

MPA Watch is a statewide collaborative effort to collect critical human use data to enhance the management and conservation of marine protected areas (MPAs). MPA Watch data informs the management, enforcement, and science of California's MPAs and allows us insight on how human uses are changing as a result of MPA implementation. By involving local communities in this important work, MPA Watch programs inspire and empower stewardship, and educate California communities about ocean ecosystems. MPA Watch trains volunteers to observe and collect unbiased data on coastal and marine resources use. The Marin County Marine Protected Area Watch Program, organized by West Marin Environmental Action Committee, engages community scientists in four MPAs in Marin County and one adjacent site.

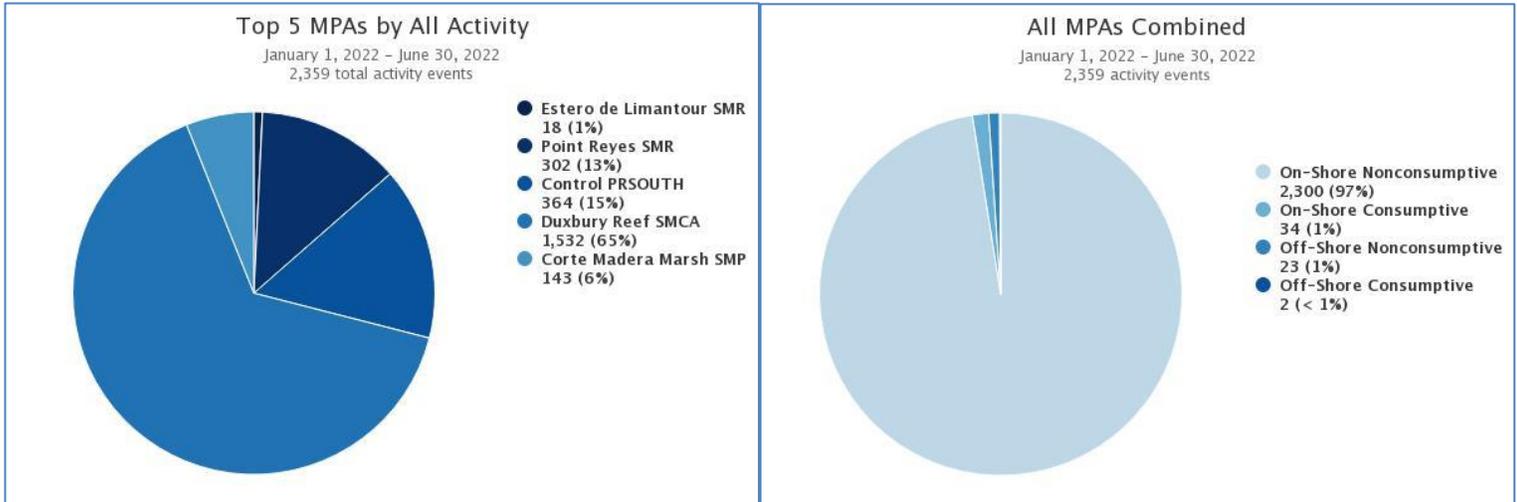
1. Executive Summary

This report includes MPA Watch data from January 1 – June 30, 2022¹. In this period, 155 surveys were conducted by 23 volunteers who observed 2,359 activities over 222 survey miles.

- Point Reyes State Marine Reserve (Point Reyes SMR), Estero de Limantour State Marine Reserve (Estero de Limantour SMR), and Limantour Beach Control (Control PRSouth) are accessed through the Point Reyes National Seashore.
- Duxbury Reef State Marine Conservation Area (Duxbury SMCA) is accessed through Marin County Open Space.
- Corte Madera Marsh State Marine Park (Corte Madera Marsh SMP) is accessed through the city of Corte Madera.

¹ Graphs and tables include comparisons of data in “all years” with 2022

2. Overview of Human Use of MPAs January 1 – June 30th, 2022¹



Activity Classifications

On-Shore - Activities that take place on a sandy or rocky beach. Excludes bluffs, trails, sea walls, parking lots, or other man-made structures. Includes recreation, tidepooling, shore-based fishing, etc.

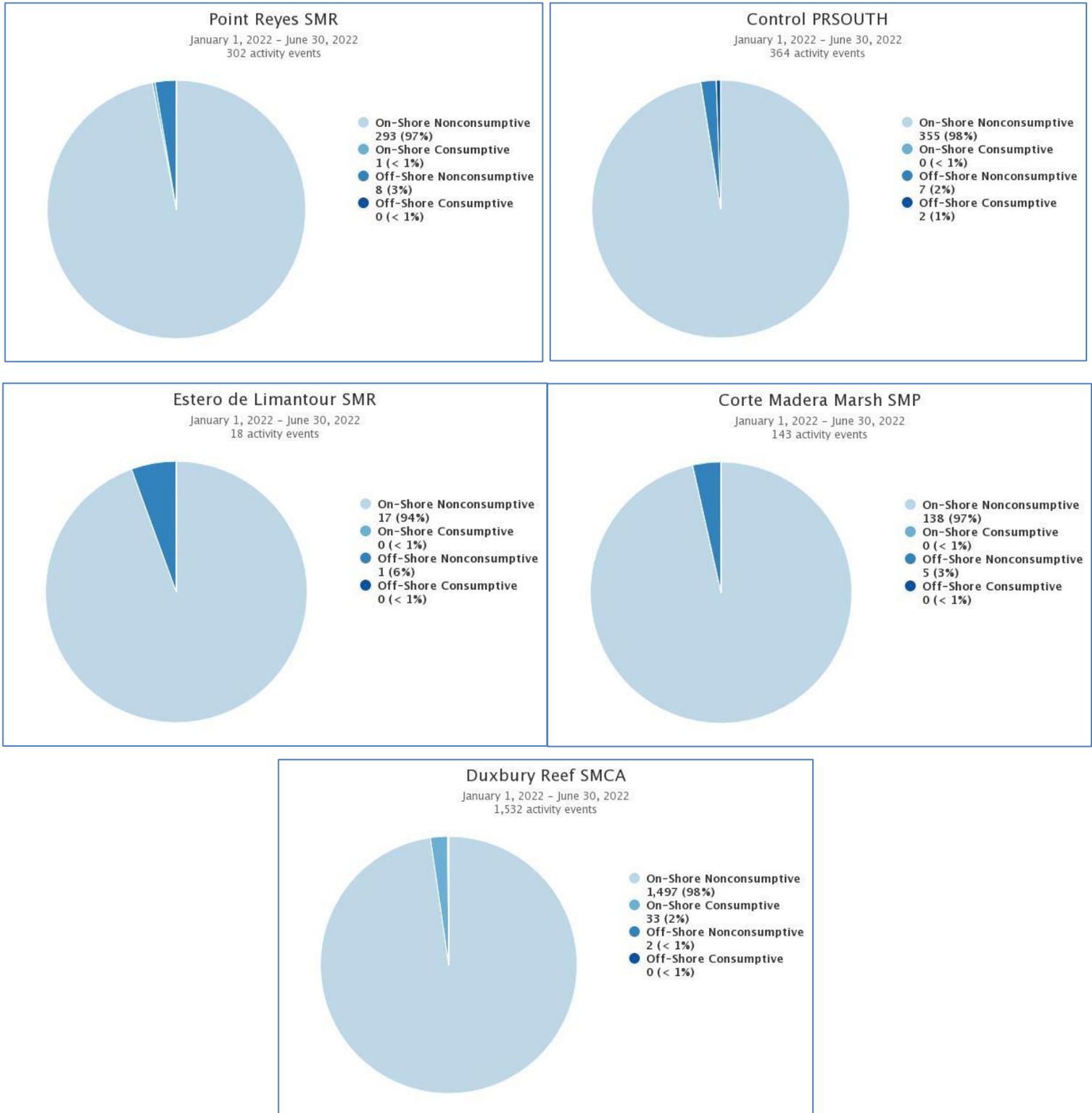
Off-Shore - Activities that take place offshore, typically in knee-deep water or deeper. Includes surfing, SCUBA diving, kayaking, boat fishing, etc.

Consumptive - An activity in which a natural resource (i.e. fish, kelp, shells) is being collected.

Non-Consumptive - An activity in which a natural resource is not collected.

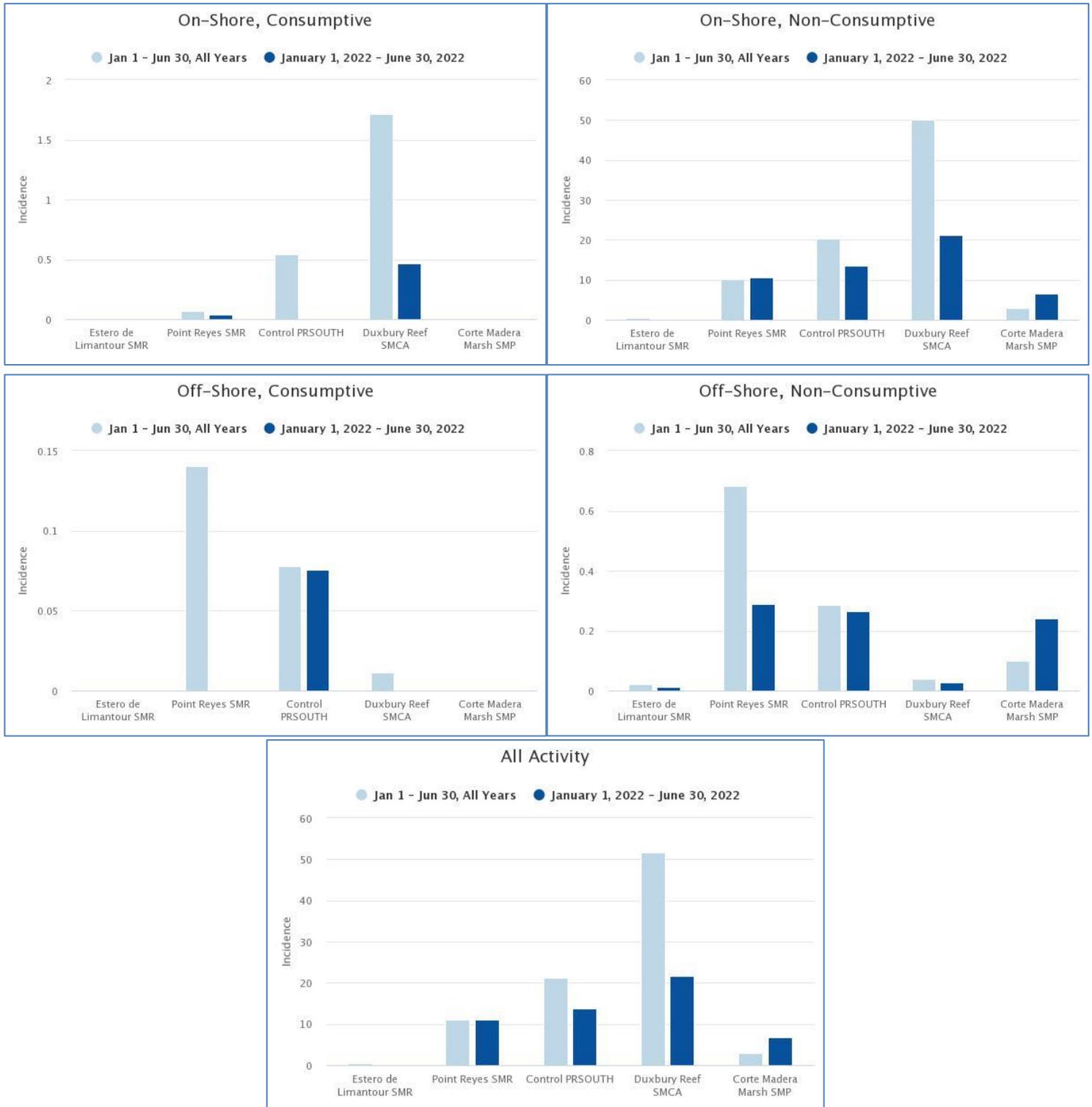
Note: Duxbury Reef SMR has a high activity count (65%) in one of the smallest survey areas, much smaller than Control PRSouth, which has (15%). Duxbury Reef is a sensitive intertidal habitat where human impacts (trampling and collecting) may have long-term negative impacts to habitat and species.

3. Activity by MPA²



² Observation count of activities (onshore / offshore) and type (consumptive / non-consumptive) in each survey area.

4. Activity Incidence³ for each MPA: Comparing All Years⁴ and Current Period



³ The charts display incidence values for each MPA monitored by MPA Watch in Marin County. Incidence is calculated as the number of activities recorded divided by the total survey-miles (accounts for differences in number of surveys conducted at each site).

⁴ Activity Incidence “All Years” data includes 2016 through 2022 survey data.

5. Activity Incidence⁵ Tables⁶ by MPA

MPA	On-Shore			
	Non-Consumptive		Consumptive	
	Jan 1 Jun 30 All Years	Jan 1, 2022 through Jun 30, 2022	Jan 1 Jun 30 All Years	Jan 1, 2022 through Jun 30, 2022
Estero de Limantour SMR	0.4	0.2	0.0	0.0
Point Reyes SMR	10.1	10.6	0.1	0.0
Control PRSOUTH	20.4	13.4	0.5	0.0
Duxbury Reef SMCA	50.0	21.2	1.7	0.5
Corte Madera Marsh SMP	2.9	6.6	0.0	0.0
All MPAs Combined	13.2	10.4	0.4	0.2

MPA	Off-Shore			
	Non-Consumptive		Consumptive	
	Jan 1 Jun 30 All Years	Jan 1, 2022 through Jun 30, 2022	Jan 1 Jun 30 All Years	Jan 1, 2022 through Jun 30, 2022
Estero de Limantour SMR	0.0	0.0	0.0	0.0
Point Reyes SMR	0.7	0.3	0.1	0.0
Control PRSOUTH	0.3	0.3	0.1	0.1
Duxbury Reef SMCA	0.0	0.0	0.0	0.0
Corte Madera Marsh SMP	0.1	0.2	0.0	0.0
All MPAs Combined	0.2	0.1	0.0	0.0

MPA	Total Combined	
	Jan 1 Jun 30 All Years	Jan 1, 2022 through Jun 30, 2022
	Estero de Limantour SMR	0.4
Point Reyes SMR	11.0	10.9
Control PRSOUTH	21.3	13.8
Duxbury Reef SMCA	51.7	21.7
Corte Madera Marsh SMP	3.0	6.8
All MPAs Combined	13.8	10.7

⁵ Calculating Incidence: The baseline rate for the reporting period was calculated by summing the total use count for each category during the same period from each previous year and dividing this value by the transect miles surveyed at each site. The miles surveyed were calculated by first identifying the length of each transect for all the MPA's in question and multiplying the length of the transect by the number of surveys that had been taken along that transect during the same time period. For MPA's with multiple transects, the total distance traveled for each transect within the MPA were summed together to get the total miles surveyed within that MPA.

⁶ The tables display incidence values for each MPA monitored by MPA Watch in Marin County. Incidence is calculated as the number of activities recorded divided by the total survey-miles.

6. Breakdown by MPA

This report includes MPA Watch data from January 1 – June 30, 2022⁷. The data is collected by trained on-shore observers and is organized into categories and tables that highlight on-shore and off-shore consumptive and non-consumptive uses at MPAs located in Marin County.

- Point Reyes State Marine Reserve (Point Reyes SMR), Estero de Limantour State Marine Reserve (Estero de Limantour SMR), and Limantour Beach Control (Control PRSouth) are accessed through the Point Reyes National Seashore.
- Duxbury Reef State Marine Conservation Area (Duxbury SMCA) is accessed through Marin County Open Space.
- Corte Madera Marsh State Marine Park (Corte Madera Marsh SMP) is accessed through the city of Corte Madera.

Data collection in the first half of 2022 was slightly limited due beach closure and access restrictions at Drakes Beach, where we survey Point Reyes SMR and Estero de Limantour. The below table summarizes the access closures and limitations by MPA and dates of impact.

MPA Name	2022 Closures
Point Reyes SMR	Drakes Beach closed March 11 – April 1 due to elephant seal pupping. Drakes Beach (West side) closed April 29 - June 22 for elephant seal molting.
Estero de Limantour SMR	
Control PRSouth	No closure
Duxbury Reef SMCA	No closure
Corte Madera Marsh SMP	No closure

- a. **Estero de Limantour State Marine Reserve (Estero de Limantour SMR):**
This MPA is observed from two survey transects within Point Reyes National Seashore and accessed from either 1) Limantour Beach and walking north-west, or 2) Drakes Beach and walking east. This MPA does not allow any on-shore or offshore consumptive uses.

⁷ Graphs and tables include full year comparisons of data in “all years”.

Volunteers conducted 19 surveys in this MPA and recorded a use rate of less than 1 activity per miles surveyed (0.2 total use count per mile).

100% of the observations in the MPA were non-consumptive. 94% observations were on-shore and 6% were off-shore. Non-consumptive observations in this MPA included non-consumptive on-shore beach recreation, wildlife viewing and offshore kayaking and surfing.

Dogs are restricted from this MPA due to the presence of marine mammals and its role as a critical habitat for Western Snowy Plovers. Volunteers conducted 19 surveys and like last year, recorded zero (0) animals on- or off-leash.

b. Point Reyes State Marine Reserve (Point Reyes SMR)

This MPA is observed from two survey transects within the Point Reyes National Seashore and accessed from either 1) Limantour Beach and walking north west, or 2) at Drakes Beach. Beach access at Drakes Beach was closed in March 11-April 1, 2022 due to elephant pupping, and to the west side of the Ken Patrick Visitor Center, the beach was closed April 29 to June 22nd for elephant seal molting season. This MPA does not allow any on-shore or offshore consumptive uses.

In January – June 2022, volunteers conducted 27 surveys of this MPA. This MPA recorded a use rate of 10.9 activities per mile surveyed. This was a increase of 65% compared to the prior year rate of 6.6. During this period, 97% of the observations in the MPA were on-shore, non-consumptive (sandy beach recreation [60%], wildlife viewing [35%] and tidepooling on the rocky outcrops [2%]). Offshore recreation included board sports. Less than 1% of observations were consumptive uses.

Dogs are restricted from MPA beach access at Drakes Beach and at the north-west portion of Limantour Beach due to the presence of marine mammals and critical habitat for the Western Snowy Plover. There were no observations of leashed or unleashed dogs. One potential violation was observed.

Volunteers accessing this MPA from Drakes Beach typically find significant quantities of plastic marine debris that is a mix of small plastic particles, nurdles, fishing gear, single-use foodware and plastic packaging, ropes, tires, shotgun shells, and occasionally, hazardous medical waste (i.e. needles).

c. Limantour Beach (Control PRSOUTH)

This MPA is observed within the Point Reyes National Seashore and accessed at Limantour Beach. This area borders an MPA, therefore consumptive uses, like fishing from shore or offshore is allowable within the appropriate season and with licenses.

Volunteers conducted 12 surveys in this MPA, and recorded a use rate of 13.8 activities per miles surveyed. This is a 6% decrease compared to 2021's rate of 14.7. This is a continued downward trend from 2020's activity rate of 27.8 activities per mile. 98% of the observations in Control PRSouth this period were on-shore, non-consumptive uses (89% sandy beach recreation), and the remaining top non-consumptive activities include animals on (6%) and off leash (1%) and shore enforcement and paddle boarding. Consumptive observations -offshore unknown fishing- were 1% of the total.

Leashed dogs are allowed to access the southern portion of Limantour Beach. Dogs are restricted from the north-west portion of the beach due to the presence of marine mammals and critical habitat for the Western Snowy Plover. In 12 surveys during this period, volunteers recorded 28 animal observations - leashed (23; while 3 of these were NPS horses) and unleashed (5).

d. Duxbury Reef State Marine Conservation Area (Duxbury SMCA)

This MPA is observed from within Marin County Parks and Open Space and Point Reyes National Seashore and accessed at Agate Beach, managed by Marin County Parks and Open Space. This MPA allows hook and line fishing from shore and abalone harvest with appropriate open season and licenses.

In January – June 2022, 75 surveys were conducted and 1,532 activities were reported. This is greater than the number of surveys in all of 2021, in large part because of the newly launched Duxbury Docent program, where docents also conduct MPA Watch surveys during their shifts. Volunteers at this MPA recorded a use rate of 21.7 activities per mile surveyed. This is a decrease of 56% compared to the prior year's rate of 49.7 and an even greater decrease from 2020 (52.8), yet it remains the highest use rate of all the MPAs monitored by Marin MPA Watch. An increase in use rate at Duxbury Reef had been documented in previous years since 2018, except 2021: 2018 (15.5), 2019 (29.4), 2020 (52.8), 2021 (49.7).

98% of observations were onshore, non-consumptive. Non-consumptive tidepooling represented 45% (685) of observations, and beach recreation (601) represented 39% of observations (sandy 25%, rocky 14%).

The number of potential violations counted by volunteers was 110 during this period and 5 were reported to local or state agencies. This is a much greater number of violations than any other MPA survey site. Onshore consumptive observations during this period of January-June 2022 were 2% in the MPA compared with 7% the prior year. Consumptive activities included 33 incidents and included hand collection of biota in the intertidal (11 observations) and hook and line fishing (12 observations). Generally, volunteers noted that when they interacted with individuals who were collecting biota, they observed that most collecting was not for consumption and most people replaced the organisms. There were no offshore consumptive uses documented.

Leashed dogs are allowed on Agate Beach and Duxbury Reef. From the 75 surveys conducted, volunteers recorded 180 dog observations (88 on leash and 92 off-leash). This ratio of on- to off-leash is roughly the same as the previous year.

Duxbury Reef SMCA continues to have a high use compared to other MPAs surveyed by Marin MPA Watch, accounting for 65% of all Marin MPA Watch activities in one of the smallest survey areas. Duxbury Reef is a sensitive intertidal habitat where human impacts (trampling and collecting) may have long-term negative impacts to habitat and species. The Duxbury Docent program was launched in January in response to the MPA Watch data showing high use and potential violations. Eleven volunteers were collaboratively trained over 5 days by local experts to engage visitors on rocky intertidal marine ecology, MPAs and tidepool stewardship practices. Through visitor education, we hope visitor impacts to the reef will be reduced.

e. Corte Madera Marsh State Marine Park (Corte Madera Marsh SMP)

This MPA is observed within the city limits of Corte Madera and access by the network of public trails. This area is a State Marine Park and consumptive uses, like hook and line fishing is allowable within the appropriate season and licenses.

Volunteers conducted 22 surveys and recorded a use rate of 6.8 activities per mile surveyed. This is a 39% increase compared to 2021 which recorded 4.9

activities per mile. 97% of the activities were on-shore, non-consumptive, mostly including recreation, biking and animals on-leash (22) and off-leash (4). 3% activities recorded were offshore, non-consumptive consisting of other boating (ferry).

Leashed dogs are allowed on the walking paths, but not in the wetland or marsh. Of the 22 surveys conducted, volunteers recorded 26 dog observations, 85% of the dog observations were on-leash. No observations of dogs in the wetland were reported.

7. Potential Violations

The rate of consumptive activities observed in all MPAs remains relatively low. Consumptive activities in January-June of 2022 comprised slightly over 1% (36 observations) of all activities (2,359) in all MPAs. Last year during this same time period, the rate of consumptive activities was also 1%. All previous years of the same period (Jan-June) were slightly over 3% on average. The vast majority of consumptive observations come from Duxbury Reef (hook and line fishing and hand collection of biota on-shore).

Recurring issues with the illegal take and disturbance of tidepool organisms in Duxbury Reef SMCA is an ongoing problem during low tides. Anecdotal evidence suggests consumptive activities rates may be higher than reflected in the data, including observations of drones being used over Duxbury Reef. Two observations were reported to us, but not observed and recorded during MPA Watch surveys. Our docents on the reef report numerous consumptive activities (though mostly not for harvest) at other times outside of MPA Watch surveys. Their engagement with those visitors for the most part is successful, in that with knowledge of the regulations and sensitivity of marine life, visitors cease collecting and return the marine life to the tidepool.

With growing outreach to educate the community through social media posts and other online platforms and direct engagement including tabling at the trailhead, we hope that more people become informed about and practice tidepool stewardship practices. We continue to communicate with Marin County Parks and Open Space, Point Reyes National Seashore, California Department of Fish and Wildlife, and the California Fish and Game Commission to inform these agencies about poaching activities and the need for increased enforcement presence.

8. Next Steps

Marin MPA Watch continues to collect data in MPAs that are accessed from Marin County with a goal of two surveys per month, per MPA. In 2022, our survey numbers continue to be affected by lack of long-term retention, perhaps from the pandemic and all the transitions that it has brought to many people in our community. In addition, public access to Drakes Beach was limited for a time during the spring of this year. This summer's volunteer recruitment season is slightly lower than last summer, as we hypothesize that more people are out and traveling this summer than last summer. Depending on how many volunteers continue into the winter and following year, we may conduct another training at Drakes Beach and/or Limantour Beach in the fall.

We will be training a high school group in August to conduct MPA Watch surveys for an environmental course. We will reach out to more schools in the future to engage with at least one school group per year on MPA Watch and train them at one site in Marin County.

The program continues to grow the MPA Watch reach by offering a Spanish language MPA Watch training (piloted in September 2021). Unfortunately, COVID illness caused the cancelation of the Spanish MPA Watch training in June, but it will be rescheduled for later this summer and in the spring/summer of 2023.

Marin MPA Watch intends to collaborate with the California Department of Fish and Wildlife to distribute MPA Watch reports to regional managers in order to improve the management and enforcement of MPAs. MPA Watch is also looking to expand its network of partner organizations to enhance the scale and scope of MPA monitoring across California.

MPA Watch will be making our human use data available on our website to make it accessible to partners, resource agencies, municipalities, and other interested parties. One of the hopes of MPA Watch is that volunteers and community members help spread knowledge and awareness of MPAs to the communities that surround them, inspiring marine stewardship in our populations.

9. Additional Information

For additional information on MPA Watch, including survey sites, participating organizations, protocols and datasheets, media kit, and how to get involved, please visit mpawatch.org. Connect with MPA Watch on social media @MPAWatchOrg.

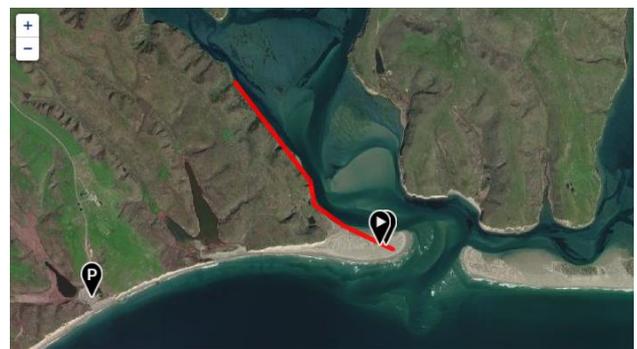
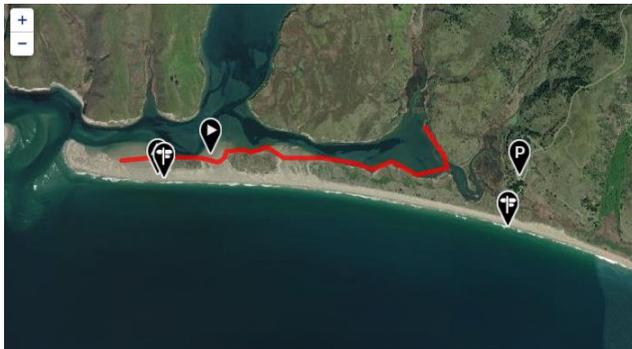
For additional information regarding MPAs and regulations specific to the various classifications of MPAs please visit wildlife.ca.gov/MPAs. If you see an activity that violates MPA regulations, please call CalTip to report the violation at (888)-334-2258.

The Marin MPA Watch program is a partnership of the Environmental Action Committee of West Marin (EAC), California Academy of Science and Point Reyes National Seashore. The program is managed by EAC. For more information to become involved with the program, please visit eacmarin.org/mpa-watch.

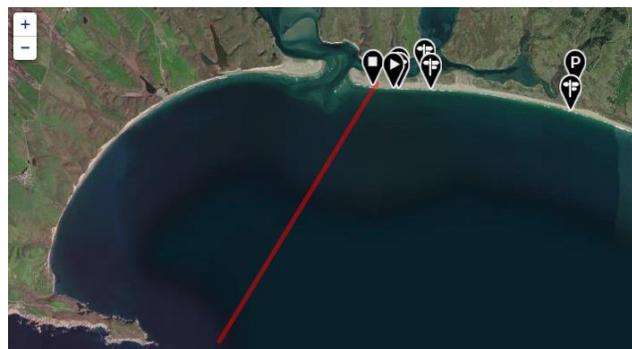
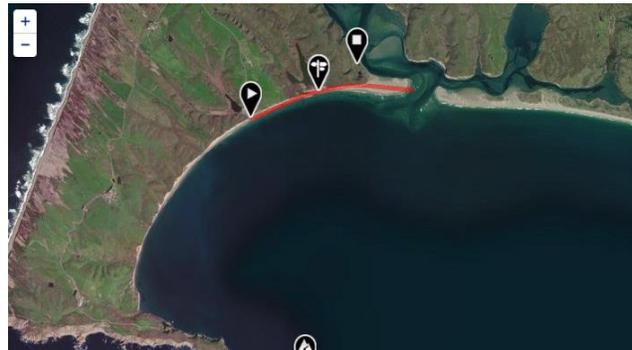
10. Maps:

*Note: Red lines imply the observation edges (Estero de Limantour, Point Reyes SMR and Corte Madera Marsh) and for others, walking pathways for the transects (Point Reyes SMR, Limantour Beach, Duxbury Reef) and Corte Madera Marsh.

Estero de Limantour State Marine Reserve (Estero de Limantour SMR):



Point Reyes State Marine Reserve (Point Reyes SMR)



Limantour Beach (Control PRSOUTH)



Duxbury Reef State Marine Conservation Area (Duxbury SMCA)



Corte Madera Marsh State Marine Park (Corte Madera Marsh SMP)

