

Building a Resilient Crab Fishery

Draft Action Plan

CPT Review - May 2023




ALASKA
BERING SEA
CRABBERS

National focus on Climate Resilient Fisheries

However, over-emphasis on climate may distract from near-term actions necessary to save fisheries.

- *Collapsed crab stocks example* - SSC climate workshop noted incredible science and climate modeling but would not have predicted the snow crab collapse. Need to plan for future but also need to be able to respond to current crisis and act today. (actionables)

Shift in focus to encompass more than just climate → build resilience from any disruption

Climate change planning  Resilience or disaster planning

Sources

- Peer reviewed literature
- Conversations with managers and scientists
- Poll of crab harvesters (March 2023 - 38 responses)

This work was initiated by a NOAA Leadership Program detail in partnership with ABSC through the Intergovernmental Personnel Act.



Recommended Items to Include in a Basic Emergency Supply Kit:

- Water and non-perishable food for several days
- Extra cell phone battery or charger
- Battery-powered or hand crank radio that can receive NOAA Weather Radio tone alerts and extra batteries
- Flashlight and extra batteries
- First aid kit
- Whistle to signal for help
- Dust mask, to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place
- Moist towelettes, garbage bags and plastic ties for personal sanitation
- Non-sparking wrench or pliers to turn off utilities
- Can opener (if kit contains canned food)
- Local maps


Ready
Prepare. Plan. Stay Informed. ®



Emergency Supply List



FEMA

www.ready.gov



Strategy to increase crab fishery resilience

- Stabilize the fleet
- Create opportunity
- Look to the future
- Managers
- Scientists
- Industry

Stabilize the fleet

Managers

- Identify funding to cover minimum individual vessel business costs
- Build trust with industry
- **Create a crisis roadmap of existing available resources**

Scientists

- **Prioritize partnering with industry on research (and compensate industry)**
- Look beyond stock assessments (humans/economics in addition to biology)
- Use best scientific information available to act, even when uncertain

Industry

- **Identify minimum individual vessel business costs**
- Find off-season work, cross training opportunities, or benefits to keep crew working and incentivize them to return

Stabilize the fleet (Managers)

Create crisis roadmap of existing available resources

Example – ABSC fleet outreach & financial relief



SBA U.S. Small Business Administration **NEWS RELEASE**

SBA Offers Disaster Assistance to Alaska
Small Businesses Economically Impacted by the 2022/2023
Bering Sea Snow Crab and Bristol Bay Red King Crab Fisheries Closures



NOAA National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Search NOAA sites

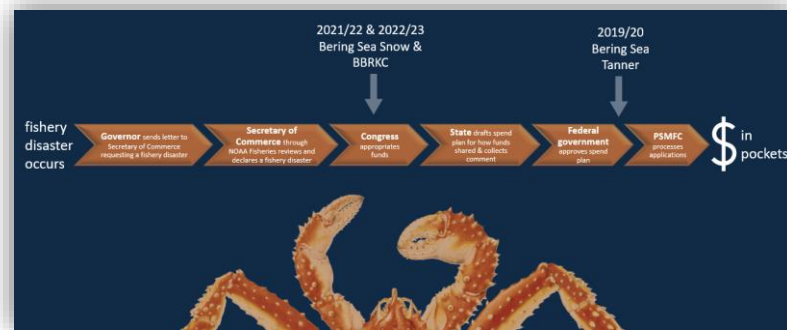
Home / News & Features

Secretary of Commerce approves disaster declarations in AK and WA

Determination to address economic impacts from 2019 to 2023

Focus areas: Fisheries Topics: fisheries

December 16, 2022



FUNDING AND FINANCIAL SERVICES

Fisheries Finance Program

The Fisheries Finance Program (FFP) provides long-term fixed rate loans for the fishing and aquaculture industries.

Stabilize the fleet (Scientists)


Prioritize partnering with industry

Example – 2023 BBRKC Winter-Spring Collaborative Pot Survey


Tagged Red King Crab

First: Get Latitude/Longitude and Tag Number
Second: Return to Sea
Third: Send information to a project contact or give to an observer/ port sampler


Many tag types, treat them all the same



Satellite Tag on Harness





Traditional Spaghetti Tags




Acoustic Tags

Project Contacts

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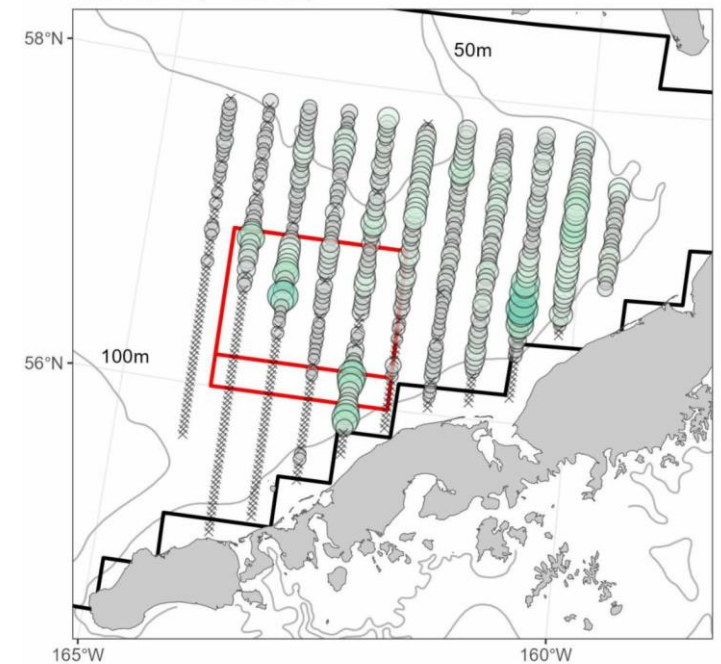
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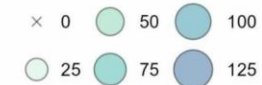




2023 BBRKC Winter/Spring Pot Survey

Mature male ($\geq 120\text{mm}$)



COUNT



 EBS Summer Survey Boundary
 Red King Crab Savings Area

Stabilize the fleet (Industry)

Identify minimum individual vessel costs

Example – March 2023 ABSC fleet poll

2. For your business to survive the next few years, what is the bare-minimum ex-vessel value that the fleet would require?

~\$2M per vessel (~\$1M to QS owners, \$400k to captains/crew, \$600k to vessel owner (vessel maintenance, insurance, bait, fuel, moorage, etc))

~\$100M per year for crab fishery (BBR, BSS, BST combined)

...but more nuanced than that

Create opportunity

Managers

- **Diversify**
- Clearly state guiding [socioeconomic] principles (e.g., protect small businesses, prioritize flexibility)
- Implement actions to address fishing impacts to crab and crab habitat

Scientists

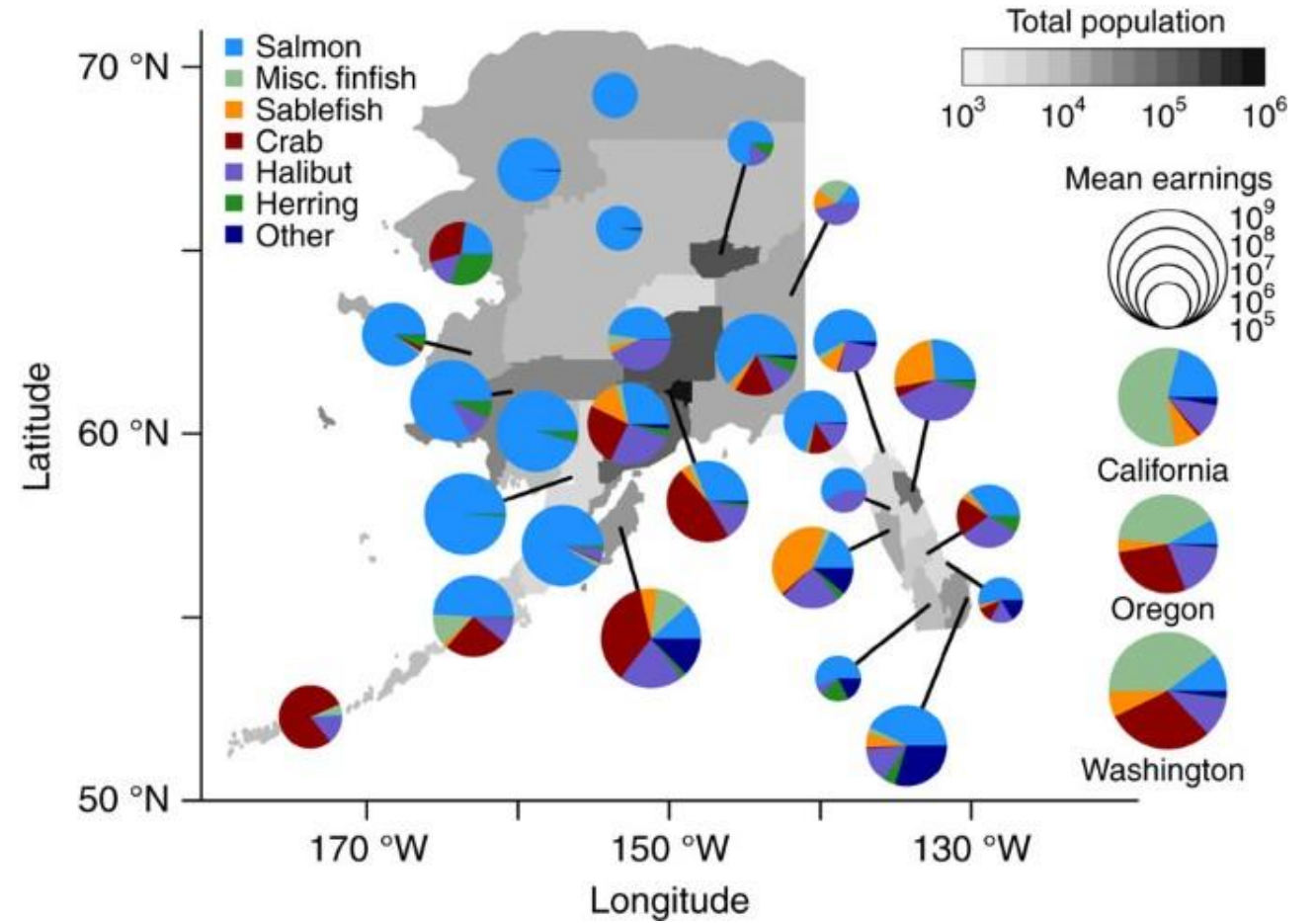
- Research optimal ways to keep fishery operational (Closed areas? Allowing a small fishery?)
- **Invest in social scientist capacity**
- Research crab bycatch mortality rates, unobserved crab mortality in other fisheries, crab habitat impacts

Industry

- **Coordinate & identify options to remain operating as a fleet (diversify)**

Create Opportunity (Managers) *Diversify*

Example – Fisheries portfolio diversification and turnover buffer Alaskan fishing communities from abrupt resource and market changes



Cline, T., Schindler, D. & Hilborn, R. Fisheries portfolio diversification and turnover buffer Alaskan fishing communities from abrupt resource and market changes. *Nat Commun* **8**, 14042 (2017). <https://doi.org/10.1038/ncomms14042>

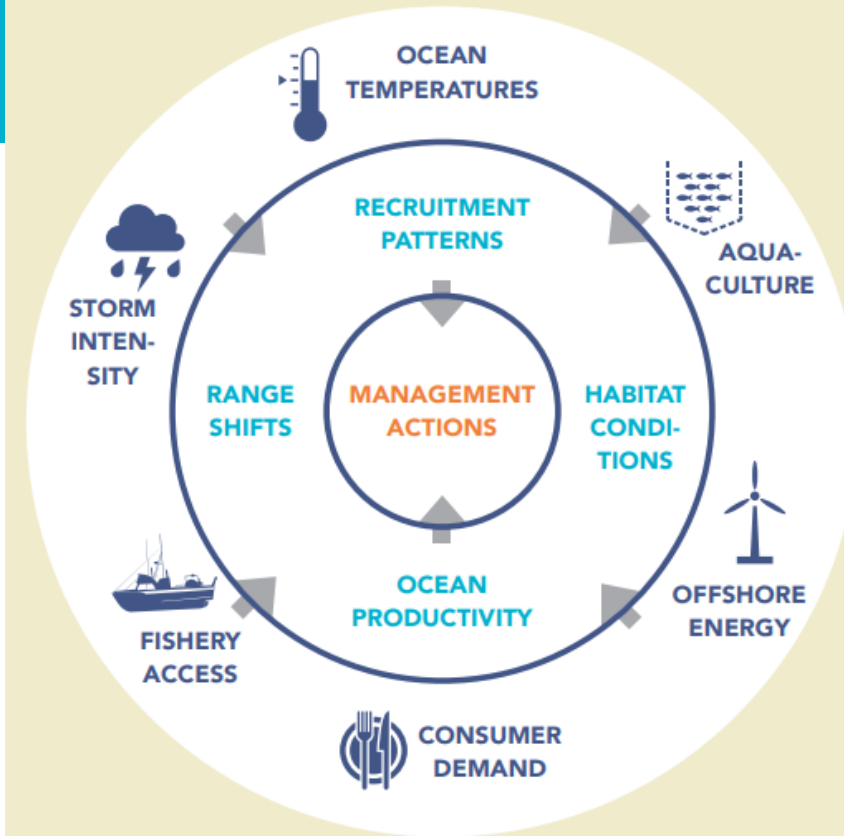
Create Opportunity (Scientists)

*Invest in social
scientist capacity*

Example – East
Coast Climate
Change Scenario
Planning Initiative

EAST COAST CLIMATE CHANGE SCENARIO PLANNING

What could shape East Coast fishing
by 2040?



What other factors would you include?



Create Opportunity (Industry)

*Coordinate & identify options to remain
operating as a fleet (diversify)*

Example – ABSC work with fleet

Look to the future

Managers

- **Prioritize proactive management measures to address a range of disturbances (Rapid response, Framework)**
- Adjust Council representation to better reflect all fishery participants
- MSA level changes (E-rule extension)
- Evaluate NS1 rebuilding provisions (add fleet focused component in addition to species focused)
- Create and subsidize fleet insurance (not tied to climate) or reform fishery disaster process to be timely

Scientists

- Conduct studies using natural experiments (recent Pribilof closures)
- Expand survey timing and area
- Supplement trawl survey with pot surveys
- **Research crab enhancement**

Industry

- Pre-analyze information to populate disaster requests
- Where possible, reduce fleet carbon emissions
- **Connect to carbon policy initiatives, like incentive programs or mitigating ocean acidification impacts**
- Create a trust to support independent harvesters

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 660

[Docket No. 180625576–8999–02]

RIN 0648–BJ81

**Magnuson-Stevens Act Provisions;
Fisheries Off West Coast States;
Pacific Coast Groundfish Fishery;
2019–2020 Biennial Specifications and
Management Measures; Inseason
Adjustments**

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule; inseason adjustments to biennial groundfish management measures.

SUMMARY: This final rule announces routine inseason adjustments to management measures in commercial groundfish fisheries. This action is intended to allow commercial fishing vessels to access more abundant groundfish stocks, while protecting overfished and depleted stocks.

DATES: Effective June 9, 2020.

The increased trip limits were requested by industry stakeholders and the Groundfish Advisory Subpanel (GAP) to relieve some restrictions for non-trawl commercial fisheries off the coasts of Washington, Oregon, and California, and to allow increased potential for utilization of available stocks where markets exist. The trip limit increases in this action are intended to expand access to certain fish stocks for the commercial non-trawl fleets during overall market declines and state restrictions that may limit fishing effort, and will help meet the current and rising demand of smaller domestic markets that are providing fresh fish to coastal communities and grocers. These increases to trip limits are intended to provide some relief to coastal fishing communities that have sustained severe disruptions in markets and decreases in tourist income due to state fishery closures.

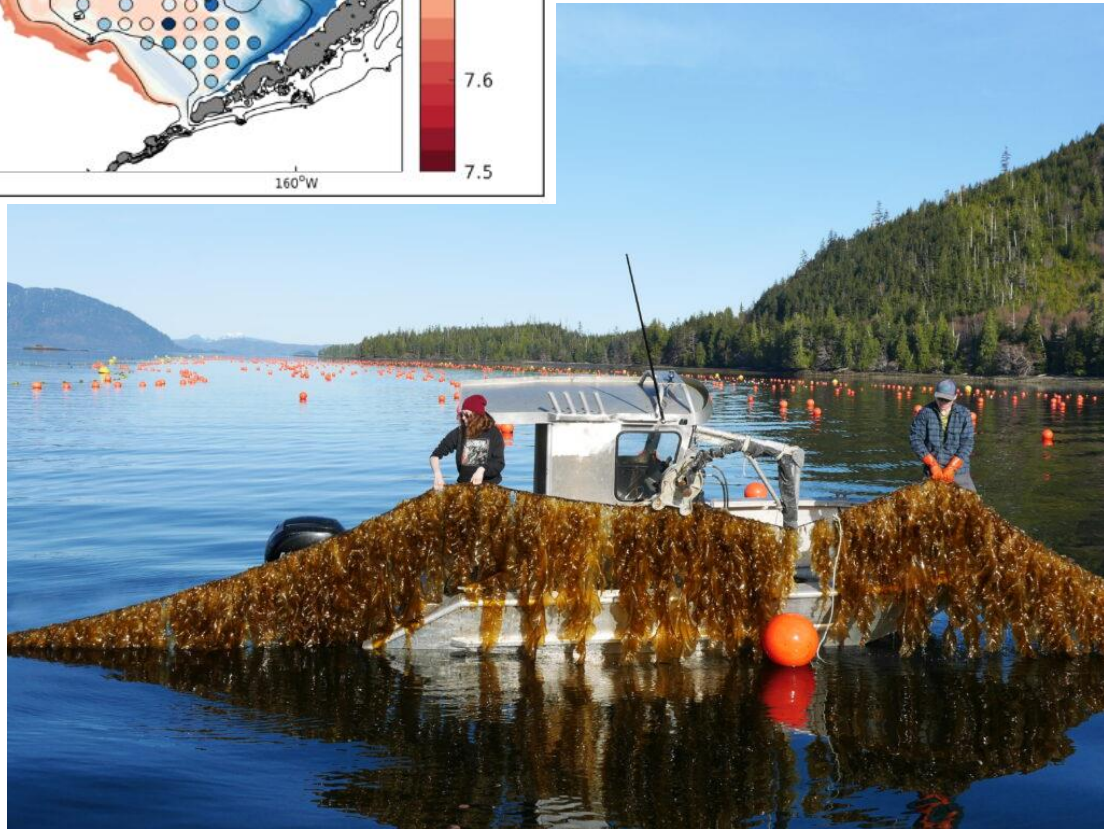
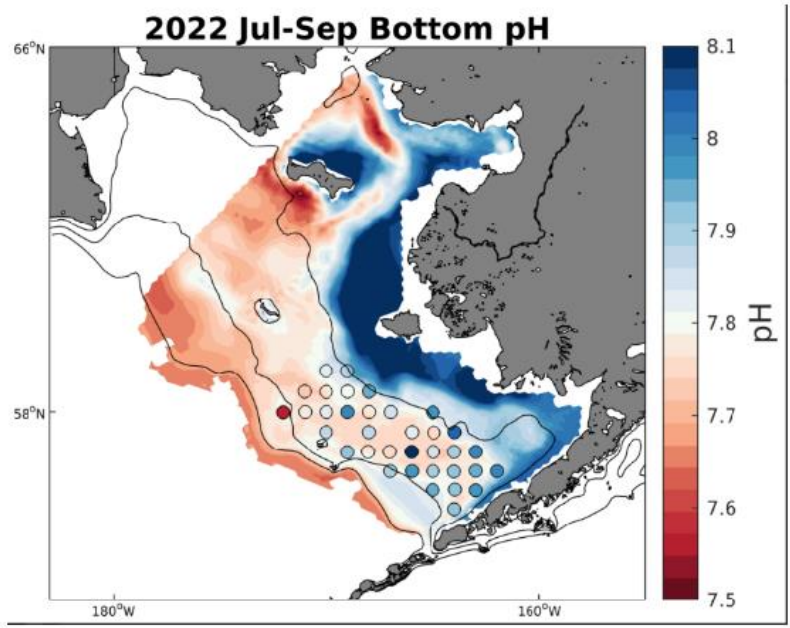
**Look to the Future
(Managers)**
*Prioritize rapid
response*
Example – April 2020
Pacific Coast
Groundfish Inseason
**(Council action April,
June implementation)**



Look to the Future (Scientists)

Research crab enhancement

Example – Alaska King
Crab Research,
Rehabilitation, and
Biology (AKCRRAB)
Program



Look to the Future (Industry)

*Connect to carbon
policy initiatives*

Example – incentive
programs, mitigation
of ocean acidification



<https://toolkit.climate.gov/>

Ideal management approach for US fisheries

- 1) Identify fishery disturbances
- 2) Consider past magnitude of disturbances and rank vulnerability
- 3) Brainstorm list of proactive management responses
- 4) Select most relevant solutions and create LATENT management capacity in fishery
- 5) Take action for least diversified fisheries first



QUESTIONS & DISCUSSION



ALASKA
BERING SEA
CRABBERS

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	Managers	Scientists	Industry
Stabilize the fleet	<ul style="list-style-type: none"> *Identify funding to cover minimum individual vessel business costs (vessel maintenance, insurance, etc.) *Build trust with industry *Create a crisis roadmap of existing available resources 	<ul style="list-style-type: none"> *Prioritize partnering with industry on research (and compensate industry) *Look beyond stock assessments *Focus on humans/economics in addition to biology *Use best scientific information available to act, even when uncertain 	<ul style="list-style-type: none"> *Identify minimum individual vessel business costs (e.g., vessel maintenance, insurance, etc.) *Find off-season work, cross training opportunities, or benefits to keep crew working and incentivize them to return
Create opportunity	<ul style="list-style-type: none"> *Clearly state guiding [socioeconomic] principles (e.g., protect small businesses, prioritize flexibility) *Identify a way to keep fleet operating at X level (diversify) *Implement actions to address fishing impacts to crab and crab habitat 	<ul style="list-style-type: none"> *Research optimal ways to keep fishery operational (Closed areas? Limited quota?) *Invest in social scientist capacity *Research crab bycatch mortality rates, unobserved crab mortality in other fisheries, crab habitat impacts 	<ul style="list-style-type: none"> * Coordinate & identify options to remain operating as a fleet (diversify)
Look to the future	<ul style="list-style-type: none"> *Prioritize proactive management measures to address a range of disturbances (Rapid response, Framework) *Adjust Council representation to better reflect all fishery participants *MSA level changes (E-rule extension) *Evaluate NS1 rebuilding provisions (add fleet focused component in addition to species focused) *Create and subsidize fleet insurance (not tied to climate) or reform fishery disaster process to be timely 	<ul style="list-style-type: none"> *Expand survey timing and area *Add pot surveys *Research crab enhancement 	<ul style="list-style-type: none"> *Pre-analyze information to populate disaster requests *Where possible, reduce fleet carbon emissions *Connect to carbon policy initiatives, like incentive programs or mitigating ocean acidification impacts *Create a trust to support independent harvesters

Resilience

Businesses - *quickly **adapt to disruptions while maintaining** continuous business **operations** and safeguarding people, assets and overall brand equity.*

Ecosystems - *ability of an ecosystem to **maintain** its normal **patterns** of nutrient cycling and biomass production **after being subjected to damage** caused by an ecological disturbance.*

People - *ability of an individual to **bend but not break, to bounce back,** and “to **adapt well in the face of adversity, trauma, tragedy, threats or even significant sources of stress.**”*