Southeast Alaska Red King Crab Stock Assessment

King and Tanner Task Force Mtg.

December 7, 2017

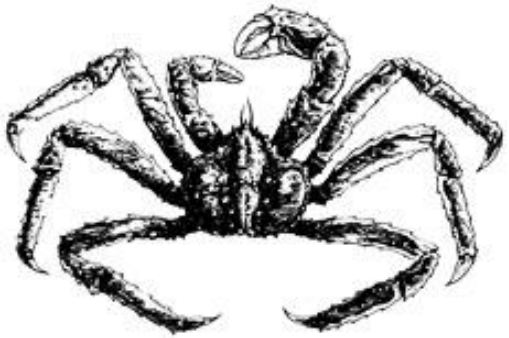


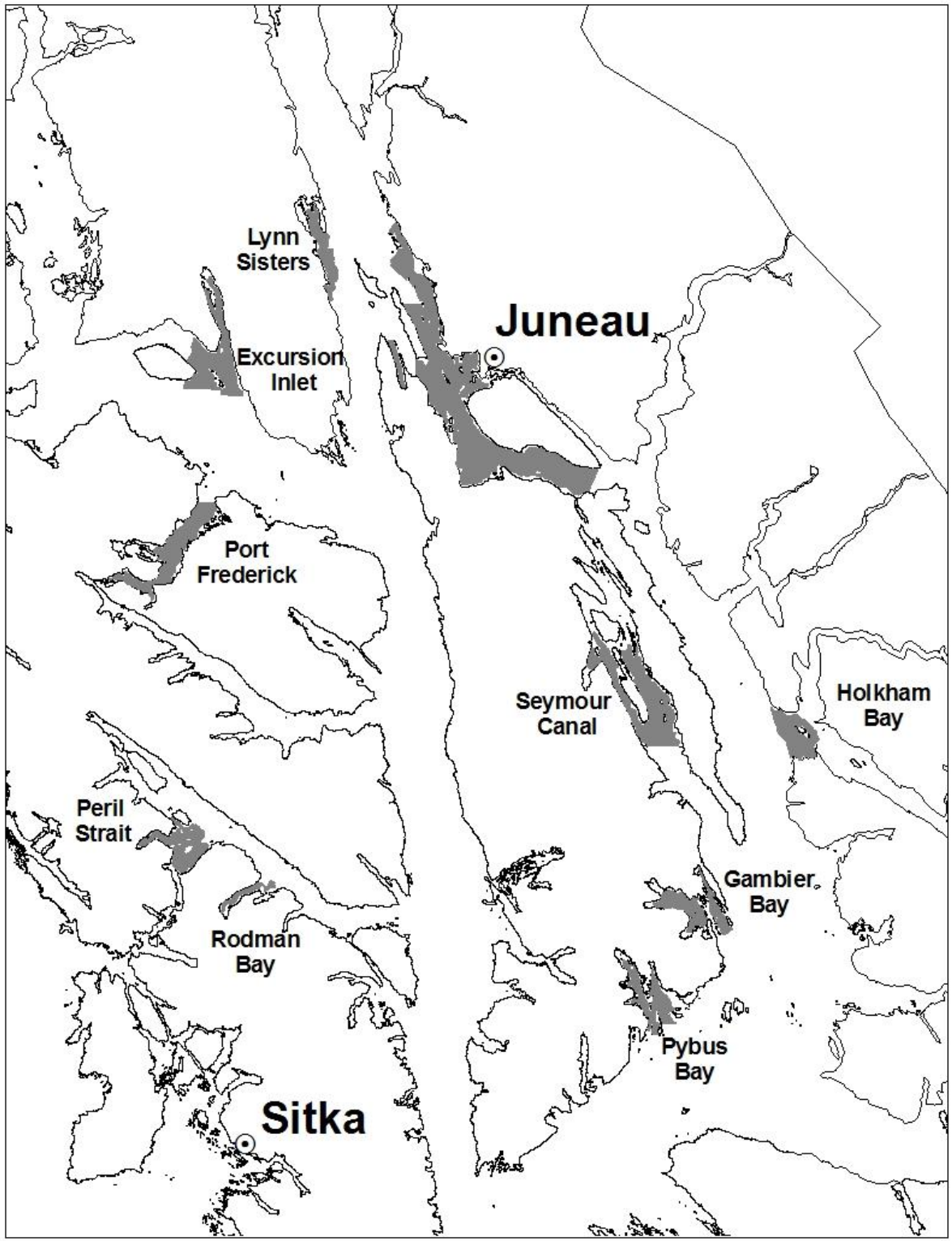
Image: northpacificseafoods.com

RKC Assessment / Management

- Assessment
  - 7 areas surveyed with ~517 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

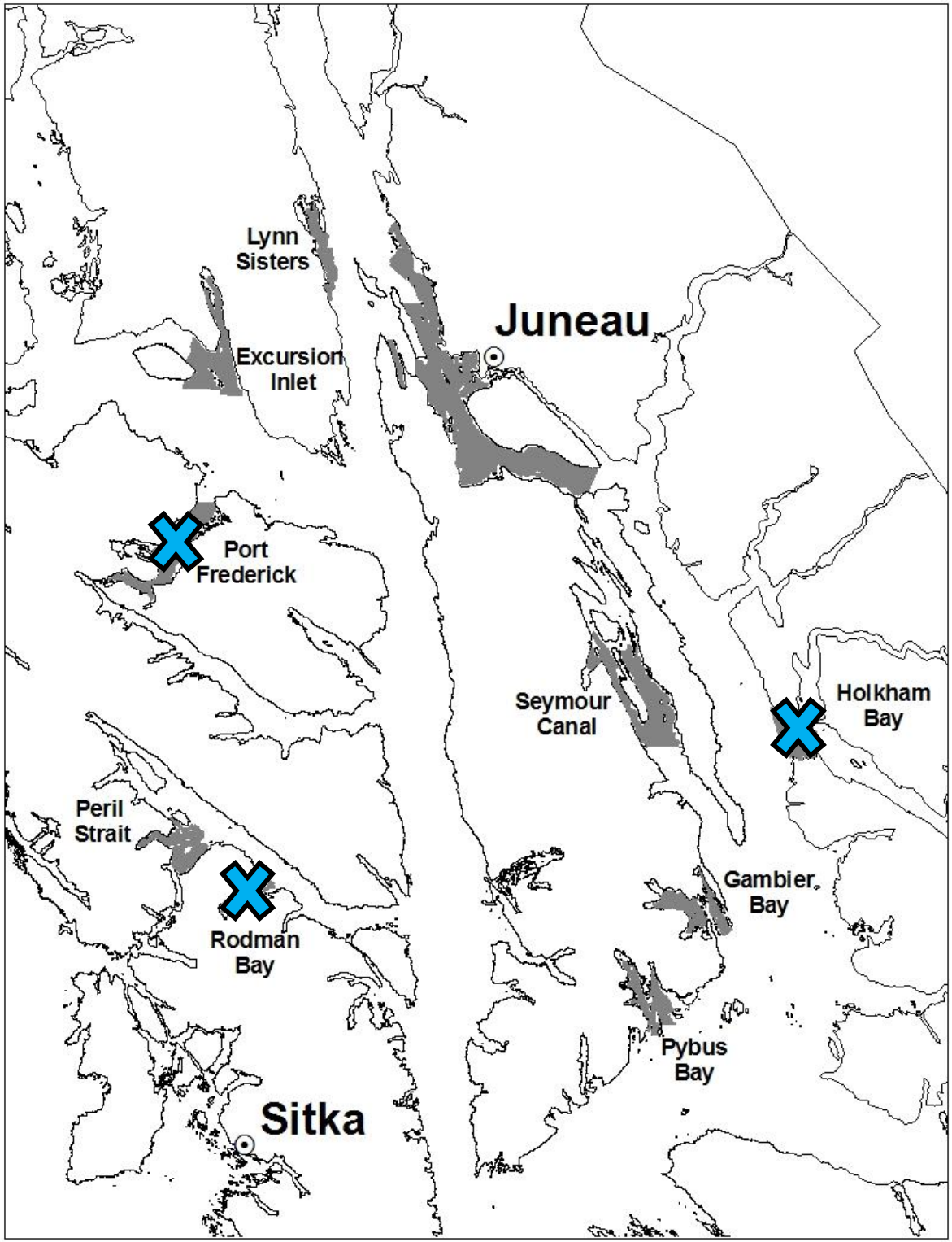
Major Commercial Red King Crab Fishing Grounds



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

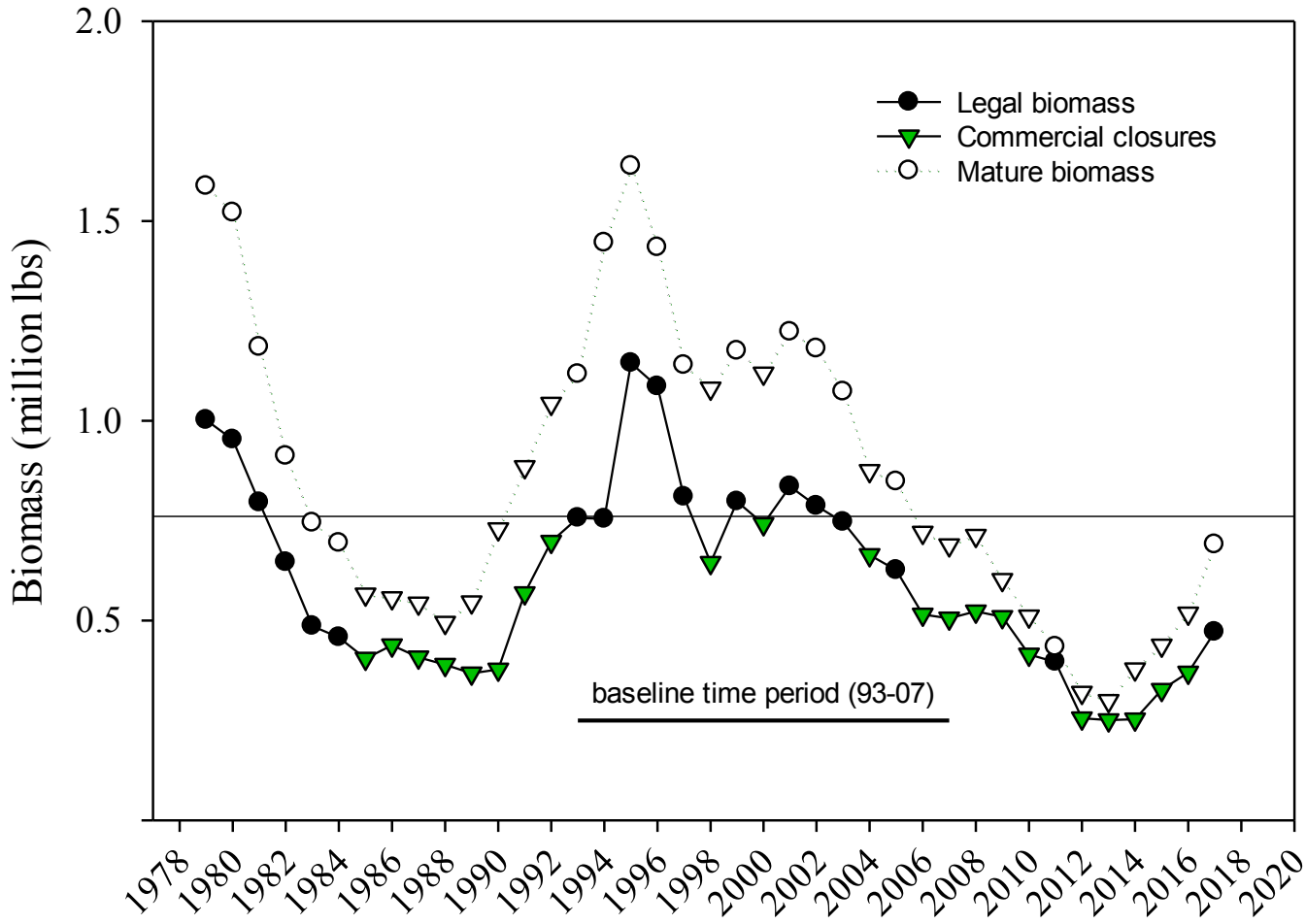
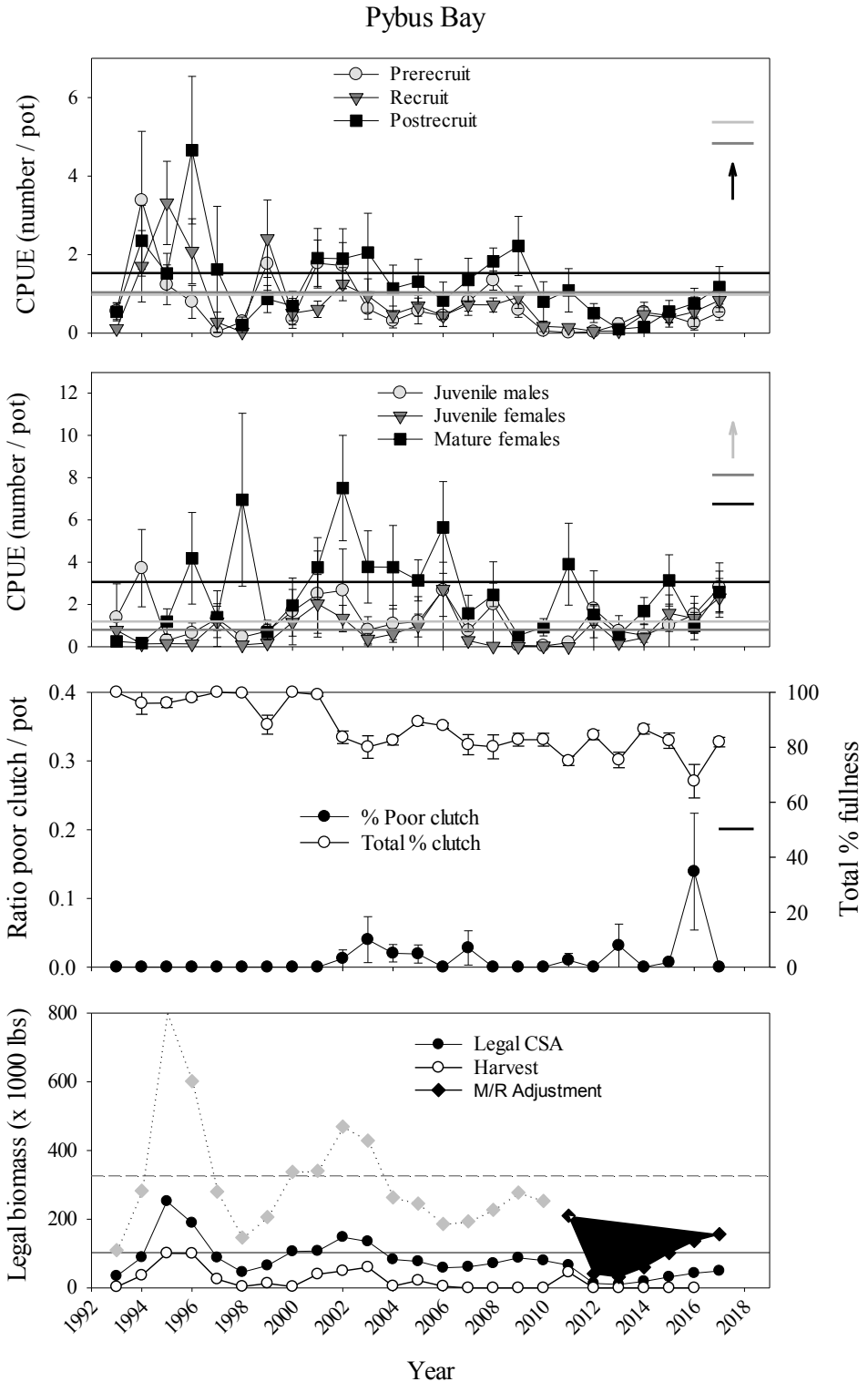


Table 1. Summary of 2017 commercial red king crab fishery GHL calculations (in pounds) and harvest rate recommendations for the 7 surveyed areas and other areas. Adjusted Mature Biomass from NPRB M-R study are shown in bold. Note that the "Other Areas" receive an indirect adjustment as it utilizes the adjusted mature biomass in its calculation. Biomass of "Other Areas" was expanded to be 46.9% of the region.

Survey area	Biomass of legal crab	Biomass of mature crab	Adjusted mature biomass	Recommended mature harvest rate	Total GHL	Personal use catch	2017 Harvestable Surplus	2017 Commercial GHL
Pybus Bay	49,148	60,743	**193,134**	7.0%	13,519	0	13,519	20,000
Gambier Bay	25,294	36,638	**172,332**	4.0%	6,893	0	6,893	
Seymour Canal	44,078	57,622	**530,616**	4.0%	21,225	0	21,225	20,000
Peril Strait	8,348	9,062	**13,450**	0.0%	0	0	0	
Juneau Area	317,043	466,288	466,288	10.0%	46,629	27,977	18,652	18,600
Lynn Sisters	5,119	17,471	**27,471**	0.0%	0	0	0	
Excursion Inlet	22,610	42,671	**127,938**	6.0%	7,676	0	7,676	7,600
Other Areas	416,571	609,872	**1,352,441**	10.0%			135,244	135,000*
Blue King Crab	5,008	7,332	16,259				722	
Total	893,219	1,307,699	2,899,929					201,200

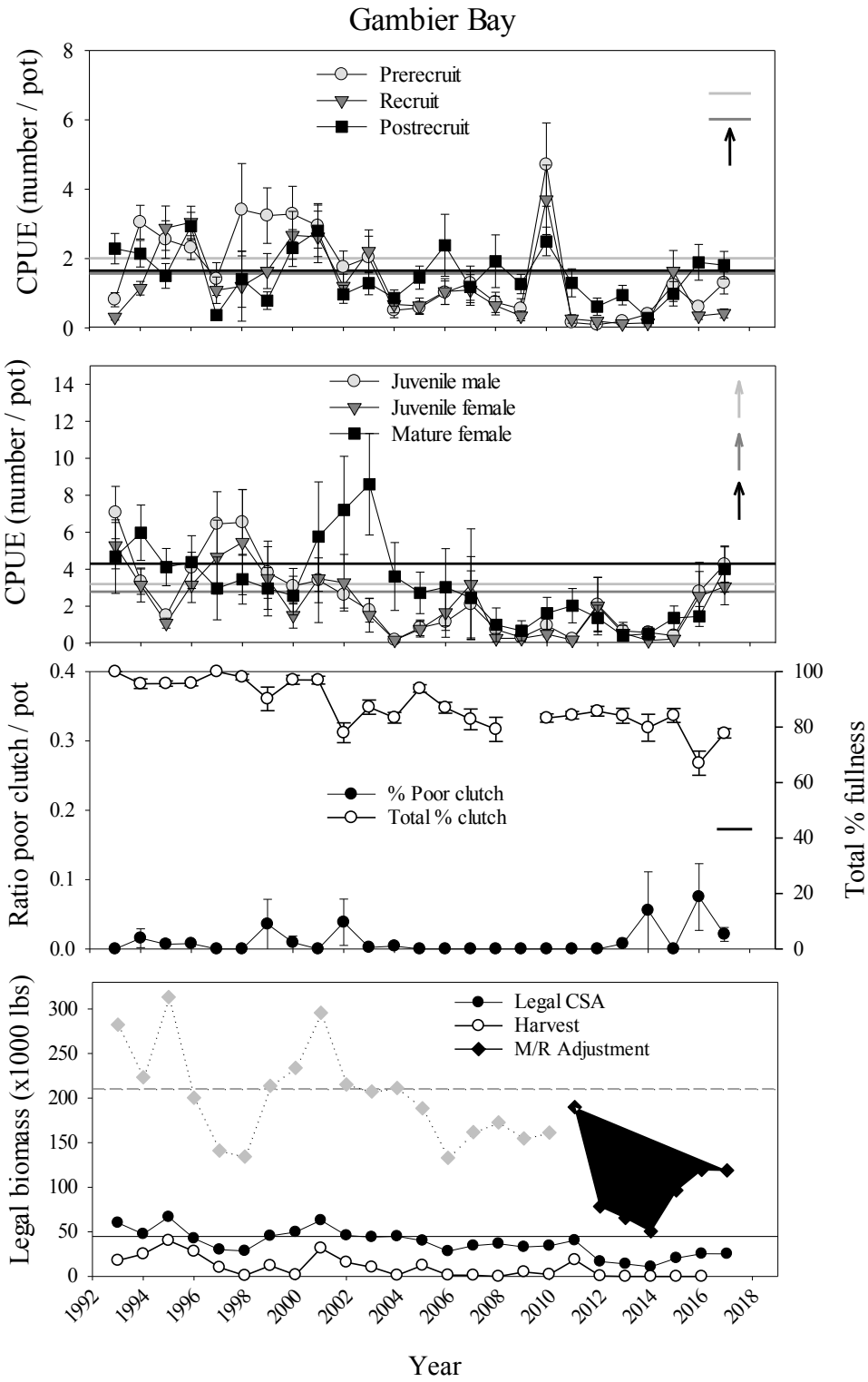
Pybus Bay

- Stock health increased from below average to moderate.
- CPUE for juvenile males and juvenile females are above their long-term averages; all other recruit class CPUEs are below long-term averages.
- Short term increases in juveniles and post recruit males.
- % Female clutch fullness healthy.
- Legal and mature male biomass estimates at their highest level since 2011.



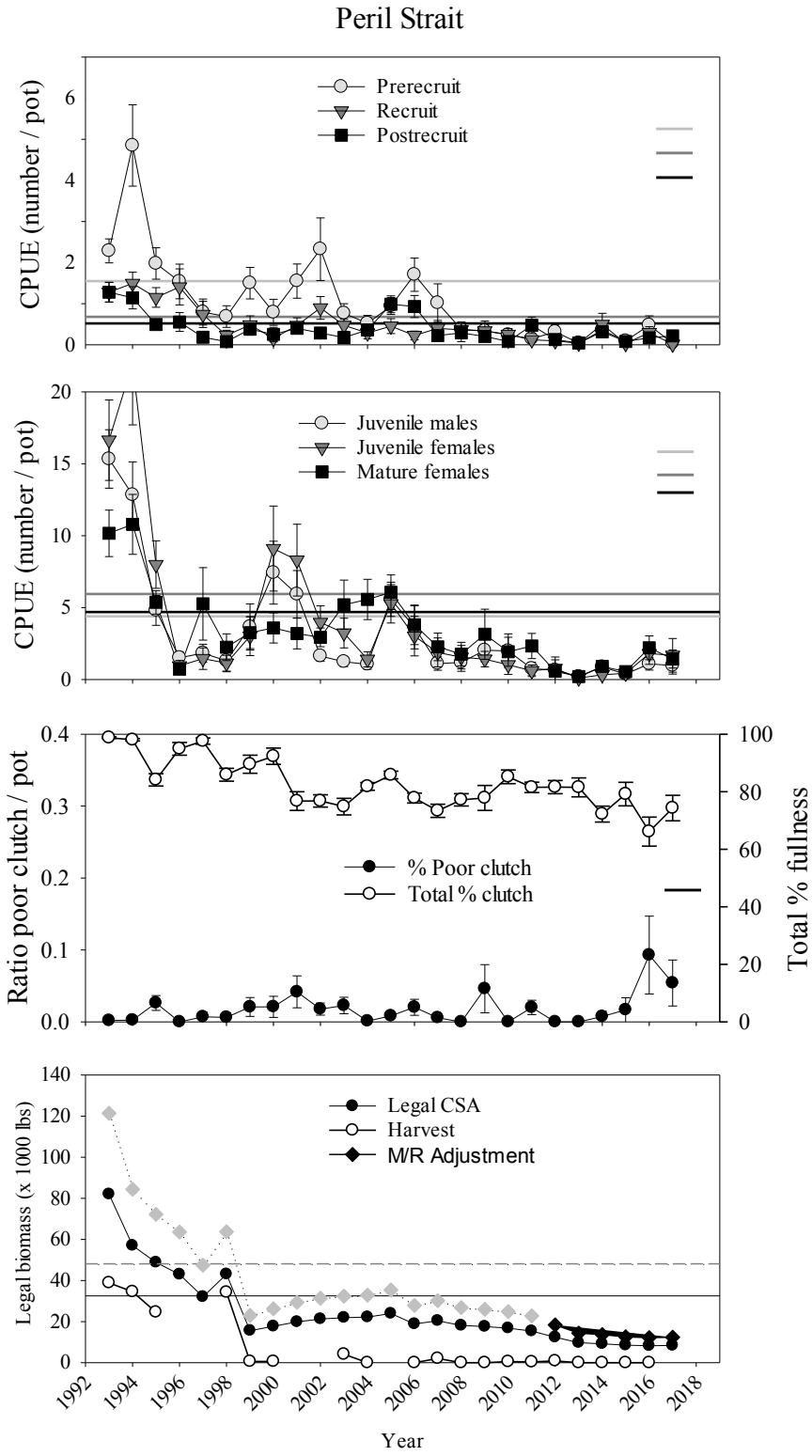
Gambier Bay

- Stock health increased from below average to moderate.
- Juvenile female, juvenile male, and post-recruits are above their long-term averages; pre-recruit, recruit, and mature female CPUEs are below their long-term averages.
- Short term increases in post-recruit males, juvenile males, juvenile females, and mature females.
- % Female clutch fullness healthy.
- Legal and mature male biomass estimates at their highest level since 2011.



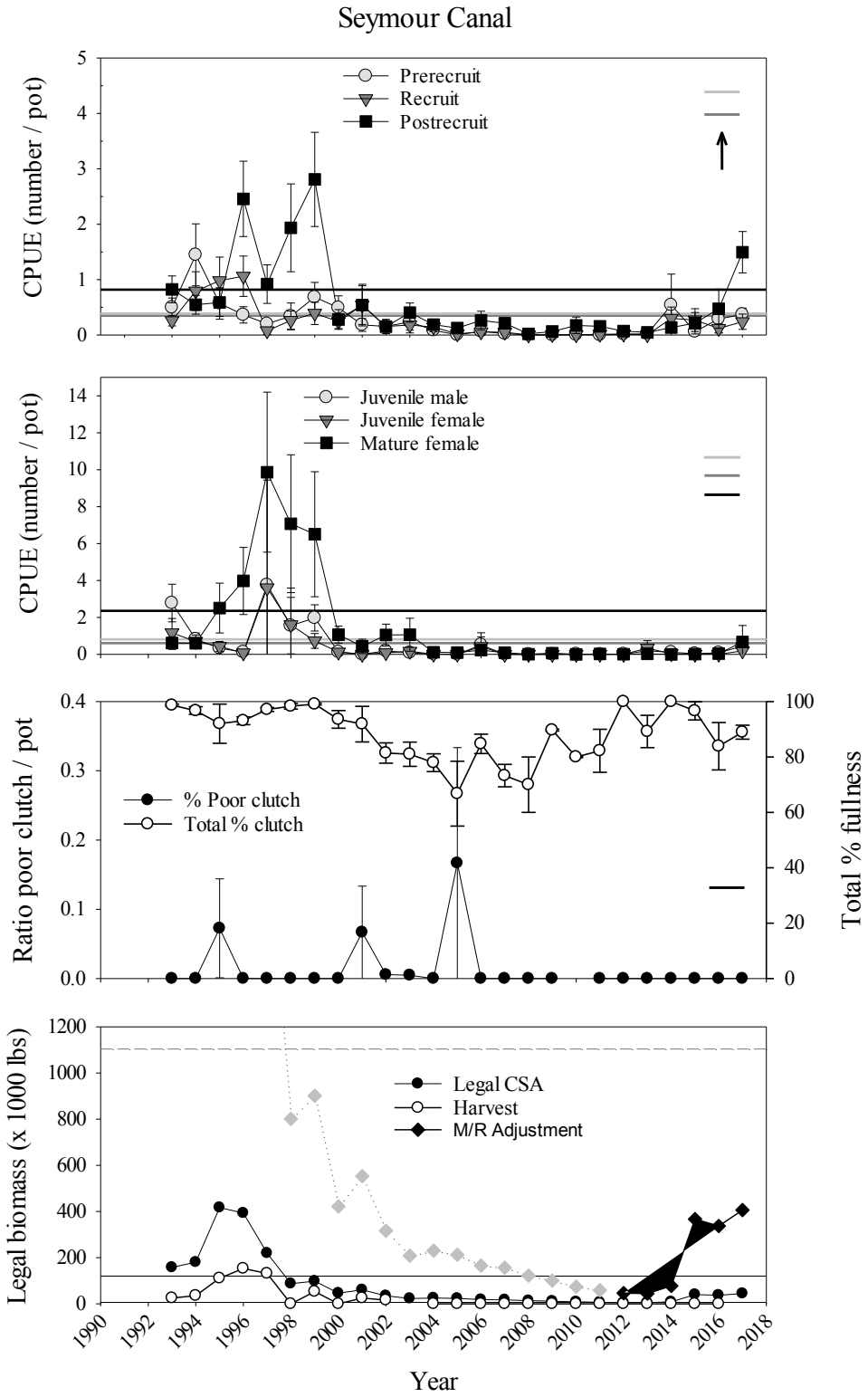
Peril Strait

- Stock health remained poor.
- All recruit classes are significantly below their long-term averages.
- No short term trends or indication of improvement for any class.
- Though some poor clutches were evident, clutch fullness percentage improved from 2016 .
- Legal and mature biomass estimates have shown no improvement from 2016 and both estimates remain below long-term averages.



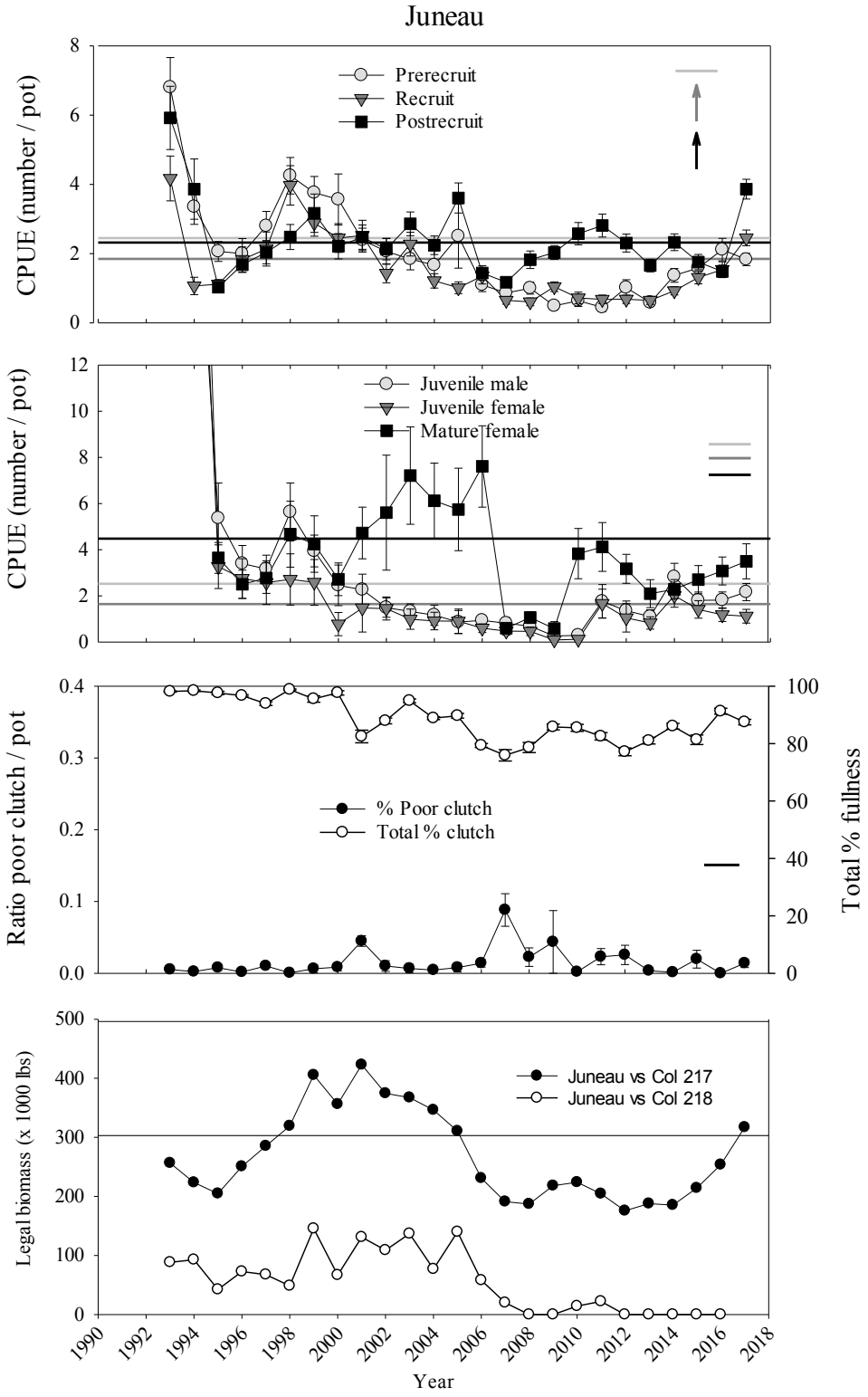
Seymour Canal

- Stock health decreased from below average to poor, however there are some signs of improvement.
- CPUE for post-recruits is above the long-term average and has a significantly increasing short-term trend.
- CPUEs for pre-recruits and juvenile males are at their long-term averages, while recruit, mature female, and juvenile female CPUEs are below their long-term averages .
- Stock health has improved in Seymour Canal as evident from one of the highest post-recruit CPUEs since 1999 and legal biomass at its highest level since 2001.



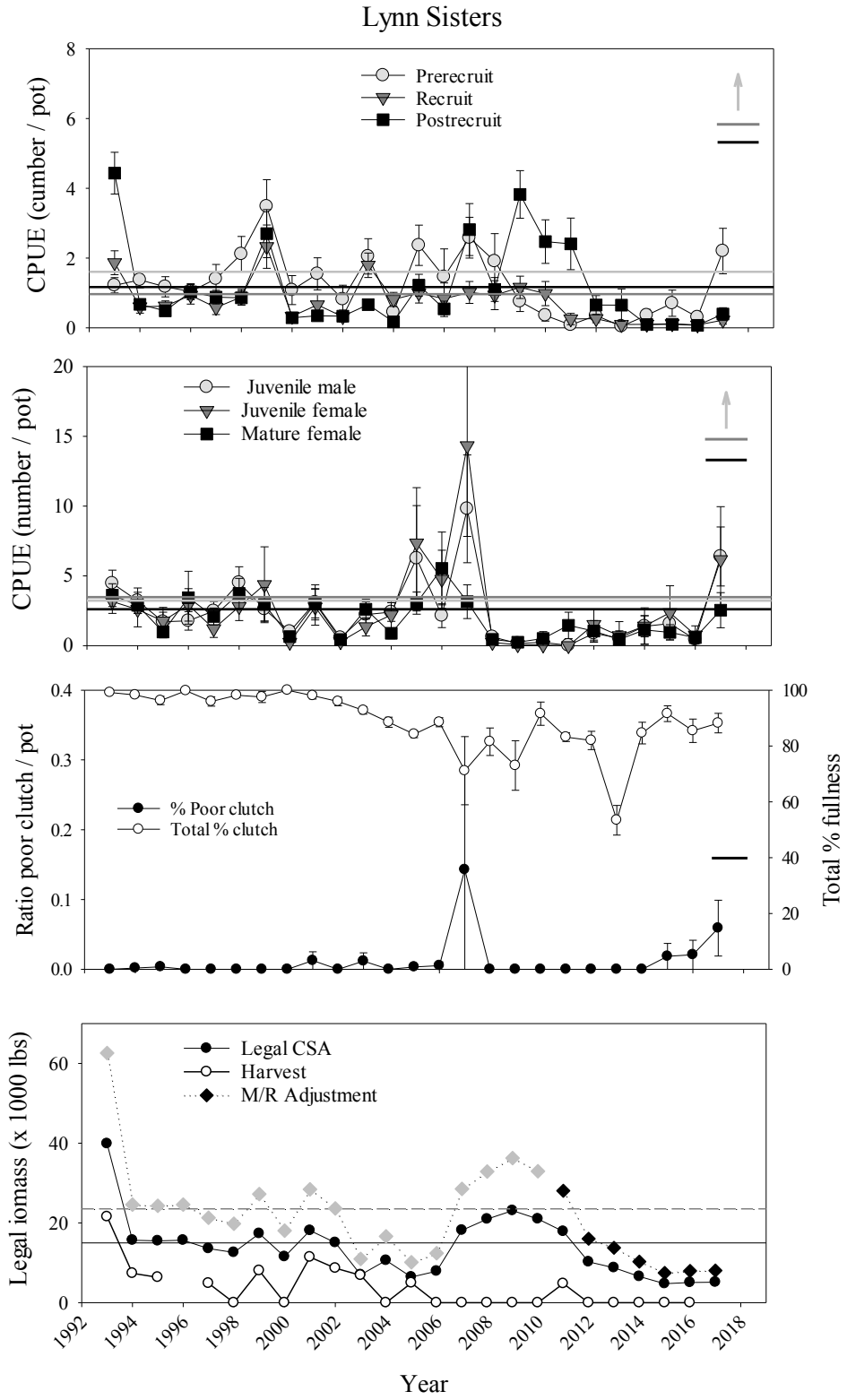
Juneau Area

- Stock health improved from moderate to above average in 2017.
- Recruit and post-recruit CPUEs are above their long-term averages; pre-recruit, mature female, juvenile male, and juvenile female CPUEs are below their long-term averages.
- Both recruit and post-recruit CPUEs have significant short-term increasing trends.
- Clutch fullness percentage improved from 2016.
- Only survey area where legal and mature biomass estimates are above long-term averages.



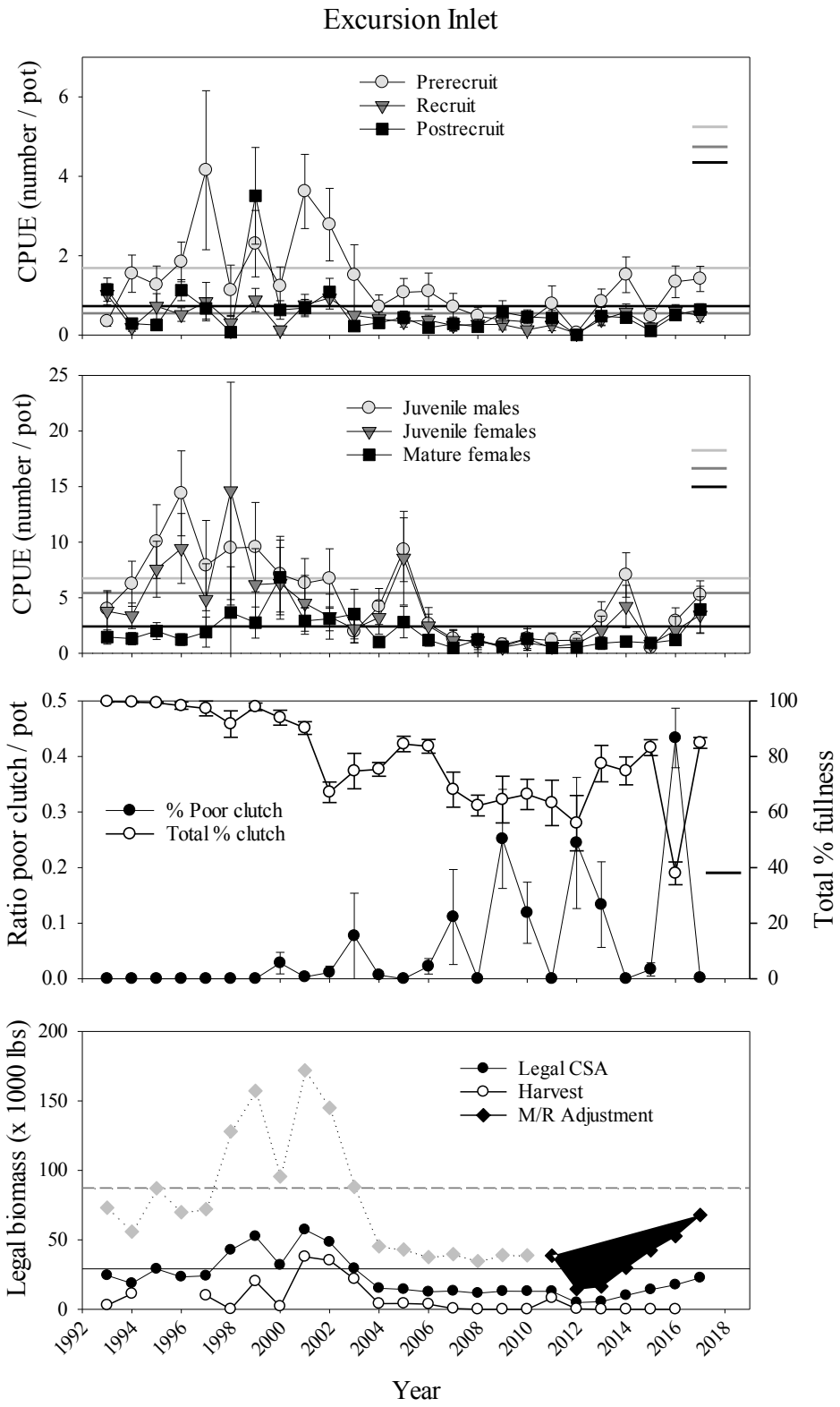
Lynn Sisters

- Stock health improved from poor to moderate.
- CPUEs for pre-recruits, juvenile males, and juvenile females are above their long-term average and CPUE for mature females is at its long-term average; recruit and post-recruit CPUEs are below their long-term averages.
- Both pre-recruit and juvenile male CPUEs have significant short-term increasing trends.
- Clutch fullness is around 90% but the area shows increasing trends in poor clutches over the past three years.
- Mature biomass increased substantially, largely from an increase in pre-recruit crab, the legal biomass estimate (up 0.2%) is virtually unchanged from 2016 and remains at a historically low level.



Excursion Inlet

- Stock health increased from below average to moderate.
- CPUE for mature females is above the long-term average and CPUE for recruits is at the long-term average; while pre-recruit, post-recruit, juvenile male, and juvenile female CPUEs are below their long-term averages.
- No significant short-term trends in CPUE were detected.
- % Female clutch fullness healthy.
- Legal and mature biomass has increased four straight years to a level that is greater than any since 2003.



2017 Fishery Summary based on logbook call-in data

Management Area	GHL	Estimate of Harvest through 12/06 (lb)	Estmate of % GHL Harvested through 12/06	Number of Permits	Pot Lifts	Number of Crab	CPUE*	Status
11-A Juneau	18,600	18,827	**101%**	13	340	2,445	7.45	Closed
Pybus/Gambier/Round Rock	20,000	11,381	**57%**	20	611	1,198	1.81	Closed
Seymour Canal	20,000	5,795	**29%**	5	114	608	4.69	Closed
Excursion	7,600	*	*	*	*	*	*	Closed
Northern Non-Surveyed Areas	100,000	95,133	**98%**	45	6,090	11,062	1.82	Closed
Southern Non-Surveyed Areas	35,000	*	*	*	*	*	*	**CURRENTLY OPEN – Closing on December 15th at noon.**