Marine Life Protection Act Initiative

Draft Options for MPA Arrays and Draft External MPA Proposal Evaluations – Potential Fishery Impacts in the North Central Coast Study Region

Presentation to the North Central Coast Regional Stakeholder Group
November 28, 2007 • San Rafael, CA
Prepared by Dr. Sarah Kruse

Overview

1. Introduction
2. Overview of fisheries
3. Impact on commercial fishing grounds: Approach
4. Impact on commercial fishing grounds: Assessing MPA proposals
5. Socioeconomic impact analysis: Approach
6. Socioeconomic impact analysis: Assessing MPA proposals
7. Error corrections

1. Introduction

- Interviewed 174 commercial on spatial extent and relative importance of their fishing grounds

- These layers form the basis for design of arrays, and two evaluation analyses:

  – First order effects of closing areas (size and value)

    - Tables 7–10

  – Socioeconomic impacts of MPA arrays

    - Appendix A

- We have also interviewed 101 recreational fishermen on spatial extent and relative importance of their fishing grounds — Evaluation for this component will be completed in the next round

2. Overview of Fisheries

Fishery	% of total NCCSR fisheries revenues, 7-year average (2000–2006)	% of total CA statewide fisheries revenues, 7-year average (2000–2006)	% of CA statewide fisheries revenues landed in NCCSR, 7-year average (2000–2006)
California Halibut	1.8%	0.3%	20.5%
Coastal Pelagics	0.2%	0.0%	0.4%
Market Squid	1.9%	0.4%	1.2%
D. Nearshore Rockfish	0.7%	0.1%	23.9%
Nearshore Rockfish	1.0%	0.2%	7.2%
Urchin	5.2%	1.0%	8.5%
Dungeness Crab	53.2%	10.0%	31.1%
Salmon	36.1%	6.8%	52.7%

3. Commercial Impacts: Approach

- Distinguish between total fishing grounds and fishing grounds in state waters

- Stated importance * proportion of port specific study area landings

- Assume that all commercial fishing in an area affected by an MPA would be lost completely

  ⟶ overestimates the impacts

- In reality fishing effort would likely shift, but can't predict where and when

3. Commercial Impacts: Next Rounds

- In subsequent rounds of MPA proposals, will also consider "outliers" — i.e. fishermen likely to experience disproportionate impacts

- Effect of existing fishery management area closures and other constraints on fishing grounds

- Other pieces of information that would be useful to you!

4. Commercial Impacts: Results

- MPA proposals vary considerably, both between and across fisheries:
  - Table 7: Percentage of total fishing grounds area affected
  - Table 8: Percentage of study area fishing grounds affected
  - Table 9: Percentage of total fishing grounds value affected
 - Table 10: Percentage of study area value affected

	Fisheries	EA	EB	JA	JB	TA	TB	A	B	C	D
Point Arena	California Halibut	--	--	--	--	--	--	--	--	--	--
	Coastal Pelagics	--	--	--	--	--	--	--	--	--	--
	Market Squid	--	--	--	--	--	--	--	--	--	--
	Deeper Nearshore Rockfish	31.5%	62.8%	51.7%	27.9%	29.4%	30.5%	23.2%	34.0%	55.5%	32.5%
	Nearshore Rockfish	22.9%	50.7%	41.9%	21.9%	17.0%	21.7%	17.9%	25.2%	45.7%	23.8%
	Urchin	13.8%	26.1%	14.1%	15.9%	10.2%	15.5%	9.5%	17.9%	13.7%	17.4%
	Dungeness Crab	1.8%	6.1%	11.5%	3.8%	9.6%	4.7%	1.4%	6.7%	13.2%	2.9%
	Salmon	10.2%	10.8%	20.3%	21.6%	27.9%	21.8%	10.0%	27.0%	19.1%	18.4%
Bodega Bay	California Halibut	6.5%	5.0%	9.4%	5.2%	5.7%	6.5%	14.7%	4.4%	12.6%	5.8%
	Coastal Pelagics	--	--	--	--	--	--	--	--	--	--
	Market Squid	--	--	--	--	--	--	--	--	--	--
	Deeper Nearshore Rockfish	26.0%	18.4%	34.6%	10.0%	25.1%	33.0%	23.2%	10.7%	43.7%	10.4%
	Nearshore Rockfish	25.1%	23.2%	23.2%	10.7%	40.4%	40.7%	11.1%	22.2%	23.2%	24.2%
	Urchin	37.3%	40.0%	35.9%	8.6%	29.6%	37.3%	8.9%	29.5%	35.0%	36.8%
	Dungeness Crab	4.7%	6.8%	10.2%	1.8%	2.9%	3.3%	0.5%	1.9%	13.9%	2.9%
	Salmon	2.8%	5.5%	5.2%	2.1%	4.0%	4.3%	0.3%	1.8%	12.7%	3.3%
Bolinas	California Halibut	9.4%	9.5%	12.9%	9.4%	9.8%	11.3%	16.8%	8.3%	14.4%	11.0%
	Coastal Pelagics	--	--	--	--	--	--	--	--	--	--
	Market Squid	--	--	--	--	--	--	--	--	--	--
	Deeper Nearshore Rockfish	68.6%	16.3%	31.4%	8.4%	43.1%	36.1%	20.3%	6.0%	85.7%	2.2%
	Nearshore Rockfish	--	--	--	--	--	--	--	--	--	--
	Urchin	--	--	--	--	--	--	--	--	--	--
	Dungeness Crab	0.0%	0.0%	17.2%	0.0%	0.0%	0.0%	2.7%	0.0%	9.4%	0.0%
	Salmon	2.9%	1.6%	1.7%	1.0%	1.5%	1.6%	3.0%	0.7%	18.9%	0.6%
San Francisco	California Halibut	0.5%	0.1%	1.3%	0.1%	0.1%	0.2%	0.4%	0.1%	0.6%	0.1%
	Coastal Pelagics	--	--	--	--	--	--	--	--	--	--
	Market Squid	--	--	--	--	--	--	--	--	--	--
	Deeper Nearshore Rockfish	31.7%	19.7%	30.9%	18.9%	28.6%	27.5%	11.6%	16.8%	40.3%	10.5%
	Nearshore Rockfish	11.4%	13.5%	18.1%	9.2%	13.7%	16.0%	10.2%	8.2%	18.1%	6.2%
	Urchin	34.9%	43.3%	33.6%	13.6%	27.3%	32.1%	14.3%	31.5%	29.9%	33.0%
	Dungeness Crab	1.9%	2.1%	4.7%	1.0%	1.3%	1.5%	0.3%	0.7%	6.0%	0.9%
	Salmon	1.9%	1.5%	1.9%	0.7%	1.2%	1.3%	0.4%	0.6%	7.1%	0.7%
Half Moon Bay	California Halibut	0.6%	0.8%	0.6%	0.2%	0.5%	0.6%	0.4%	0.2%	0.8%	0.2%
	Coastal Pelagics	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.0%	0.0%	0.9%	0.9%
	Market Squid	23.0%	11.7%	23.1%	0.9%	4.7%	22.6%	0.2%	0.9%	26.5%	3.1%
	Deeper Nearshore Rockfish	13.1%	18.9%	15.0%	11.5%	15.4%	15.8%	7.5%	9.6%	20.0%	6.9%
	Nearshore Rockfish	1.9%	68.5%	1.9%	1.9%	1.9%	1.9%	1.4%	1.9%	48.7%	1.8%
	Urchin	--	--	--	--	--	--	--	--	--	--
	Dungeness Crab	1.3%	3.4%	1.7%	0.7%	0.5%	0.7%	0.1%	0.3%	4.9%	0.5%
	Salmon	1.9%	2.0%	2.5%	0.8%	1.5%	1.6%	0.2%	0.7%	9.4%	1.1%

5. Socioeconomic Impact Analysis: Approach

- Builds on approach developed by Wilen and Abbott (2006) in the last round
- One important improvement: We collected actual cost data

Name	n=	Mean % of Gross Economic Revenue			
		Crew	Fuel	Fixed	Total
California Halibut	19	5.4%	13.9%	26.6%	45.9%
Coastal Pelagics	1	40.0%	15.0%	5.0%	60.0%
Squid	1	40.0%	15.0%	5.0%	60.0%
Deeper Nearshore and Nearshore Rockfish	18	5.3%	17.3%	28.3%	50.9%
Dungeness Crab	101	14.8%	10.3%	23.3%	48.5%
Urchin	21	7.6%	10.7%	21.4%	39.7%
Salmon	138	9.8%	11.8%	25.0%	46.6%
All Fisheries Combined	174	10.9%	12.1%	24.4%	47.5%

6. Socioeconomic Impact Analysis: Results
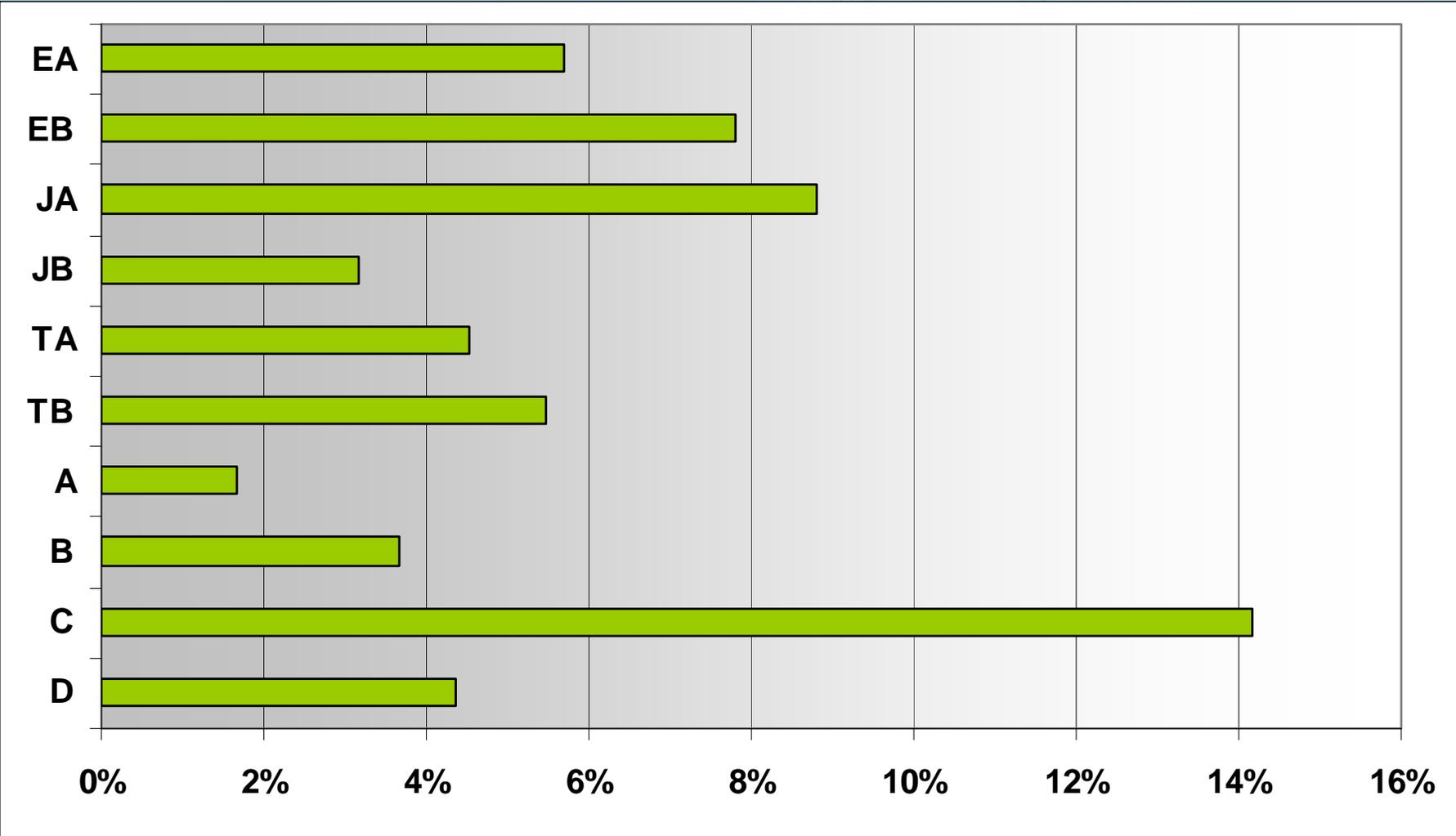
For supporting information see Appendix A, Table 6

7. Error Corrections

- Outlined in Memo

- Results for Proposal External C, Table 9

- Results for Turquoise and Emerald Proposals, Table 10