



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 resource 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.

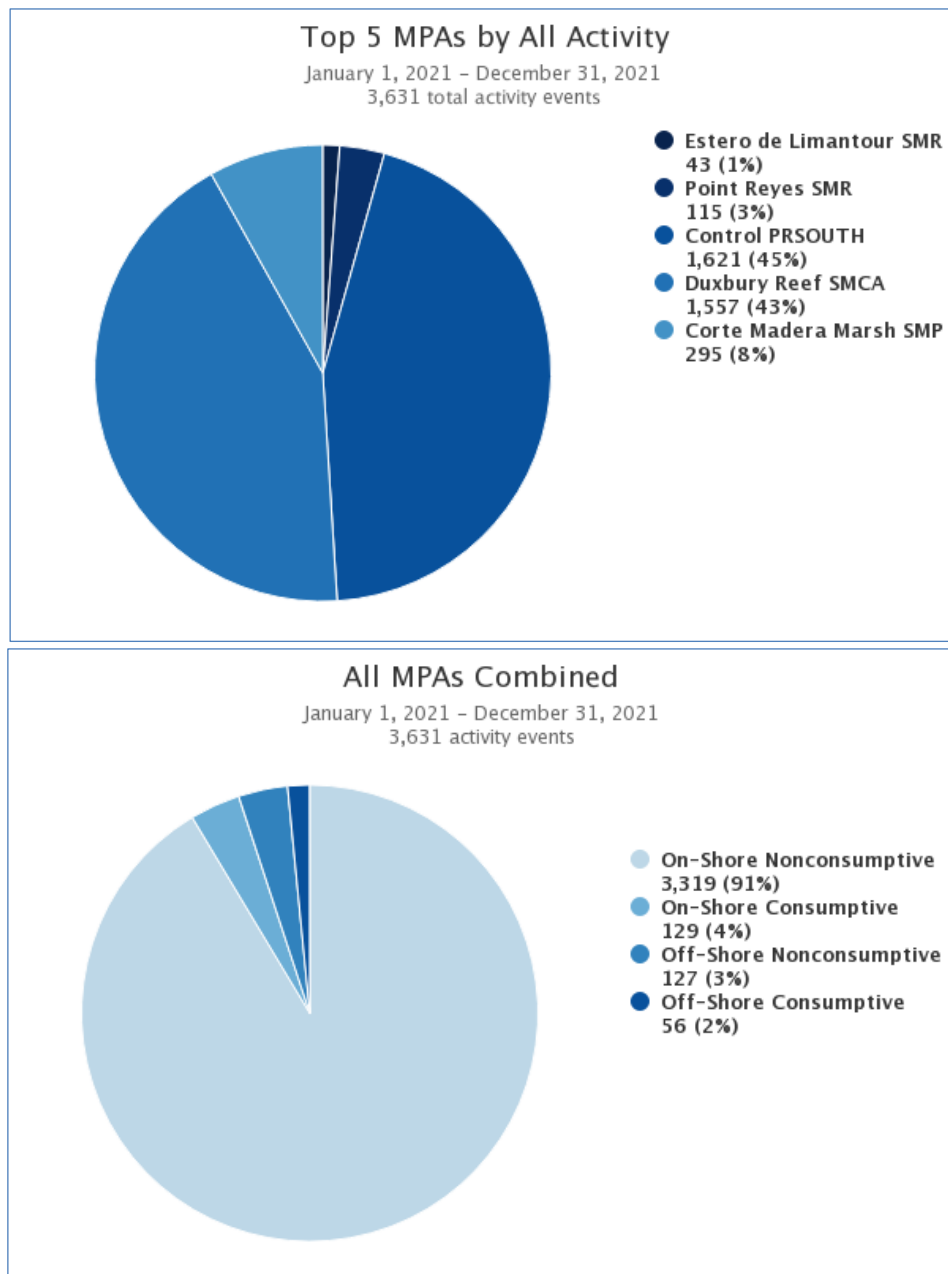
## 1. Executive Summary

This report includes MPA Watch data from January 1 – December 31, 2021<sup>1</sup>. In this period, 283 surveys were conducted by 27 volunteers who observed 3,631 activities over 429 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.

<sup>1</sup> Graphs and tables include full year comparisons of data in “all years” with 2021.

## 2. Overview of Human Use of MPAs January 1 – June 3rd, 2021<sup>3</sup>



### *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.

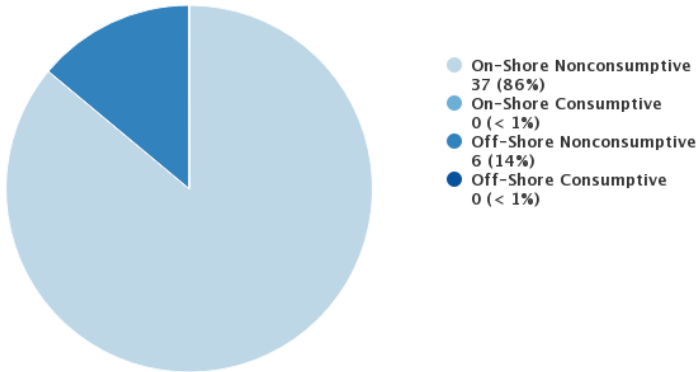
**Non-Consumptive** - An activity in which a natural resource is not collected.

<sup>3</sup> Duxbury Reef SMR has a high activity count (43%) in one of the smallest survey areas, much smaller than Control PRSouth, which has (45%). 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 MPA<sup>4</sup>

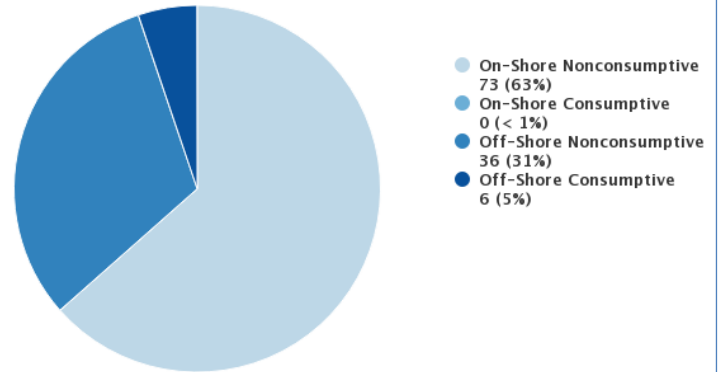
#### Estero de Limantour SMR

January 1, 2021 – December 31, 2021  
43 activity events



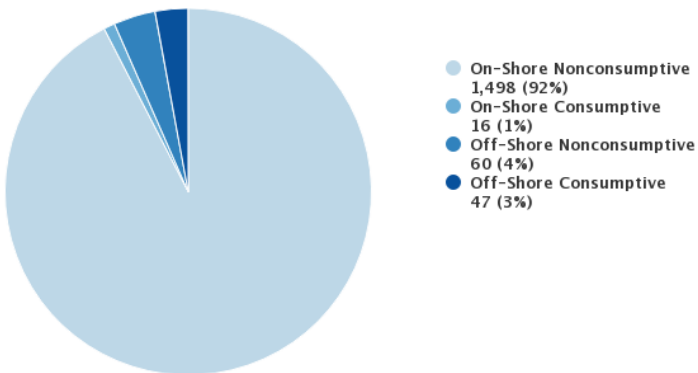
#### Point Reyes SMR

January 1, 2021 – December 31, 2021  
115 activity events



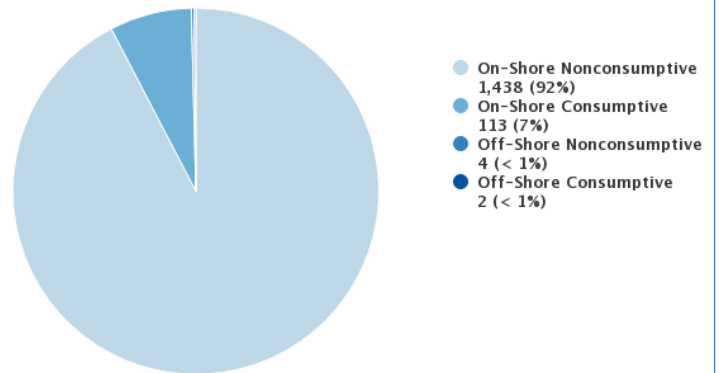
#### Control PRSOUTH

January 1, 2021 – December 31, 2021  
1,621 activity events



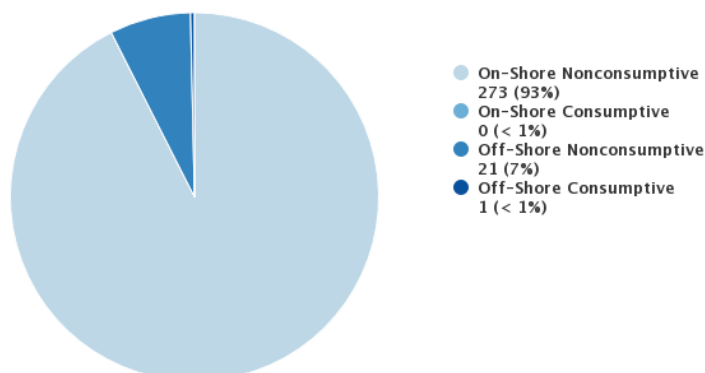
#### Duxbury Reef SMCA

January 1, 2021 – December 31, 2021  
1,557 activity events



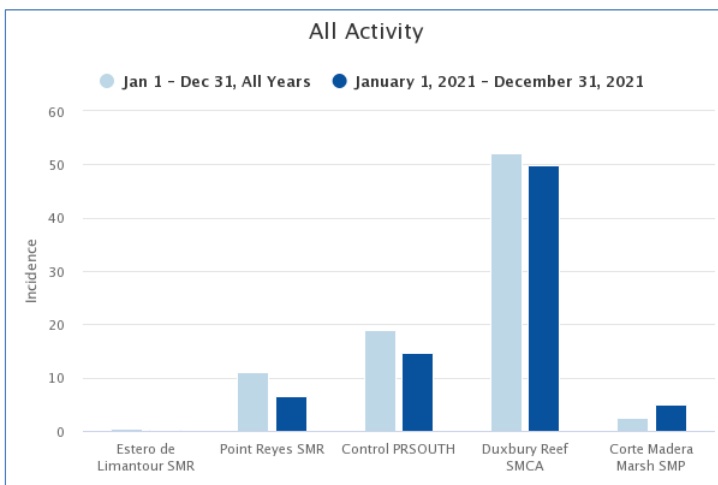
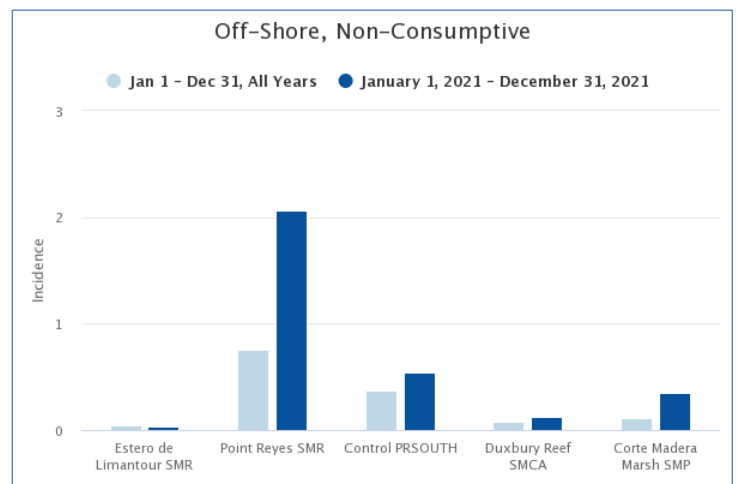
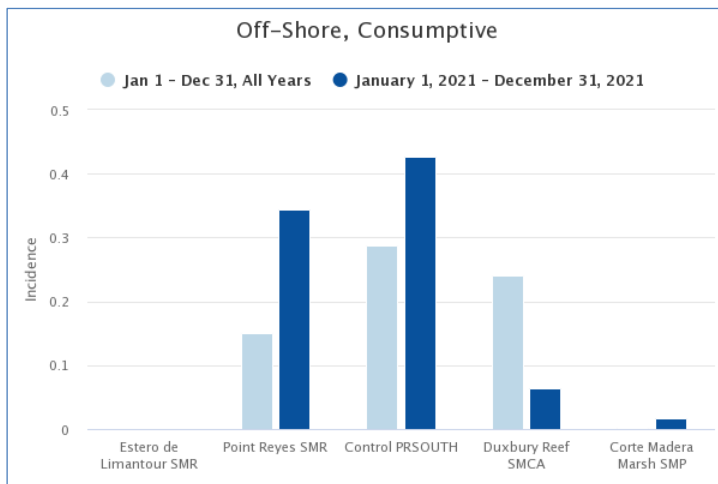
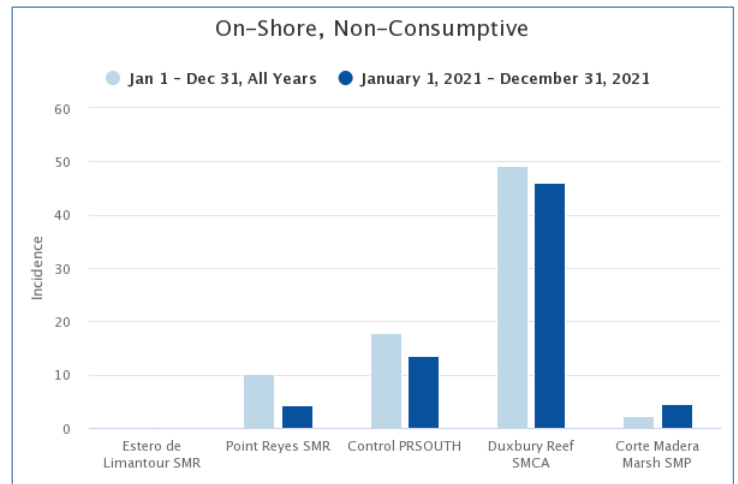
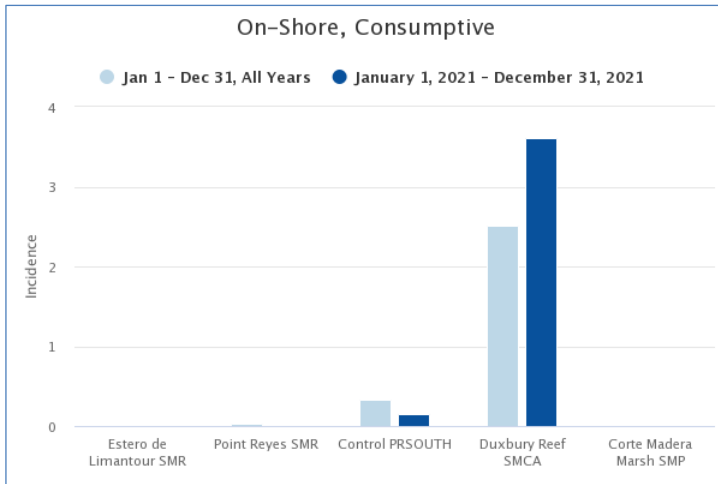
#### Corte Madera Marsh SMP

January 1, 2021 – December 31, 2021  
295 activity events



<sup>4</sup> Observation count of activities (onshore / offshore) and type (consumptive / non-consumptive) in each survey area.

#### 4. Activity Incidence<sup>5</sup> by MPA: All Years<sup>6</sup> and Current Year



<sup>5</sup> 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.

<sup>6</sup> Activity Incidence "All Years" data includes 2016 through 2021 survey data.

## 5. Activity Incidence<sup>7</sup> Tables<sup>8</sup> by MPA

MPA	On-Shore					
	Non-Consumptive			Consumptive		
	▲	Jan 1	Jan 1, 2021	Jan 1	Jan 1, 2021	
		Dec 31 All Years	through Dec 31, 2021	Dec 31 All Years	through Dec 31, 2021	◆
Estero de Limantour SMR		0.3	0.2	0.0	0.0	
Point Reyes SMR		10.1	4.2	0.0	0.0	
Control PRSOUTH		17.9	13.6	0.3	0.1	
Duxbury Reef SMCA		49.3	45.9	2.5	3.6	
Corte Madera Marsh SMP		2.3	4.6	0.0	0.0	
All MPAs Combined		10.4	7.7	0.3	0.3	

MPA	Off-Shore					
	Non-Consumptive			Consumptive		
	▲	Jan 1	Jan 1, 2021	Jan 1	Jan 1, 2021	
		Dec 31 All Years	through Dec 31, 2021	Dec 31 All Years	through Dec 31, 2021	◆
Estero de Limantour SMR		0.0	0.0	0.0	0.0	
Point Reyes SMR		0.8	2.1	0.2	0.3	
Control PRSOUTH		0.4	0.5	0.3	0.4	
Duxbury Reef SMCA		0.1	0.1	0.2	0.1	
Corte Madera Marsh SMP		0.1	0.4	0.0	0.0	
All MPAs Combined		0.2	0.3	0.1	0.1	

MPA	Total Combined			
	▲	Jan 1	Jan 1, 2021	
		Dec 31 All Years	through Dec 31, 2021	◆
Estero de Limantour SMR		0.4	0.2	
Point Reyes SMR		11.1	6.6	
Control PRSOUTH		18.9	14.7	
Duxbury Reef SMCA		52.1	49.7	
Corte Madera Marsh SMP		2.4	4.9	
All MPAs Combined		11.0	8.5	

<sup>7</sup> 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.

<sup>8</sup> 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. COVID-19

Data collection in early part of 2021 was limited in part due to COVID-19 restrictions, including restrictions on volunteers to conduct surveys alone, or only with individuals from the same household, and the inability to conduct trainings for new volunteers until June. In addition, access to Drakes Beach was closed for much of this period for road rehabilitation and habitat restoration construction activities by the Point Reyes National Seashore.

## 7. Breakdown by MPA

This report includes MPA Watch data from January 1 – December 31, 2021<sup>9</sup>. 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 2021 was limited in the first half of the year due to COVID-19 including an inability to train new volunteers until June, and road closure and access restrictions. The below table summarizes the access closures and limitations by MPA and dates of impact.

MPA Name	2021 Closures
Point Reyes SMR	Drakes Beach Road closed January 17 - March 20 due to elephant seal pupping.
Estero de Limantour SMR	Drakes Beach Road closed May 3 to September, 2021 due to restoration work and parking lot construction.
Control PRSouth	No closure
Duxbury Reef SMCA	No closure

<sup>9</sup> Graphs and tables include full year comparisons of data in “all years”.

**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.

This MPA 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 (86% on-shore and 14% offshore). Non-consumptive observations in this MPA included non-consumptive on-shore beach recreation 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 53 surveys and like last year, recorded zero (0) dog observations.

**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. In addition to access restrictions in place for the wetland restoration and reconstruction of the parking lot during the summer, access at Drakes Beach was restricted in January 2021 through late March due to elephant seal presence. This MPA does not allow any on-shore or offshore consumptive uses.

In 2021, volunteers conducted 51 surveys of this MPA. This MPA recorded a use rate of 6.6 activities per mile surveyed. This was a decrease of 42.6% compared to the prior year rate of 11.5. 63% of the observations in the MPA were on-shore, sandy beach recreation. Offshore recreation included surfing and other boating, and 15% of observations were fishing.

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 dogs, noting that fewer surveys were conducted at Drakes Beach in 2021 because of the beach closure.

Volunteers accessing this MPA from Drakes Beach typically find large 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 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 licenses.

This MPA recorded a use rate of 14.7 activities per miles surveyed. This is a 47% decrease compared to 2020's rate of 27.8. But, 2020 showed a 59% increase from 2019 (17.5). 95% of the observations in Control PRSouth this period were on-shore, non-consumptive uses (86% sandy beach recreation, and the remaining 11% including wildlife viewing. Offshore non-consumptive activities (7%) included recreation, board sports and surfing. Consumptive observations included offshore consumptive (2%, unknown fishing boat) and onshore hook and line fishing (less than 1%).

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. Volunteers conducted 50 surveys and recorded 99 animal observations (0.9 dogs per mile surveyed) - leashed (63, or 4% of total) and unleashed (36, or 2% of total). The increase in number of surveys from 2020 (11) also resulted in an increase in number of recorded animal observations but with roughly the same ratio of on-leash to off-leash.

**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 2021, 69 surveys were conducted, fewer than 2020 (98 surveys). This MPA recorded a use rate of 49.7 activities per miles surveyed. This is a decrease of 6% compared to the prior pandemic year (more people going to parks and beaches) of 2020 (52.8), but remains elevated. An increase in use rate at Duxbury Reef had been documented over recent years except 2021 which



recorded the slight decrease: 2018 (15.5), 2019 (29.4), 2020 (52.8), 2021 (49.7). Five violations were reported to County and/or CDFW in 2021.

Non-consumptive tidepooling represented 44% (680) of observations, and beach recreation represented 39% of observations (sandy 25%, rocky 14%).

Onshore consumptive observations in 2021 were 7% in the MPA compared with 11% the prior year. On-shore consumptive activities in 2021 included 64 incidents (4% of total) of hand collection of biota in the intertidal (0.93 observations per survey on average), which is 70% decrease from 2020 (217 observations, or 2.2 observations per survey). There were 48 observations of hook and line fishing and one spear fishing, permitted activities, observed. Offshore consumptive uses documented was less than 1%. However, MPA Watch volunteers have reported additional consumptive activity that were not documented during a survey. These included a commercial passenger fishing boat and four boats fishing within the MPA.

In the first half of the year, volunteers noted that they interacted with individuals who were collecting and observed that most collecting was not for consumption and most replaced species after removing. One incident of collecting for consumption was observed. After volunteer interaction, the visitors returned them as best as they could but had damaged urchin sheltering holes, and a violation was reported.

Leashed dogs are allowed on Agate Beach and Duxbury Reef. Volunteers conducted 69 surveys and recorded 117 dog observations (58 on leash and 59 off-leash and 3.8 dogs per mile surveyed). Compared to 2020, this was fewer surveys (98 in 2020) but more dog observations (109). This is an increase in the number of dogs per survey: 1.7 dogs per survey in 2021 vs. 1.1 dogs per survey in 2020 when 98 surveys were conducted and recorded 109 dog observations (33 on leash and 76 off-leash).

***Duxbury Reef SMCA continues to have a high use compared to other MPAs surveyed by Marin MPA Watch, accounting for 43% of all 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.***

**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.

This State Marine Park recorded a use rate of 4.9 activities per miles surveyed. This is a 63% increase compared to the prior year which had only 3 activities per mile. 93% of the activities were on-shore, non-consumptive, while 7% were offshore, non-consumptive.

93% of activities were on-shore, non-consumptive, mostly including recreation, biking and wildlife watching. 7% of activities were offshore non-consumptive including other boating, windsurfing and board sports. 6 boat observations included the passenger ferry.

Leashed dogs are allowed on the walking paths, but not in the wetland or marsh. Volunteers conducted 60 surveys and recorded 59 dog observations (34 on leash and 25 off-leash and 0.98 dogs per survey-mile). This is an increase in dog observations from 2020 (29) but more surveys were completed in 2021 resulting in about 1 dog per survey on average in 2021, vs. 1.8 dogs per survey in 2020.

## **8. Potential Violations**

The rate of consumptive activities observed in all MPAs remains relatively low, at 6%. However, this is driven mostly by consumptive activities in Point Reyes SMR (offshore 5%), Control PRSOUTH (offshore 3%), and Duxbury Reef (onshore 7%).

Anecdotal evidence suggests consumptive activities rates may be higher than reflected in the data, but not observed during the surveys.

Recurring issues with the illegal take and disturbance of tidepool organisms in Duxbury Reef SMCA is an ongoing problem during low tides. However, this year has shown a lower rate of hand collection, perhaps as a consequence of people returning to work during the course of the year, and growing outreach to educate the community through social media posts and other online platforms and direct engagement (tabling, informal docenting). Marin MPA Watch is working 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 patrol. Data provided by Marin MPA Watch has also demonstrated the need for increased visitor education about MPAs and reef ecology through the development of a volunteer docent program at Duxbury Reef.

## 9. 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. Our surveys have been limited in 2021 due to the effects on volunteer participation and long-term retention from the pandemic, as well as reduced public access to Drakes Beach during the year. Additionally, the program continues to grow the MPA Watch volunteer team by offering a Spanish language MPA Watch training (piloted in September) and beginning the next round of volunteer training sessions this spring.

Marin MPA Watch is working with the Environmental Action Committee of West Marin, California Academy of Science Rocky Shore Naturalists, community members in the village of Bolinas, Marin County Parks and Open Space, the Golden Gate MPA Collaborative, and the Friends of Fitzgerald Marine Reserve to implement a community docent program to address the high rate of usage at Duxbury Reef and the current lack of resources to provide visitor education. A report of the Marin MPA Watch findings was finalized and presented to Marin County Parks in April 2021. A formal partnership is in the process of being established to implement the docent program. In June, Marin County Parks rangers were provided a half-day training on MPAs and Duxbury Reef ecology. Recently, the first volunteer docent training session has begun. This program will improve community partnerships and ensure compliance with MPA regulations.

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.

## 10. 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](http://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](http://wildlife.ca.gov/MPAs). If you see an activity that violates MPA regulations, please call CalTip to report the violation at (888)-334-2258.

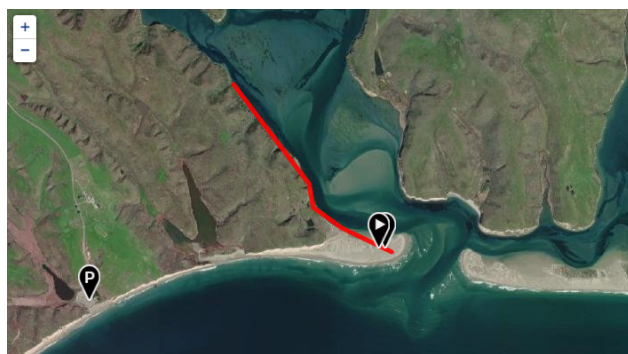
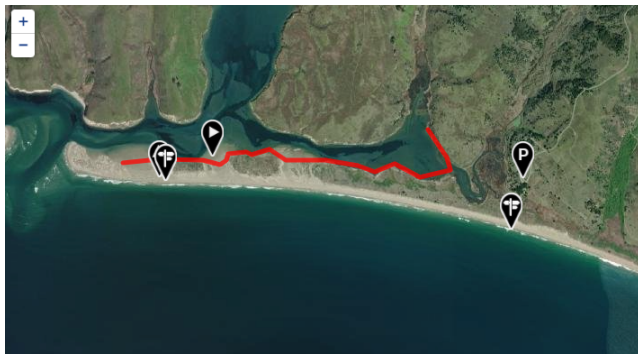
The Marin MPA Watch program was established in 2013 as a collaboration between the Environmental Action Committee of West Marin, Point Reyes National Seashore, and the California Academy of Sciences. The Marin MPA Watch program monitors human activities adjacent to and within the Point Reyes State Marine Reserve, Point Reyes State Marine Conservation Area, Point Reyes Special Closure, Estero de Limantour State Marine Reserve, Drakes Estero State Marine Conservation Area, Duxbury Reef State Marine Conservation Area, and the Corte Madera Marsh.

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](http://eacmarin.org/mpa-watch).

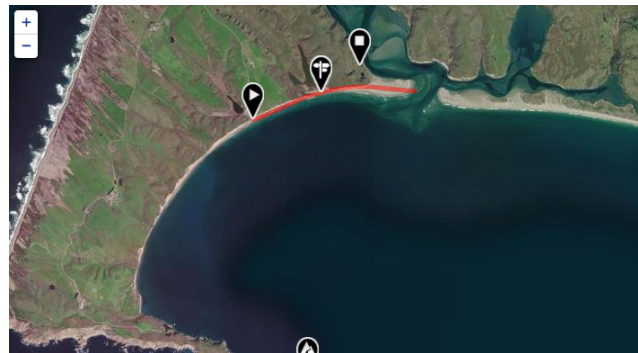
## 11. Maps:

\*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.

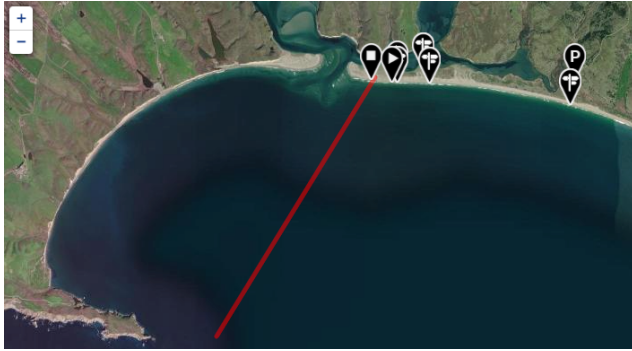
### Estero de Limantour State Marine Reserve (Estero de Limantour SMR):



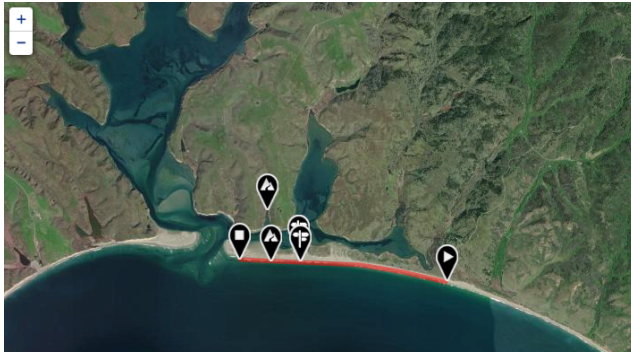
### Point Reyes State Marine Reserve (Point Reyes SMR)







**Limantour Beach (Control PRSOUTH)**



**Duxbury Reef State Marine Conservation Area (Duxbury SMCA)**



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

