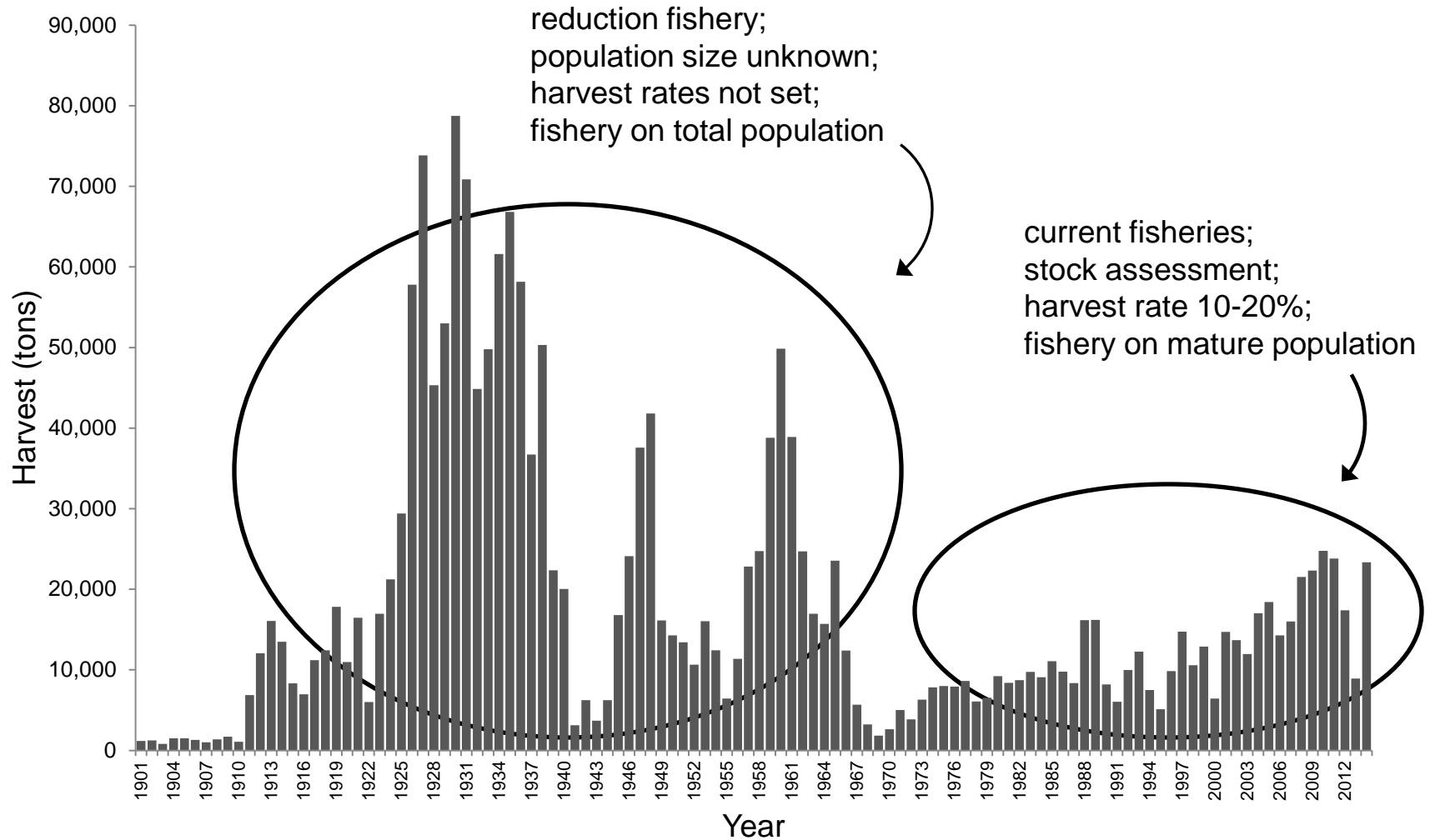
Kah Shakes / Cat Island

● = actively surveyed areas

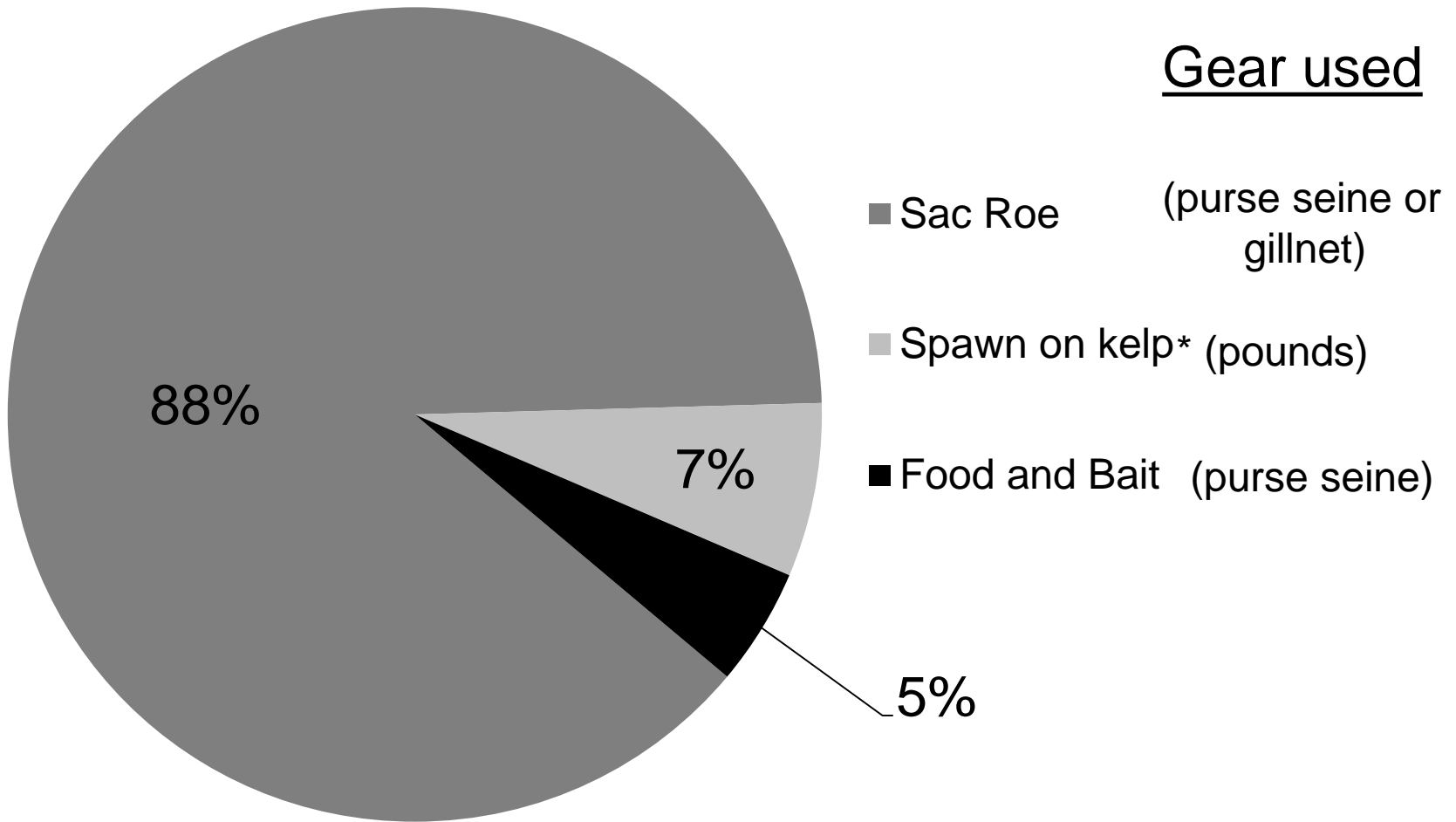
○ = minor spawning areas



# Total Herring Harvest in Southeast Alaska, 1900-2014

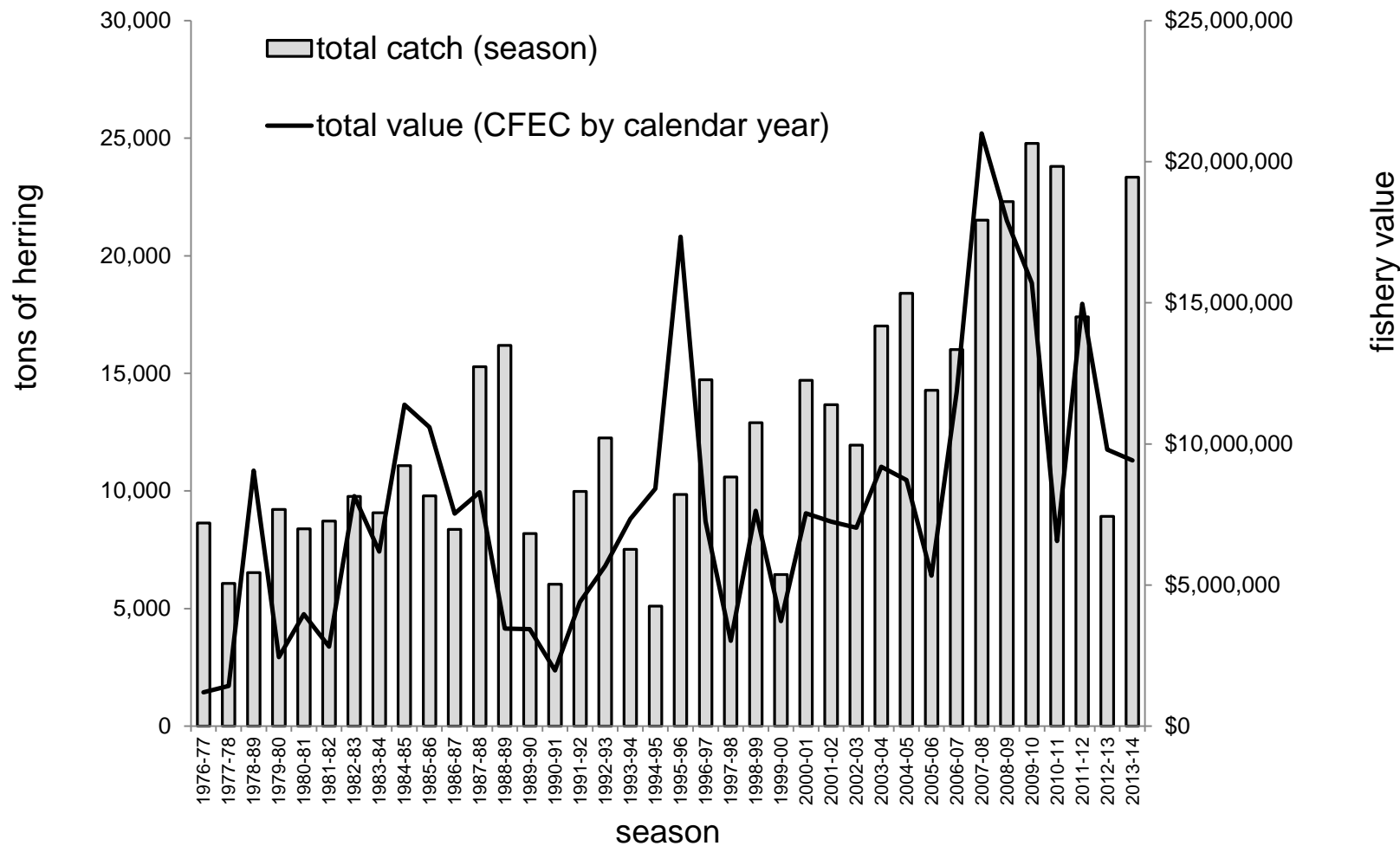


# Percent of Southeast Alaska Herring Harvest by Fishery (average of last 5 years)



\*expressed as herring equivalent

# Historic Harvest and Ex-vessel Value in Southeast Alaska



# Southeast Herring Management Plan (5 AAC 27.190)

For management of herring, the department :

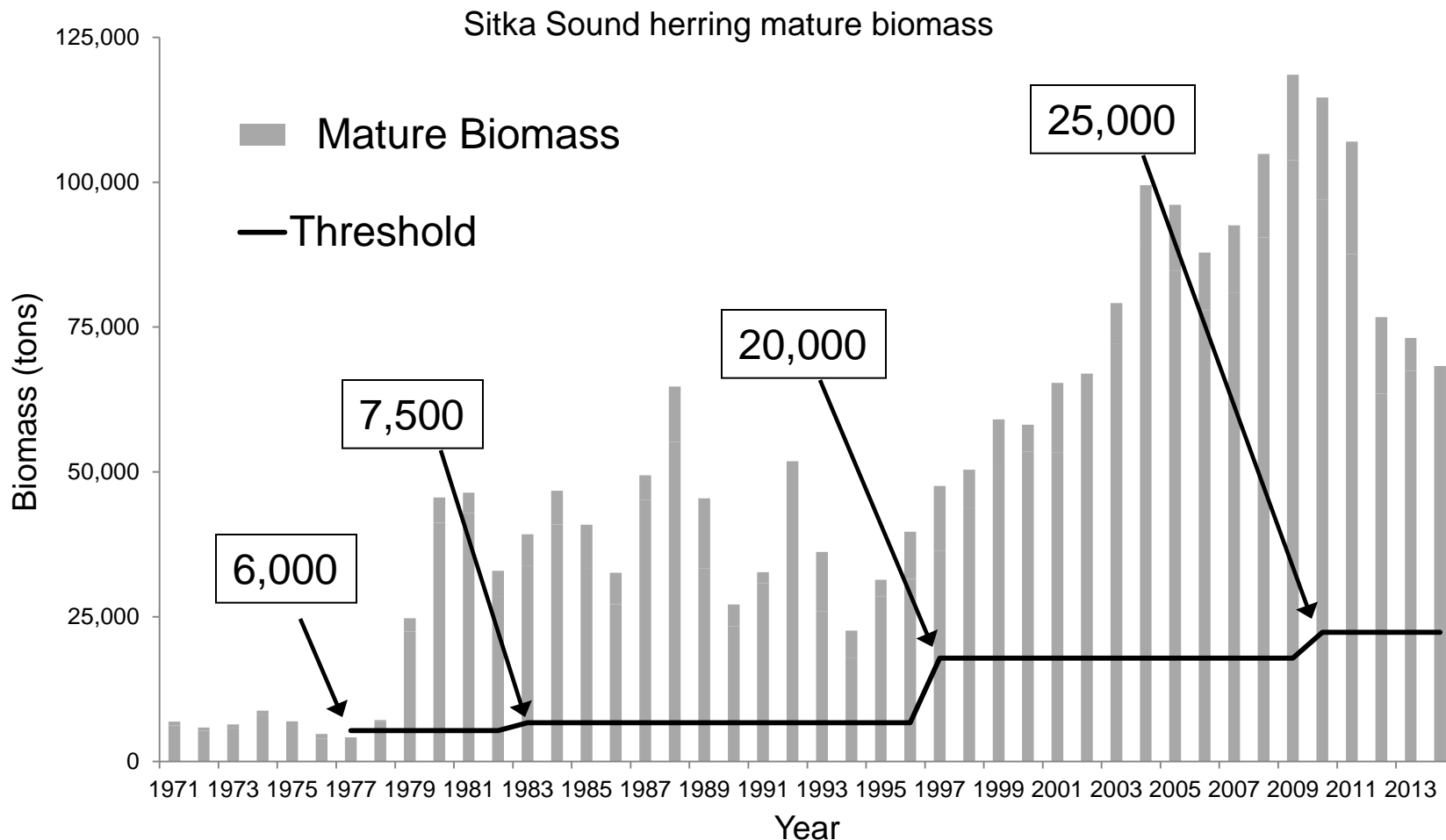
- 1) Shall identify stocks on a spawning area basis;
- 2) Shall establish minimum spawning biomass thresholds;
- 3) Shall assess abundance of mature herring before fishing;
- 4) May set exploitation rate between 10% and 20%;
- 5) May consider sources of mortality; and
- 6) May modify fishing periods to minimize incidental mortalities.

# Thresholds

- Goals
  - maintain stocks at productive levels
  - ensure spawning base for reproduction / future recruitment
- Established based on two approaches:
  - 25% of estimated average unfished biomass
    - Sitka Sound, West Behm Canal
    - For Sitka Sound, BOF adjusted upward to address subsistence concerns
  - Set based on estimates of historical abundance and data quality
    - Used for all other stocks

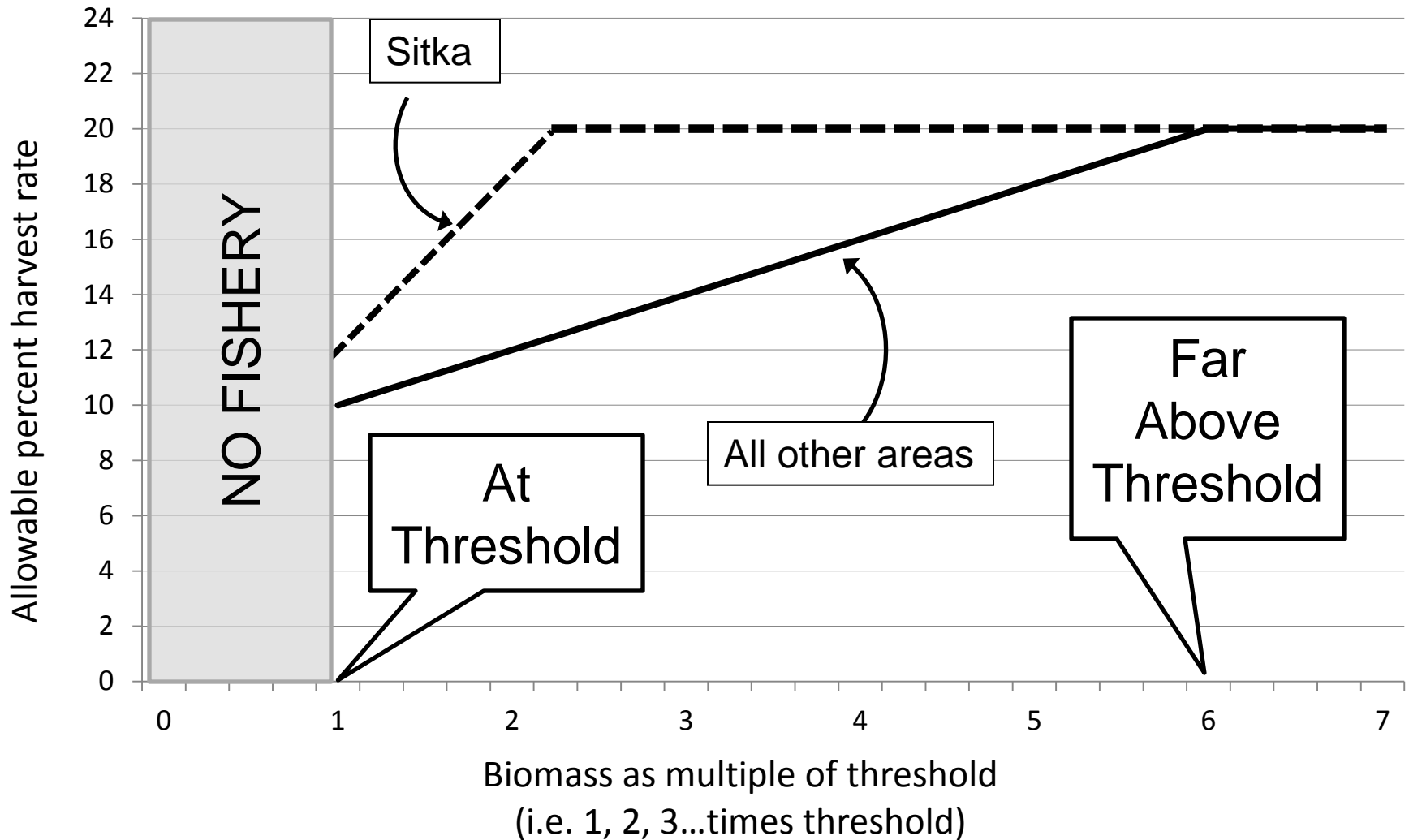


# Threshold in Sitka Sound



\* 1971-1979 biomass estimates from 2007-forecast ASA model, 1980-2014 biomass estimates/forecast from 2015-forecast ASA model

# Sliding Scale Harvest Rate



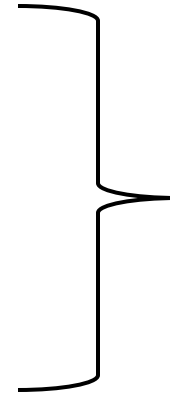
# Stock Assessment

- Estimates of spawning biomass
  - Aerial surveys to estimate spawn mileage
  - Egg deposition surveys to estimate egg density
- Age / Weight / Length (AWL) data collection
  - Spawning population
  - Commercial fishery
- Data are inputs for one of two models to forecast

# Two models used to forecast herring biomass:

## 1) Age Structured Analysis (ASA)

data inputs: egg deposition  
catch age composition  
spawning age composition  
weight at age  
fecundity at age  
catch

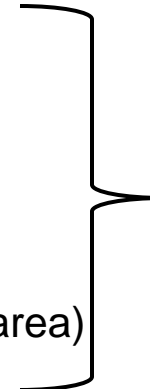


1-year  
biomass  
forecast

Sitka, Seymour,  
Craig, Tenakee

## 2) Biomass Accounting

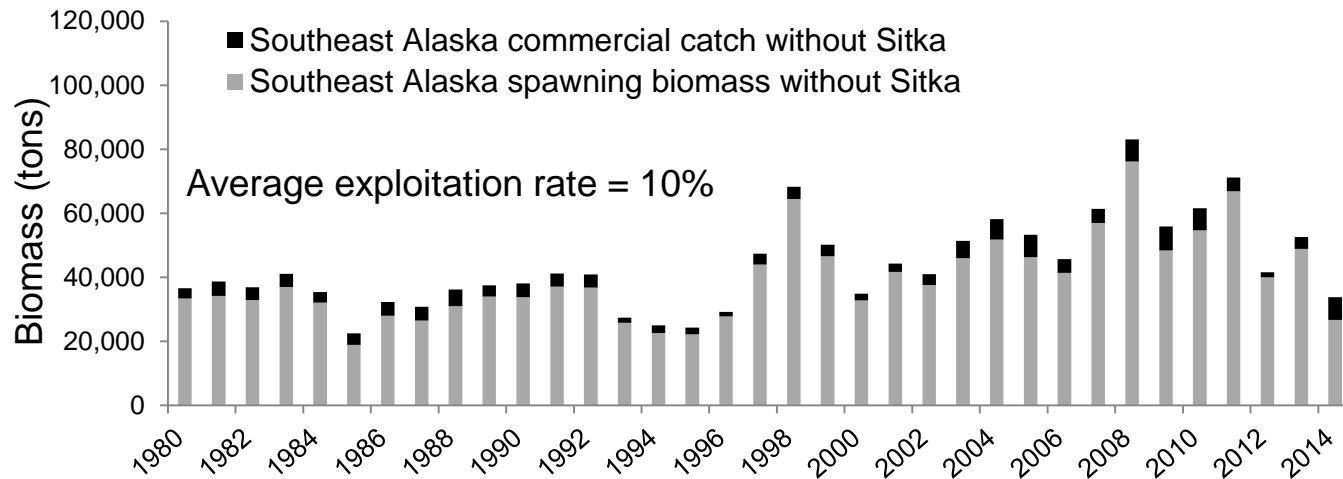
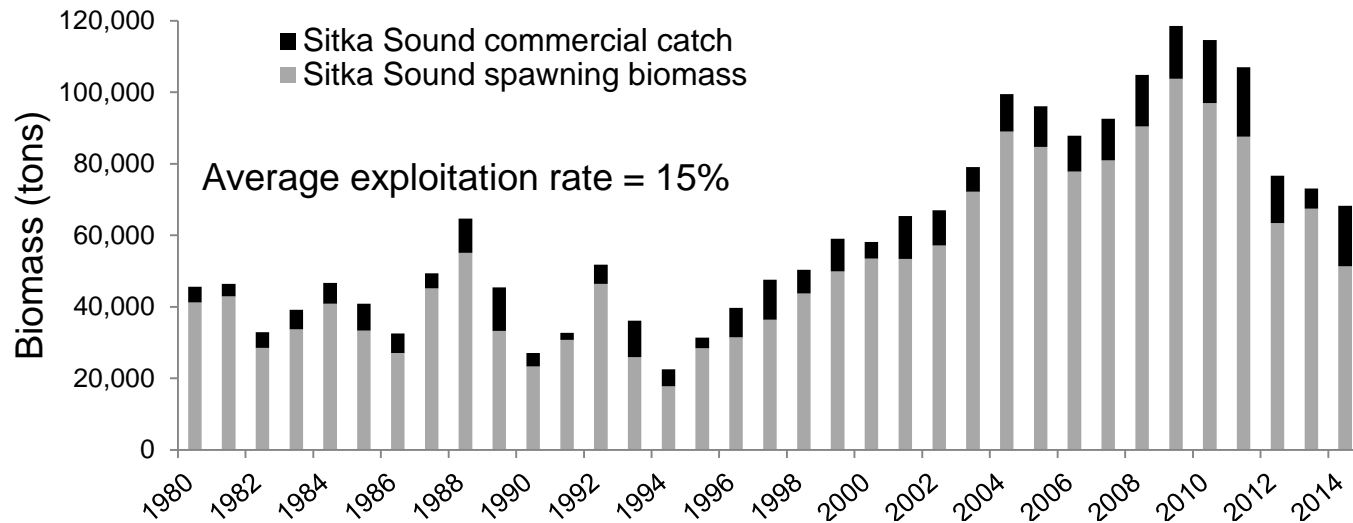
data inputs: egg deposition  
spawning age composition  
weight at age  
recruitment  
survival/maturity/fecundity (borrowed ASA area)



1-year  
biomass  
forecast

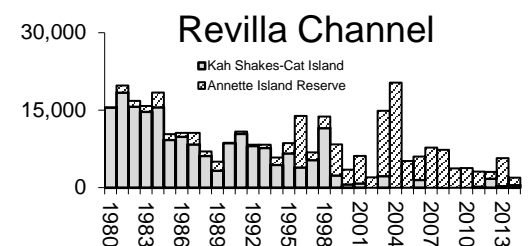
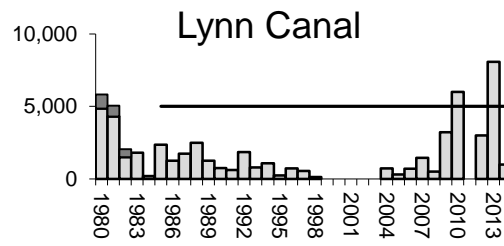
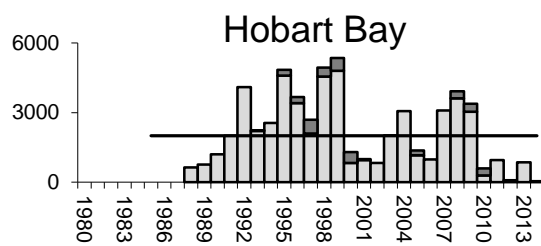
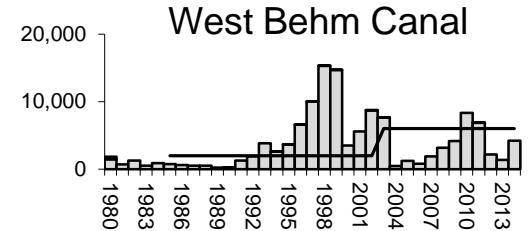
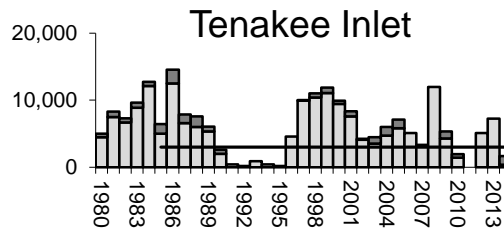
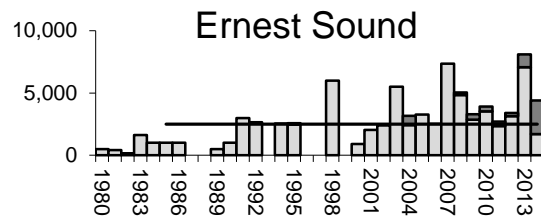
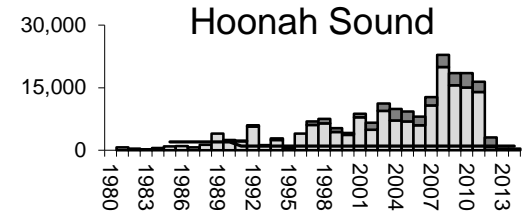
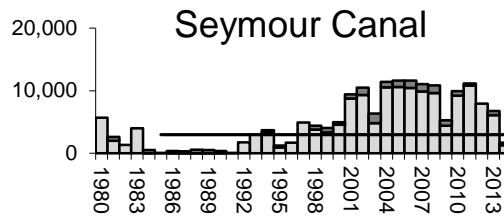
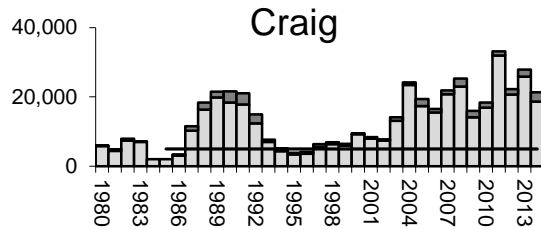
Hoonah Sound,  
West Behm Canal,  
Ernest Sound,  
Hobart Bay

# Comparison of Sitka Sound spawning biomass with other southeast Alaska populations



# Herring biomass at Southeast Alaska spawning areas

Tons of herring



Light gray = spawning biomass  
 Dark gray = catch  
 Black line = fishery threshold

# Comparison of Sitka Sound and Strait of Georgia (BC) spawning biomass and catch

