

RED KING CRAB

In

Alaskan Waters

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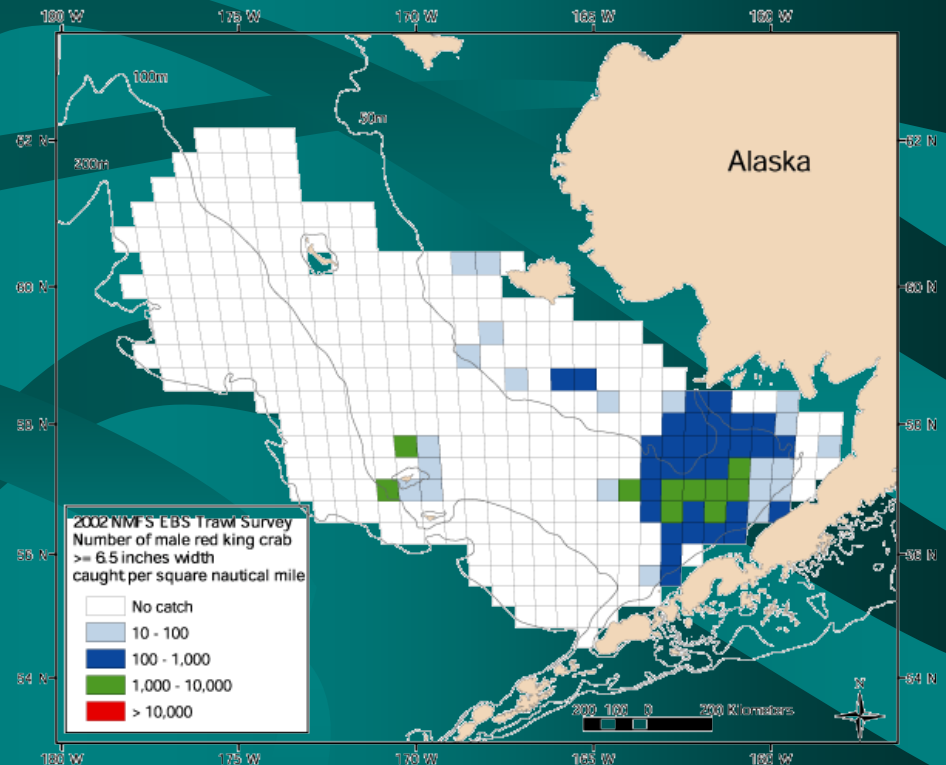


FOCUS

- Multiple species of king crab in Alaska, principle stocks include
 - Bristol Bay red king crab (*Paralithodes camtchaticus*)
 - Pribolof Islands blue king crab (*P. platypus*), and
 - Aleutian Islands golden or brown king crab (*Lithodes aequispinus*)
- This presentation will focus on the Bristol Bay stock of red king crab (BB RKC).

STOCK DISTRIBUTION

- Bristol Bay stock centered in the southeastern portion of Eastern Bering Sea

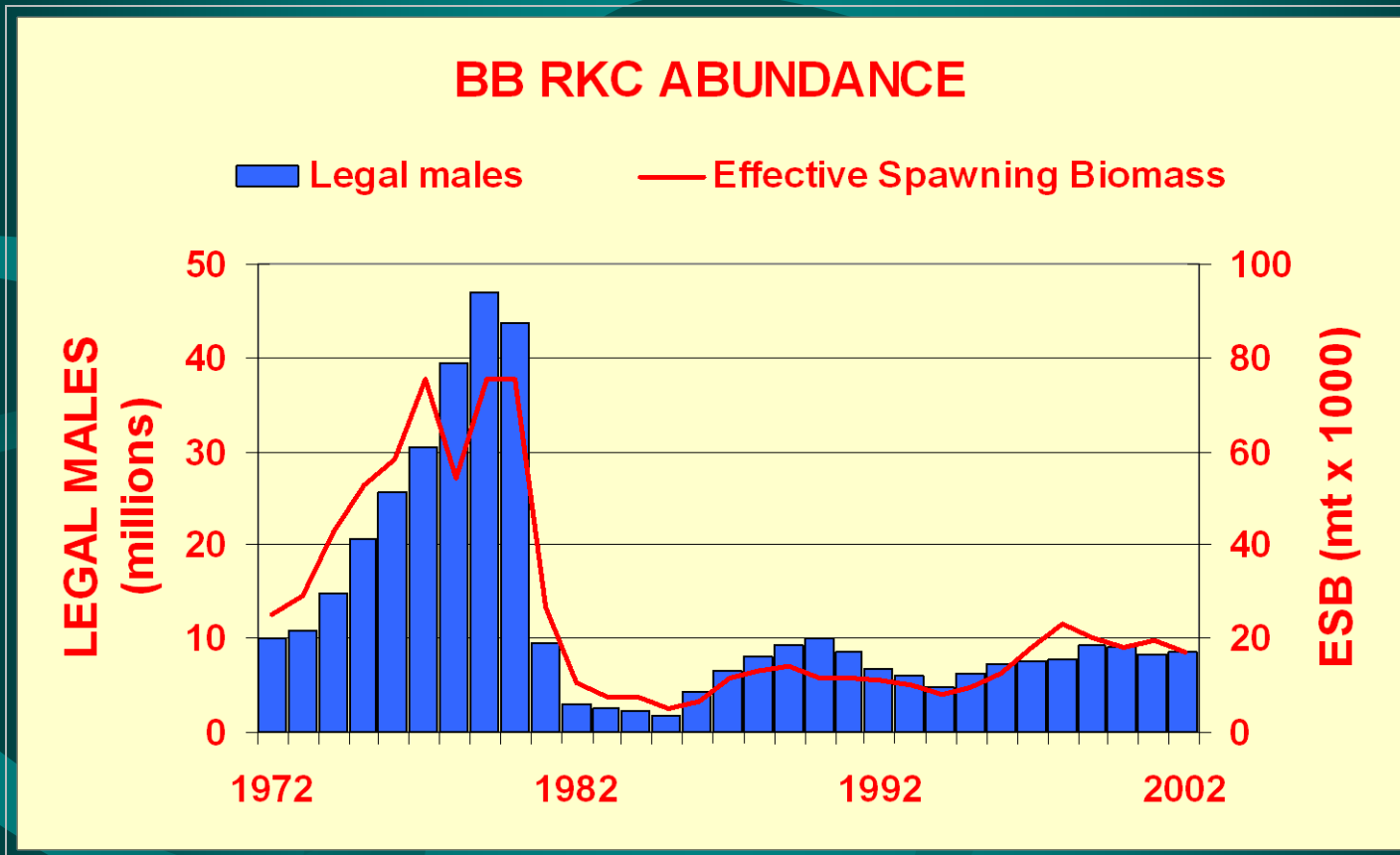


2002 Distribution: legal males

ABUNDANCE TRENDS

- Rapid increase in abundance in 1970s
- Population crash in 1980s
- Modest increase in abundance recently
- Mean number of legal males crab (>160 mm CW)
 - 1973-1982: 24.5 million
 - 1983-1992: 6.0 million
 - 1993-2002: 7.5 million

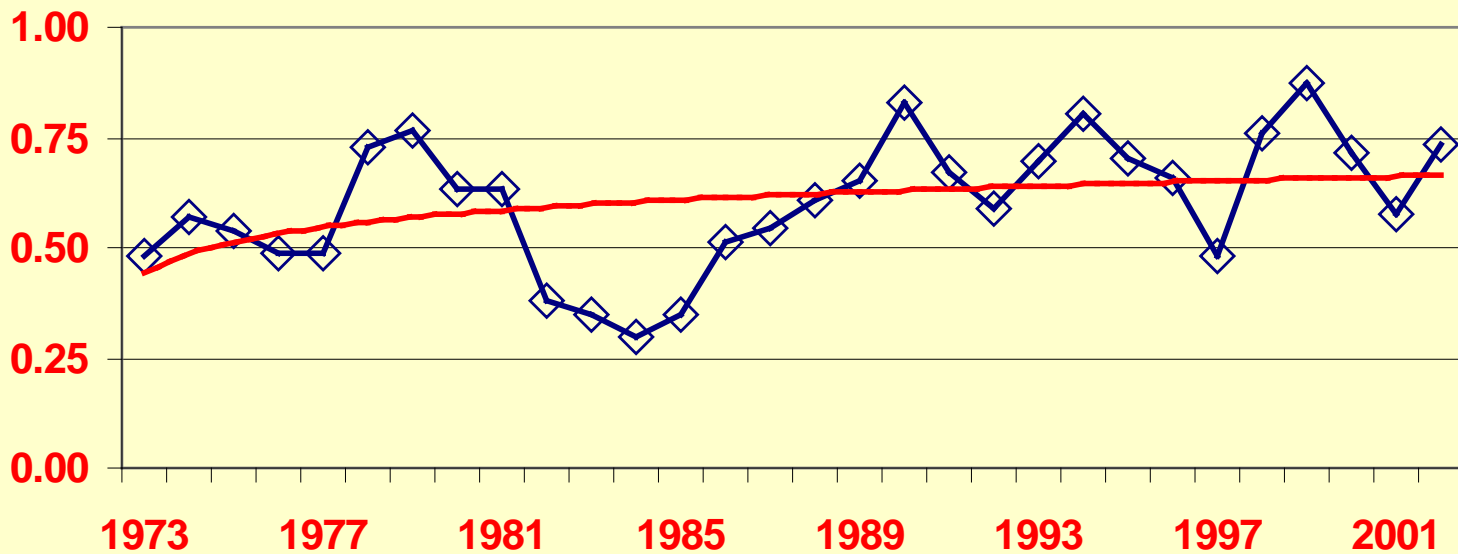
POPULATION TRENDS



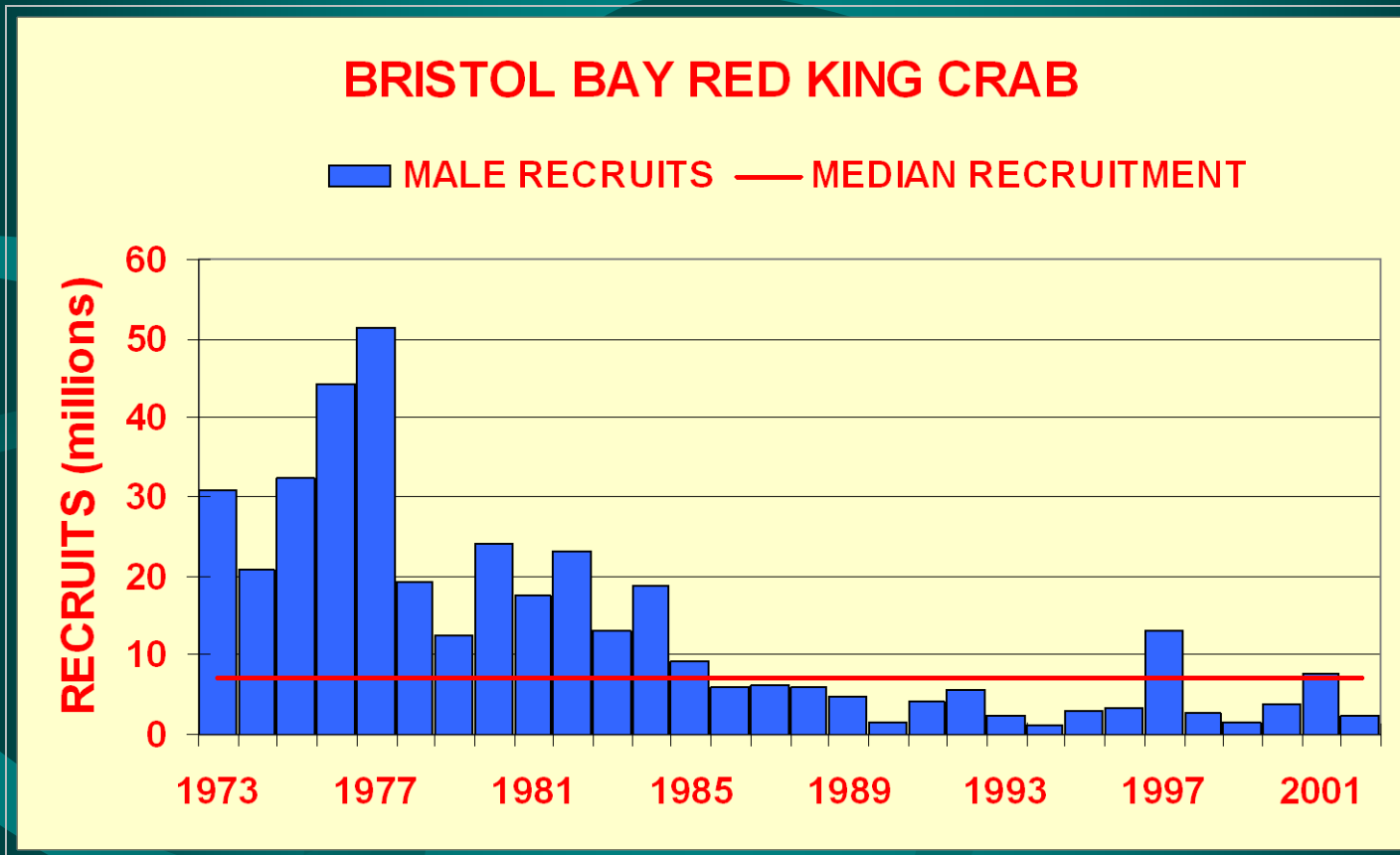
PROPORTION MATURE

BB RKC

PROPORTION MATURE



RECRUITMENT TRENDS



MANAGEMENT SYSTEM

- Joint Federal & State Management
- Federal Fisheries Management Plan (FMP)
 - Separate authorities assigned to Federal and State governments
- Day to day management is conducted by the State

CATCH MONITORING

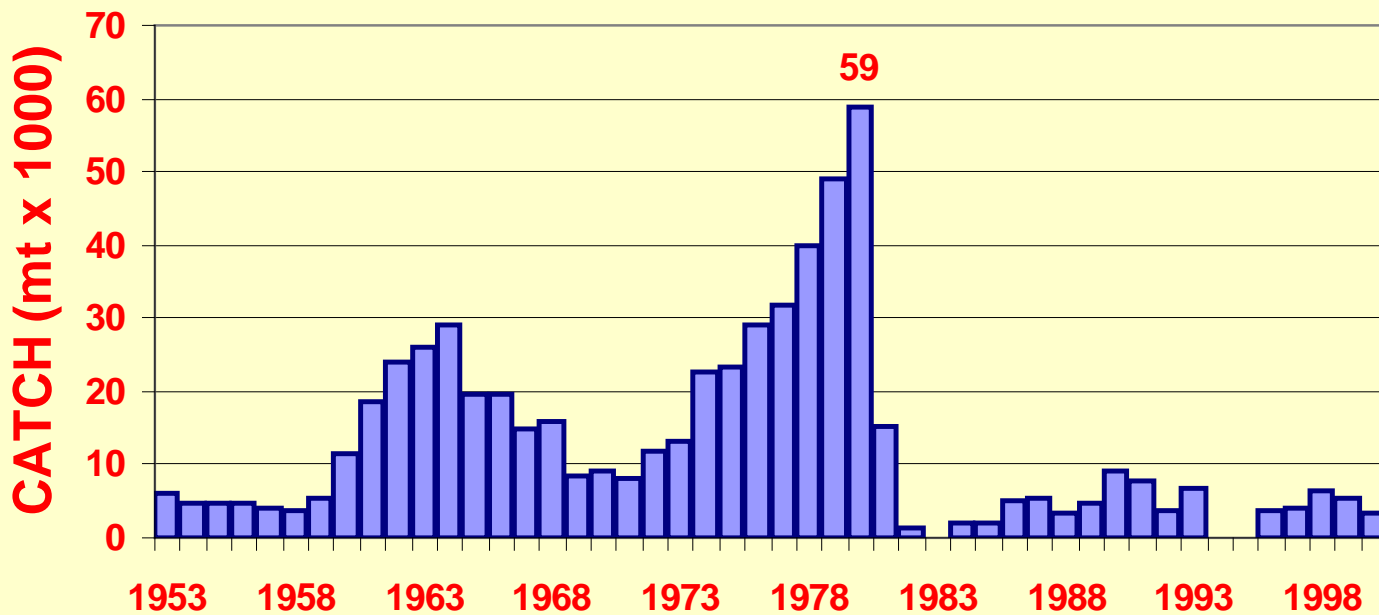
- **CATCH RECORDING:**
 - Mandatory pot registration
 - Voluntary in-season production log
 - State Fish Receiving Tickets
 - Observer data
- **MANDATORY OBSERVER PROGRAM**
 - Randomly place observers on 10% of CV fleet for all vessels >75' LOA
 - 100% observer coverage for CPs, and shore-side processors

CATCH HISTORY

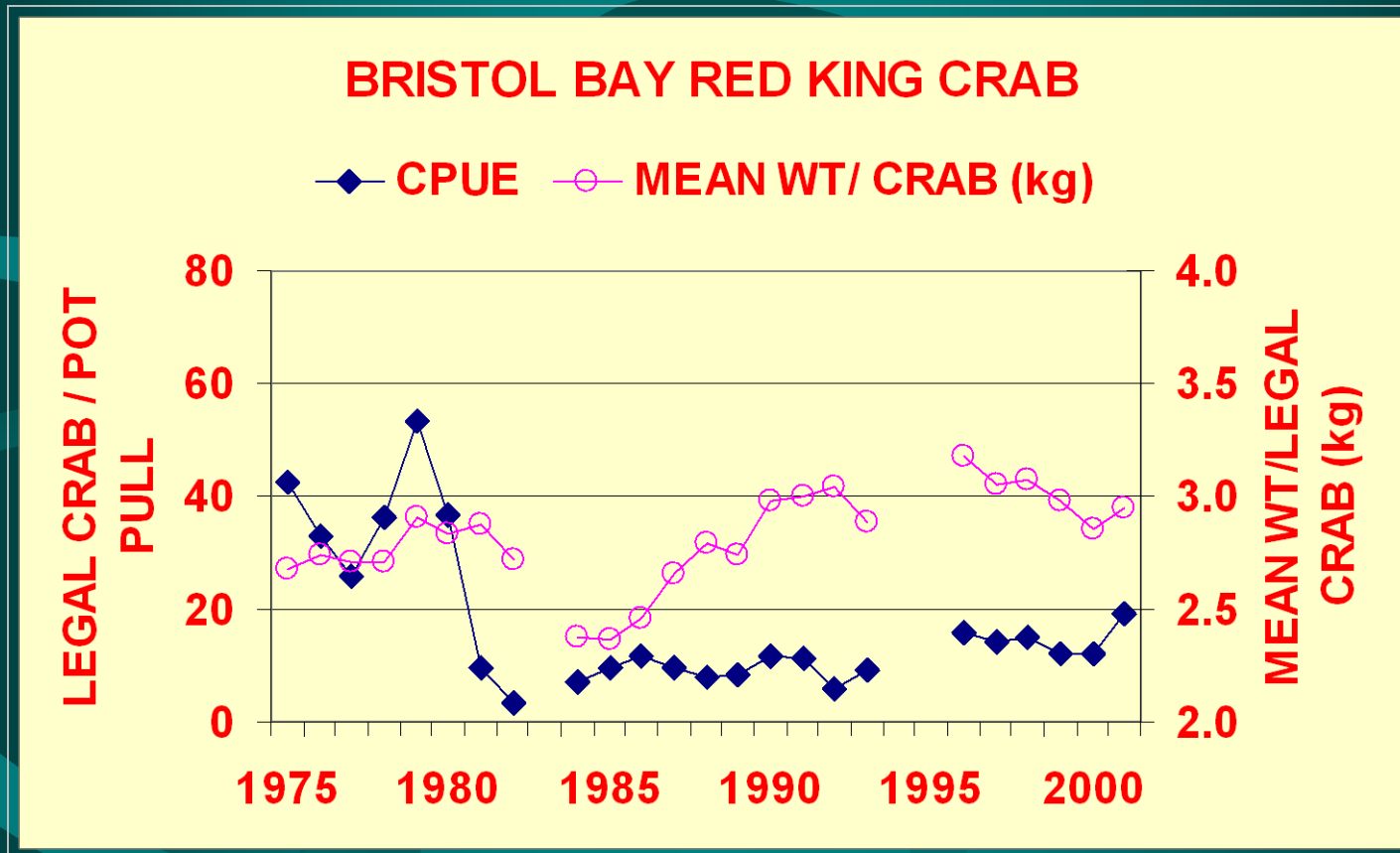
- 1953-1980: Increasing catch, approximately within decadal cycles
- Peak Catch in 1980: 59 thousand mt
- Crash following 1980
- Mean catch in last 10 years (exclusive of closed seasons): ~4700 mt
- Fishery was closed to all fishing in 1983, 1994 and 1995

CATCH TREND

BRISTOL BAY RED KING CRAB



CPUE & MEAN WT

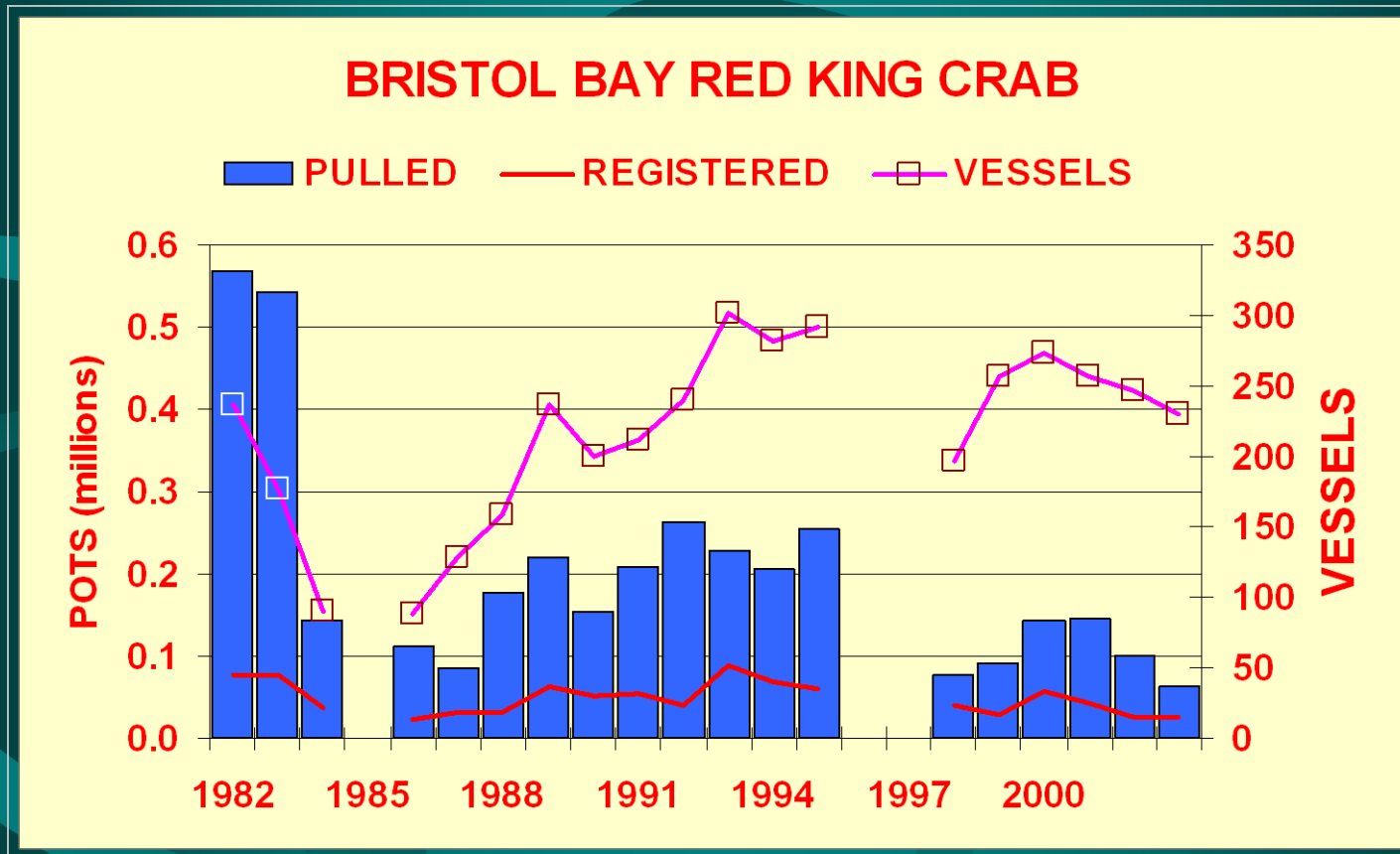


FISHING EFFORT

1980-2001

- Number of vessels has remained fairly stable following drop in mid-1980s
- Days fished dropped from 91 to 3
- Registered pots declined from 78,000 to 24,500
- Pots pulled dropped from 570,000 to 63,000

NUMBER OF VESSELS AND POTS FISHED



REFERENCE POINTS

- Biomass estimated from survey and models
- MSST (Minimum Stock Size Threshold): 50% of total mean spawning biomass (mature males and females) 1983-1997
 - Overfished: $SB < MSST$
- MFMT (Maximum Fishing Mortality Threshold): $F=0.20$
- SY (Sustainable Yield): $0.2(SB)$
 - Overfishing: Harvest $> SY$ in any one year
- GHIL (Guideline Harvest Level)

HISTORIC ALLOWABLE HARVEST RATES

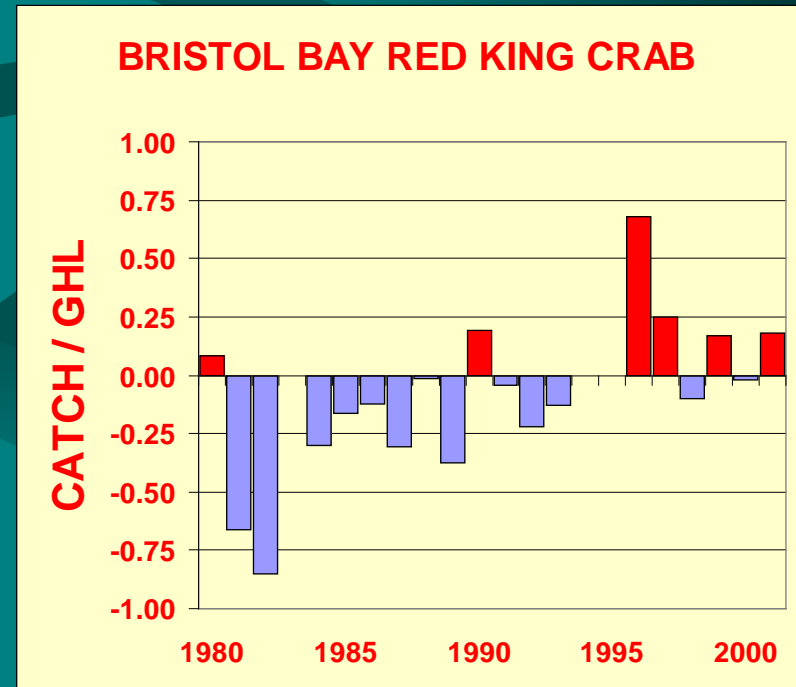
- Pre-1990: GHL was 20-60% of legal male crab (165 mm CW or 135 mm CL)
- 1990: GHL changed to 20% mature male crab (120 mm CL), not to exceed 60% of legal male crab
 - Constraint: fishery required a minimum of 8.4 million mature female crab (>90 mm CL)

CURRENT ALLOWABLE HARVEST RATES

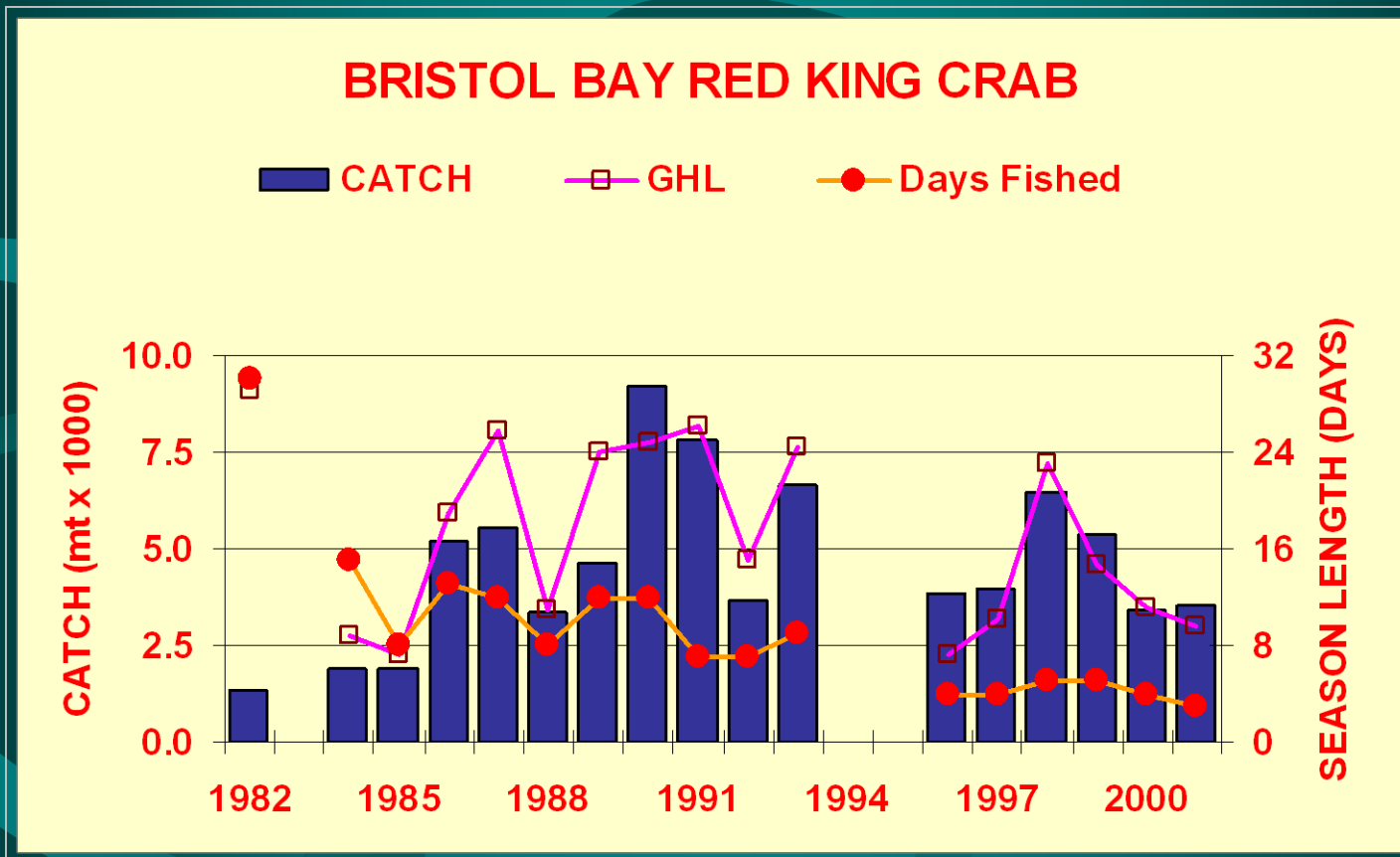
- 1996 introduced stair-stepped system (coincident with LBA model abundance estimates)
 - Constraints:
 - Minimum Effective Spawning Biomass (ESB) of 6600 mt (male+female)
 - Proposed GHL must be $> 1,800$ mt of legal male crab
 - ESB $> 6,600$ mt & $< 25,000$ mt: GHL=10% legal males
 - ESB $> 25,000$ mt: GHL=15% of legal males
- Motive: promote rebuilding at low stock levels

FISHERY PERFORMANCE

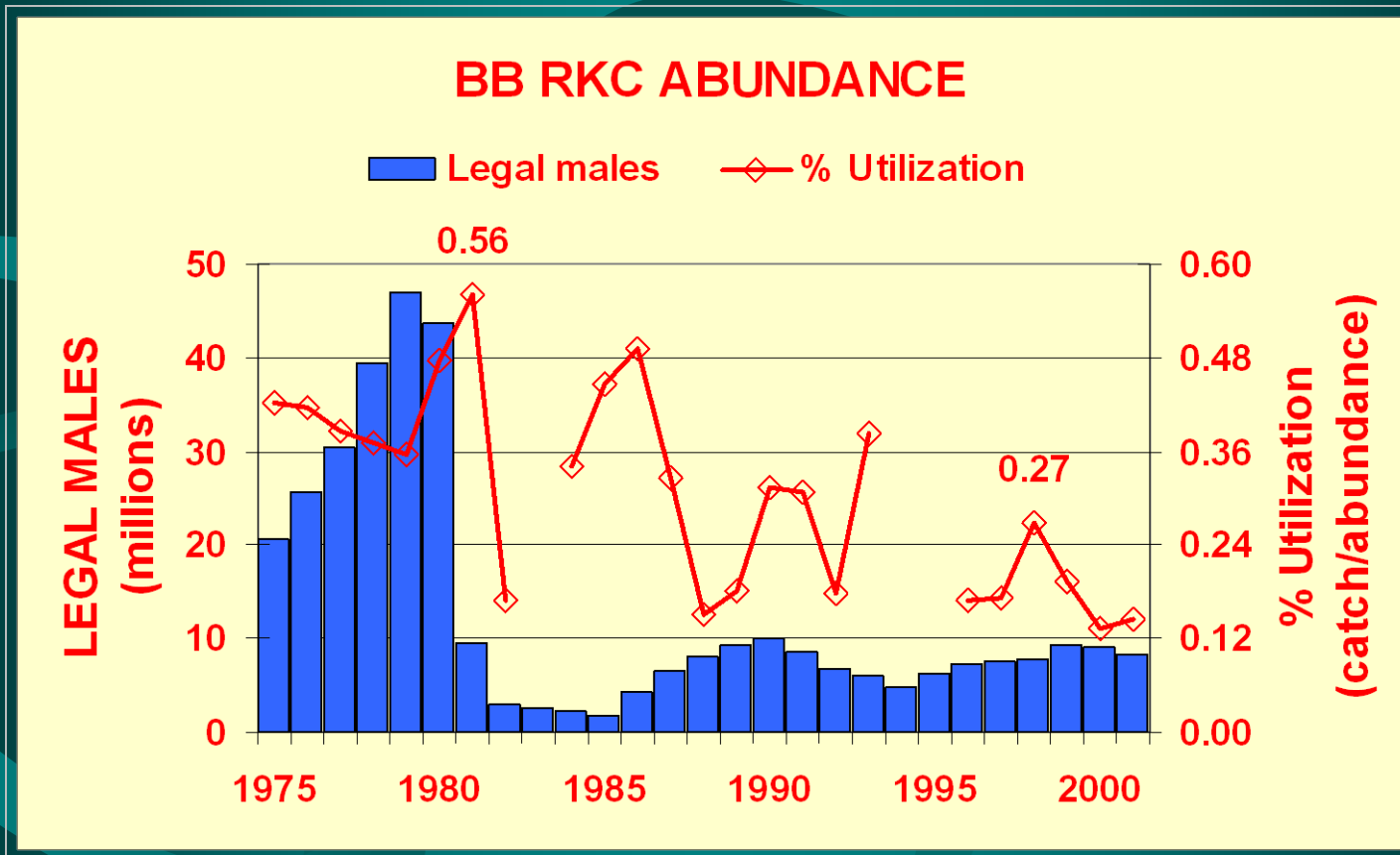
- Following 1980 crash, CPUE is gradually increasing
- Mean weight of legal crab: increasing
- Season length is decreasing
- Frequency of exceeding the GHL is increasing (4 of last 6 years)



FISHERY PERFORMANCE TRENDS



ABUNDANCE / HARVEST RATE



FISHERY MANAGEMENT

- Joint Federal/State Management System
- Three Categories of Assigned Responsibility
 - 1) Management measures fixed in the Federal FMP
 - 2) Frameworked management measures in the FMP
 - 3) Measures discretionary to the State

FIXED IN THE FMP

- Gear
- Permits
- Limited Access
- Federal Observer Requirements

FRAMEWORKED

- Size Limits
- GHIL
- In-season Adjustments
- Reporting Districts
- Seasons
- Pot Limits
- Registration Areas
- Sex Restrictions

DISCRETIONARY

- Reporting Requirements
- Gear Placement and Removal, Storage, or Modification
- Vessel Tank Inspections
- State Observer Requirements
- Bycatch Limits (in the directed crab fishery)

CURRENT FISHERY

- LIMITED ACCESS POT FISHERY
 - Gear, species and area endorsements on limited access permit
 - Super-exclusive registration zones
 - Pot limits: function of stock abundance
 - Sex/Size limits: males >160 mm CW
 - Specified Seasons: Start date is October 1, duration varies with abundance

SECTOR DISTRIBUTIONS

- CDQ
 - Sixty-five communities
 - 7.5% of the GHL
- AFA
 - Qualified AFA vessels (41 boats) receive limited fraction of GHL (11%).
- GENERAL FISHERY

BYCATCH

- Contentious issue between crab and non-crab fisheries
- Within Directed Crab Fishery
 - Sub-legal males, females, non-target species
- Non-crab Fisheries
 - All crab are prohibited species

BYCATCH ALLOCATION

- Fishery and area specific bycatch caps
 - Caps can be constraining to directed fishing
- CDQ and AFA bycatch allowances
 - CDQ awarded Prohibited Species Reserve equal to 7.5% of Total PSC allowance
 - AFA awarded % based on catch history
- RKCSS (special catch savings area)
 - 35% of PSC cap for Rock sole/Flathead/Other Flatfish

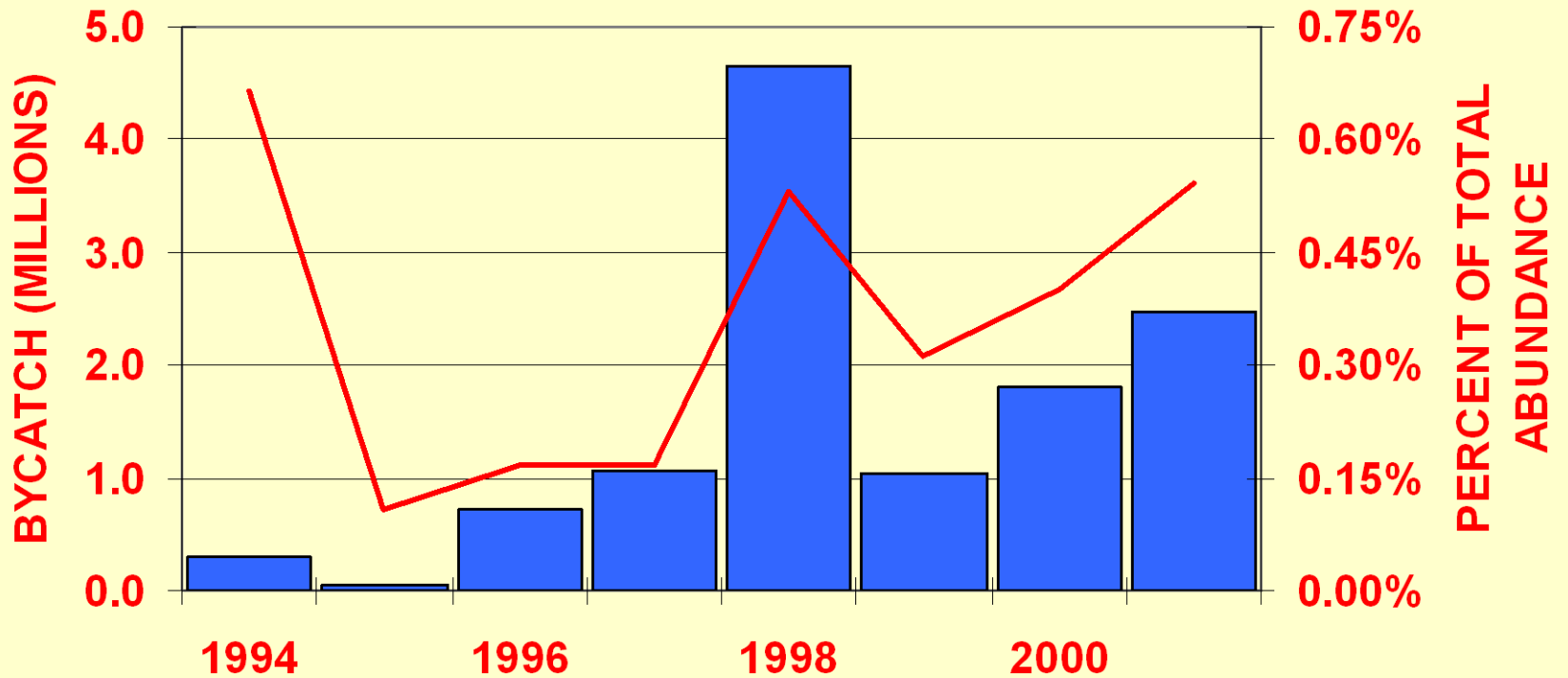
2003 BB RKC BYCATCH CAPS

Fishery	Zone 1	Special Constaints		
		AFA		RKCSS
		CV	CP	
Trawl				
Yellowfin	16,664	1,906		20,824
Rock sole/Flathead/other flats	59,782	16,984		
P. cod	13,079	8,087		
Pollock/Attka/other	200	5		
Sub-total	89,725	26,982	628	
Fixed Gear				
Prohibited Species Reserve	7,275			
Grand Total	97,000			

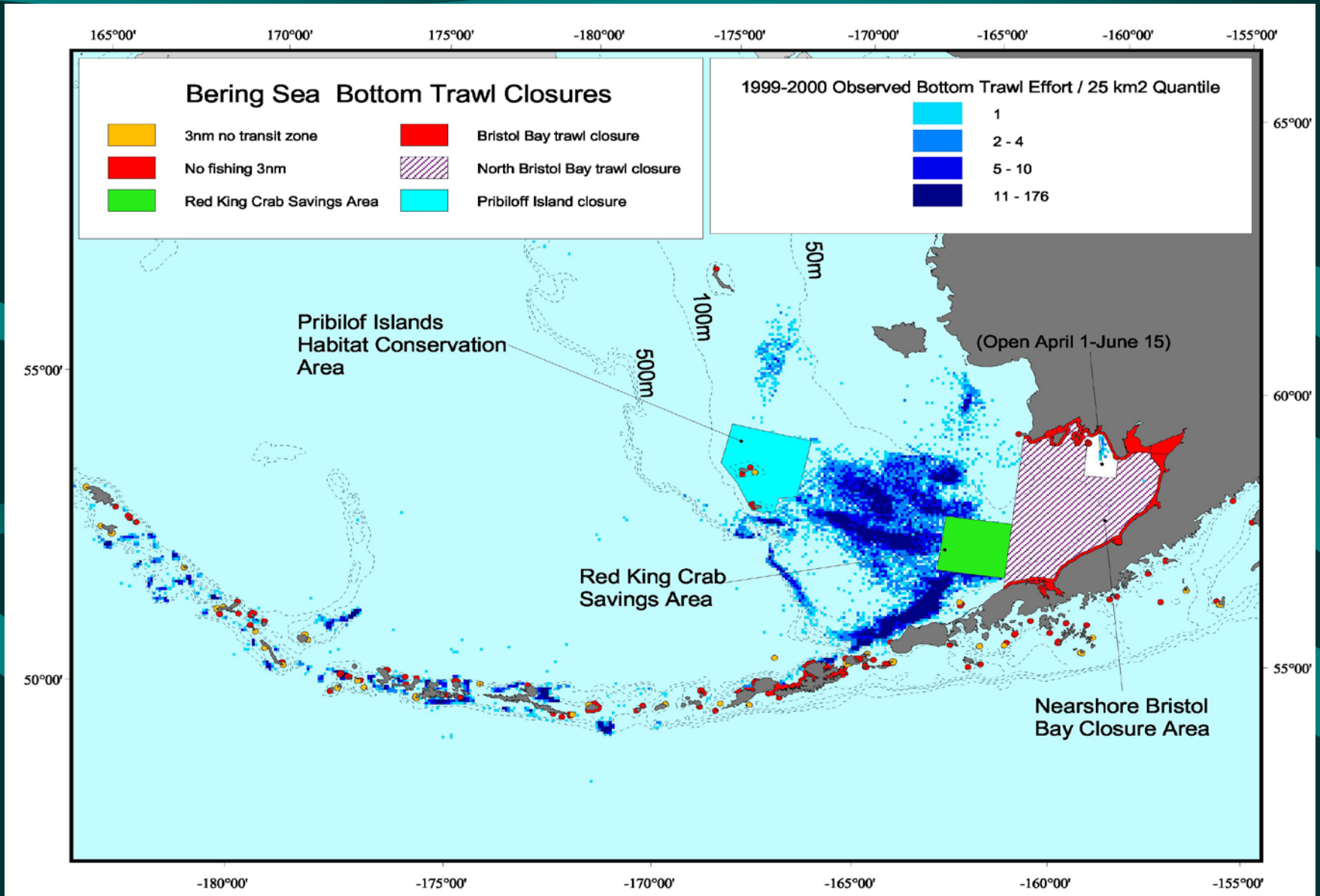
RECENT BYCATCH TRENDS

BRISTOL BAY RED KING CRAB

■ Total Bycatch — % Killed



PROTECTED HABITATS



EMERGENT ISSUES

- Over capitalization
- Fishery Rationalization Proposals
 - Stricter License Limitations
 - Harvester and Processor Allocations
 - Binding Arbitration to facilitate ex-vessel price equity
 - Incentives to form harvester cooperatives

SUMMARY

- Shared Federal/State Management
- Limited Access Fishery with multiple allocation controls
- Currently increasing population abundance
- Adequate catch/effort monitoring, but shrinking fishing season
- Over-capitalized harvesting and processing sectors struggling to rationalize the fishery

The End

