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Marine Life Protection Act Initiative

Overview of North Coast Fisheries Uses and Value Project and Round 1 Evaluation of Potential Impacts to Commercial and Recreational Fisheries

Presentation to the North Coast Regional Stakeholder Group
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Project Overview

- Ecotrust contracted by MLPA Initiative to:
  - Supplement existing data
  - Collect data on commercial, commercial passenger fishing vessel (CPFV), and recreational fishing (use and values) to characterize the spatial extent and relative importance
  - Evaluate the maximum potential economic impact (gross and net) of marine protected area (MPA) arrays and proposals
  - <u>Focus is on the fisheries, and not on regional multipliers of economic impact</u>

Use of Survey Information

- Planning: Data are to be used to inform the MPA design process through use of regional and port level maps and summary statistics
- Evaluation: Use the survey data and maps to:
  - Evaluate the maximum potential impacts of various MPA proposals on the commercial, CPFV, and recreational fishing grounds
  - Evaluate maximum potential economic impact on commercial and CPFV fisheries

Data Collection Process

- Data collection components:
  - Outreach through informational one-on-one and group meetings and working with port liaisons
  - Survey design
  - Data collection – Open OceanMap (desktop and online)
    1. In-person interviews for commercial and CPFV
    2. In-person and online surveys for recreational
  - Quality assurance and control
  - Analysis
  - Review/presentation of results

Survey Design

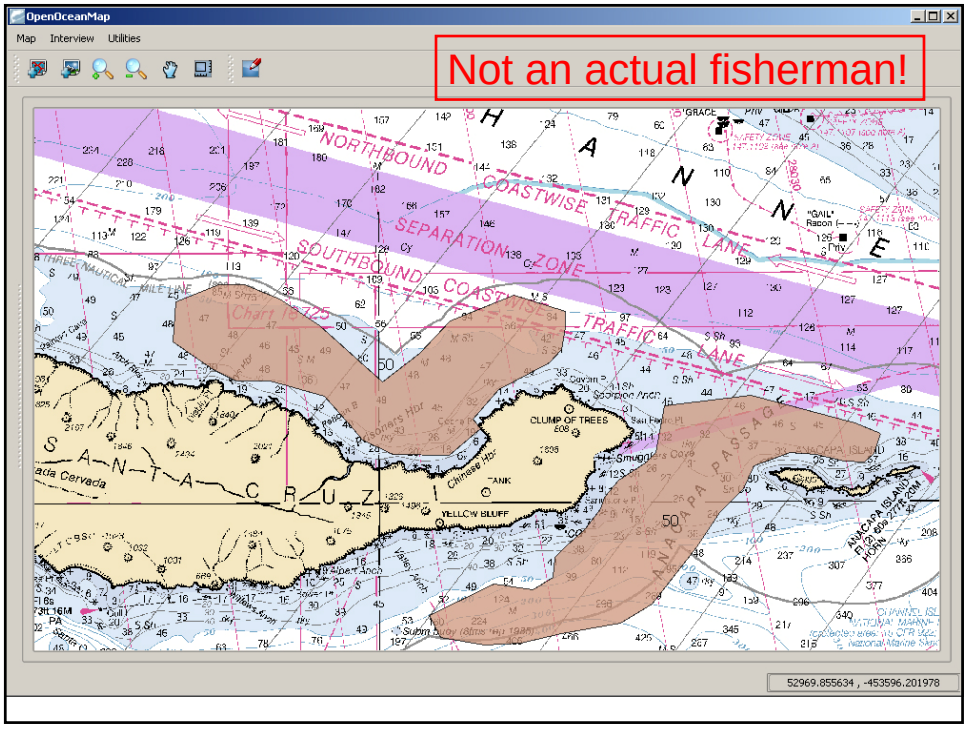
- Identify key fisheries in the region
  - Differentiate in terms of practices/gear type (commercial) and use type (recreational – private vessel, kayak and dive)
- Stratify study region into port complexes
- Sampling goals:
  - At least 50% of the total ex-vessel revenue from 2000-07 by fishery, gear type, and port
  - At least 5 fishermen, except in cases where the overall population is <5, then 100%

Survey Design – Target Species

	Commercial	CPFV	Recreational
Anchovy/sardine	✓		
California halibut		✓	✓
Coonstriped shrimp	✓		
Dungeness crab	✓	✓	✓
Hagfish	✓		
Herring	✓		
Pacific halibut		✓	✓
Rockfish	✓	✓	✓
Red abalone			✓
Sablefish	✓		
Salmon	✓	✓	✓
Seaweed	✓		
Smelt	✓		
Surfperch	✓		
Urchin	✓		

Data Collection

- All interviews follow a shared protocol for each fishery in which the interviewee participates:
  - Fishermen are asked to identify all fishing areas/locations that are of <u>economic importance</u> over their <u>cumulative fishing experience</u> and to <u>rank these using a weighted percentage</u> – an imaginary "bag of 100 pennies"
  - For recreational fishermen, "economic" is removed and just "importance" is used
  - Non-spatial information on demographics and operations (costs) also is collected



Quality Assurance and Control

- Edits may need to be made: e.g., for shape A, fishermen F12345 – 10 fathoms shore side and 50 fathoms ocean side, from Humboldt Bay to….
- After editing, we send each fisherman a set of his/her maps (paper or electronic) for review
- Conduct follow-up meetings with participants and fishing community to verify results
- Work with fishing community to ensure confidentiality of any publically displayed information

Summary Statistics – Commercial

- Conducted 219 interviews, resulting in 440 fishing grounds
- Example representation: Number of fishermen and percent (%) of MLPA North Coast Study Region total ex-vessel revenue (2000–07):
  - Dungeness crab – trap: 141 fishermen (59%)
  - Urchin – dive: 32 fishermen (59%)
  - Salmon – troll: 86 fishermen (34%)
  - Rockfish – fixed gear: 55 fishermen (62%)

Summary Statistics – CPFV

- Conducted 22 interviews with CPFV captains, resulting in 73 fishing grounds
- Currently, CPFV maps are provided only at port level (not the region-wide level) so that larger ports with higher number of respondents do not bias the relative importance maps

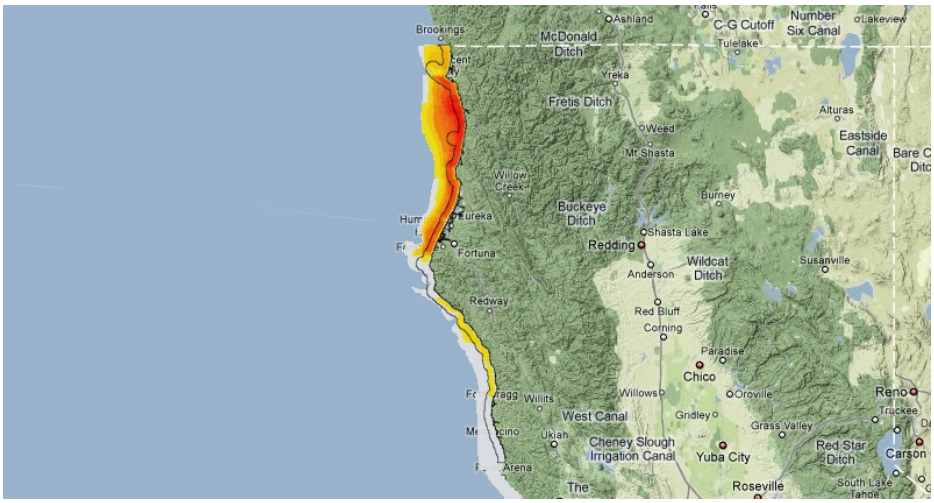
Summary Statistics – Recreational

- Surveyed 574 fishermen (549 in person, 17 online and 8 by phone)
- Resulted in 687 surveys and 1,592 fishing grounds as fishermen could provide information for more than one user group
  - Dive: 140 (209 fishing grounds)
  - Kayak: 20 (33 fishing grounds)
  - Private vessel: 527 (1,305 fishing grounds)

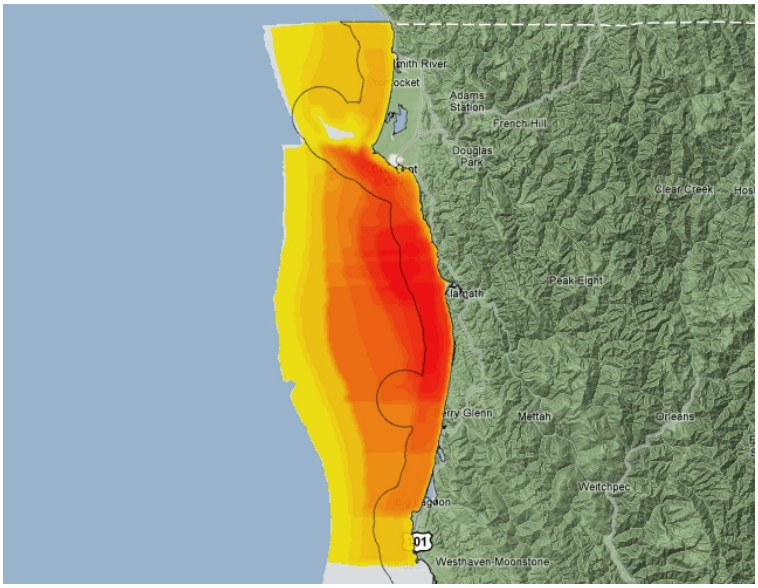
Data Access and Availability

- Only aggregated maps (similar to the maps just presented) will be made available and visible via MarineMap to external proposal authors, NCRSG and BRTF
- Any information that is confidential, even in aggregate form, will not be visible, but will be used in evaluation process
- Additional products
  - Data collection methods and summary statistics, including mariculture summary and Point Arena results from north central coast
  - Evaluation methods to assess potential impacts on commercial and recreational fishing

Commercial Dungeness Crab - NCSR



Commercial Dungeness Crab – Crescent City



Round 1 Evaluation: Overview

- Reviewed existing MPAs and eight external proposed MPA arrays (ExA-ExH)
- Based on the aggregate fishing grounds and cost estimates derived from the data collection effort:
  - Determined percentage of area and value affected
  - Evaluated the maximum potential first order economic impact
  - Considered or identified “outliers” – i.e., fishermen or fisheries likely to experience disproportional impacts
- Focus is on the fisheries, and not on regional multipliers
- For Round 1, tribal uses were not considered because SAT currently does not have sufficient information to integrate tribal uses into evaluations
- For Round 1, MPAs in ExA were considered static

Evaluation Overview

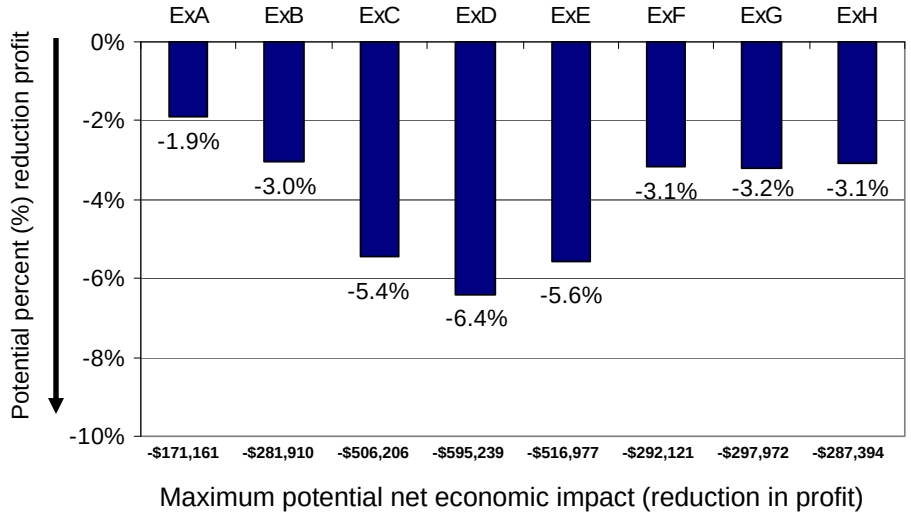
	Commercial	CPFV	Recreational
# of fisheries	10 species	5 species	6 species
Level of analysis	Port-fishery combinations	Port-fishery combinations	Results reported by user group (private vessel, kayak, dive) and by port
Sample size	219	22	574

****Reported results represent the <u>maximum potential impacts</u>**

	Commercial	CPFV	Recreational
Potential impacts on fishing grounds (area and stated value)	✓	✓	✓
Potential net economic impacts -1st order	✓	✓	
Potential gross economic impacts -1st order	✓		
Disproportionate impacts on fisheries	✓	✓	
Disproportionate impacts on individuals	✓		

Net Economic Impacts (Commercial)

- ExA has the lowest potential net economic impact



Net Economic Impacts (Commercial)

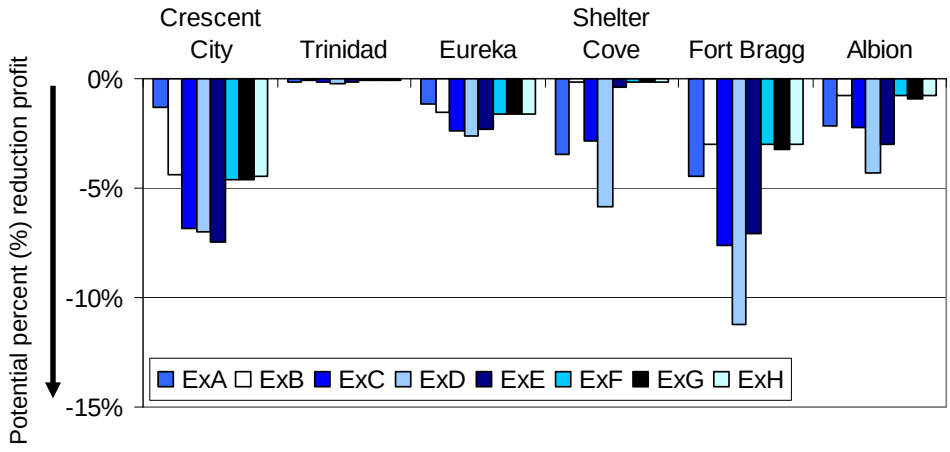
- Reported results represent the maximum potential impacts (i.e., “worst case scenario”)

Port	ExA	ExB	ExC	ExD	ExE	ExF	ExG	ExH
				$ Reduction in Profit				
Crescent City	$56,539	$188,222	$295,276	$301,187	$319,332	$196,909	$196,909	$192,241
Trinidad	$777	$363	$995	$1,338	$1,210	$511	$511	$510
Eureka	$23,110	$31,273	$49,519	$53,998	$46,539	$32,649	$32,649	$32,604
Shelter Cove	$1,365	$62	$1,113	$2,315	$167	$62	$62	$62
Fort Bragg	$90,018	$60,464	$154,761	$227,649	$143,568	$60,464	$65,916	$60,427
Albion	$4,351	$1,526	$4,542	$8,752	$6,160	$1,526	$1,925	$1,550
NCSR	**$176,161**	**$281,910**	**$506,206**	**$595,239**	**$516,977**	**$292,121**	**$297,972**	**$287,394**
				% Reduction in Profit				
Crescent City	1.3%	4.4%	6.9%	7.0%	7.4%	4.6%	4.6%	4.5%
Trinidad	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%	0.1%	0.1%
Eureka	1.1%	1.5%	2.4%	2.6%	2.3%	1.6%	1.6%	1.6%
Shelter Cove	3.4%	0.2%	2.8%	5.8%	0.4%	0.2%	0.2%	0.2%
Fort Bragg	4.4%	3.0%	7.6%	11.2%	7.1%	3.0%	3.2%	3.0%
Albion	2.1%	0.7%	2.2%	4.3%	3.0%	0.7%	0.9%	0.8%
NCSR	**1.9%**	**3.0%**	**5.4%**	**6.4%**	**5.6%**	**3.1%**	**3.2%**	**3.1%**

The rockfish fishery includes the shallow and deeper nearshore fish species, and lingcod fisheries.

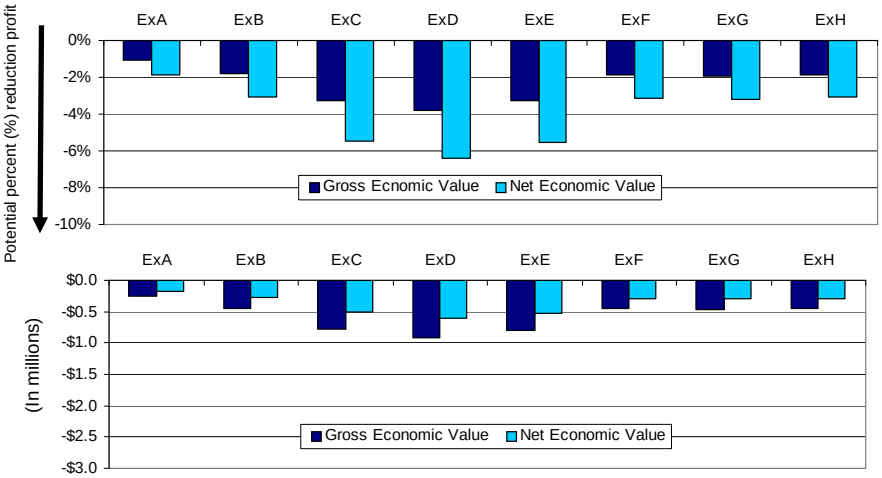
Net Economic Impacts (Commercial)

- Generally, Trinidad has the lowest potential net impacts across all proposals



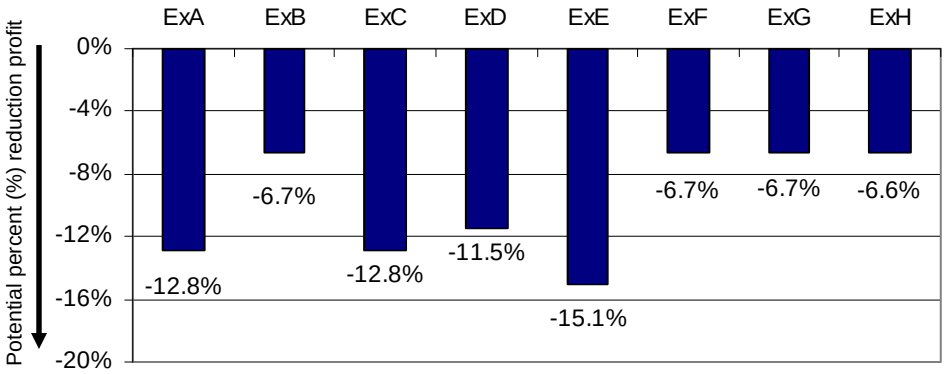
Comparison of Economics Impacts (Commercial)

- Gross and net potential impacts essentially the same; however, the magnitude of the impacts differs



Net Economic Impacts (CPFV)

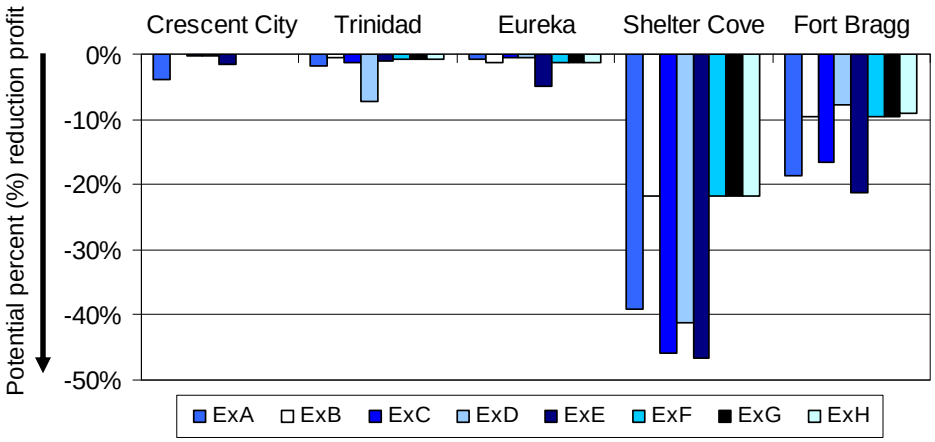
- ExH has the lowest potential net economic impact on CPFV fisheries, followed closely by ExB, ExF and ExG



Maximum potential net economic impact (% reduction in profit)

Net Economic Impacts (CPFV)

- Generally, Shelter Cove has the highest potential impacts across all proposals and Fort Bragg has the next highest potential impacts



Disproportionate Impacts Summary

- Commercial port-fishery combinations disproportionately impacted

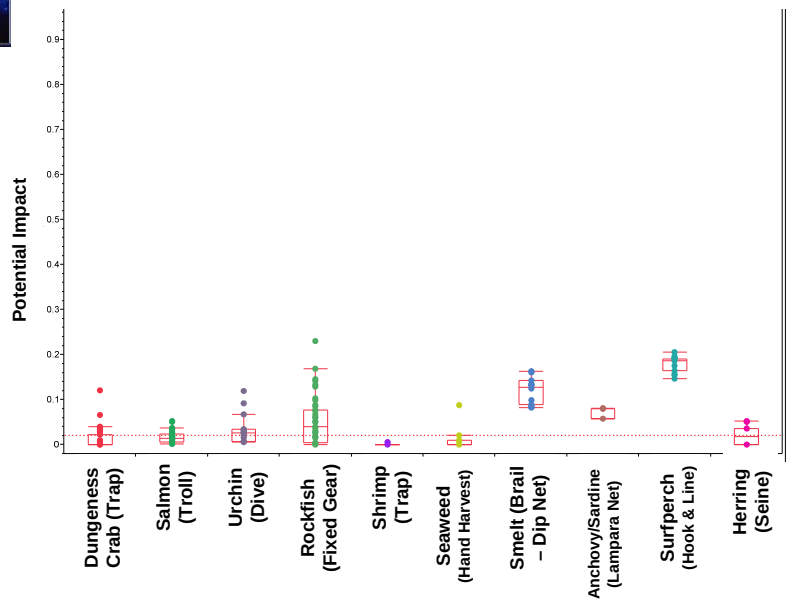
Port	Fishery	MPA Proposal(s)	Estimated Impact on Stated Value of Total Fishing Grounds
Crescent City	Rockfish	ExE	23.0%
Crescent City	Seaweed	ExE	8.8%
Fort Bragg	Dungeness crab	ExC, ExD	6.6%, 12.2%
Fort Bragg	Urchin	ExD, ExE	12.0%, 9.2%
Shelter Cove	Salmon	ExD	5.1%
Trinidad	Salmon	ExD	5.2%

Disproportionate Impacts Summary

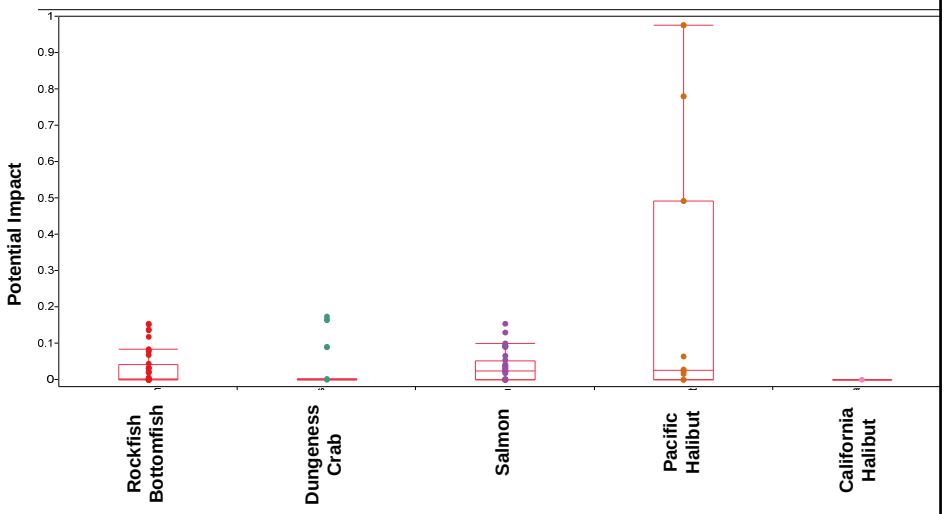
- CPFV port-fishery combinations disproportionately impacted

Port	Fishery	MPA Proposal(s)	Estimated Impact on Stated Value of Total Fishing Grounds
Eureka	Rockfish/Bottomfish	ExE	13.7%
Fort Bragg	Dungeness crab	ExA, ExB, ExC, ExE, ExF, ExG, ExH	16.3%, 9.0%, 16.7%, 17.3%, 9.0%, 9.0%, 9.0%
Fort Bragg	Salmon	ExC, ExE	13.3%, 15.5%
Fort Bragg	Rockfish/Bottomfish	ExA, ExD, ExE	15.5%, 13.6%, 15.2%
Shelter Cove*	Pacific Halibut	ExA, ExB, ExC, ExD, ExE, ExF, ExG, ExH	78.0%, 49.2%, 97.7%, 78.0%, 97.7%, 49.2%, 49.2%, 49.2%
Trinidad	Rockfish/Bottomfish	ExD	11.8%

Disproportionate Impacts: Commercial



Disproportionate Impacts: CPFV



Summary Across Sectors

- The estimated average net economic impact across all proposals varies substantially between commercial (9.9%) and CPFV (4.0%)
- ExC, ExD, and ExE generally have higher potential impacts than other proposals for commercial and CPFV
- Rockfish fishery generally has the highest potential impact for recreational species and Fort Bragg generally has higher potential recreational impacts relative to other ports

	MPA Proposal with highest potential impact		MPA Proposal with lowest potential impact	
		Net economic value		
Commercial	ExD	-6.4%	ExA	-1.9%
CPFV	ExE	-15.1%	ExH	-6.6%