

**California Department of Fish and Game**  
**Evaluation of the Potential Impact MPA Proposals May**  
**Pose for Abalone Management and Abalone Recreational Fisheries in the**  
**Marine Life Protection Act (MLPA) Initiative's North Central Coast Study Region**  
**(Revised May 29, 2008)**

The establishment of Marine Protected Areas (MPAs) in the North Central Coast Study Region (NCCSR), from Alder Creek/Point Arena to Pigeon Point, may pose potential impacts to recreational abalone fisheries. The purpose of this evaluation is to provide background information on potential impacts that may be posed by the Integrated Preferred Alternative (IPA) proposal put forward by the Blue Ribbon Task Force (BRTF). The MPA proposals put forward by the North Central Coast Regional Stakeholder Group (NCCRSG) have been included for comparison.

**Potential Impacts to Abalone Fishery Management**

Abalone management may be affected if proposed MPAs encompass what are known as "index sites". These are areas of high or moderate fishing pressure which are used as long-term study sites to track abalone populations through time with fishery-independent surveys. None of the final stakeholder proposals encompass any existing abalone index sites.

**Potential Impacts to Abalone Recreational Fisheries**

The establishment of an MPA that prohibits abalone harvest in an area where abalone harvest is currently popular may curtail the amount of localized fishing that occurs. As a consequence, businesses that cater to recreational harvesters may also be affected by reductions in fishing activity. Such businesses may include (but are not limited to) lodging establishments, campgrounds, restaurants, dive shops and boat launches.

In order to provide a gauge for potential impacts of proposed MPAs to the recreational abalone fishery, abalone harvest data from California Department of Fish and Game (Department) abalone report cards are summarized here. Abalone harvesters are required by the Department to report every abalone taken and the general location of harvest on the report cards. For location of catch, harvesters must self-record the nearest pre-designated landing site provided on the card. These "coded sites" include launches, landmarks and coastal access points. These "coded sites" are not discrete points, but rather geographic areas within which many access points may occur.

The abalone report card system generates data that provide both catch quantities and an approximate geographic distribution of the abalone catch. Table 1 lists the abalone report card landing sites and the estimated landings for 2002-2006. Data prior to 2002 could not be used in this evaluation because individual bag limits were different from later years.

**Stornetta Ranch Analysis**

Prior to 2004, Stornetta Ranch near Point Arena Lighthouse was not accessible from shore for recreational abalone fishing by the general public. However, in August of 2004 the ranch opened for public access and use, and an area which had previously experienced little fishing pressure became accessible for harvest. As a result, 2004 abalone report card data showed a very large jump in abalone landings (more than double) attributed to the Point Arena Lighthouse coded landing site (catches at Stornetta Ranch are coded to the Point Arena Lighthouse landing site). Due to this event, an average of the Point Arena Lighthouse annual

landings for 2002-2003 and for 2005-2006 are provided separately in Table 2 to reflect differential catch before and after the public gained access to Stornetta Ranch. These data are used in all subsequent evaluations in this update.

Since the level and timeframe when effort will stabilize at the Point Arena Lighthouse site is unknown, analysis of the maximum potential impacts (assuming effort does not shift to other areas) each MPA proposal may have on abalone harvest is provided. For proposed MPAs that include the Point Arena Lighthouse site, this analysis provides separate estimates for annual average landings during the period prior to public access at Stornetta Ranch (2002-2003) and after public access at Stornetta Ranch (2005-2006) in figures 1-3. For all other sites, this analysis provides average estimated annual landings from 2002-2006. Additionally, Figure 4 provides the maximum potential impact each MPA proposal may have on the recreational abalone fishery. The analysis provided in Figure 4 uses the average annual landings from 2002-2006 for all sites except for data based on: 1) an average for 2005-2006 of the Point Arena Lighthouse data (solid bars); and 2) an average for 2002-2003 of the Point Arena Lighthouse data (hatched bars) to reflect catch subsequent to, and prior to, public gaining access at Stornetta Ranch.

It is important to note that though the new abalone take within Stornetta Ranch occurs at multiple locations, the bulk of new take is occurring within Sea Lion Cove (L. Rogers-Bennett, pers. com.). Because the Point Arena Lighthouse report card site includes all of the Stornetta Ranch area, including both previously accessed and newly accessed areas, the data cannot be used to attribute landings to any single location or cove within the complex. Therefore, the potential impact from Proposals 1-3 and 2-XA is likely to be different from Proposals 4 and , which is the only proposal that includes an MPA prohibiting abalone take at Sea Lion Cove, by a lower but unquantifiable amount.

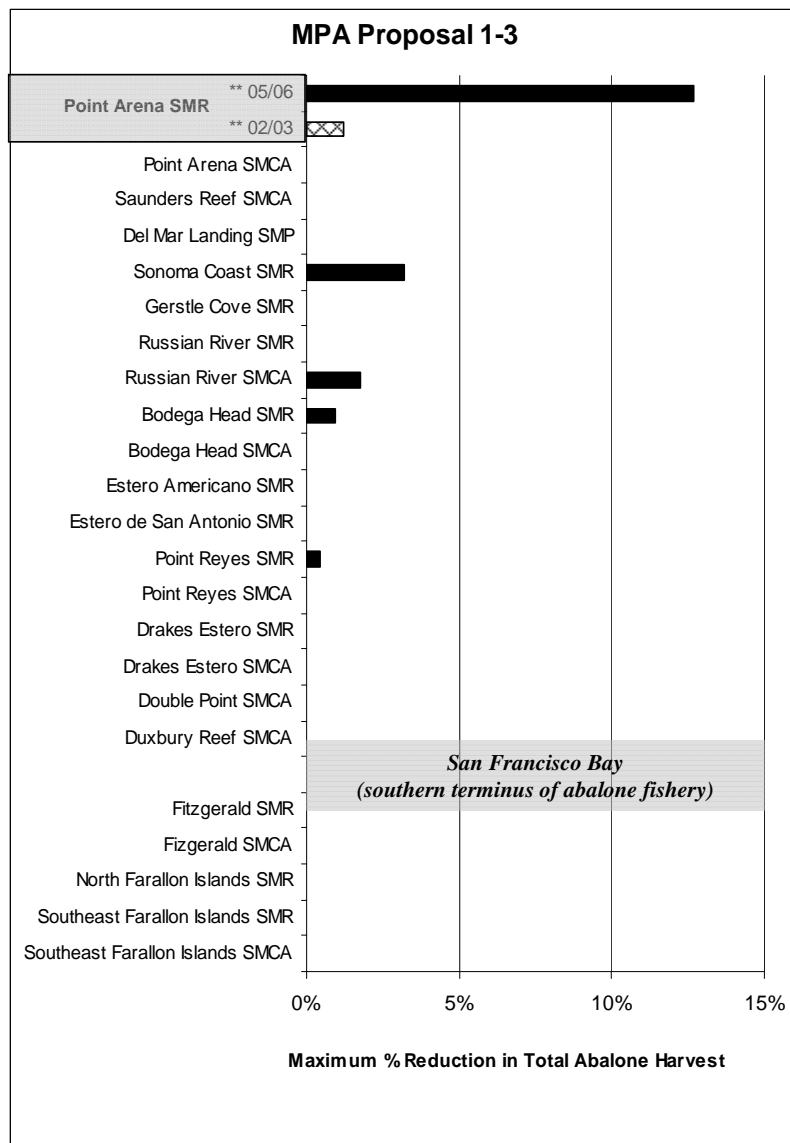
For reference to the original evaluation (Feb 15, 2008), Figure 5 provides the approximate locations and estimated landings for each abalone report card landing site based only on 2005 data. This figure was created from the data presented in Map 13 of the *Regional Profile of the North Central Coast Study Region (Alder Creek/Point Arena to Pigeon Point, California)*, October 8, 2007.

For each proposal, MPAs are listed according to geographic location from the north (top) to the south (bottom). The location of San Francisco Bay is indicated on each figure as a reference, because current state regulations do not allow abalone harvest south of this location.

**Table 1. Abalone report card landing sites and associated 2002-2006 reported landings.**

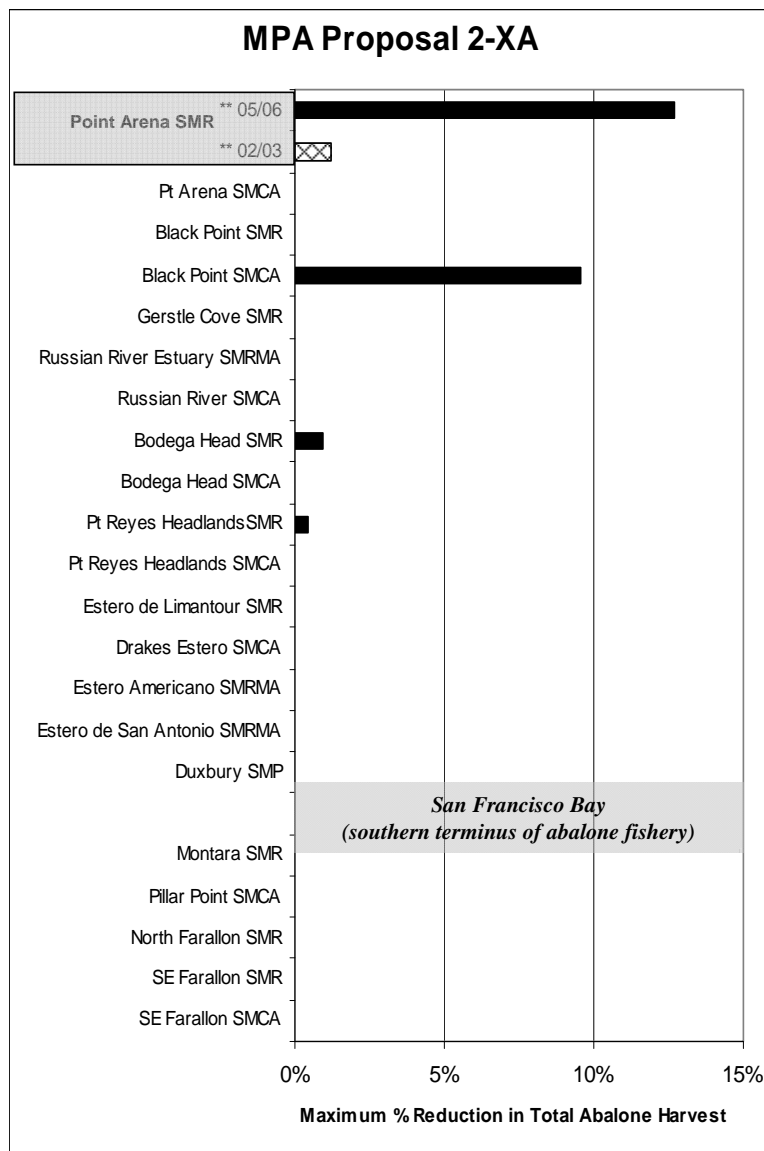
Ref #	Report Card Site	Estimated Annual Landings (number of abalone)					Annual Average
		2002	2003	2004	2005	2006	
1	Point Arena Lighthouse	1,673	1,574	4,223	15,602	18,511	8,317*
2	Arena Cove	12,628	11,917	10,946	7,364	9,786	10,528
3	Moat Creek	6,153	7,716	7,522	5,520	7,094	6,801
4	Schooner Gulch	587	730	559	803	388	613
5	Saunders Landing	912	1,137	1,769	1,338	906	1,212
6	Anchor Bay	5,446	6,470	5,593	4,759	4,945	5,443
7	Robinson Pt	789	1,311	1,164	605	1,061	986
8	Gualala Point	1,181	1,311	970	817	958	1,047
9	Sea Ranch	14,466	13,710	13,115	10,941	10,822	12,610
10	Black Point	360	293	171	310	0	227
11	Stewarts Point	2,418	2,458	2,077	1,155	1,760	1,974
12	Rocky Point	376	561	285	760	311	459
13	Horseshoe Cove	2,418	2,011	1,860	1,479	1,346	1,823
14	Fisk Mill Cove	7,043	7,369	8,127	8,125	8,259	7,784
15	Salt Point	11,763	11,738	11,414	8,533	9,113	10,512
16	Ocean Cove	5,777	6,664	5,855	5,280	7,378	6,191
17	Stillwater Cove	3,643	4,325	2,956	4,872	3,495	3,858
18	Timber Cove	8,713	9,221	7,990	8,209	9,165	8,660
19	Fort Ross & Reef Camp	36,546	37,429	37,186	32,767	43,002	37,386
20	Jenner	1,882	2,344	2,580	2,746	2,201	2,350
21	Salmon Creek	60	10	1,803	803	2,485	1,032
22	Bodega Head	1,099	1,524	1,016	1,633	1,139	1,282
23	Tomales Point	2,873	3,719	2,191	2,211	1,579	2,515
24	Point Reyes	622	968	639	465	388	616
<b>NCCSR total</b>		<b>129,428</b>	<b>136,510</b>	<b>132,011</b>	<b>127,097</b>	<b>145,885</b>	<b>134,186</b>

\*The Point Arena Lighthouse report card landing site includes data from Stornetta Ranch which opened to public access in 2004. Due to the recent increase of effort at this site, averages from 2002-2003 and 2005-2006 are reported below in Table 5 to reflect differential catch before and after the public gained access to Stornetta Ranch; data from 2004 are excluded because the area opened part way through the abalone season.



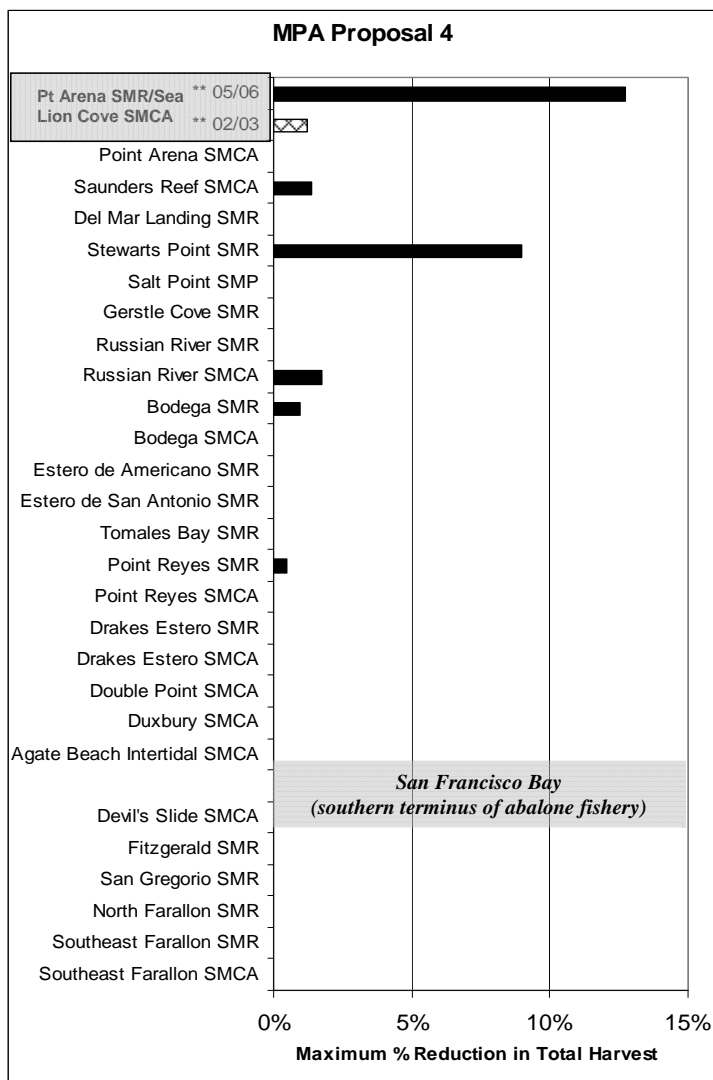
Proposed MPA	Number of Report Card Sites in MPA	02-06 Average Harvest (Number of abalone)	NCCSR Maximum % Reduction in Harvest Due to MPA	Statewide Maximum % Reduction in Harvest Due to MPA	Note
Pt Arena SMR	1	**	**	**	Table1, Ref # 1 **See Table 6
Pt Arena SMCA	0	0	0.00%	0.00%	
Saunders Reef SMCA	2	1,826	0.00%	0.00%	Proposed MPA allows abalone harvest so a harvest reduction is not expected. Table 1, Ref # 4-5
Del Mar Landing SMP	0	0	0.00%	0.00%	
Sonoma Coast SMR	3	4,255	3.17%	1.67%	Table 1, Ref # 11-13
Gerstle Cove SMR	0	0	0.00%	0.00%	
Russian River SMR	1	2,351	0.00%	0.00%	Though report card site occurs within the boundaries of the MPA, abalone harvest does not occur within the waters of the estuary. A reduction in harvest is not expected. Table 1, Ref # 20
Russian River SMCA	1	2,351	1.75%	0.92%	Percent reduction is likely overestimated due to the small size and sandy bottom habitat within the proposed MPA. Table 1, Ref # 20
Bodega Head SMR	1	1,282	0.96%	0.50%	Table 1, Ref # 22
Bodega Head SMCA	0	0	0.00%	0.00%	
Estero de Americano SMR	0	0	0.00%	0.00%	
Estero De San Antonio SMR	0	0	0.00%	0.00%	
Point Reyes SMR	1	616	0.46%	0.24%	Table 1, Ref # 24
Point Reyes SMCA	0	0	0.00%	0.00%	
Drakes Estero SMR	0	0	0.00%	0.00%	
Drakes Estero SMCA	0	0	0.00%	0.00%	
Double Point SMCA	0	0	0.00%	0.00%	
Duxbury Reef SMCA	0	0	0.00%	0.00%	
Fitzgerald SMR	0	0	0.00%	0.00%	
Fitzgerald SMCA	0	0	0.00%	0.00%	
N Farallon Island SMR	0	0	0.00%	0.00%	
SE Farallon SMR	0	0	0.00%	0.00%	
SE Farallon SMCA	0	0	0.00%	0.00%	

**Figure 1 (Left), Table 2 (Right). MPA Proposal 1-3 - Maximum potential reductions in total abalone harvest by each proposed MPA, using an average for 2002-2006; Point Arena SMR impacts represent data from an average for 2002-2003 (hatched) and 2005-2006 (solid bars) to reflect differential catch before and after the public gained access to Stornetta Ranch, assuming no displacement of effort.**



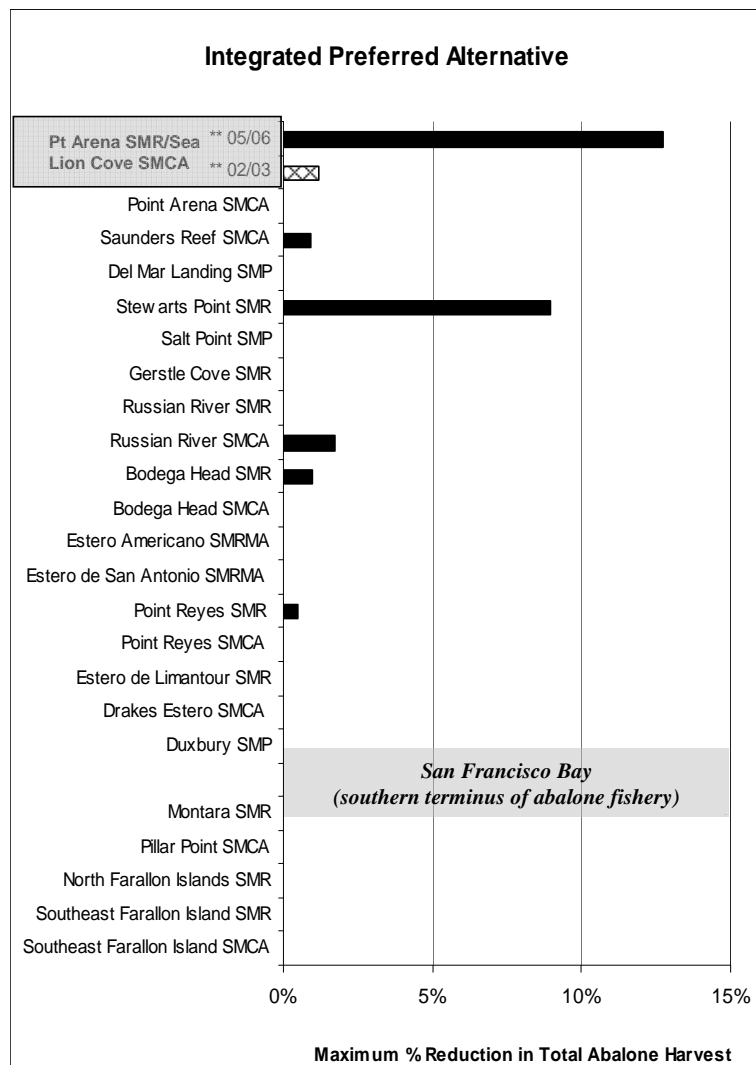
Proposed MPA	Number of Report Card Sites in MPA	02-06 Average Harvest (Number of abalone)	NCCSR Maximum % Reduction in Harvest Due to MPA	Statewide Maximum % Reduction in Harvest Due to MPA	Note
Point Arena SMR	1	**	**	**	Table 1, Ref. #1 **See Table 6
Point Arena SMCA	0	0	0.00%	0.00%	
Black Point SMR	2	12,838	9.57%	5.05%	Table 1, Ref # 9-10
Black Point SMCA	0	0	0.00%	0.00%	
Gerstle Cove SMR	0	0	0.00%	0.00%	
Russian River Estuary SMRMA	1	2,351	0.00%	0.00%	Though report card site occurs within the boundaries of the MPA, abalone harvest does not occur within the waters of the estuary. A reduction in harvest is not expected. Table 1, Ref # 20
Russian River SMCA	1	2,351	0.00%	0.00%	Proposed MPA allows abalone harvest so a harvest reduction is not expected. Table 1, Ref # 20
Bodega Head SMR	1	1,282	0.96%	0.50%	Table 1, Ref # 22
Bodega Head SMCA	0	0	0.00%	0.00%	
Pt. Reyes Headlands SMR	1	616	0.46%	0.24%	Table 1, Ref # 24
Pt. Reyes Headlands SMCA	0	0	0.00%	0.00%	
Estero de Limantour SMR	0	0	0.00%	0.00%	
Drakes Estero SMCA	0	0	0.00%	0.00%	
Estero American SMRMA	0	0	0.00%	0.00%	
Estero de San Antonio SMRMA	0	0	0.00%	0.00%	
Duxbury SMP	0	0	0.00%	0.00%	
Montara SMR	0	0	0.00%	0.00%	
Pillar Point SMCA	0	0	0.00%	0.00%	
North Farallon SMR	0	0	0.00%	0.00%	
SE Farallon SMR	0	0	0.00%	0.00%	
SE Farallon SMCA	0	0	0.00%	0.00%	

**Figure 2 (Left), Table 3 (Right). MPA Proposal 2-XA - Maximum potential reductions in total abalone harvest by each proposed MPA, using an average for 2002-2006; Point Arena SMR impacts represent data from an average for 2002-2003 (hatched) and 2005-2006 (solid bars) to reflect differential catch before and after the public gained access to Stornetta Ranch, assuming no displacement of effort.**



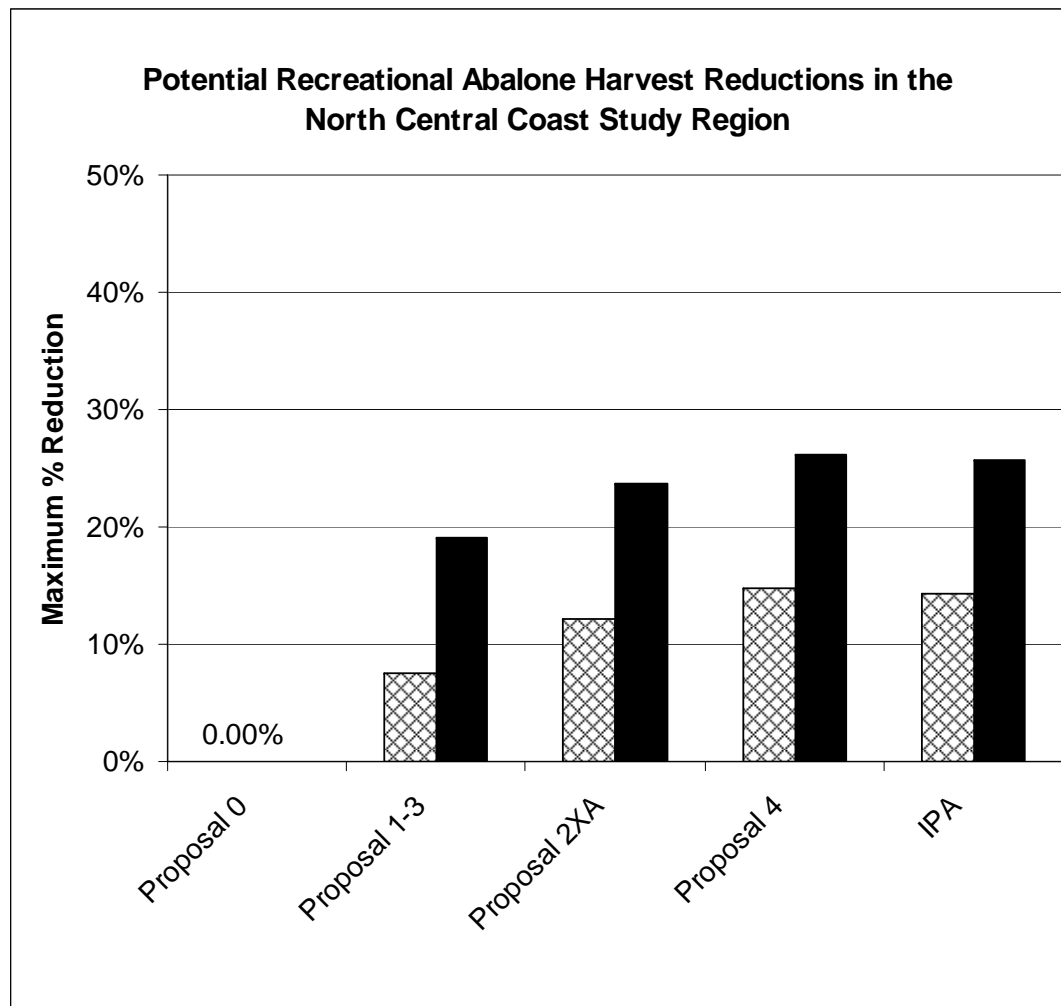
Proposed MPA	Number of Report Card Sites in MPA	02-06 Average Harvest (Number of abalone)	NCCSR Maximum % Reduction in Harvest Due to MPA	Statewide Maximum % Reduction in Harvest Due to MPA	Note
Point Arena SMR/Sea Lion Cove SMCA	1	**	**	**	Table 1, Ref # 1 **See Table 6
Point Arena SMCA	0	0	0.00%	0.00%	
Saunders Reef SMCA	2	1,826	1.36%	0.72%	Table 1, Ref # 4-5
Del Mar Landing SMR	0	0	0.00%	0.00%	
Stewarts Point SMR	4	12,040	8.97%	4.73%	Table 1, Ref # 11-14
Salt Point SMP	2	16,703	0.00%	0.00%	Proposed MPA allows abalone harvest so a harvest reduction is not expected. Table 1, Ref # 15-16
Gerstle Cove SMR	0	0	0.00%	0.00%	
Russian River SMR	1	2,351	0.00%	0.00%	Though report card site occurs within the boundaries of the MPA, abalone harvest does not occur within the waters of the estuary. A reduction in harvest is not expected. Table 1, Ref # 20
Russian River SMCA	1	2,351	1.75%	0.92%	Table 1, Ref # 20
Bodega SMR	1	1,282	0.96%	0.50%	Table 1, Ref # 22
Bodega SMCA	0	0	0.00%	0.00%	
Estero de Americano SMR	0	0	0.00%	0.00%	
Estero de San Antonio SMR	0	0	0.00%	0.00%	
Tomales Bay SMR	0	0	0.00%	0.00%	
Point Reyes SMR	1	616	0.46%	0.24%	Table 1, Ref # 24
Point Reyes SMCA	0	0	0.00%	0.00%	
Drakes Estero SMR	0	0	0.00%	0.00%	
Drakes Estero SMCA	0	0	0.00%	0.00%	
Bouble Point SMCA	0	0	0.00%	0.00%	
Duxbury SMCA	0	0	0.00%	0.00%	
Agate Beach Intertidal SMCA	0	0	0.00%	0.00%	
Devil's Slide SMCA	0	0	0.00%	0.00%	
Fitzgerald SMR	0	0	0.00%	0.00%	
San Gregorio SMR	0	0	0.00%	0.00%	
North Farallon SMR	0	0	0.00%	0.00%	
SE Farallon SMR	0	0	0.00%	0.00%	
SE Farallon SMCA	0	0	0.00%	0.00%	

**Figure 3 (Left), Table 4 (Right). MPA Proposal 4 - Maximum potential reductions in total abalone harvest by each proposed MPA, using an average for 2002-2006; Point Arena SMR/Sea Lion Cove SMCA impacts represent data from an average for 2002-2003 (hatched) and 2005-2006 (solid bars) to reflect differential catch before and after the public gained access to Stornetta Ranch, assuming no displacement of effort.**



Proposed MPA	Number of Report Card Sites in MPA	02-06 Average Harvest (Number of abalone)	NCCSR Maximum % Reduction in Harvest Due to MPA	Statewide Maximum % Reduction in Harvest Due to MPA	Note
Point Arena SMR / Sea Lion Cove SMCA	1	**	**	**	Table 1, Ref. #1 **See Table 6
Point Arena SMCA	0	0	0.00%	0.00%	
Saunders Reef SMCA	1	1,212	0.90%	0.48%	Table 1, Ref # 4-5
Del Mar Landing SMR	0	0	0.00%	0.00%	
Stewarts Point SMR	4	12,040	8.97%	4.73%	Table 1, Ref # 11-14
Salt Point SMP	2	16,703	0.00%	0.00%	Proposed MPA allows abalone harvest so a harvest reduction is not expected. Table 1, Ref # 15-16
Gerstle Cove SMR	0	0	0.00%	0.00%	
Russian River SMR	1	2,351	0.00%	0.00%	Though report card site occurs within the boundaries of the MPA, abalone harvest does not occur within the waters of the estuary. A reduction in harvest is not expected. Table 1, Ref # 20
Russian River SMCA	1	2,351	1.75%	0.92%	Proposed MPA allows abalone harvest so a harvest reduction is not expected. Table 1, Ref # 20
Bodega Head SMR	1	1,282	0.96%	0.50%	Table 1, Ref # 22
Bodega Head SMCA	0	0	0.00%	0.00%	
Estero Americano SMRMA	0	0	0.00%	0.00%	
Estero de San Antonio SMRMA	0	0	0.00%	0.00%	
Point Reyes SMR	1	616	0.46%	0.24%	Table 1, Ref # 24
Point Reyes SMCA	0	0	0.00%	0.00%	
Estero de Limantour SMR	0	0	0.00%	0.00%	
Drakes Estero SMCA	0	0	0.00%	0.00%	
Duxbury SMP	0	0	0.00%	0.00%	
Montara SMR	0	0	0.00%	0.00%	
Pillar Point SMCA	0	0	0.00%	0.00%	
North Farallon Islands SMR	0	0	0.00%	0.00%	
Southeast Farallon Island SMR	0	0	0.00%	0.00%	
Southeast Farallon Island SMCA	0	0	0.00%	0.00%	

**Figure 3 (Left), Table 5 (Right). MPA Proposal IPA - Maximum potential reductions in total abalone harvest by each proposed MPA, using an average for 2002-2006; Point Arena SMR/Sea Lion Cove SMCA impacts represent data from an average for 2002-2003 (hatched) and 2005-2006 (solid bars) to reflect differential catch before and after the public gained access to Stornetta Ranch, assuming no displacement of effort.**



**Figure 5. Maximum potential impact to abalone harvest for MPA proposals in the North Central Coast Study Region relative to total harvest for the study region. Proposal 0 represents the “no change alternative”, or currently existing marine protected areas in the study region.** Each bar represents the estimate of maximum potential harvest reduction for each proposal. To reflect the impacts of the public gaining access to Stornetta Ranch in 2004, for each vertical bar the average annual harvest from 2002-2006 was used for all sites but the Point Arena Lighthouse data that was included in each vertical bar was either the average harvest from 2002-2003 (hatched) or the average harvest from 2005-2006 (solid).



**Table 6. Estimated average annual catch reported at the Point Arena Lighthouse report card site for three time frames; all years (2002-2006); before public access (2002-2003) and after public access (2005-2006) to Stornetta Ranch in 2004 (mid-season).**

<b>Point Arena SMR / Sea Lion Cove SMCA</b>			
<b>Years</b>	<b>Average Catch</b>	<b>NCCSR Maximum % Reduction in Harvest Due to MPA</b>	<b>Statewide Maximum % Reduction in Harvest Due to MPA</b>
2002 - 2006	8,317	6.20%	3.27%
2002 - 2003	1,624	1.22%	0.64%
2005 - 2006	17,057	12.71%	6.71%

\*\* The Point Arena Lighthouse report card site includes Stornetta Ranch which opened to public access in 2004. It is important to note that though the new abalone take within Stornetta Ranch occurs at multiple locations, the bulk of new take is occurring within Sea Lion Cove (L. Rogers-Bennett, pers. com.). Because the Point Arena Lighthouse report card site includes all of the Stornetta Ranch area, including both previously open and newly opened areas, the data cannot be used to attribute landings to any single location within the complex. Therefore, the potential impact from Proposals 1-3 and 2-XA are likely to differ from Proposals 4 and IPA, which are proposals that include an MPA prohibiting abalone take at Sea Lion Cove.

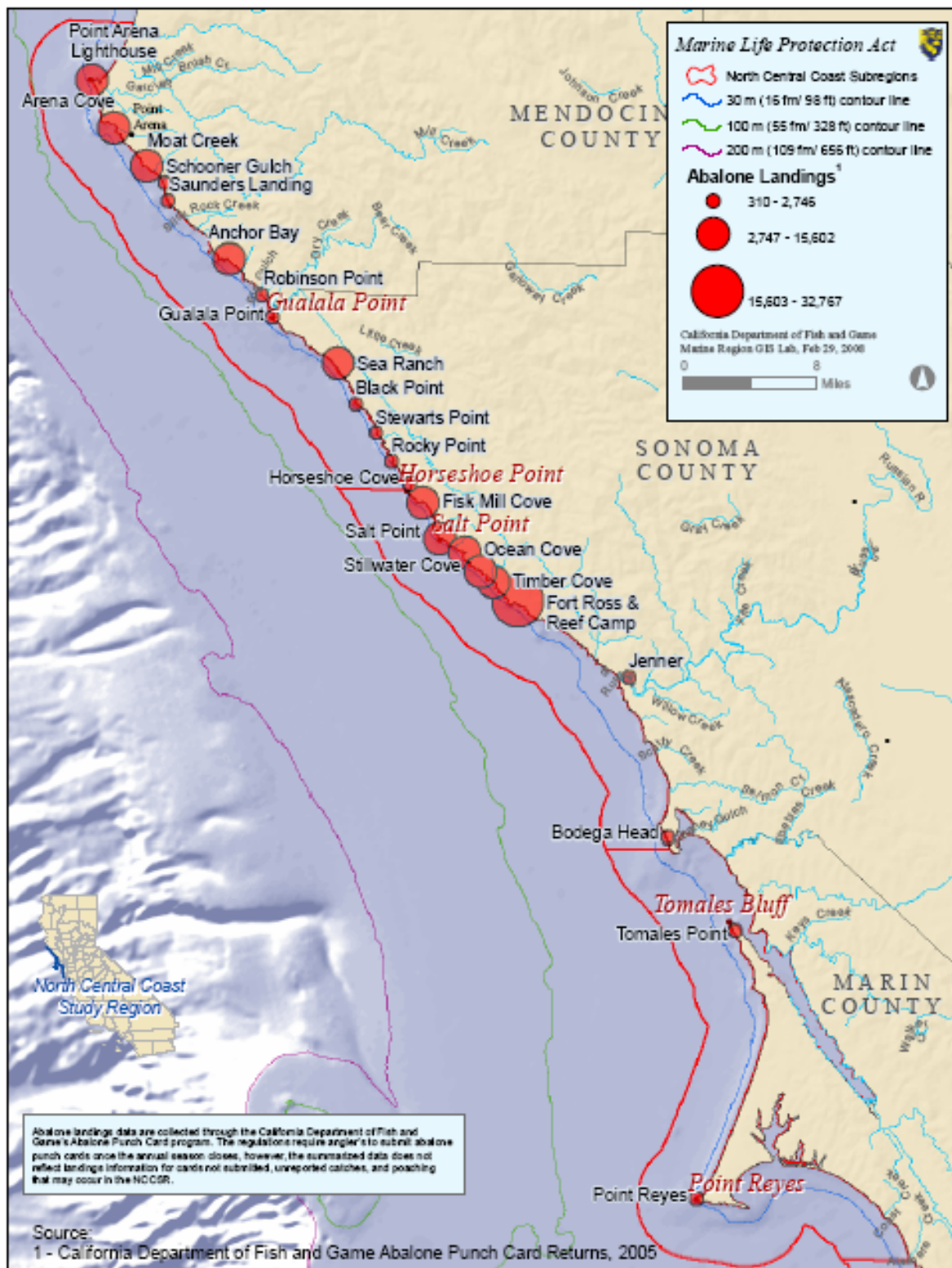


Figure 6. Approximate location of abalone report card landing sites showing estimated landings for 2005, created from Map 13 of the *Regional Profile of the North Central Coast Study Region* (October 8, 2007).