



# Southwest Fisheries Science Center Highly Migratory Species: Research Update

## ***Presenter***

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**NOAA  
FISHERIES**

# HMS Research Update: Outline

**2024 HMS assessment activities  
IATTC and catch shares**

**Life History:**

**Albacore Foraging**

**Bluefin Foraging**

**Bluefin Commercial Length and Weight**

**Downscaled Climate Projections**





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# 2024 HMS Assessment Activities

## **ISC**

- Pacific bluefin tuna (benchmark - SWFSC lead)
- North Pacific shortfin mako shark (benchmark - PIFSC lead w SWFSC involvement)

## **WCPFC**

- S. Pacific albacore, WCPO and Pacific silky shark, SW Pacific striped marlin\*

## **IATTC**

- Yellowfin, skipjack, EPO bigeye, and silky shark (indicator)

# IATTC and catch shares



FRD economist Dr. Dale Squires continues to work on a proposed Transferable Day Credit Scheme as part of the IATTC's capacity reduction program.

He presented to the IATTC Working Group on Capacity in Victoria, BC, Canada Aug 2023

IATTC scientists reviewed this work at the end of Aug 2023 in La Jolla, CA.

The IATTC intends to communicate results at a stakeholder meeting to be held in Panama in Jan 2024.

# Life History Program Update: Albacore Foraging (AFRF/ AAFA/ OSU)

## Update:

- Dr. Catherine Nickels analyzed stomachs from 2022
- Conducting additional analyses on condition
- 2021 results included in CCIEA and CalCOFI reports

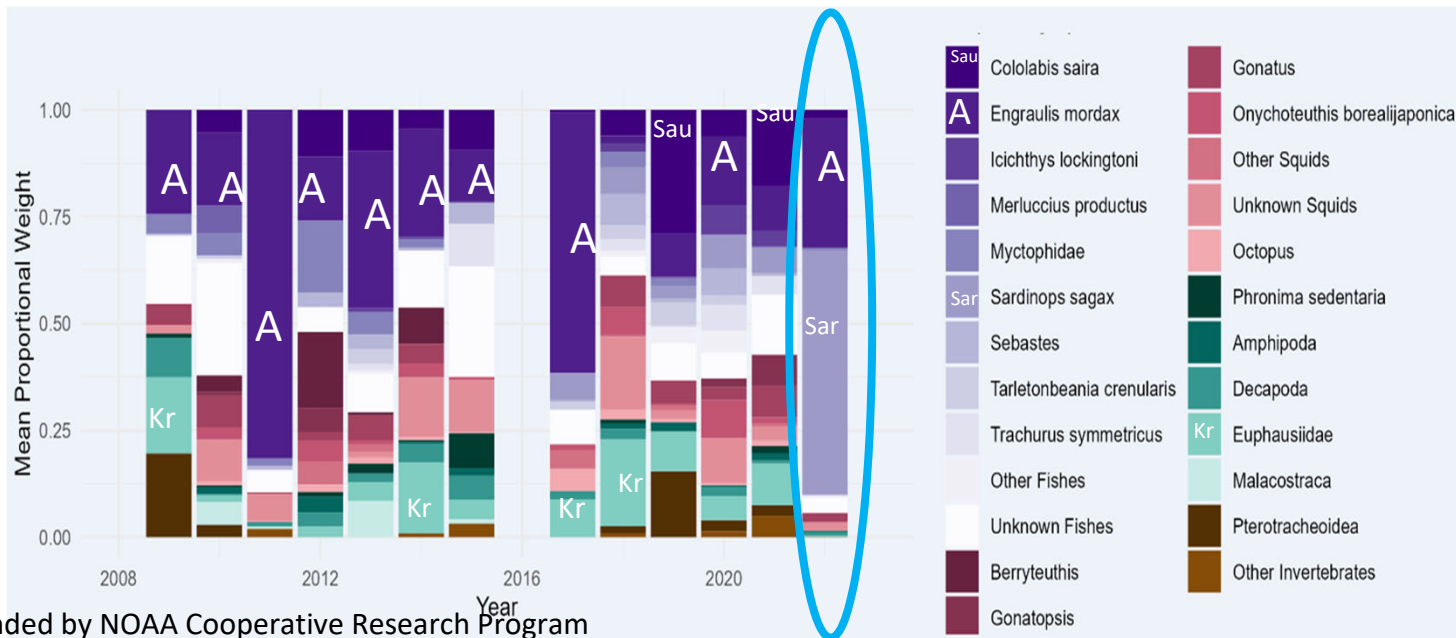
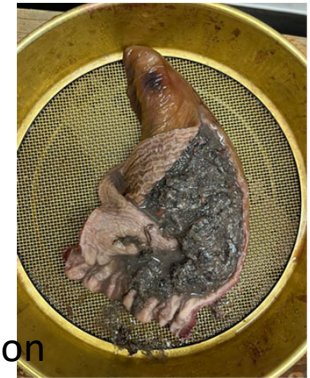


## 2022:

- Large increase in Pacific Sardine, not seen previously
- Increased importance of YOY CPS (higher energy density)

## Implications:

- High variability over short time-scales, necessitates continued data collection
- Acoustic and trawl survey indicate low Anchovy and Sardine biomass in the Northern California Current, insights into stock trends from diet data TBD



Funded by NOAA Cooperative Research Program

# Life History Program Update: Bluefin Foraging

( Fishers, Processors, Texas A&M, UCSC, SAC )

## Update:

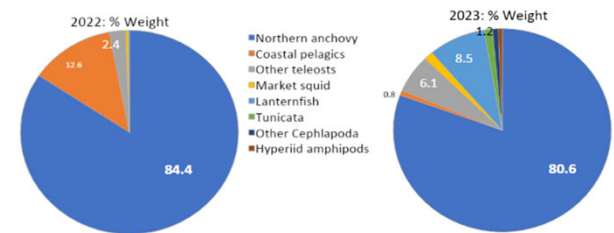
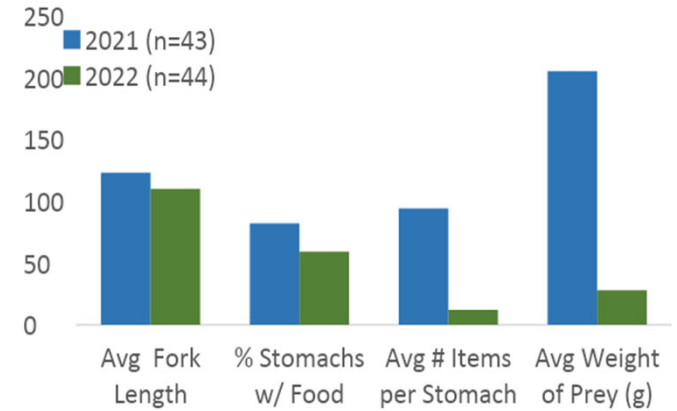
- Dr. Travis Richards working on backlog of stomach samples
- Completed 2022 and 2023
- Conducting additional analyses on condition
- New results will be included in CCIEA and CalCOFI reports

## 2021-2022: Large shifts in diets and quantity

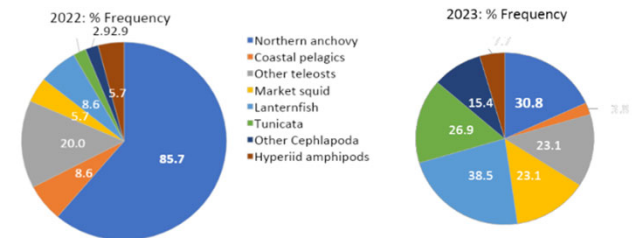
- More empty stomachs
- Less prey in stomachs
- More prey diversity
- Anchovy dominant by weight, but in fewer stomachs

## Implications:

- Large shifts occur over short time-scales
- High variability necessitates continued data collection
- Implications for growth and condition being explored



Anchovy are dominant by weight both years  
Other CPS decrease /Lanternfish increase



Anchovy found in fewer stomachs  
Increase in stomach diversity



# Life History Program and Stock Assessment Update: Length and Weight Data Analyses for Commercially Landed Pacific Bluefin Tuna in the U.S. West Coast EEZ

Lee, H. Dewar, H., James, K. Horeczko, M., Gu, Y. ISC/23/PBFWG-1/06  
(SWFSC/WCR/CDFW)

**Issue:** No recent analyses of the size compositions for U.S. commercial fisheries

**Method:**

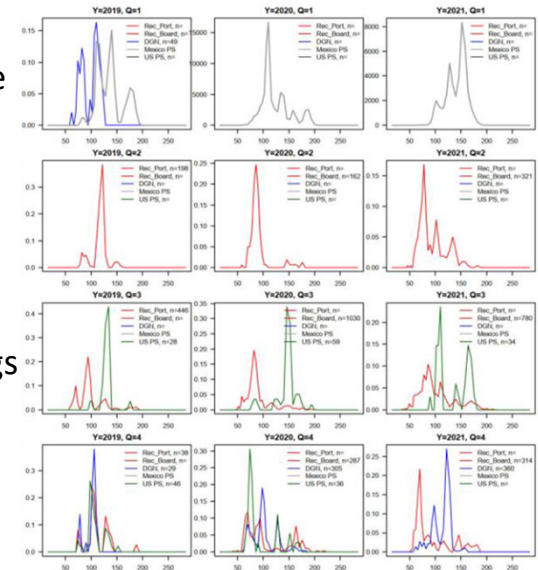
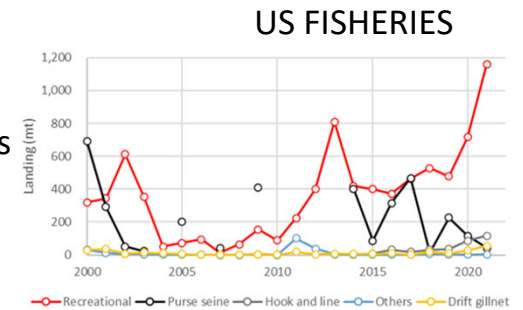
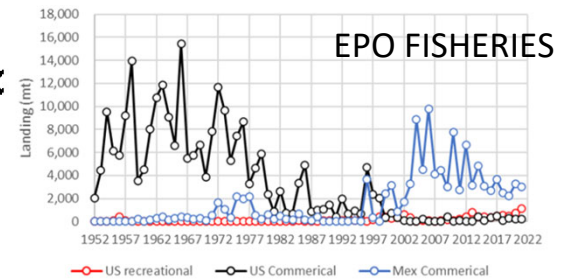
- Analyzed Bluefin Tuna length/ weight data for DGN and purse seine
- Compared to U.S. recreational and Mexican purse seine fisheries

**Results:**

- After 2014, there was high variability across and within fleets over time
- U.S. commercial fisheries and recreational fishery landed similar sizes
- When data overlapped in time, Mexican purse seine fishery caught larger sizes although in other quarters sizes were comparable

**Implications:**

- Current practice of combining the U.S. and Mexican commercial landings may not reflect the reality given the high degree of variability in length data
- Given the low U.S. commercial landings, the added cost of increasing model complexity may not be warranted



Comparison of landings across fisheries, note the high variability.

# Life History Program Update: Expanded, downscaled climate change projections in California Current

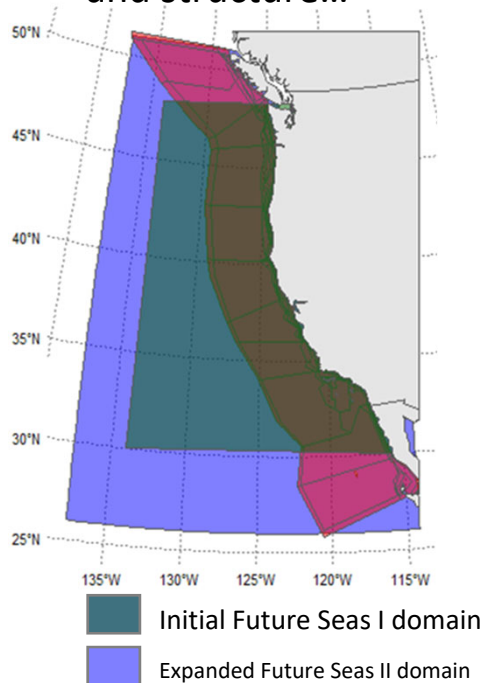
Issue: Changing conditions in the California Current are/will impact species distributions

Approach:

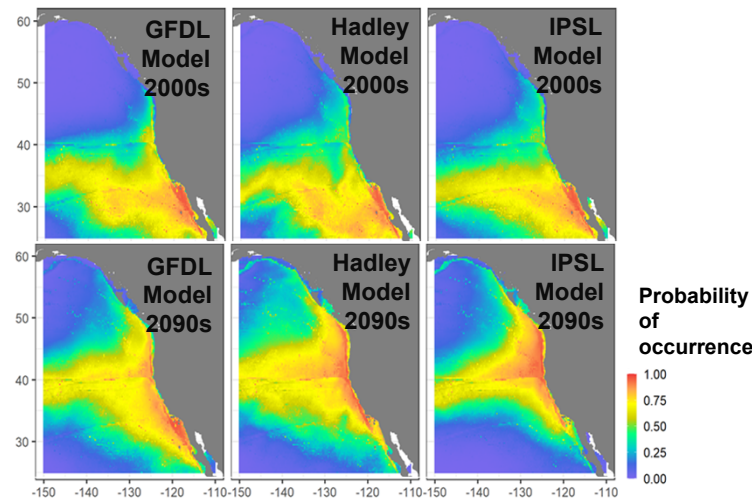
- NWFSC scientists expanded the downscaled (high-resolution) climate projections for the California Current
- Projections linked to species distribution models for HMS

Implications:

- Assess potential range shifts for HMS, all of which move beyond U.S. borders
- Shifts likely to impact availability to U.S. fleets, essential fish habitat, ecosystem function and structure...



**Projected shifts in albacore distribution during April**



Liu, Kaplan, Hervann, Muhling et al.

