

Southeast Alaska Red King Crab Stock Assessment

King and Tanner Task Force Mtg.

December 2nd, 2016



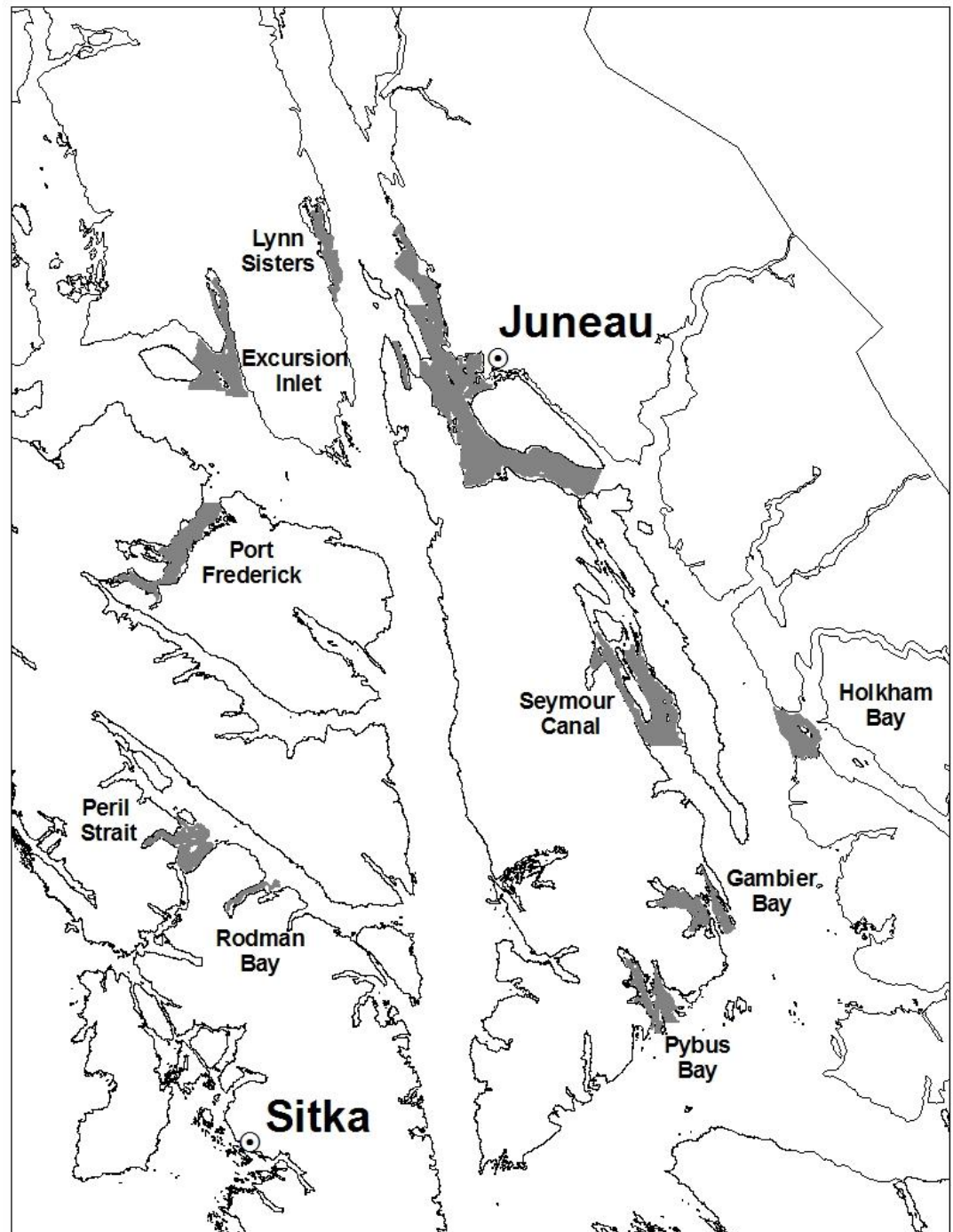
Image: northpacificseafoods.com

RKC Assessment / Management

- Assessment
 - 7 areas surveyed with ~364 pot lifts
 - Biomass estimated using Catch-Survey Analysis (CSA) model
- Management plan
 - Season November 1 – January 24
 - Appropriate harvest rate
 - Regional GHL set using survey biomass
 - Pot limits based on GHL
 - Ex. 200,000 GHL = 20 pot limit per vessel
 - Minimum GHL threshold of 200,000 lbs legal crab
 - Mark/Recapture expansion factor incorporated into biomass estimate
 - Males only, 7-inch minimum CW

Southeast Alaska

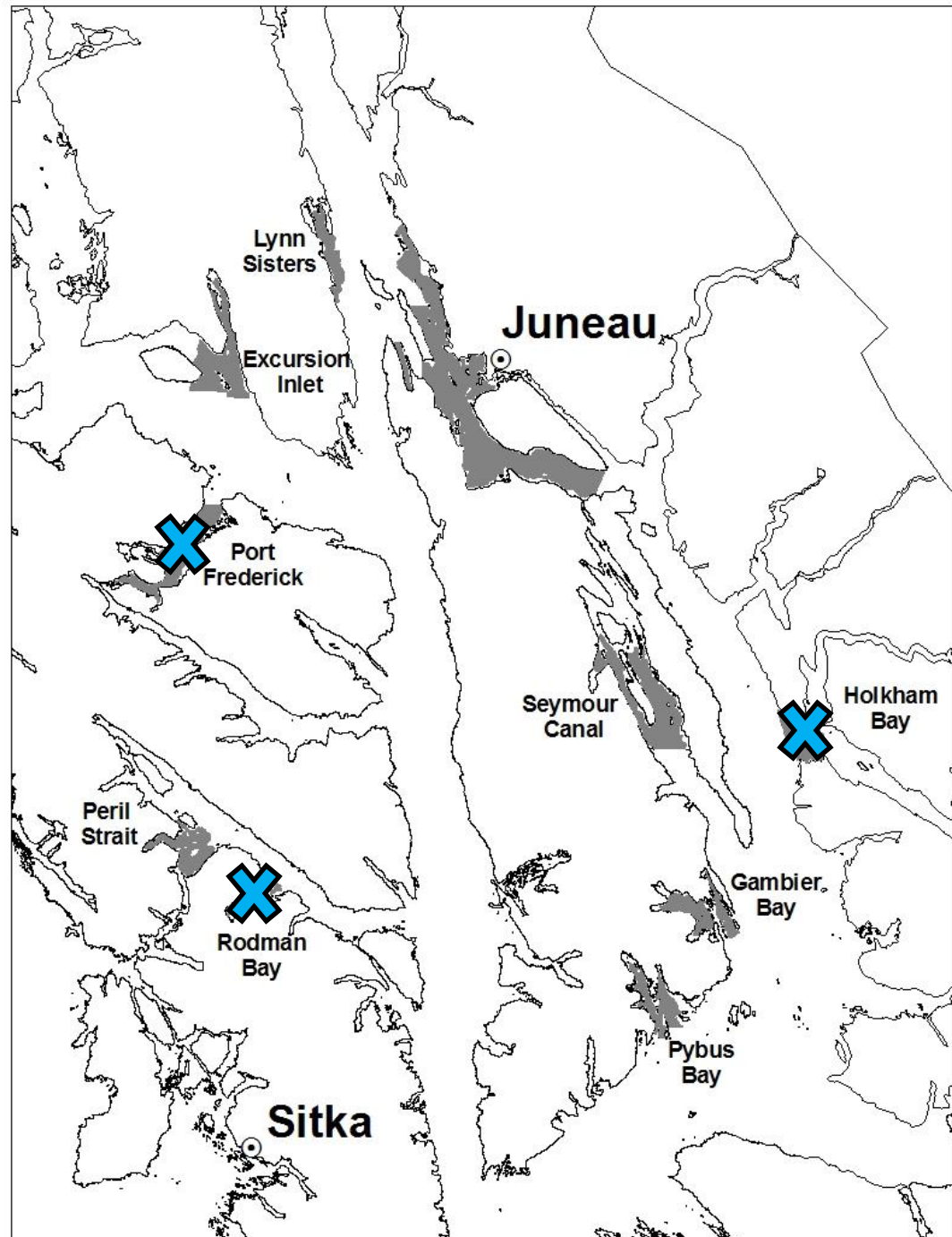
Major Commercial Red King Crab
Fishing Grounds



Southeast Alaska

2015 Survey Updates:

- Budget reductions caused survey sources to be re-allocated into historically more important survey areas
- Port Frederick, Holkham Bay, and Rodman Bay removed due to historically low catch rates and abundance
- No significant impact on biomass estimate



RKC Biomass / Harvest

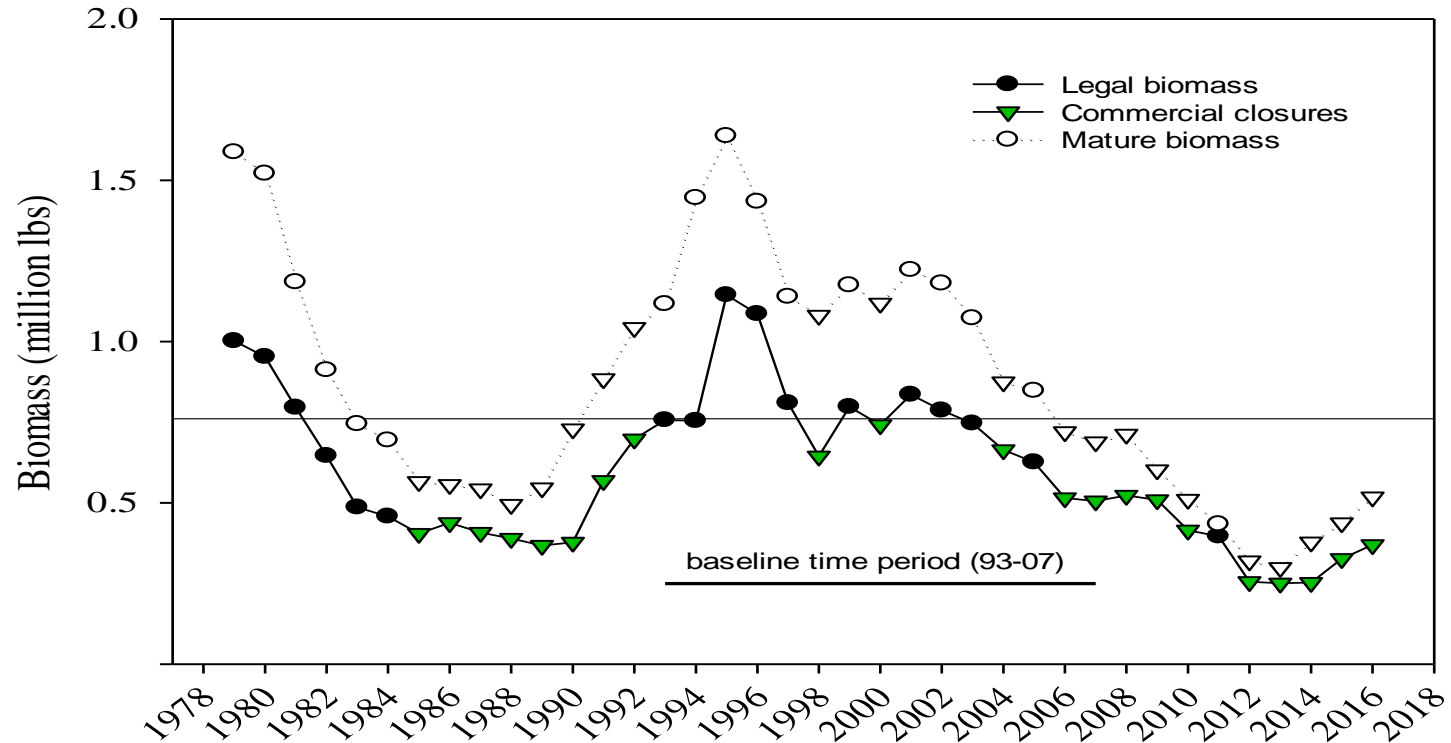


Figure 1. Total biomass estimates of mature and legal red king crab for surveyed areas in Southeast Alaska. Estimates based on Catch-Survey Analysis (CSA) methodologies. This does not include Holkham Bay, Port Frederick or non-surveyed areas. Biomass values in this graph are slightly less than previous years due to the removal of Port Frederick from the survey areas. Reference line represents long-term (1993–2007) average legal biomass estimate. Triangles represent years in which there was a commercial harvest closure.

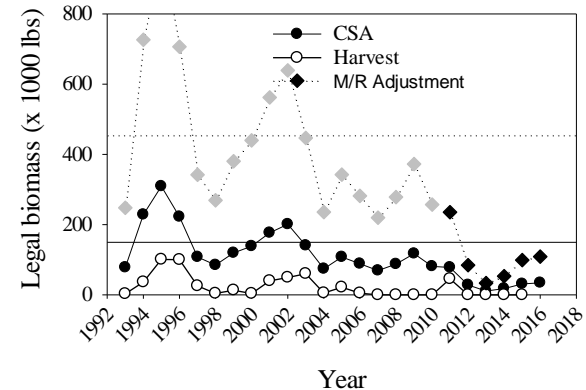
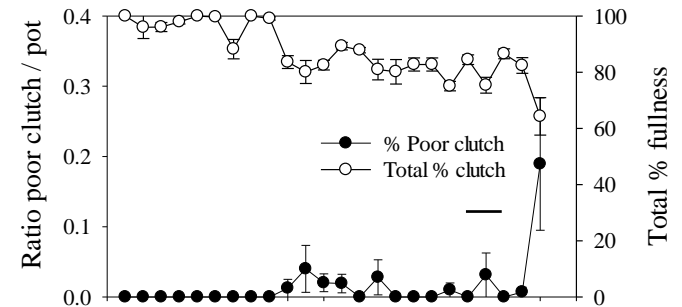
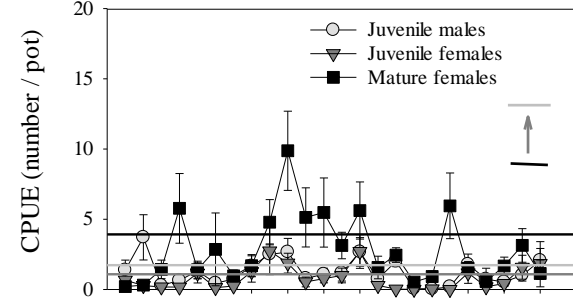
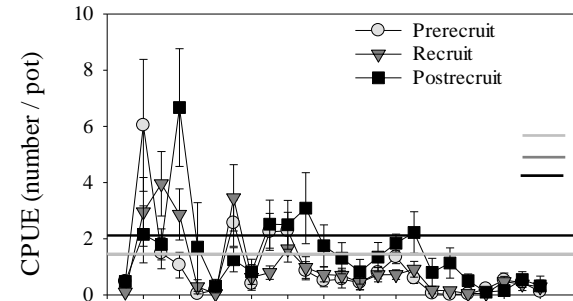
Survey area	Biomass of legal crab	Biomass of mature crab	ADJUSTED legal biomass	ADJUSTED mature biomass	ADJUSTED	Total GHL	Personal use catch	2016 Commercial GHL (lb)
					Equil. mature exploitation rate			
Pybus Bay	34,200	37,201	108,741	118,281	5.0%	5,914	n/a	5,914
Gambier Bay	24,059	29,839	113,164	140,352	5.0%	7,018	n/a	7,018
Seymour Canal	28,849	39,126	265,659	360,290	1.0%	3,603	n/a	3,603
Peril Strait	7,853	15,372	11,656	22,816	10.0%	2,282	n/a	2,282
Juneau Area ^a	253,308	354,469	253,308	354,469	15.0%	53,170	31,902	21,268
Lynn Sisters	5,108	7,010	8,032	11,023	10.0%	1,102	n/a	1,102
Excursion Inlet	17,184	35,373	84,931	174,832	5.0%	8,742	n/a	8,742
Other Areas	219,504	307,071	500,832	700,203	7.0%	48,473	1,000	48,473
Blue King Crab	3,935	5,504	8,978	12,551		869		869
Total	594,000	830,965	1,355,301	1,894,818				98,270

^a The Juneau area was closed to personal use harvest in 2016, but is left in here for demonstrative purposes. “n/a” represents data that is not available or readily estimable from the other bays.

Pybus Bay

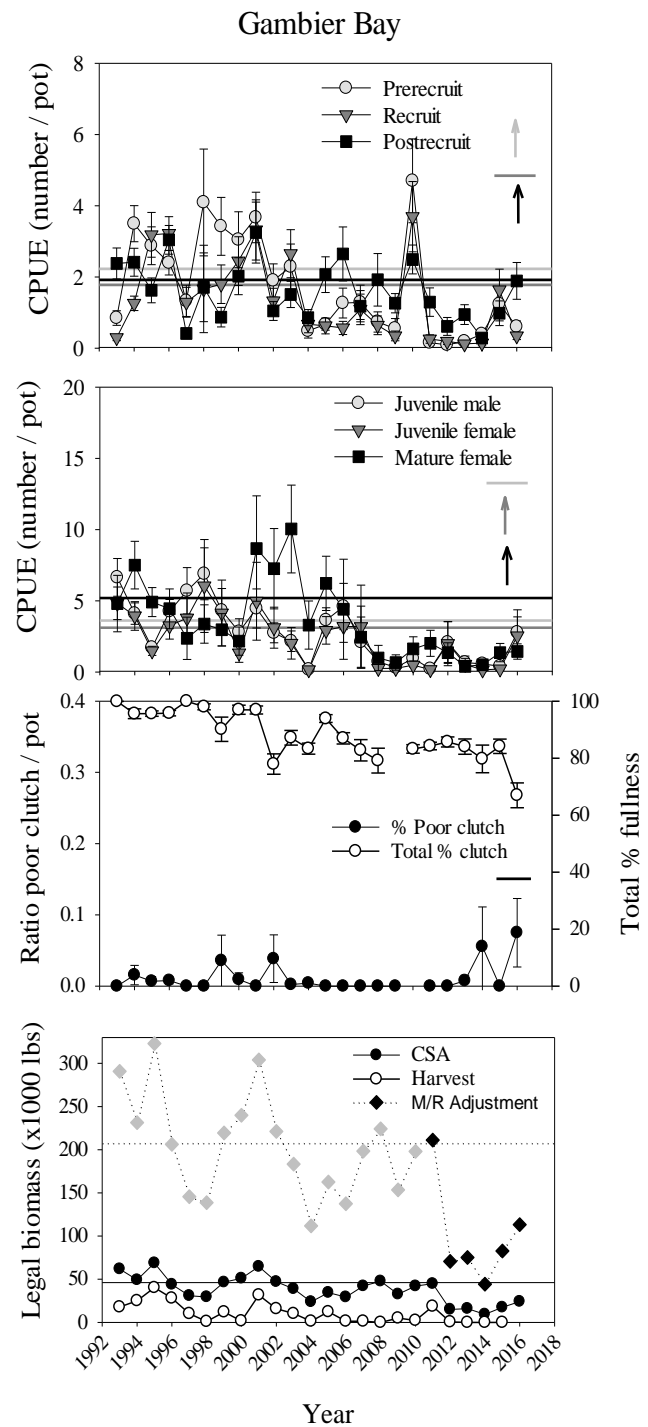
- Stock health decreased from moderate to below average
- There is a significant short-term increasing trend for juvenile females, no significant trends were detected for all other recruit classes
- % Female clutch fullness was lowest on record
- Both legal and mature male biomass still remain low compared to historic levels

Pybus Bay



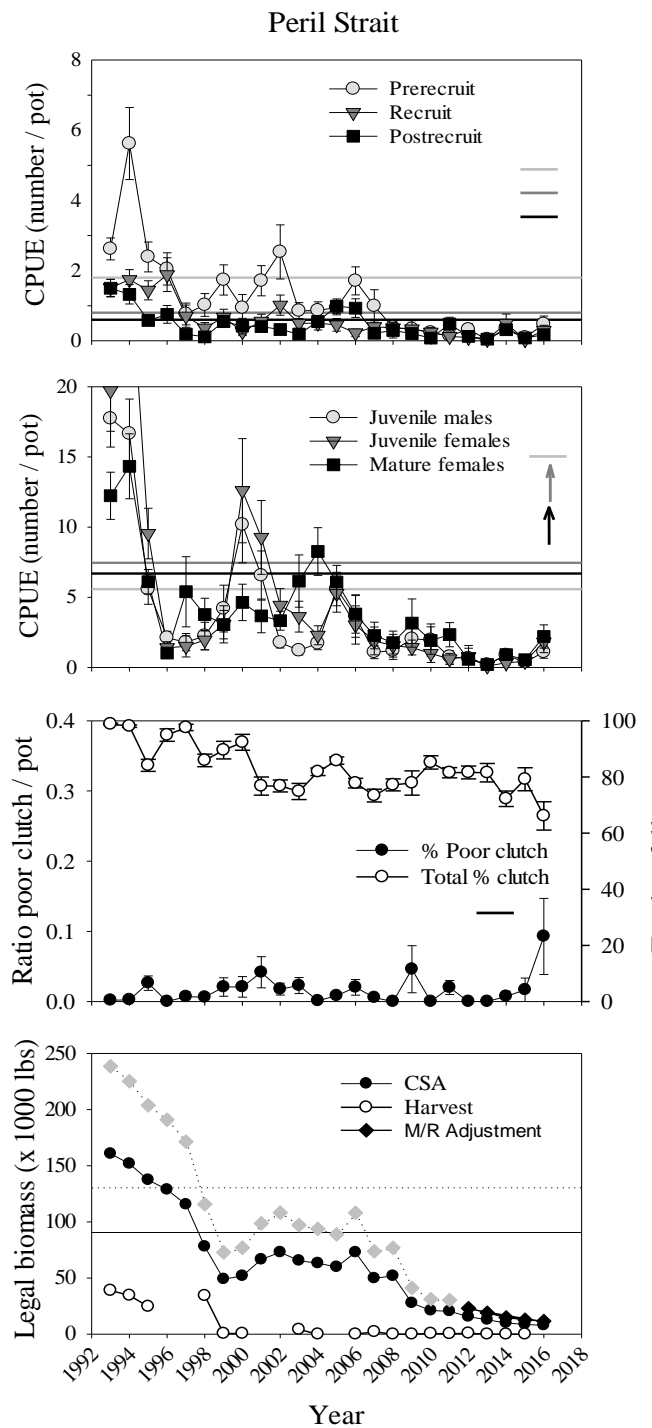
Gambier Bay

- Stock health remains below average
- Short term increases in pre-recruit and post recruit males, along with juvenile and mature females.
- % Female clutch fullness was lowest on record
- Both legal and mature male biomass estimates increased from 2015 yet were still low compared to historic levels



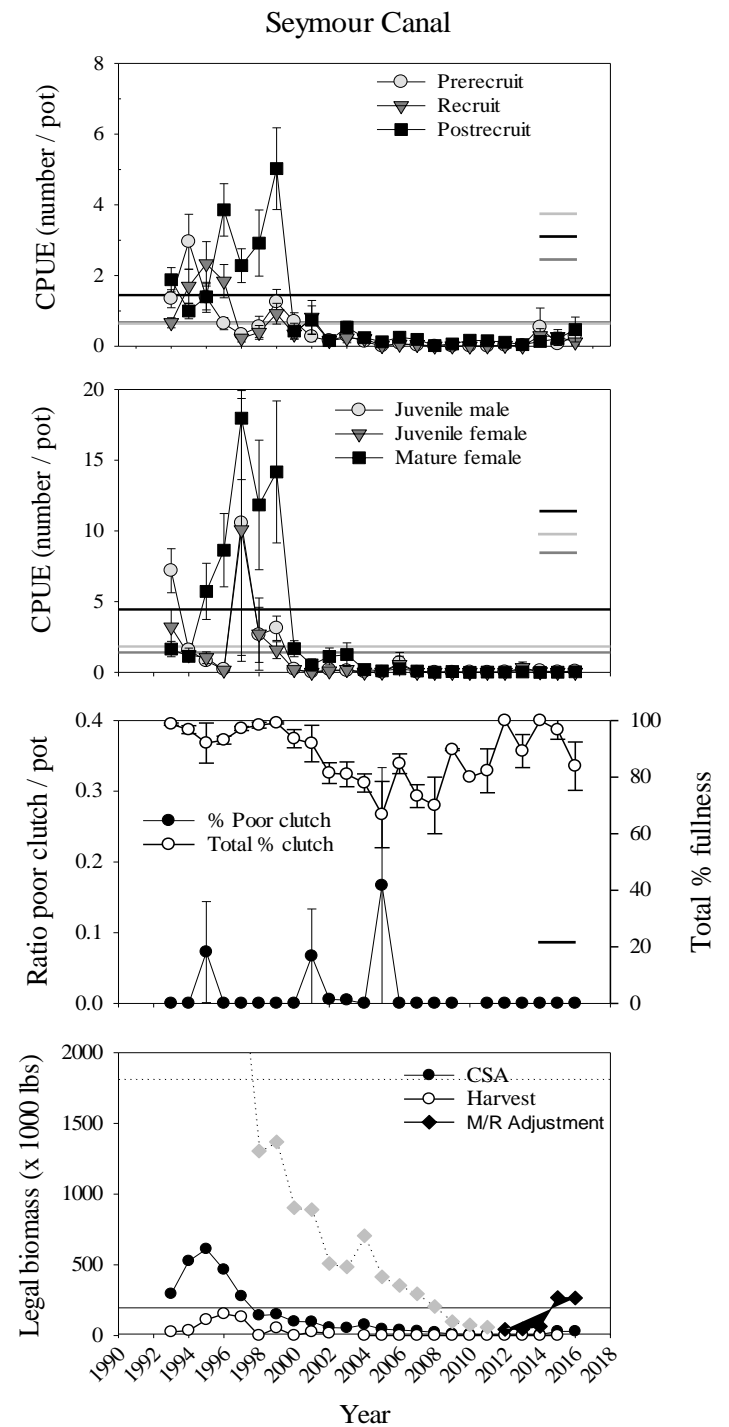
Peril Strait

- Stock health remains poor
- Short term increases in juvenile and mature females. No indication of improvement for any other classes
- % Female clutch fullness was lowest on record
- Legal biomass levels are lowest since the survey began, mature biomass increased due to increases in pre-recruit CPUE



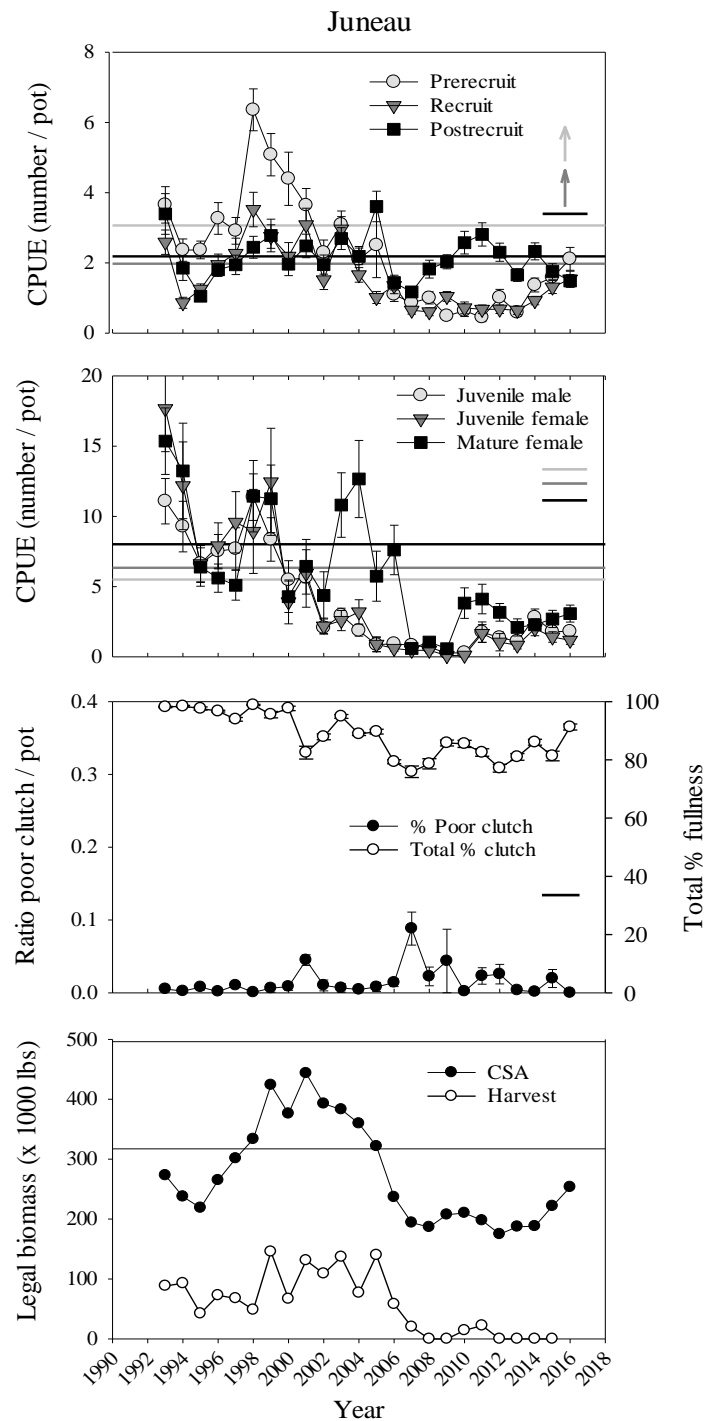
Seymour Canal

- Stock health increased from poor to below average
- No short term trends
- % Female clutch fullness healthy
- Biomass levels increased slightly



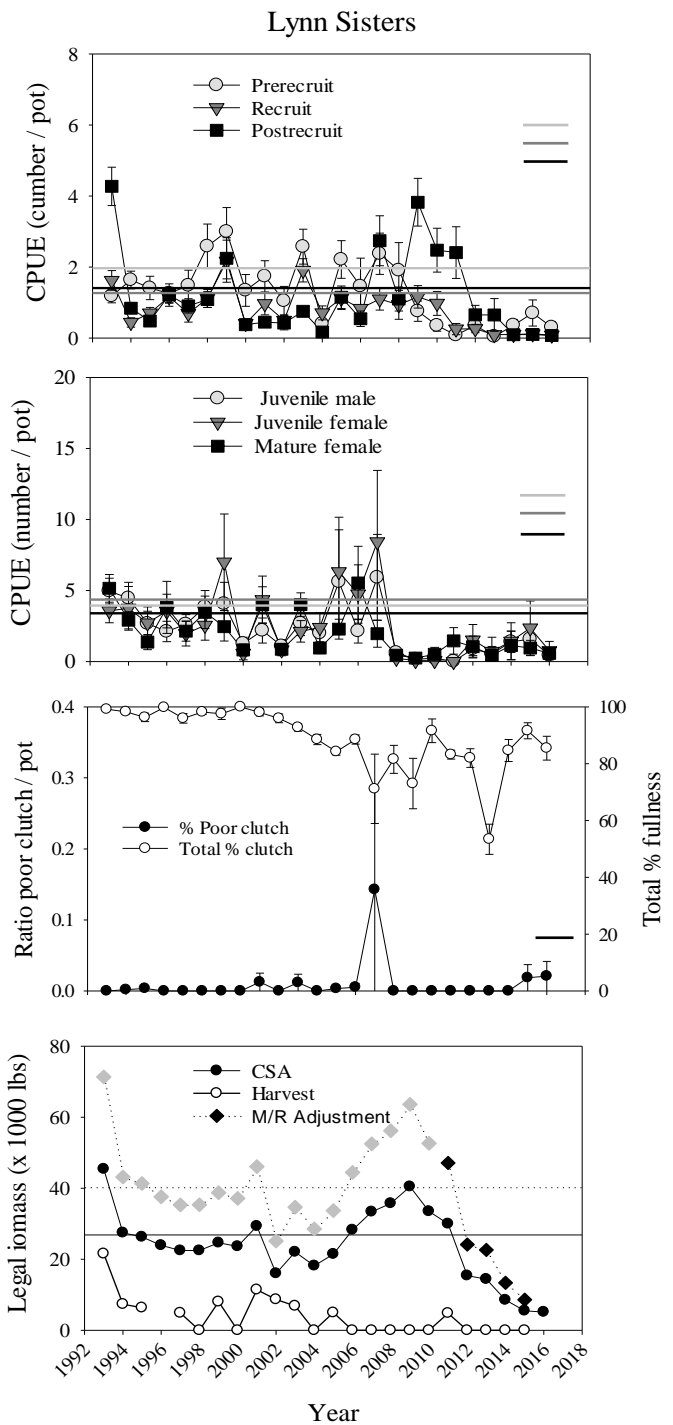
Juneau Area

- Stock health remains at below average and continues to improve
- Short term increases in male pre-recruit and recruit classes
- % Female clutch fullness healthy
- Biomass levels increased and are the largest they have been since 2006 yet still below the long-term baseline



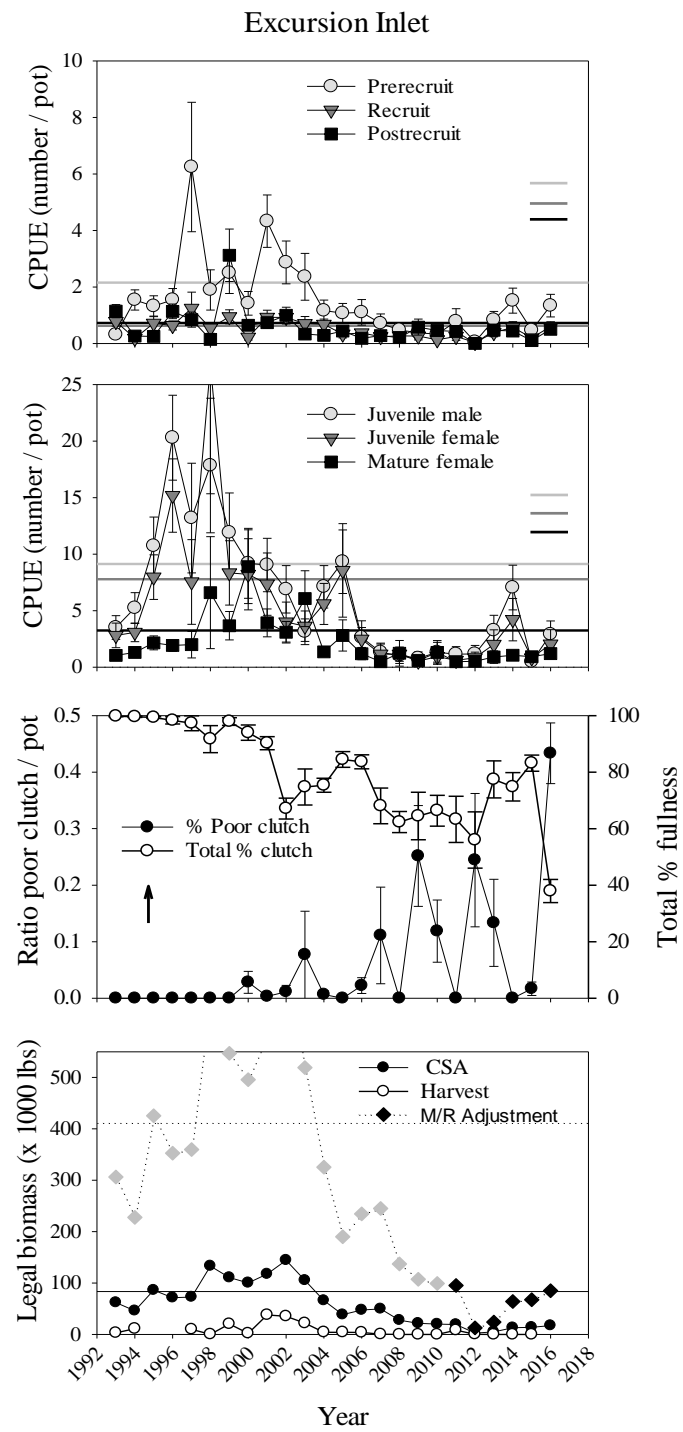
Lynn Sisters

- Stock health declined from below average to poor
- No short term trends
- % Female clutch fullness healthy
- Biomass levels continue to decline and stock health is of concern



Excursion Inlet

- Stock health remains poor
- No short term trends
- % Female clutch fullness was lowest on record
- Legal biomass increased slightly, but mature biomass declined substantially



RKC equilibrium exploitation rate

Example:

Year 1 – 50,000

Year 2 – 55,000

Change =

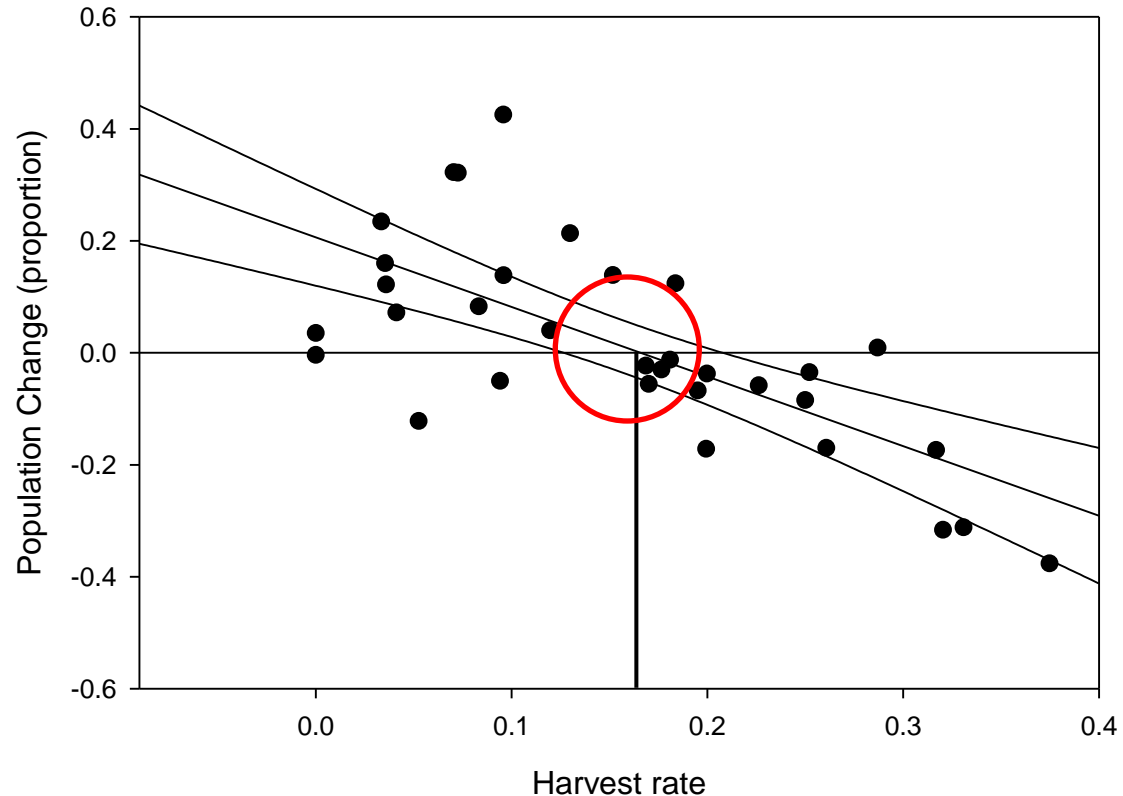
$(55,000 - 50,000) /$

$50,000 = 0.10$

proportion increase

Harvest rate =

$4000 / 50,000 = 0.08$ HR



Where regression line crosses 0 is the harvest rate that would ideally give an average of 0 or “no change” over time.