

Marine Life Protection Act Initiative



Summary of Potential Impacts of December 2007 MPA Proposals on Commercial and Recreational Fisheries

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Outline

- **Methods: seen many times before...**
- **Overview**
- **Commercial Fisheries**
 - Potential Impacts on Fishing Grounds (Area and Value)
 - Consideration of Existing Closures
 - Potential Impacts on Individual Fishermen
 - Potential Socioeconomic Impacts
- **Recreational Fisheries**
 - Potential Impacts on Fishing Grounds (Area and Value)



Overview

Commercial Fisheries

- Focused on eight fisheries (California Halibut, Coastal Pelagics, Market Squid, Rockfish – Deeper Nearshore, Rockfish – Nearshore, Urchin, Dungeness Crab and Salmon)
- Results reported at study region and port group level

Recreational Fisheries

- Focused on five fisheries (California halibut, Dungeness crab, salmon, rockfish/lingcod complex and striped bass –pier/shore only)
- Results reported by user group and by sub-region



Impacts on Commercial Fishing Grounds

		Draft Proposals				
Fisheries		1	2	3	4	A
P o r t A r e a	California Halibut	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—
	Market Squid	—	—	—	—	—
	Deeper Nearshore Rockfish	37.2%	39.1%	38.0%	37.7%	16.9%
	Nearshore Rockfish	34.9%	36.6%	33.7%	34.3%	20.3%
	Urchin	25.8%	20.8%	34.8%	26.3%	21.5%
	Dungeness Crab	20.5%	7.3%	18.3%	21.8%	7.3%
	Salmon	13.1%	2.4%	10.3%	14.5%	2.6%
	California Halibut	27.0%	16.8%	35.0%	28.9%	12.9%
	Coastal Pelagics	—	—	—	—	—
B o d y	Market Squid	—	—	—	—	—
	Deeper Nearshore Rockfish	28.5%	21.2%	28.1%	31.3%	20.7%
	Nearshore Rockfish	33.4%	34.5%	39.6%	33.0%	16.9%
	Urchin	26.7%	21.9%	30.9%	26.3%	20.2%
	Dungeness Crab	19.3%	5.0%	16.7%	21.2%	7.4%
	Salmon	13.1%	4.7%	12.9%	16.1%	4.9%

Percentage **area** of commercial fishing grounds within the **study area** affected by landing port (Table 8)

		Draft Proposals				
Fisheries		1	2	3	4	A
P o r t A r e a	California Halibut	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—
	Market Squid	—	—	—	—	—
	Deeper Nearshore Rockfish	36.0%	40.9%	36.0%	36.8%	7.0%
	Nearshore Rockfish	34.5%	38.2%	32.0%	35.5%	11.6%
	Urchin	14.5%	12.8%	9.7%	13.1%	13.9%
	Dungeness Crab	34.2%	13.2%	31.5%	34.7%	24.4%
	Salmon	10.2%	26.3%	27.4%	27.0%	26.3%
	California Halibut	12.3%	8.0%	15.7%	13.7%	7.5%
	Coastal Pelagics	—	—	—	—	—
B o d y	Market Squid	—	—	—	—	—
	Deeper Nearshore Rockfish	43.5%	19.4%	31.2%	46.5%	16.0%
	Nearshore Rockfish	24.6%	23.7%	44.3%	23.2%	22.5%
	Urchin	40.9%	28.6%	40.4%	38.4%	7.4%
	Dungeness Crab	16.3%	3.4%	10.1%	15.6%	3.4%
	Salmon	10.0%	4.3%	12.3%	12.0%	5.2%

Percentage **value** of commercial fishing grounds within the **study area** affected by landing port (Table 10)

Impacts on Commercial Fishing Grounds

Draft Proposals

Fisheries	1	2	3	4	A
California Halibut	0.5%	0.4%	0.7%	0.5%	0.1%
Coastal Pelagics	----	----	----	----	----
Market Squid	----	----	----	----	----
Rockfish - Deeper Nearshore	21.2%	12.7%	18.8%	26.2%	13.7%
Rockfish - Nearshore	14.1%	11.0%	14.3%	15.6%	5.4%
Urchin	29.5%	28.0%	25.8%	26.0%	7.6%
Dungeness Crab	2.2%	0.5%	2.4%	2.0%	1.1%
Salmon	2.2%	0.5%	2.1%	2.0%	0.6%
California Halibut	0.7%	0.2%	0.6%	27.1%	0.2%
Coastal Pelagics	0.2%	0.0%	0.9%	0.0%	0.0%
Market Squid	0.5%	0.2%	22.7%	27.3%	5.6%
Rockfish - Deeper Nearshore	13.8%	5.1%	9.2%	18.4%	4.8%
Rockfish - Nearshore	1.9%	1.9%	1.9%	1.9%	1.9%
Urchin	----	----	----	----	----
Dungeness Crab	1.4%	0.5%	1.2%	1.8%	0.5%
Salmon	3.0%	0.7%	2.6%	3.0%	0.7%

Percentage value of total commercial fishing grounds affected by landing port (Table 9)

Draft Proposals

Fisheries	1	2	3	4	A
California Halibut	0.6%	0.4%	0.7%	0.5%	0.2%
Coastal Pelagics	----	----	----	----	----
Market Squid	----	----	----	----	----
Rockfish - Deeper Nearshore	26.4%	15.8%	23.3%	32.6%	17.1%
Rockfish - Nearshore	24.6%	19.2%	24.9%	27.3%	9.4%
Urchin	29.8%	24.0%	26.1%	27.1%	7.7%
Dungeness Crab	5.2%	1.8%	5.5%	6.0%	2.4%
Salmon	9.6%	2.4%	9.8%	11.3%	2.4%
California Halibut	0.7%	0.2%	0.6%	27.2%	0.2%
Coastal Pelagics	5.6%	0.0%	23.0%	0.0%	0.0%
Market Squid	0.5%	0.2%	22.7%	27.3%	5.6%
Rockfish - Deeper Nearshore	18.1%	6.6%	12.0%	24.0%	6.3%
Rockfish - Nearshore	1.9%	1.9%	1.9%	1.9%	1.9%
Urchin	----	----	----	----	----
Dungeness Crab	7.5%	2.4%	6.4%	9.5%	0.5%
Salmon	10.1%	2.2%	8.7%	10.0%	2.3%

Percentage value of commercial fishing grounds within the study area affected by landing port (Table 10)

Consideration of Existing Closures

Fisheries		1	2	3	4	A
Point Arena	Deeper Nearshore Rockfish – No RCA	36.0%	40.8%	35.9%	36.7%	7.0%
	Deeper Nearshore Rockfish – RCA	36.3%	41.3%	35.8%	37.1%	5.2%
	Nearshore Rockfish – No RCA	31.9%	35.3%	29.5%	32.8%	10.7%
	Nearshore Rockfish – RCA	31.4%	34.6%	28.1%	32.4%	9.4%
Bodega Bay	Deeper Nearshore Rockfish – No RCA	28.9%	12.9%	20.7%	30.9%	10.6%
	Deeper Nearshore Rockfish – RCA	39.8%	15.0%	23.2%	42.6%	12.4%
	Nearshore Rockfish – No RCA	23.6%	22.8%	42.6%	22.3%	21.7%
	Nearshore Rockfish – RCA	23.7%	22.8%	42.3%	22.4%	21.9%
Bolinas	Deeper Nearshore Rockfish – No RCA	31.6%	6.0%	24.1%	35.9%	8.7%
	Deeper Nearshore Rockfish – RCA	50.9%	12.1%	30.8%	60.4%	16.7%
San Francisco	Deeper Nearshore Rockfish – No RCA	21.2%	19.7%	18.8%	26.2%	13.7%
	Deeper Nearshore Rockfish – RCA	22.3%	12.3%	19.3%	28.1%	14.2%
	Nearshore Rockfish – No RCA	14.1%	11.0%	14.3%	15.6%	5.4%
	Nearshore Rockfish – RCA	13.7%	9.9%	14.0%	15.3%	5.6%
Half Moon Bay	Deeper Nearshore Rockfish – No RCA	13.8%	5.1%	9.2%	18.4%	4.8%
	Deeper Nearshore Rockfish – RCA	13.9%	5.1%	9.2%	18.4%	4.8%
	Nearshore Rockfish – No RCA	1.9%	1.9%	1.9%	1.9%	1.9%
	Nearshore Rockfish – RCA	1.9%	1.9%	1.9%	1.9%	1.9%

Individual Impacts (Commercial)

Example: Draft Proposal 4

Fishery	n=	Annual Ex-vessel Revenue Loss (%)					Annual Ex-vessel Revenue Loss (\$ 2006)				
		Less than 20%	20%-40%	40%-60%	60%-80%	More than 80%	Less than \$5k	\$5-\$10k	\$10-\$15k	\$15-\$20k	More than \$20k
C. Halibut	14	10	4	0	0	0	14	0	0	0	0
Coastal Pelagics	1	1	0	0	0	0	1	0	0	0	0
Market Squid	1	1	0	0	0	0	0	0	1	0	
D.N. Rockfish	15	5	8	1	1	0	15	0	0	0	0
N. Rockfish	9	4	5	0	0	0	8	1	0	0	0
Urchin	22	12	8	1	0	1	20	2	0	0	0
D. Crab	102	94	7	1	0	0	93	6	2	1	0
Salmon	136	133	3	0	0	0	135	1	0	0	0
All Fisheries	172	154	18	0	0	0	155	11	4	0	2

Socioeconomic Impacts (Commercial)

Example: Point Arena

Draft Proposals

Fishery	Baseline GER	Baseline NER (Profit)	Estimated Annual Net Economic Impact of Draft Proposal (\$ 2006)				
			1	2	3	4	A
Halibut	—	—					
Coastal Pelagics	—	—					
Squid	—	—					
D. N. Rockfish	\$1,424	\$699	\$396	\$450	\$396	\$405	\$77
N. Rockfish	\$64,259	\$31,544	\$15,852	\$17,533	\$14,688	\$16,309	\$5,301
Urchin	\$608,226	\$366,963	\$60,577	\$53,614	\$40,634	\$54,758	\$58,389
Dungeness Crab	\$46,951	\$24,201	\$5,576	\$2,159	\$5,147	\$5,660	\$3,987
Salmon	\$77,890	\$41,610	\$3,254	\$8,438	\$8,773	\$8,639	\$8,431
All Fisheries	\$798,750	\$465,016	\$85,655	\$82,193	\$69,638	\$85,771	\$76,185

Fishery	Net Economic Impact (% reduction in Profit)				
	1	2	3	4	A
Halibut					
Coastal Pelagics					
Squid					
D. N. Rockfish	56.7%	64.4%	56.6%	57.9%	11.1%
N. Rockfish	50.3%	55.6%	46.6%	51.7%	16.8%
Urchin	16.5%	14.6%	11.1%	14.9%	15.9%
Dungeness Crab	23.0%	8.9%	21.3%	23.4%	16.5%
Salmon	7.8%	20.3%	21.1%	20.8%	20.3%
All Fisheries	18.4%	17.7%	15.0%	18.4%	16.4%

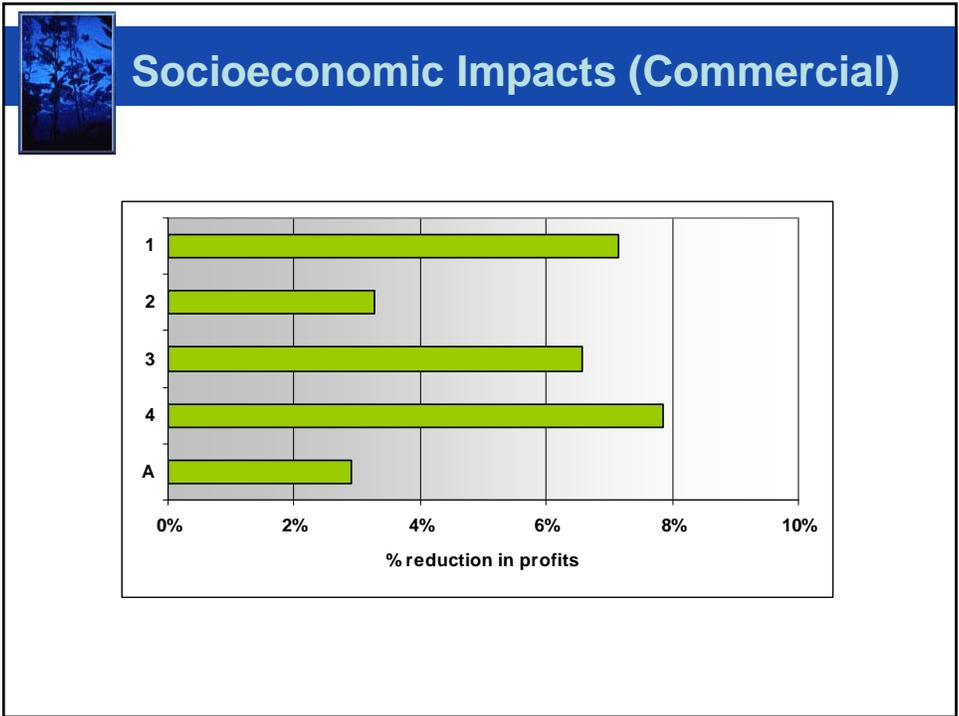
Socioeconomic Impacts (Commercial)

Draft Proposals

Net Economic Impact under each Alternative (in Dollars)

Port	Baseline GER	Baseline NER (Profit)	Net Economic Impact under each Alternative (in Dollars)				
			1	2	3	4	A
Point Arena	\$798,750	\$465,016	\$85,655	\$82,193	\$69,638	\$85,771	\$76,185
Bodega Bay	\$4,654,206	\$2,457,152	\$327,842	\$128,923	\$281,002	\$327,954	\$93,058
Bolinas	\$151,214	\$78,783	\$6,322	\$2,559	\$7,334	\$6,442	\$2,841
San Francisco	\$6,059,387	\$3,166,680	\$113,686	\$41,743	\$115,727	\$133,531	\$47,064
Half Moon Bay	\$4,110,888	\$2,122,436	\$64,021	\$16,769	\$74,656	\$102,483	\$22,162
NCC	\$15,889,359	\$8,336,602	\$596,732	\$271,930	\$547,694	\$655,381	\$241,613

Port	Net Economic Impact (% reduction in Profit)				
	1	2	3	4	A
Point Arena	18.4%	17.7%	15.0%	18.4%	16.4%
Bodega Bay	13.3%	5.2%	11.4%	13.3%	3.8%
Bolinas	8.0%	3.2%	9.3%	8.2%	3.6%
San Francisco	3.6%	1.3%	3.7%	4.2%	1.5%
Half Moon Bay	3.0%	0.8%	3.5%	4.8%	1.0%
NCC	7.2%	3.3%	6.6%	7.9%	2.9%





Recreational Fishery Impacts

- Identical approach to commercial fisheries with one exception—the analysis is done using only stated importance values from the interviews.
- The data should only be considered at the sub-region level, not at the entire study region level—Why?
 - The data are not representative of the entire population of recreational fishermen due to the less than desirable (less than statistically significant) sample size.
 - There was little or no data collected from recreational fishermen north of Bodega Bay.
 - The data represents interviewees' areas of value, not areas of effort.
 - The data represents interviewees' areas that are important to them over their entire recreational fishing experience, not necessarily the areas that are important to them currently.



Recreational Fishery Impacts

		Fisheries	Draft Proposals				
			1	2	3	4	A
CPFV	Region 3	California Halibut	13.2%	7.4%	12.6%	12.1%	8.1%
		Dungeness Crab	13.3%	4.4%	10.9%	19.0%	5.1%
		Rockfish	16.8%	15.3%	18.4%	18.2%	14.6%
		Salmon	1.6%	1.0%	3.6%	2.4%	1.2%
	Region 2	California Halibut	22.3%	10.3%	18.3%	21.2%	7.8%
		Dungeness Crab	0.6%	0.1%	0.4%	0.6%	0.1%
		Rockfish	20.5%	3.1%	13.3%	22.6%	5.3%
		Salmon	3.0%	0.7%	2.9%	3.9%	1.1%
	Region 1	California Halibut	12.8%	0.4%	7.5%	21.8%	0.4%
		Dungeness Crab	2.7%	1.1%	1.8%	2.1%	1.1%
		Rockfish	15.2%	6.6%	12.6%	21.3%	7.6%
		Salmon	2.6%	0.7%	2.5%	3.6%	0.9%

E.g. Percentage **area** of **total** recreational fishing grounds affected by landing port



Recreational Fishery Impacts

Region 1 Fisheries		Draft Proposals				
		1	2	3	4	A
CPFV	California Halibut	16.8%	0.3%	9.6%	24.5%	0.3%
	Dungeness Crab	21.3%	8.4%	14.1%	15.4%	8.4%
	Rockfish	17.4%	7.8%	16.4%	28.6%	11.1%
	Salmon	10.3%	4.1%	10.9%	16.4%	4.7%
Private Vessels	California Halibut	20.7%	5.7%	14.7%	25.5%	5.7%
	Dungeness Crab	11.2%	4.8%	8.5%	9.4%	4.8%
	Rockfish	20.0%	9.3%	18.5%	30.1%	11.5%
	Salmon	4.6%	1.5%	5.0%	10.3%	1.7%
Kayak Anglers	California Halibut	3.5%	0.1%	0.5%	8.5%	0.1%
	Dungeness Crab	27.0%	12.8%	19.0%	20.7%	12.8%
	Rockfish	11.3%	5.6%	5.9%	12.6%	5.6%
	Salmon	0.5%	0.5%	0.6%	12.7%	0.5%
Pier/Shore	California Halibut	13.7%	3.4%	8.8%	14.7%	6.0%
	Dungeness Crab	4.7%	4.7%	5.3%	5.9%	4.7%
	Rockfish	10.7%	3.9%	8.5%	17.5%	4.2%
	Salmon	0.0%	0.0%	0.0%	0.0%	0.0%
	Striped Bass	13.1%	6.0%	9.9%	21.2%	6.0%

e.g. % value of recreational fishing grounds within the study area affected by landing port

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- ## Next Steps
- **Next round of analysis for the North Central Coast**
 - **Final report for North Central Coast**
 - Methods paper
 - Additional summary statistics
 - Port profiles
 - **Beginning to think about data collection in the next region (i.e. South Coast)**