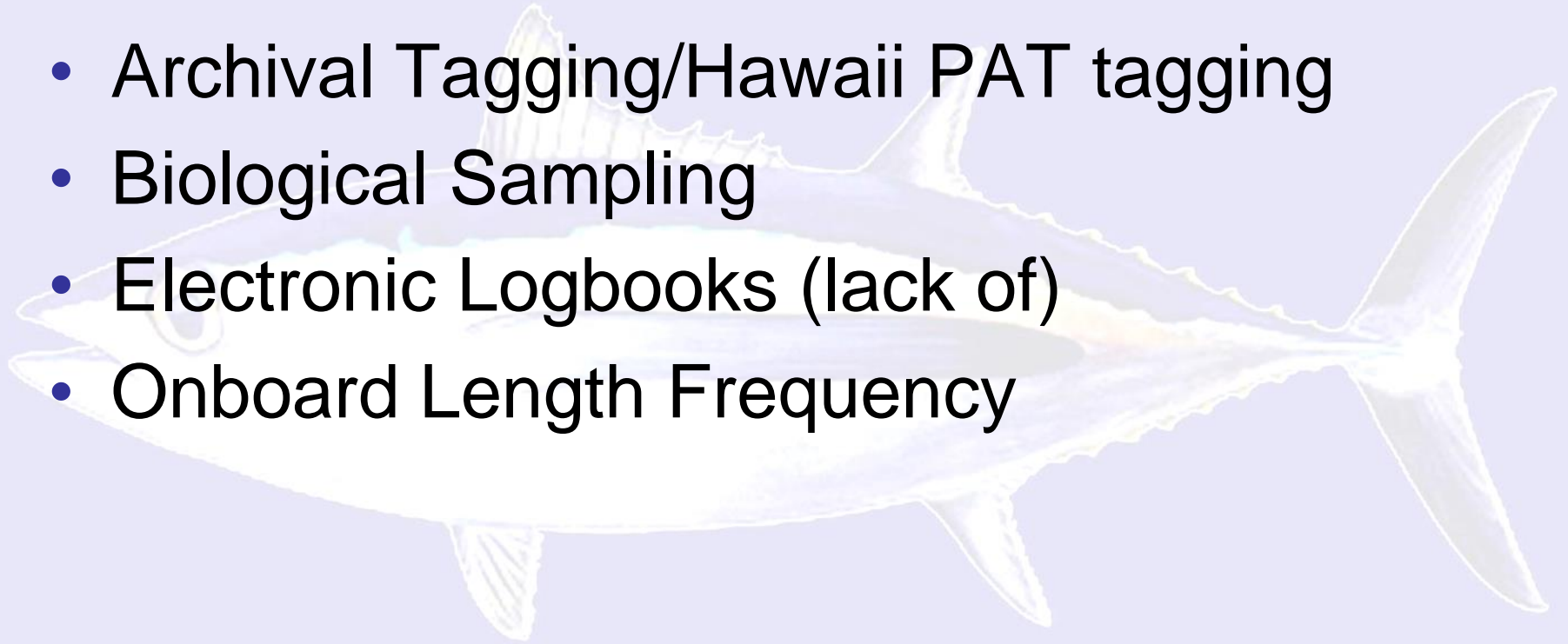


2012 SWFSC/AFRF Collaborative Efforts

- Archival Tagging/Hawaii PAT tagging
- Biological Sampling
- Electronic Logbooks (lack of)
- Onboard Length Frequency



Archival Tagging

Deployments to Date - 801 Archival (+ 43 Dummy)

Recoveries to Date - 23 Archival (+ 6 Dummy)

Oregon / Washington/ No. CA

Total Deployed North: 641

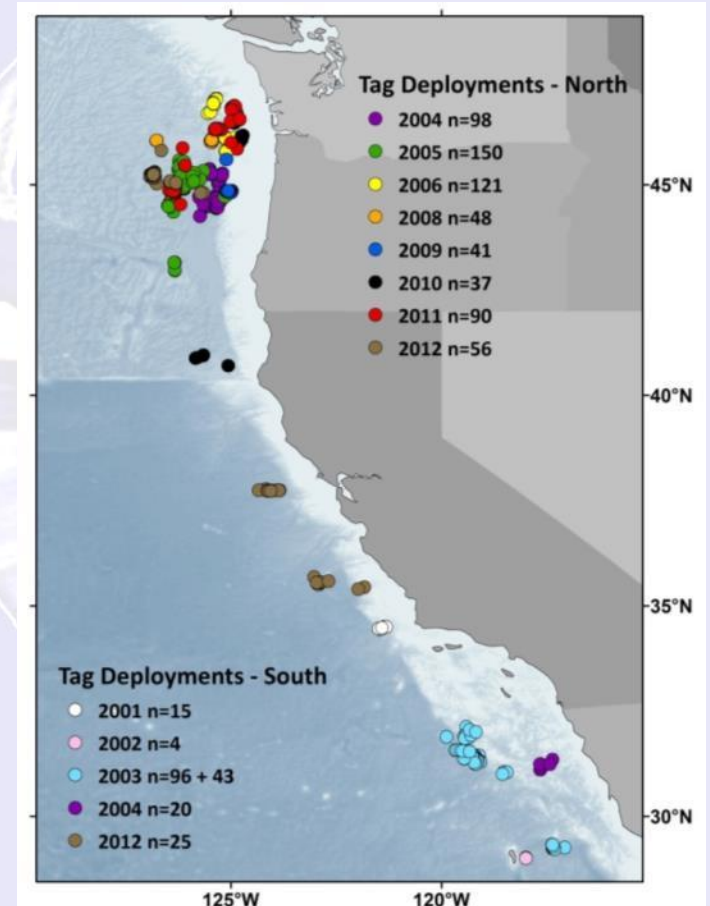
12 Recovered

Southern CA / Northern Baja

Total Deployed South: 203

11 (+ 6 Dummy) Recovered

Recovery Rate: **3.43%**



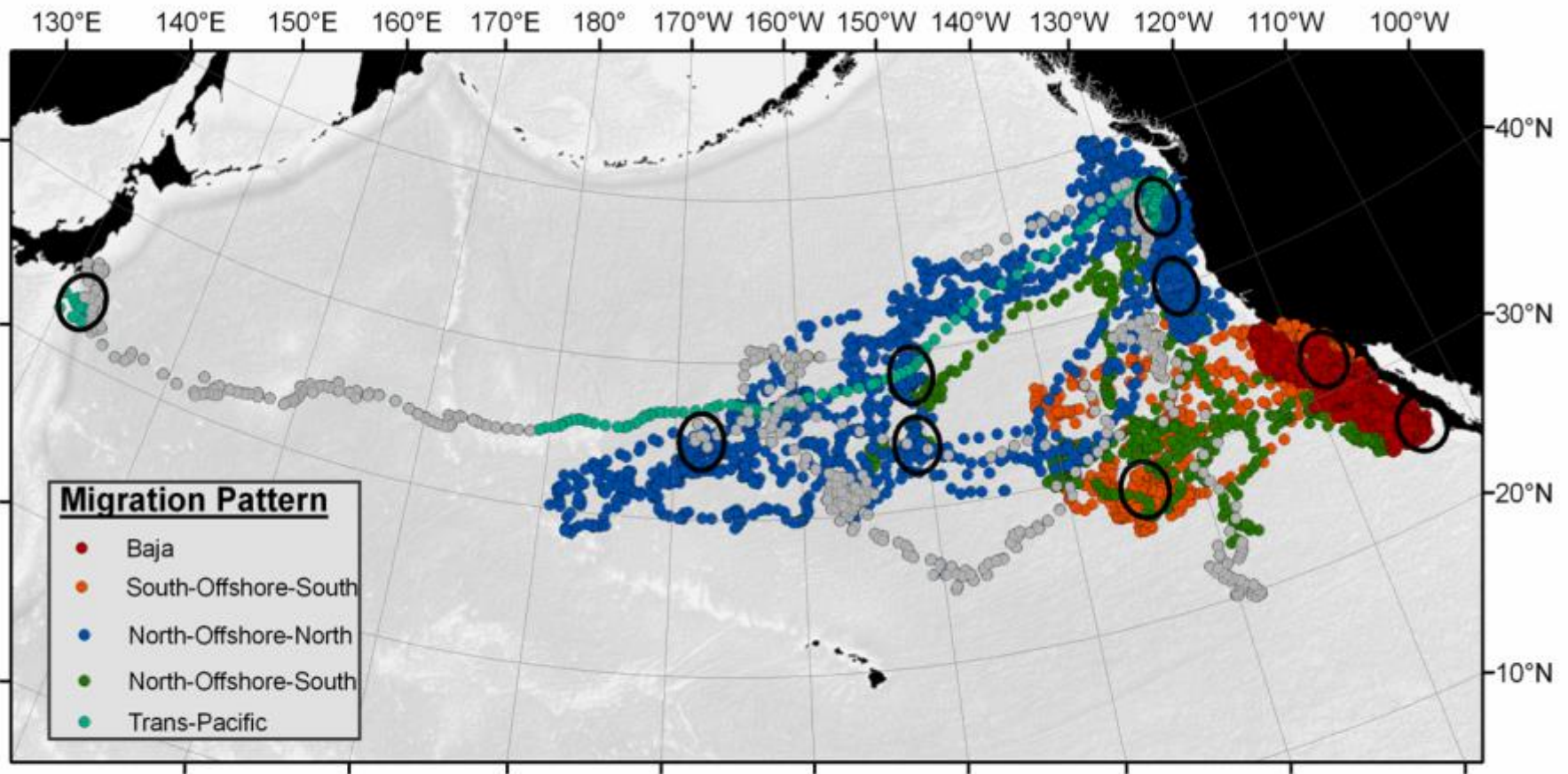
Two or more trips planned for 2013 to deploy 120 tags

2012 Tagging Cruises

- August 17, 29, 30 and September 7, 8, 2012, Geof Walker Hawaii PAT tagging - 3 tags deployed
 - October 5-12, 2012, F/V Royal Dawn - 56 tags deployed
 - November 1-7, 2012, F/V Royal Dawn - 25 tags deployed
- 

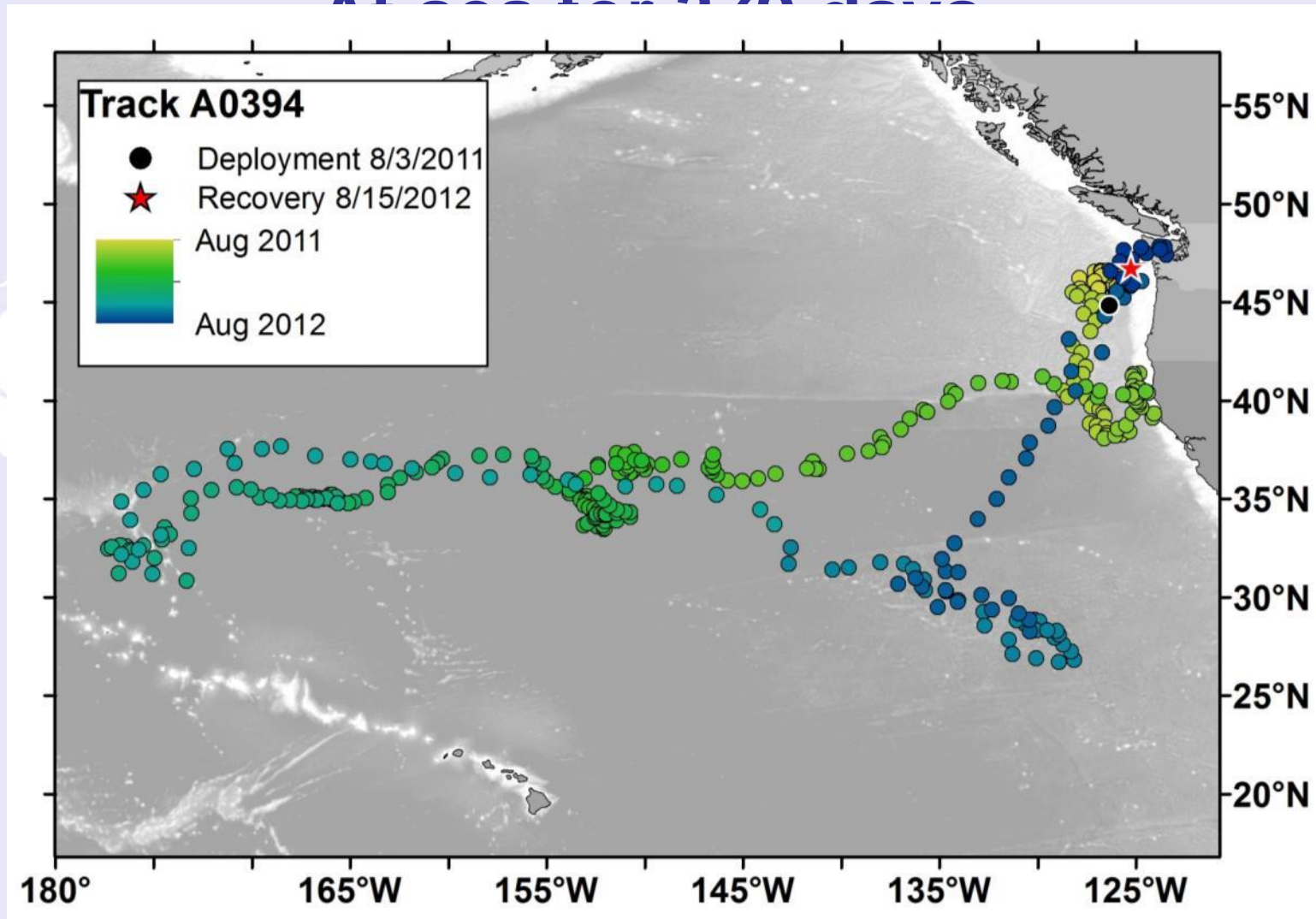
Movements: 20 fish, 5 migratory patterns

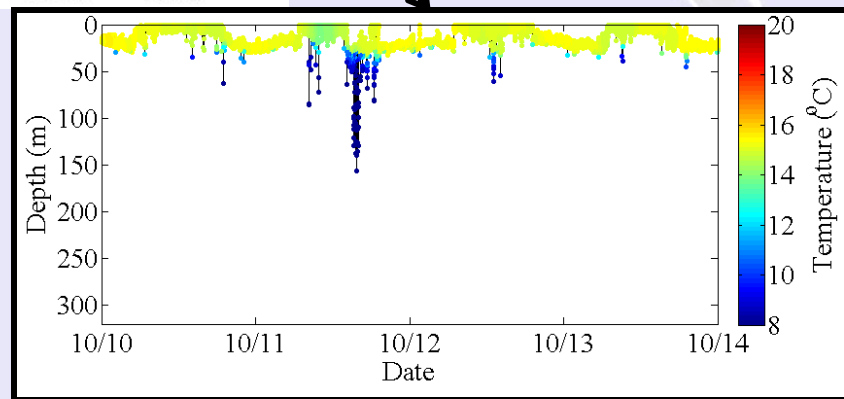
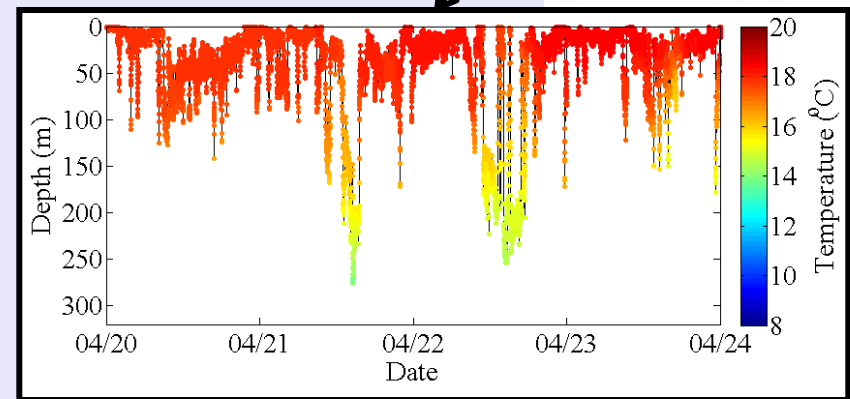
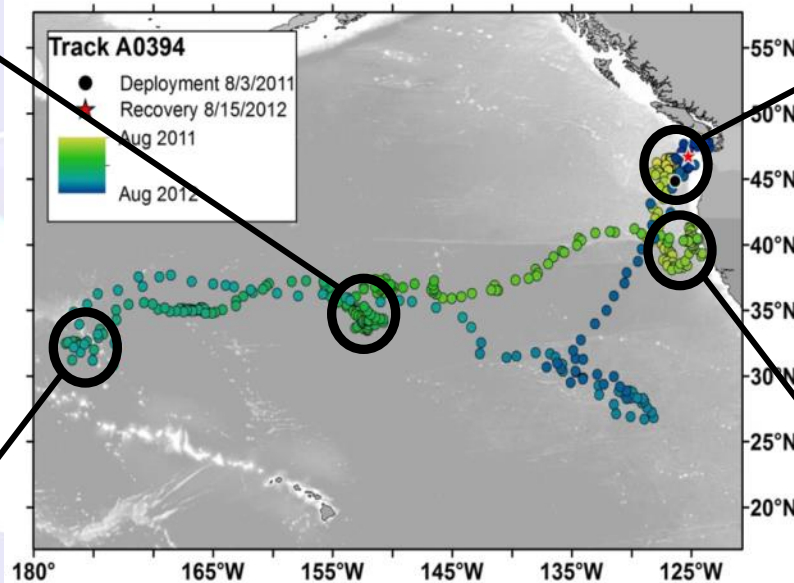
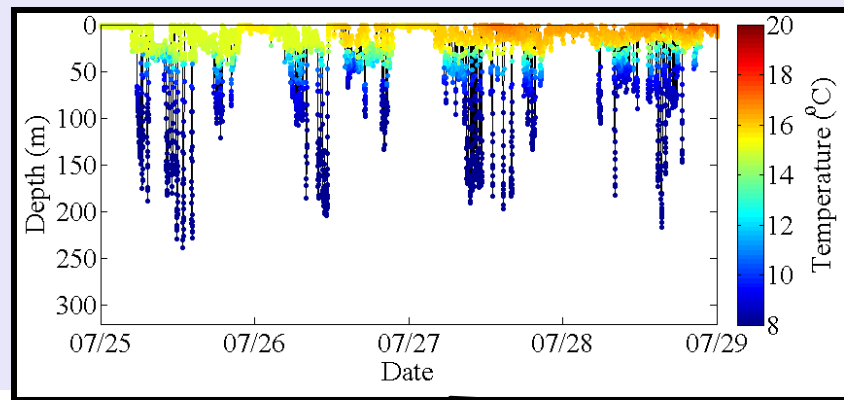
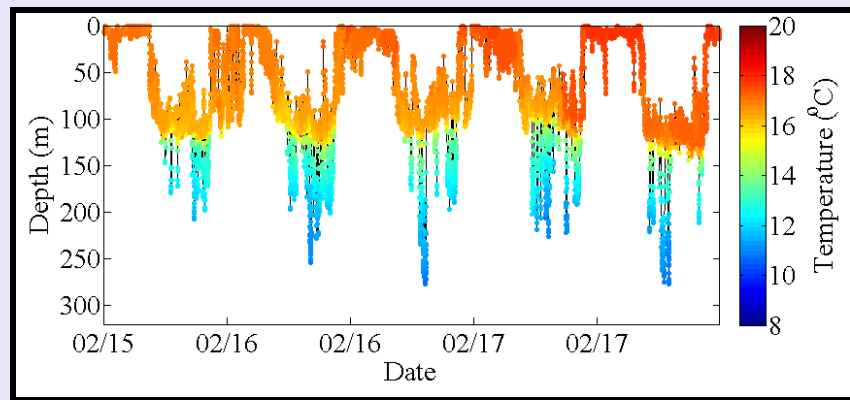
Site Specific Behavior in Focal Areas



2012 Recovery: Tagged aboard Royal Dawn; Recovered by Randy Ratliff aboard Rampage

At sea for 270 days





Biological Sampling of Whole Fish

Studies aim to address:

- **Age and growth** - otoliths, dorsal spines, scales, vertebrae
 - **Foraging ecology** - stomach analysis and liver, heart, muscle tissues
 - **Maturity and reproductive state** - gonads
 - **Stock structure and migration patterns** - DNA, otoliths, tissues
- 

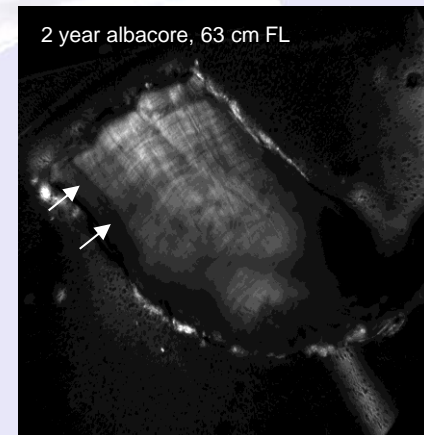
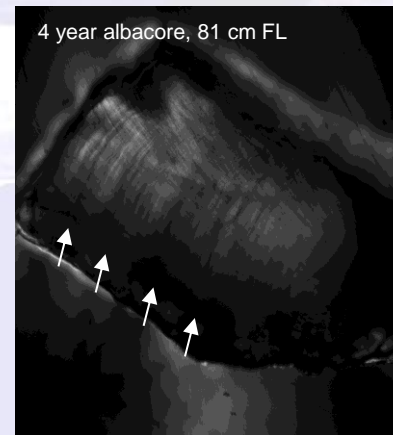
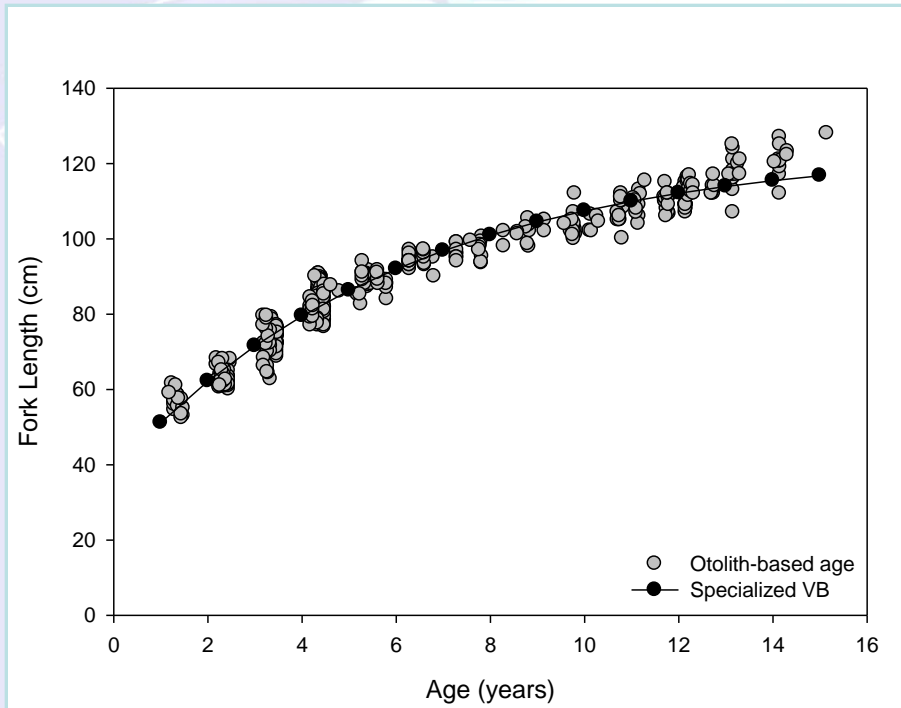
- In 2012, ~50 albacore were collected in the north
- Fish peduncle tags and data forms were distributed to cooperating vessels
- Samples compared/combined with albacore collected on the southern sportfishing grounds and from Hawaii



Fish Sample Number	Date (MM/DD/YYYY)	Time of Day	GPS Location (DD°MM' DDD°MM')	Fork Length (CM)	Gear Type (bait or Troll)
191	09/29/2010	12:00	45.34 127.49	52	Bait
192	09/29/2010	12:00	45.34 127.49	54	Bait
193	09/29/2010	18:00	45.08 128.08	56	Bait
194	09/29/2010	18:00	45.08 128.08	56	Bait
195	09/30/2010	10:00	45.02 128.00	60	Bait
196	09/30/2010	10:00	45.02 128.02	61	Bait
197	09/30/2010	10:00	45.02 128.02	60	Bait
198	10/01/2010	13:50	45.11 125.05	66	Bait
199	10/01/2010	13:50	45.11 125.05	62	Bait
200	10/01/2010	13:50	45.11 125.05	60	Bait

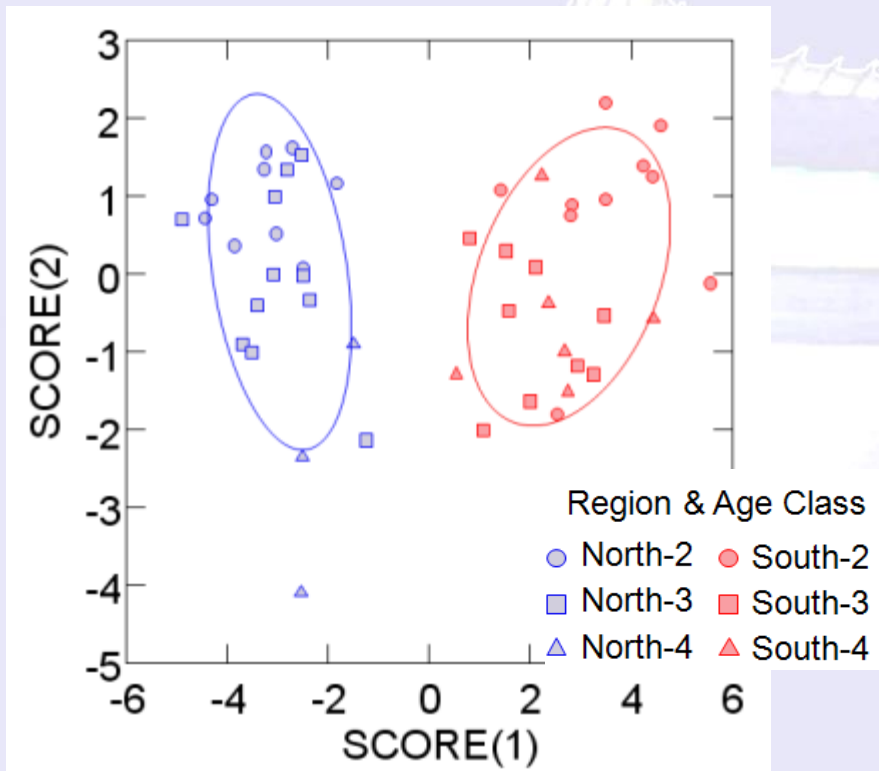
Age and Growth

- Otolith ageing helped define new growth curve. Samples combined with some collected in Japan and Hawaii (n=486). The paper was submitted in February 2013 and is in review.

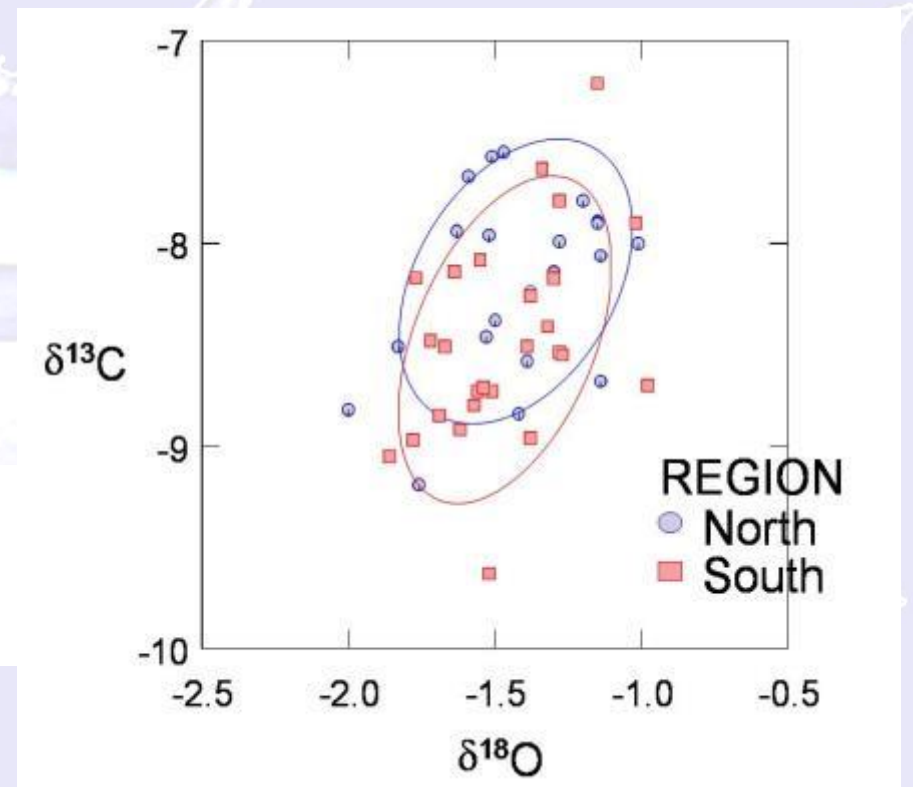


Recent Otolith Chemistry Results

Whole otolith microchemistry points toward stock separation in EPO during first 4 years. Otolith core chemistry suggests overlapping natal origins.



100% correct classification success by region for whole otoliths.



Core chemistry suggests no difference.

Electronic Logbooks

http://swfsc.noaa.gov/uploadedFiles/Divisions/FRD/Large_Pelagics/Albacore/albeloginstall.zip

- 13 users in 2012 covering 70 trips; 10 users in 2011 covering 70 trips; 8 users and 47 trips in 2010
- Total 1971 trips from 484 vessels (3.5% e-logs)
- Few new users each year
- Benefits: easier recording; fewer mistakes; better data; cheaper management costs
- Value-added items can be created from user input
- An upgraded program is way overdue and in the works.
- E-logs are being accepted in lieu of the signed paper logs

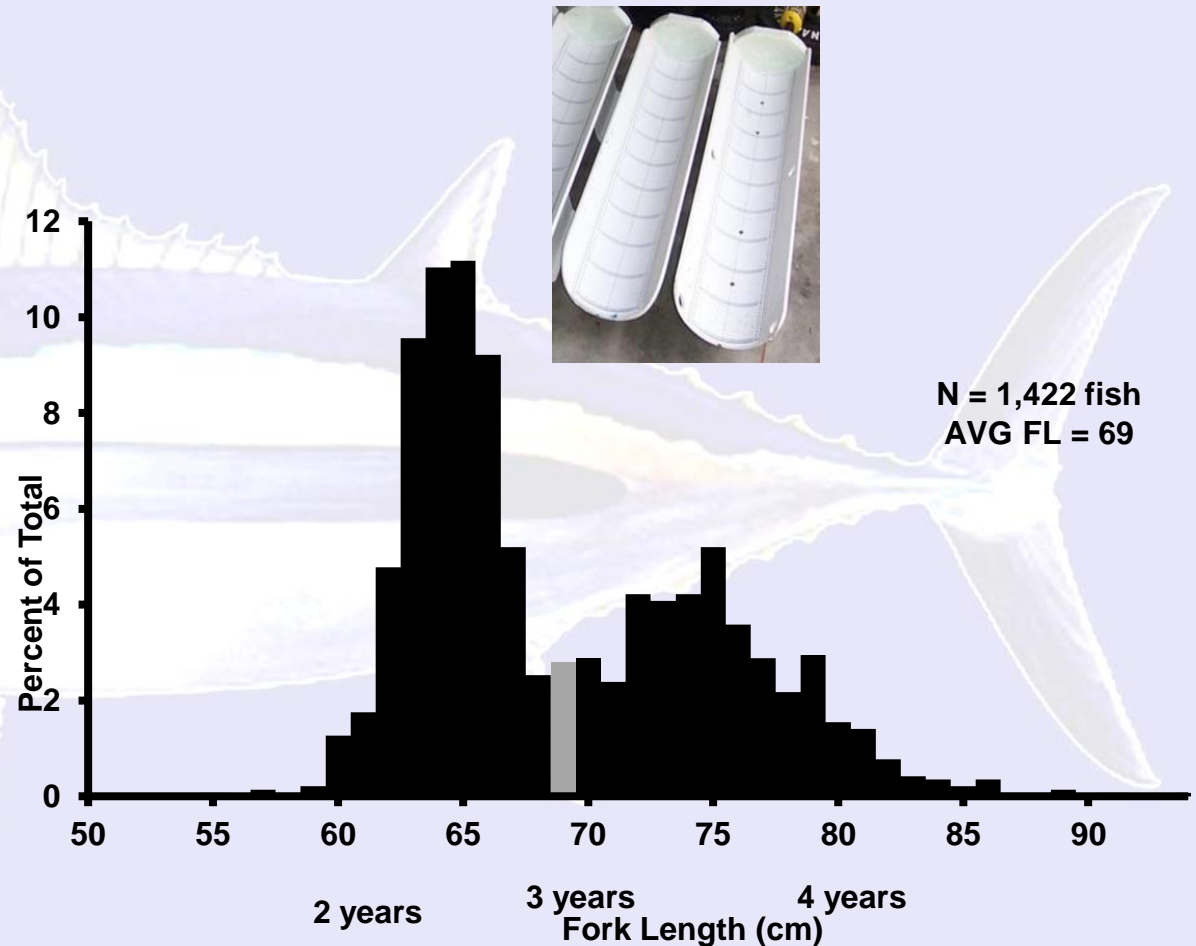
The screenshot shows the 'Pacific Albacore Logbook - [Fishing Manager]' window. It features a menu bar with 'File', 'Forms', and 'Help'. Below the menu is a navigation bar with icons for 'Crew', 'Vessel', 'Trips', 'Fishing', and 'Backup'. The main interface is divided into several sections: 'Vessel Name' (ENTERPRISE), 'Departure Date' (6/28/2007), 'Departure Port' (Any other port or unkn), and 'Current trip'. There are also fields for 'Fishing Date' (6/28/2007) and 'Fishing Mode'. The 'Latitude' and 'Longitude' sections include 'Deg', 'Min', and 'N/S' or 'E/W' fields. A 'Comments' field is present with a note: '(No gill net vessels in area, if gill net marked fish, amount of bait and birds in area, transshipments, dumped albacore, etc)'. Below these are two tables: 'Transshipping' and 'Bycatch'. The 'Bycatch' table has columns for 'SpeciesName', 'Kept', and 'Discar'. At the bottom, there are navigation buttons: 'First Day', 'Previous Day', 'No Records', 'Next Day', 'Last Day', 'New Day', 'Save Day', 'Delete Day', 'Cancel', 'Print', 'End Trip', and 'Close'.

Contact John Childers
(john.childers@noaa.gov) to participate
in the electronic logbook program

Onboard Length Sampling

2012: F/Vs Hans Halvor and Roggy submitted measurements

YEAR	VESSEL	Number Measured
2007	CAPRICCIO	100
	HANS HALVOR	285
	HOLLY H	278
	SUKI	71
2008	BILLIE MARIE II	448
	CAPRICCIO	100
	HANS HALVOR	1,147
	HOLLY H	279
	ROGGY	180
2009	CAPRICCIO	150
	LYDOREIN	40
	NICOLE MARIE	222
	ROGGY	170
2010	STEEL FIN II	170
	CAPRICCIO	150
	HANS HALVOR	306
	LYDOREIN	23
	NEDIAN	290
2011	ROGGY	240
	HANS HALVOR	1,769
2012	ROGGY	170
	HANS HALVOR	1,222
	ROGGY	200



- Measurements are especially needed **early** and **late** in the season, and near the **outskirts** of the fishery

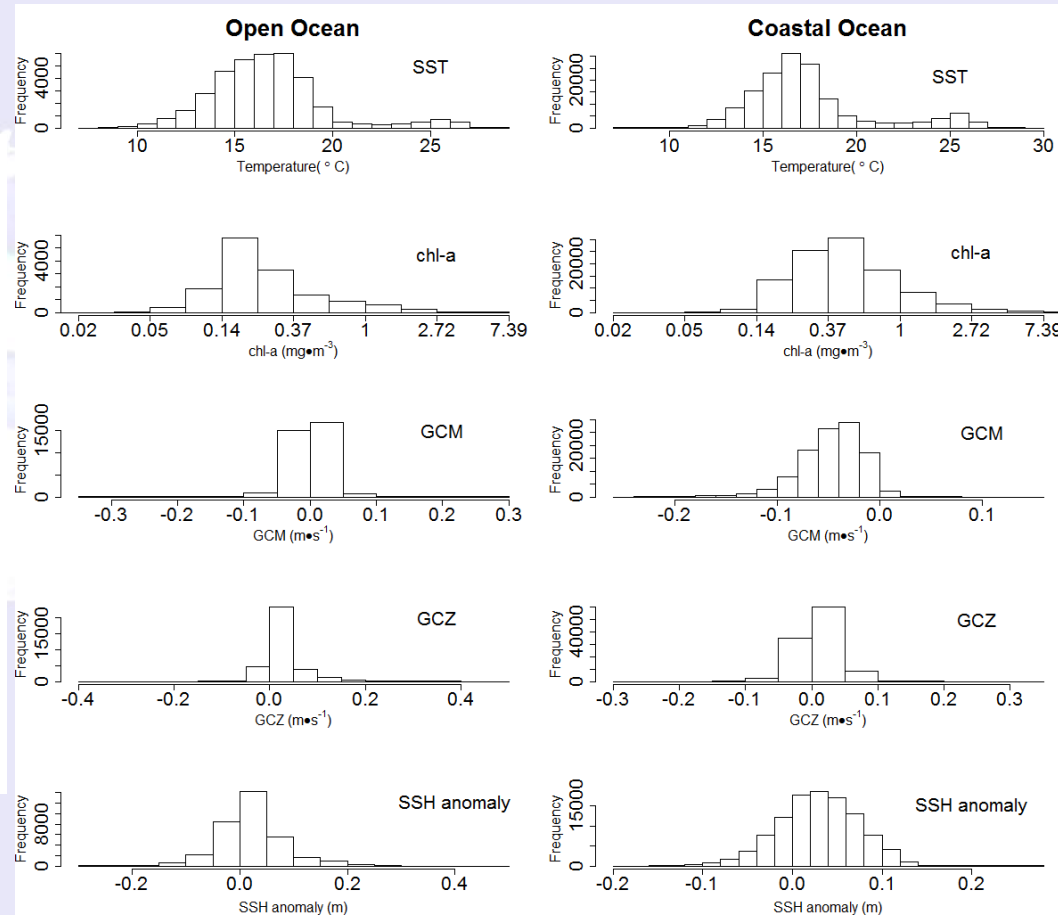
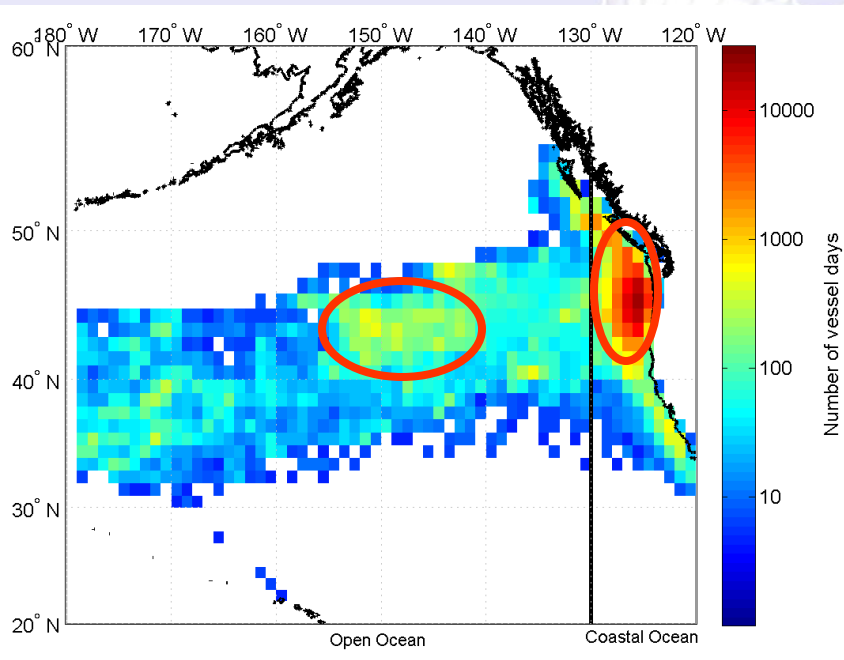
FATE Project Update

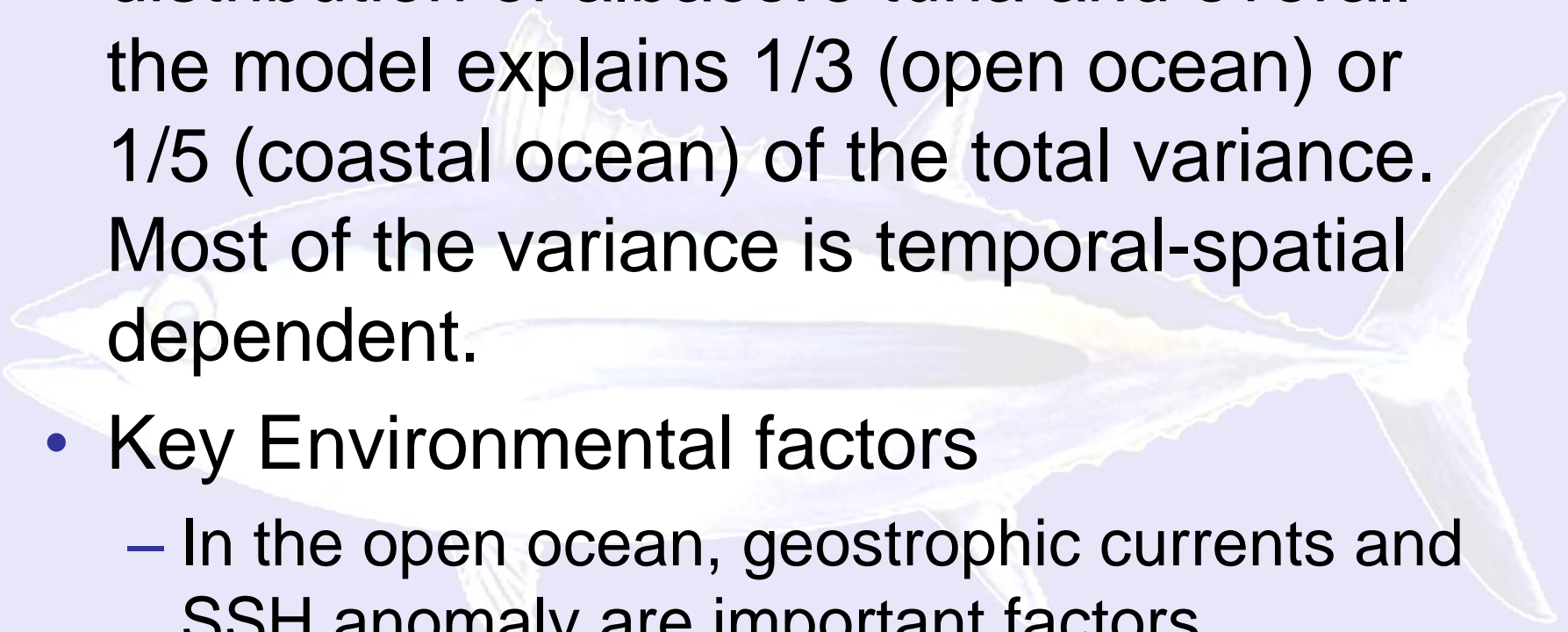
- Objective: to develop a quantitative predictive model of the influence of environmental variables (SST, chlorophyll-a, currents, etc.) on albacore distribution
- Preliminary results presented at ISC ALBWG meeting



Fishery and Environmental Information

$\text{Log}(\text{CPUE} + \text{const}) \sim \text{Year, Month, Longitude, Latitude, SST, SSH anomaly, Meridional Geostrophic Currents, Zonal Geostrophic Currents, Chlorophyll a}$



- 
- The model was able to catch the seasonal and interannual variation and spatial distribution of albacore tuna and overall the model explains 1/3 (open ocean) or 1/5 (coastal ocean) of the total variance. Most of the variance is temporal-spatial dependent.
 - Key Environmental factors
 - In the open ocean, geostrophic currents and SSH anomaly are important factors.
 - In the coastal ocean, chl-a concentration is the leading factor, followed by SSH anomaly.