



2018 CDFW-CWPA CPS Aerial Survey



12 April 2019

PFMC – April 2019

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Marine Region**



Overview

- Surveys conducted since 2012
- SSC conditionally approved, June 2017
 - Focus on providing nearshore sardine and anchovy biomass shoreward of ATM
 - Validate observer estimates
 - Develop a variance estimate
- 2017 and 2018 surveys documented significant nearshore abundance
 - Observer estimates good and err on low side
 - Data being collected for variance estimate

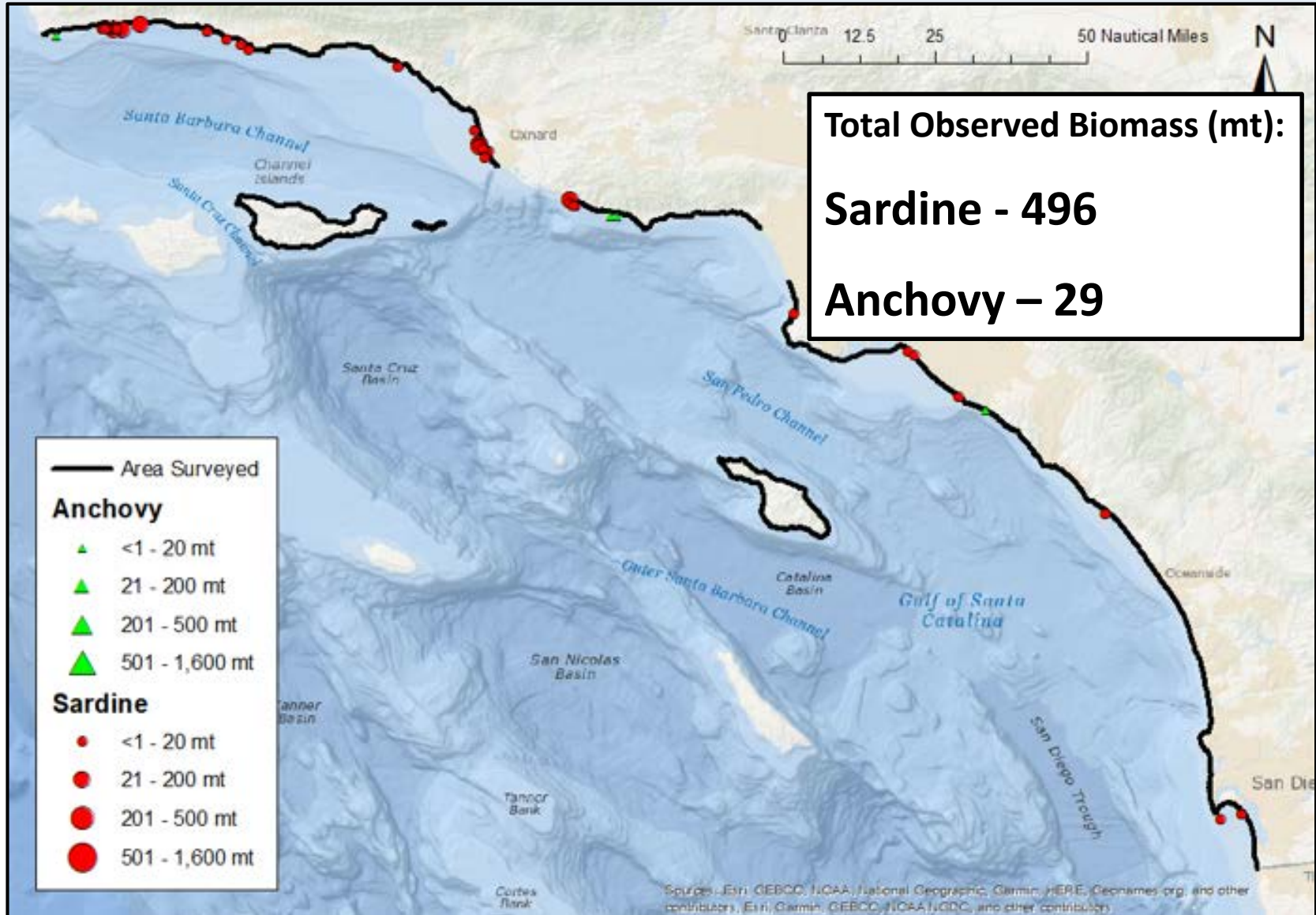


2018 Aerial Survey – S CA (Apr-May)



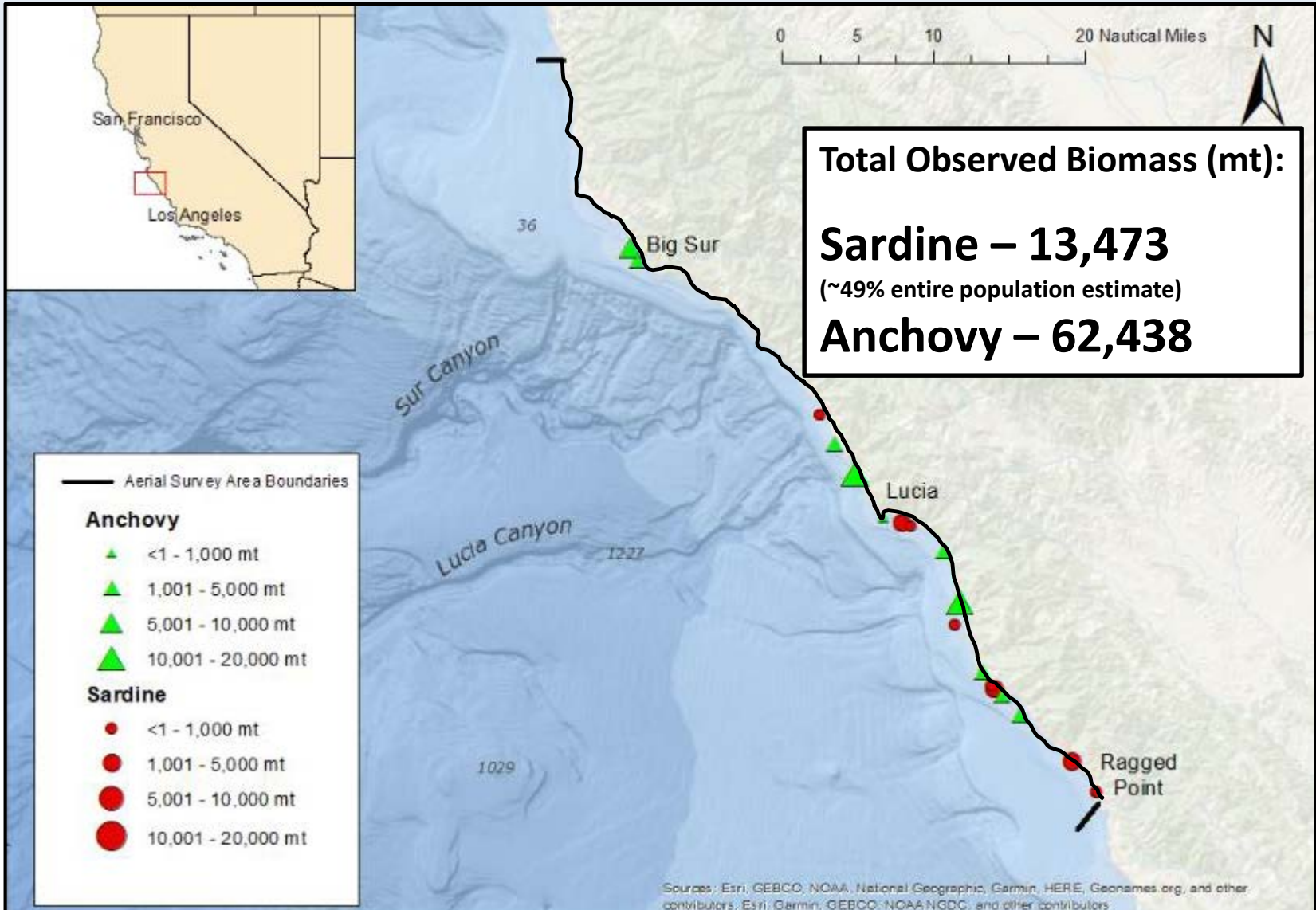


2018 Aerial Survey – S CA (Sep)





2018 Aerial Survey – N CA (Oct)





2018 Aerial Survey – N CA (Oct)



Sardine schools off Lucia, CA 10/13/18
4,620 mt (~17% entire population estimate)



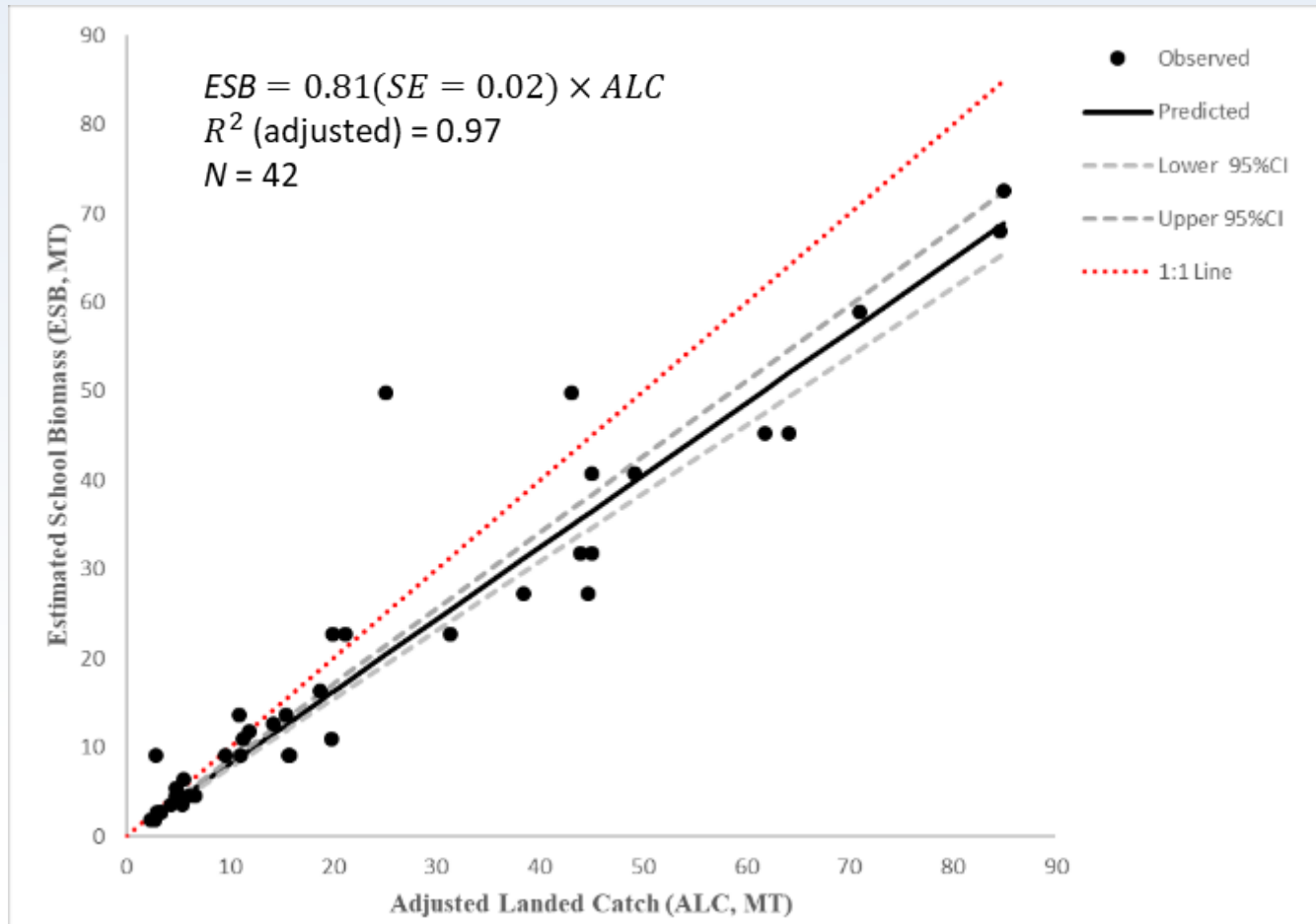
CPS Survey Comparisons

			Biomass Estimates (mt)			
Survey Method	Area	Time	Sardine (NSP)		Anchovy (CSNA)	
			2017	2018	2017	2018
AT	Offshore - Vancouver to Morro Bay	Jun-Aug	14,103	--	153,460	--
	Nearshore (extrapolation) - Vancouver to Morro Bay	Jun-Aug	146	--	45,446	--
	Offshore - Vancouver to Mexico	Jun-Sep	--	25,148	--	723,826
	Nearshore (extrapolation) - Vancouver to Mexico	Jun-Sep	--	308	--	4,110
Aerial	N CA - Pt Arena to Morro Bay (419 miles)	August	18,118	--	67,684	--
	N CA - Big Sur (79 miles)	October	--	13,473	--	62,438
	S CA - SCB (492 miles)	Mar-Apr	--	4,464	--	587
	S CA - SCB (SSP*, 472 miles)	Sep	--	496*	--	29
DEPM	San Francisco to San Diego	Mar-Apr	--	--	308,173	--



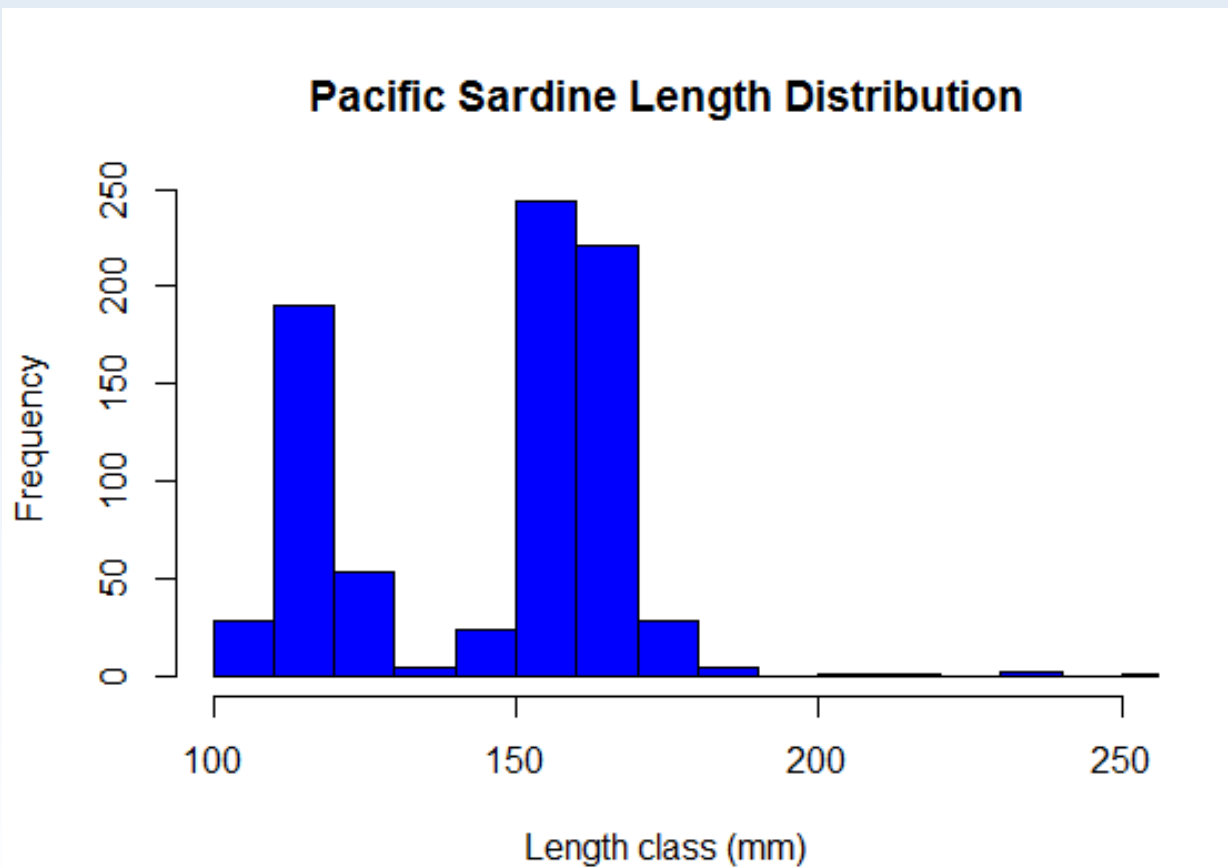
Observer Accuracy

- Observer estimates very good ($R^2 > 0.90$)





2018 NCS Data – Point Sets



Significant numbers of age 0, 1, and 2 fish



Summary

- Significant nearshore sardine abundance compared to ATM estimates
- Preliminary results indicate utility of aerial estimates
- 2019 surveys will coordinate with ATM in time and location
- Review during 2020 STAR for potential use in assessment

