

Establishing a Spatial and Economic Baseline of Human Uses in the North Central Coast Region of California

A part of project R/MPA-16 09-015: *Baseline Monitoring of Ecosystem and Socioeconomic Indicators for MPAs along the North Central Coast of California*

COMBINED TABLE OF CONTENTS



Lead Authors:
Cheryl Chen
Chris LaFranchi
Kristen Sheeran
Charles Steinback

For questions or comments, please contact Cheryl Chen, at
Ecotrust | 721 NW 9th Avenue, Suite 200 | Portland, OR 97209 | cchen@ecotrust.org | 503.467.0812

REPORT 1
**An Economic and Spatial Baseline of Coastal Recreation in the North
Central Coast of California**

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
1. INTRODUCTION	1
1.1. Coastal Recreation Survey Methods	2
1.2. Coastal Recreation Data Analysis Methods.....	5
2. ESTABLISHING A COASTAL RECREATION ECONOMIC BASELINE.....	6
2.1. Trips and Activities.....	6
2.2. Trip Expenditures.....	10
3. ESTABLISHING A COASTAL RECREATION SPATIAL BASELINE.....	13
4. CONCLUSION.....	17
Appendix A. Coastal Recreation Survey Questions.....	18
Appendix B. Coastal Recreation Map Products.....	21

REPORT 2
**Establishing a Baseline and Assessing Initial Spatial and Economic
Change in the California North Central Coast Commercial Fisheries**

Table of Contents

1. INTRODUCTION	16
2. SURVEY AND ANALYSIS METHODS	18
2.1. Target Commercial Fisheries and Ports of Interest.....	18
2.2. CDFW Landings Data Analysis Methods	21
2.3. Survey Data Collection and Analysis Methods	21
2.3.1. Sampling Method.....	22
2.3.2. Interview Protocol	24
2.3.3. Data Review and Verification	26
2.3.4. Spatial Data Analysis Methods.....	27
2.3.5. Non-spatial Data Analysis Methods.....	29
3. NORTH CENTRAL COAST REGIONAL PROFILES	30
3.1. North Central Coast Region Commercial Fishing Historical Trends and Initial Changes.	30
3.2. North Central Coast Region Commercial Fishing Baseline Characterization	39
3.3. North Central Coast Region MPAs and Commercial Fishing.....	54
3.4. Regional Commercial Fishery Profiles: Historical Trends, Initial Changes, and Baseline Characterization.....	70
3.4.1. California Halibut–Hook & Line Commercial Fishery.....	70
3.4.2. Dungeness Crab–Trap Commercial Fishery	87
3.4.3. Nearshore Finfish–Live–Fixed Gear Commercial Fishery	107
3.4.4. Salmon–Troll Commercial Fishery	127
3.4.5. Urchin–Dive Commercial Fishery	141
4. NORTH CENTRAL COAST PORT PROFILES	152
4.1. Point Arena	154
4.1.1. Point Arena Commercial Fisheries Historical Trends and Initial Changes	154
4.1.2. Point Arena Commercial Baseline Characterization.....	165
4.2. Bodega Bay.....	174
4.2.1. Bodega Bay Commercial Fisheries Historical Trends and Initial Changes.....	174
4.2.2. Bodega Bay Commercial Baseline Characterization.....	187
4.3. Bolinas	197
4.3.1. Bolinas Commercial Fisheries Historical Trends and Initial Changes	197

4.3.2.	Bolinas Commercial Baseline Characterization.....	206
4.4.	San Francisco	216
4.4.1.	San Francisco Commercial Fisheries Historical Trends and Initial Changes	216
4.4.2.	San Francisco Commercial Baseline Characterization.....	228
4.5.	Half Moon Bay.....	239
4.5.1.	Half Moon Bay Commercial Fisheries Historical Trends and Initial Changes.....	239
4.5.2.	Half Moon Bay Commercial Baseline Characterization	251
5.	NORTH CENTRAL COAST COMMERCIAL FISHING SPATIAL BASELINE.....	264
5.1.	North Central Coast Region Commercial Fishing Spatial Baseline	266
5.2.	Point Arena Commercial Fishing Spatial Baseline	270
5.3.	Bodega Bay Commercial Fishing Spatial Baseline	272
5.4.	Bolinas Commercial Fishing Spatial Baseline.....	274
5.5.	San Francisco Commercial Fishing Spatial Baseline.....	276
5.6.	Half Moon Bay Commercial Fishing Spatial Baseline	278
6.	INITIAL SPATIAL CHANGE IN COMMERCIAL FISHERIES.....	281
6.1.	North Central Coast Region Commercial Fishing Initial Spatial Change	283
6.2.	Point Arena Commercial Fishing Initial Spatial Change.....	287
6.3.	Bodega Bay Commercial Fishing Initial Spatial Change.....	289
6.4.	Bolinas Commercial Fishing Initial Spatial Change.....	290
6.5.	San Francisco Commercial Fishing Initial Spatial Change	292
6.6.	Half Moon Bay Commercial Fishing Initial Spatial Change.....	294
7.	LESSONS LEARNED AND FUTURE RECOMMENDATIONS	295
7.1.	Lessons Learned/Future Recommendations	295
7.2.	Recommendations on Key Commercial Fishing Monitoring Metrics	297
8.	CONCLUSIONS	299
	REFERENCES	300

REPORT 3
**Establishing a Spatial and Economic Baseline and Assessing Initial
Changes in the California North Central Coast CPFV Fisheries**

TABLE OF CONTENTS

1.	INTRODUCTION.....	10
2.	SURVEY AND ANALYSIS METHODS	14
2.1.	North Central Coast Region: Primary CPFV Fisheries and Ports of Interest	14
2.2.	CDFW Logbook Data Analysis Methods.....	14
2.3.	Survey Data Collection and Analysis Methods	15
2.3.1.	Sampling Method.....	15
2.3.2.	Interview Protocol	17
2.3.3.	Data Review and Verification	19
2.3.4.	Spatial Data Analysis Methods.....	20
2.3.5.	Non-spatial Data Analysis Methods.....	22
3.	NORTH CENTRAL COAST CPFV REGIONAL PROFILE	22
3.1.	North Central Coast Region CPFV Historical Trends and Initial Changes.....	22
3.1.1.	Introduction/Methods	22
3.1.2.	North Central Coast CPFV Historical Trends and Initial Changes.....	23
3.2.	North Central Coast Region CPFV Baseline Characterization	29
3.3.	North Central Coast Region MPAs and CPFV Operations	38
4.	NORTH CENTRAL COAST CPFV PORT PROFILES	57
4.1.	Bodega Bay.....	57
4.1.1.	Bodega Bay CPFV Fisheries Historical Trends and Initial Changes	57
4.1.2.	Bodega Bay CPFV Fisheries Baseline Characterization	61
4.2.	Sausalito	70
4.2.1.	Sausalito CPFV Fisheries Historical Trends and Initial Changes	70
4.2.2.	Sausalito CPFV Fisheries Baseline Characterization.....	74
4.3.	Berkeley	81
4.3.1.	Berkeley CPFV Fisheries Historical Trends and Initial Changes.....	81
4.3.2.	Berkeley CPFV Fisheries Baseline Characterization	85
4.4.	Emeryville.....	94

4.4.1.	Emeryville CPFV Fisheries Historical Trends and Initial Changes	94
4.4.2.	Emeryville CPFV Fisheries Baseline Characterization	98
4.5.	San Francisco	107
4.5.1.	San Francisco CPFV Fisheries Historical Trends and Initial Changes.....	107
4.5.2.	San Francisco CPFV Fisheries Baseline Characterization	112
4.6.	Half Moon Bay.....	120
4.6.1.	Half Moon Bay CPFV Fisheries Historical Trends and Initial Changes	120
4.6.2.	Half Moon Bay CPFV Fisheries Baseline Characterization	124
5.	NORTH CENTRAL COAST CPFV SPATIAL BASELINE	133
5.1.	North Central Coast Region CPFV Spatial Baseline.....	134
5.2.	Bodega Bay CPFV Spatial Baseline	139
5.3.	Sausalito CPFV Spatial Baseline	143
5.4.	Berkeley CPFV Spatial Baseline.....	145
5.5.	Emeryville CPFV Spatial Baseline	148
5.6.	San Francisco CPFV Spatial Baseline.....	153
5.7.	Half Moon Bay CPFV Spatial Baseline	156
6.	LESSONS LEARNED AND FUTURE RECOMMENDATIONS.....	159
6.1.	Lessons Learned/Future Recommendations	159
6.2.	Recommendations on Key CPFV Monitoring Metrics	161
7.	CONCLUSION	163
	REFERENCES	164

REPORT 4
California North Central Coast Recreational Red Abalone Fishery:
Establishing a Spatial and Economic Baseline Data Set for Long Term
MPA Monitoring

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
1. INTRODUCTION	1
1.1. The California Recreational Red Abalone Fishery	5
2. METHODS	7
2.1. Sample Methodology	7
2.2. Spatial Analysis Methodology	8
2.3. Data Review/Verification	9
3. SURVEY RESULTS	10
3.1. Establishing an Economic Baseline Characterization	10
3.2. Establishing a Spatial Baseline	25
4. LESSONS LEARNED/FUTURE RECOMMENDATIONS	39
5. CONCLUSION	40
REFERENCES	41
