The Last Mile

Scientific and Evidentiary Support for Extending Marine Protection to South Laguna's Unprotected Reefs

Supplemental Analysis in Support of Petition 2023-24MPA_AM1

(Extending the Laguna Beach No-Take State Marine Conservation Area Southern Boundary)

Prepared for the California Fish and Game Commission

September 2026

Submitted by Jinger Wallace, Board Member, Laguna Bluebelt Coalition

Executive Summary

New evidence compiled for the California Fish and Game Commission provides the data and analysis needed to support approval of Petition 2023-24MPA_AM1. The petition asks the Commission to extend the Laguna Beach No-Take State Marine Conservation Area southward, filling a gap in protection where fishing remains legal, unlike the protected reefs to the north. This report exists because California's Legislature, scientific experts, and Commissioners have rightly made it clear that petitions to expand marine protection should be approved when they are necessary and important to our fisheries and the goals of the Marine Life Protection Act (MLPA). The Act itself anticipates exactly this kind of case: it defines *"adaptive management"* as a policy that seeks to improve management of marine resources, *"particularly in areas of scientific uncertainty, by viewing program actions as tools for learning."* We believe South Laguna's case meets that standard. Thousand Steps has already reached a Tipping Point — the threshold beyond which a kelp forest shifts into a barren state that will not reverse on its own without additional protection.

Source: California Fish and Game Code, Chapter 10.5 (Marine Life Protection Act), Section 2852.

South Laguna's kelp forest is not simply less protected than it should be — it is showing the specific, well-documented ecological signature of a **Tipping Point**. This is not a reef system that has simply gotten worse. It has entered a self-sustaining downward spiral that will not reverse on its own. Protection is the next logical, responsible step — one shown to reverse this same kind of decline elsewhere — and meets precisely the kind of risk the precautionary principle exists to address.

Thousand Steps once supported a substantial, thriving kelp forest — 38.1% average coverage before the 2014–2016 heatwave, higher than Laguna Beach's own protected reefs over the same period. Today, that kelp coverage averages just 0.2% — effectively zero, and has not changed for over a decade. The scientific record — including guidelines from California's own Marine Life Protection Act Science Advisory Team, species science from the California Department of Fish and Wildlife, and California's 2025 statewide kelp forest monitoring — explains exactly why: the predator species capable of stopping this shift, and preventing it from happening in the first place (California sheephead and California spiny lobster), are the same species still being actively, continuously fished at this exact location. This report presents the evidence to protect both sites, and respectfully asks the Commission to approve this petition.

Note: Kelpwatch/Landsat satellite data. Thousand Steps kelp coverage averaged 38.1% before the 2014–2016 heatwave (2009–2014), falling to 0.2% in recent years (2023–2026).

1. Protect the Last Mile

Kelp forests are among the ocean's most productive ecosystems, often compared to rainforests for the sheer density of life they support. A single kelp forest provides food, shelter, and nursery habitat for hundreds of species — from the urchins and abalone living at its base to the fish, seabirds, and marine mammals that depend on the structure it creates in the water column. When a kelp forest disappears, it doesn't just mean less kelp — it means the loss of the physical foundation an entire nearshore ecosystem is built on, one that supports our fisheries and economy.

The Laguna Beach State Marine Reserve (SMR) and the adjoining Laguna Beach No-Take State Marine Conservation Area (SMCA) protect most of the Laguna Beach shoreline, extending south to Table Rock

(33°30.050′N). There, the coastline falls within the Dana Point SMCA where recreational and commercial take of finfish, lobster, and urchin remains legal.

Reef Check's own report on the area states plainly that this represents *"an additional mile of coastline"* that "remains unprotected" — even though it functions as part of the same reef ecosystem that CDFW's Laguna Beach MPA cluster was already designed to protect. The Petition proposes closing that gap, extending the No-Take SMCA boundary to encompass this entire unprotected mile. Two reef sites anchor this stretch: **Thousand Steps**, roughly a quarter mile south of Table Rock, and **Three Arch Bay**, at the stretch's southern end, near the proposed new boundary. This report presents the evidence to protect both sites.

Source: Reef Check California, Laguna Beach Coastal Kelp Forest Evaluation, Jaclyn Mann, Feb. 2026.

2. The Case for Protecting South Laguna's Reefs

2.1 A Tipping Point at Thousand Steps

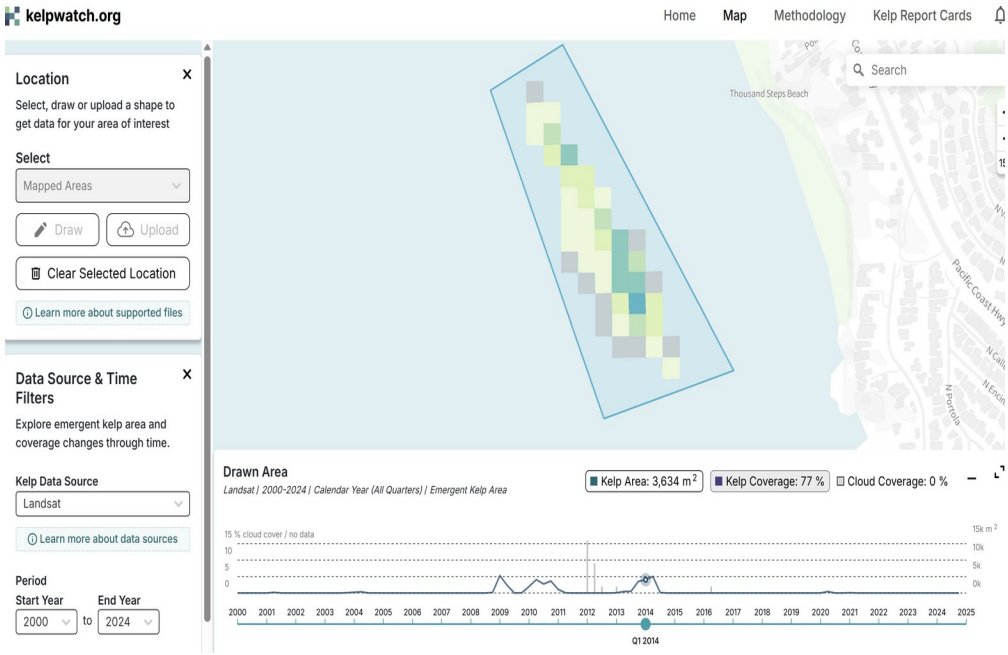
The clearest evidence of this threshold sits at Thousand Steps. In 2014, this reef grew a substantial kelp forest, recruited naturally — not through direct planting — from a 2012 countywide restoration effort that seeded kelp spores at 15 source sites along the Orange County coast specifically so nearby reefs could regenerate kelp on their own. Thousand Steps did exactly that: by 2014, it supported the best kelp coverage this stretch of coastline had seen in thirty years. That kelp forest disappeared in 2015 and has never returned.

The timing tells the story precisely. In the six years immediately before the 2014–2016 heatwave, Thousand Steps averaged 38.1% kelp canopy coverage — a real, substantial, functioning kelp habitat that this reef built on its own, higher even than Laguna Beach's protected reefs averaged over the same years. In the four most recent years, 2023 through 2026, that average has collapsed to just 0.2% — effectively zero, and did not change for over a decade. This was not a marginal or occasional presence that simply faded. It was a real kelp forest, capable of naturally regenerating itself once given the chance, that vanished with the heatwave and has shown no capacity to recover since. The question is why.

Note: Kelpwatch/Landsat satellite data, quarterly, 1984–2026. Thousand Steps held kelp for an unbroken 11-quarter stretch ending in 2014. Pre-heatwave average (2009–2014): 38.1% coverage. Recent average (2023–2026): 0.2%.

Source: Kelpwatch.org (Bell, Cavanaugh, Siegel et al.), Landsat kelp canopy dataset, 1984–2026.

Thousand Steps Kelp Bed, Q1 2014 at 77% Coverage



Note: Kelpwatch.org mapping tool, Thousand Steps kelp bed, Q1 2014 — drawn polygon shows 3,634 m² of mapped kelp area at 77% kelp coverage within the surveyed area, part of the same pre-heatwave kelp bed discussed above.

This is not merely an absence of kelp — it is active, ongoing suppression. Marine biologist Nancy Caruso, who led the original 2012 restoration effort, confirmed on a recent site visit that red urchins are now present at Thousand Steps out in the open — a sign of actively feeding behavior, not dormant grazers sheltering in crevices.

Thousand Steps' seafloor is low-lying bedrock — solid, stable substrate well-suited to supporting kelp holdfasts, according to marine biologist Nancy Caruso's direct diving observations, not the loose cobble sometimes assumed. This is consistent with the reef's own documented history: a real, substantial ~500-meter kelp bed, confirmed independently by Kelpwatch's satellite data and Nancy Caruso's direct visual review, and further corroborated by CDFW's own evaluation, which found kelp canopy in this area *"stable… from 2010-2016."* If the substrate were fundamentally incompatible with kelp, that kelp bed could not have existed. CDFW's own evaluation raises a further, related possibility for why it hasn't returned: *"anchor drag and other artifacts of fishing efforts, such as setting lobster traps, may cause damage to the rocky reef that is suitable habitat for giant kelp"* — meaning ongoing fishing activity itself may be part of why this substrate no longer supports the kelp it once did, coupled with fishing pressure on this species that has more than tripled (+229%) since the reef's last strong kelp year.

Source: Nancy Caruso, Marine Biologist, direct observation; CDFW Evaluation of 2023-24MPA_AM, March 2026.

Three Arch Bay offers a different, equally valuable kind of protection: habitat diversity. Marine biologist Nancy Caruso, who has dived this reef extensively, describes its compact, steep-sided pinnacle structure as creating several distinct habitat zones within one reef — a wave-scoured top, current-swept slopes supporting gorgonians, and a deeper flat area with typical reef species. In 2026, Reef Check independently recorded the first starry urchin ever documented in its 19-year Laguna Beach survey

history at Three Arch Bay — a species previously seen in Southern California only at the Channel Islands. This kind of habitat variety, concentrated within a single reef, is exactly what California's Marine Life Protection Act Science Advisory Team guidelines call for when evaluating whether an MPA network achieves meaningful habitat replication and representation. Together, Thousand Steps and Three Arch Bay offer South Laguna's reefs the kind of balanced, restored habitat diversity a resilient coastal ecosystem depends on — one site rebuilding its kelp forest, the other preserving the hard-bottom diversity a healthy reef network needs.

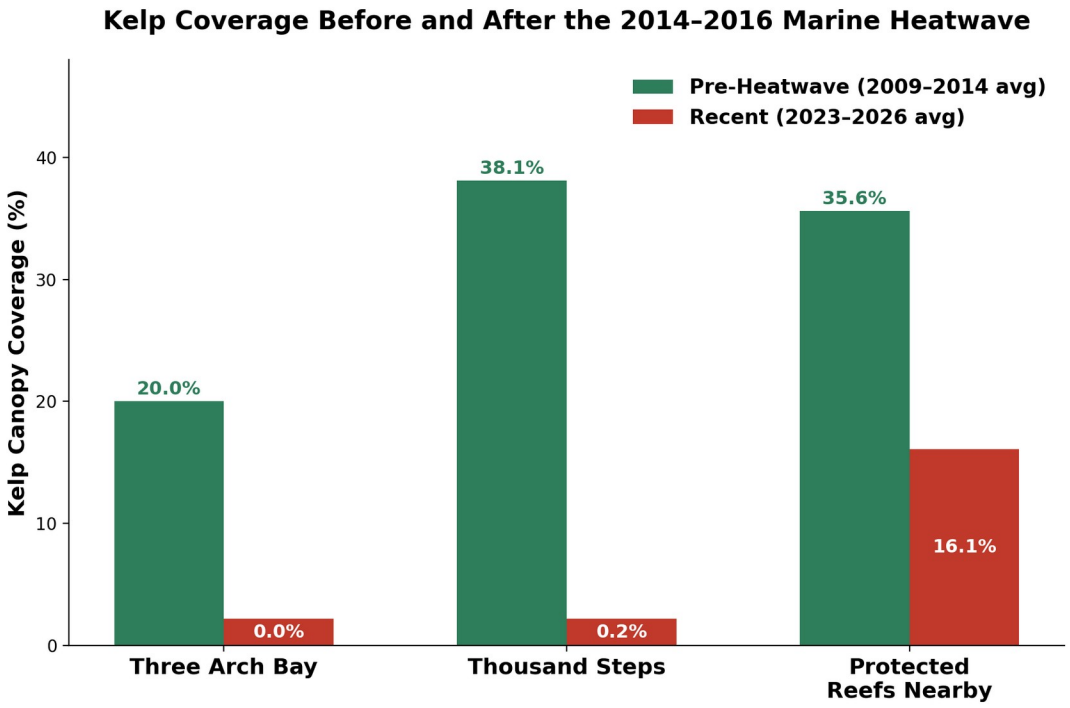
Three Arch Bay's habitat value extends beyond invertebrate diversity. Marine biologist Nancy Caruso has surveyed green abalone across 35 reef sites and over 13,000 square meters in Orange County. She reports that Three Arch Bay shows the highest green abalone density she has recorded anywhere in that survey work. Yet, even here, density remains below the 0.2 per square meter threshold generally considered necessary for a self-sustaining population. Green abalone is a species of significant ongoing conservation concern in California, where the recreational fishery has remained closed in Southern California since 1997. Like California's other abalone species, green abalone were severely depleted by decades of overharvesting, and their slow growth and limited mobility make natural recovery difficult. Without intervention, even South Laguna's strongest known green abalone population remains at risk of continued decline. Extending protection to Three Arch Bay would directly benefit this population, at the exact moment such protection is most needed.

Sources: Reef Check California, Laguna Beach Coastal Kelp Forest Evaluation, Feb. 2026; Nancy Caruso, Marine Biologist, direct observation.

2.2 The 2014–2016 Marine Heatwave

According to the National Oceanic and Atmospheric Administration (NOAA), a marine heatwave is a prolonged period in which ocean temperatures exceed the 90th percentile of historical observations for that time and place — the same basic phenomenon as a heatwave on land, but in the water, and often lasting months or years rather than days. The 2014–2016 marine heatwave that struck the California coast was among the most severe on record, and it hit every reef in this case alike: Thousand Steps, Three Arch Bay, and Laguna Beach's protected reefs all experienced the same event, at the same time, in the same region.

Source: National Oceanic and Atmospheric Administration, "The ongoing marine heat waves in U.S. waters, explained."



Source: Kelpwatch.org (Landsat satellite kelp canopy data, 1984–2026)

What happened next is the real story. In the years immediately following the heatwave, kelp coverage collapsed everywhere — including at Laguna Beach's protected reefs, which fell as low as 2.7% in some years. But the protected reefs did what a healthy reef is supposed to do afterward: they recovered. In the four most recent years, they have rebuilt to 14.1%, 14.2%, 23.9%, and 12.4% coverage — roughly half their earlier levels, and climbing. Thousand Steps has shown no equivalent recovery at all. Twelve years after the heatwave, its kelp coverage remains at 0.2% — essentially zero, exactly where it was in the worst years immediately after the heatwave hit.

Same heatwave. Same region. Same starting point. The only difference between the reef that recovered and the reef that didn't is protection status. That is not a coincidence this report is asking the Commission to overlook — it is the central fact the Commission is being asked to act on.

This is not a hypothetical concern. Rogers-Bennett and Catton (2019) document exactly this outcome in Northern California, where a different combination of predator loss and marine heatwave tipped bull kelp forests into a barren across more than 350 kilometers of coastline. The consequences have not resolved themselves. This Commission closed the recreational red abalone fishery in 2017 in direct response; on December 11, 2025, this Commission voted unanimously to extend that closure another full decade, to April 1, 2036 — a 19-year closure, and counting, for a single fishery tied to a kelp collapse this Commission has already spent nine years trying to reverse.

Sources: Rogers-Bennett & Catton (2019), Scientific Reports 9:15050; California Fish and Game Commission, Dec. 11, 2025 meeting action extending the red abalone fishery closure to April 1, 2036.

Protection status is not simply a matter of policy — it reflects whether a reef's predator population survived the heatwave healthy enough to keep urchins in check as the reef tried to recover, or whether fishing pressure had left it without that defense.

2.3 Why This Is Happening: Small Sheephead Can't Stop the Urchins

Science shows a kelp forest can usually withstand a heatwave alone, or predator loss alone — it is the combination of both that causes a permanent shift. Not all sheephead are equally effective at controlling urchins — size determines almost everything. CDFW's own species status report shows exactly how much a predator's size matters. Sheephead smaller than 8 inches do not eat urchins at all. Separately, when it comes to succeeding against specifically large urchins, sheephead under 11 inches succeed only about one time in ten, while those over 18 inches succeed more than half the time. In plain terms, a reef with only small sheephead is nearly as unprotected from urchins as a reef with none. CDFW's own data show this is not hypothetical: sheephead near the Channel Islands are getting smaller at maturity as fishing pressure has increased there, while in Mexico — where fishing pressure has stayed low — sheephead show no such change. Consequently, where fishing pressure is high, sheephead stay smaller; where it is low, they don't.

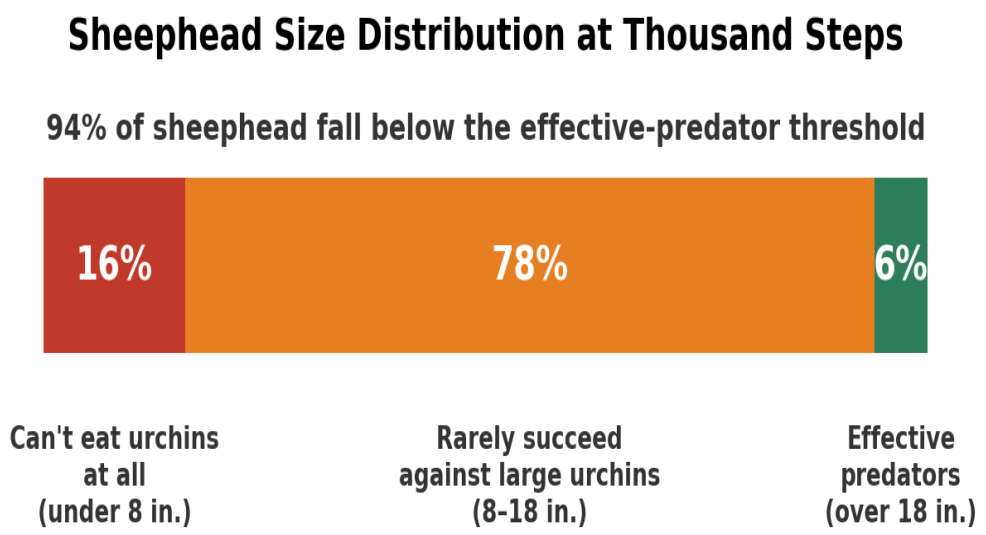
Source: CDFW, Fishery-at-a-Glance: California Sheephead (2019), citing Selden et al. (2017) and Hamilton et al. (2007).

Reef Check's own long-term monitoring program confirms what this looks like in practice, right here in Laguna Beach. Thirteen years of survey data (2007–2019) from the four protected reefs inside the Laguna Beach State Marine Reserve (SMR) — Divers Cove, Heisler Park, Seal Rock, and Shaws Cove — recorded sheephead up to 28 inches (72 centimeters) long. Neither Three Arch Bay nor Thousand Steps has produced anything close to that: the largest sheephead recorded at either site is 20.5 inches (52 centimeters), and at Three Arch Bay, just 16.1 inches (41 centimeters). Protected reefs in this exact system are demonstrably capable of growing sheephead well beyond the size CDFW identifies as an effective urchin predator. The unprotected reefs at the center of this petition are not currently producing fish anywhere near that size. This is not a claim that large sheephead are rare everywhere — it is a claim about here: these reefs do not have them, and reefs just north of them do.

Note: Comparison uses Reef Check California's full long-term dataset for the four protected sites (2007–2019, n=2,069 measured sheephead) against a single-day snapshot survey at Three Arch Bay and Thousand Steps (January 2026, n=96). The protected-site data predates the unprotected-site snapshot and is not perfectly contemporaneous; the size gap is nonetheless striking given the small sample at the unprotected sites.

Predator Loss Is the Mechanism Driving Collapse

- Protected Laguna reefs produce sheephead up to 28 inches — succeeding against large urchins more than half the time
- At Thousand Steps, 94% of sheephead are too small to reliably control urchins — only 6% reach the size CDFW identifies as an effective predator
- With so few sheephead large enough to control them, and fishing pressure on this species more than tripling fleet-wide between 2014 — the reef's last strong kelp year — and 2024, urchins at Thousand Steps have gone effectively unchecked since the kelp forest disappeared in 2015, which is precisely why, twelve years later, it still has not returned



Source: Reef Check California, January 2026 snapshot survey (n=87)

Reef Check's own 2025 statewide report — 233 sites, 20 years of data — adds two more findings. First, sheephead numbers across Southern California dropped significantly from 2021 to 2025. Second, and separately: urchin numbers across the same region, taken as a whole, have actually fallen to less than a third of what they were before the 2014–2016 heatwave — the opposite of what happened in Northern California, where urchins exploded into barrens.

Source: Freiwald et al., Status and Trends of the West Coast's Kelp Forests 2025, Reef Check Foundation, Aug. 2026.

This same size pattern was also seen firsthand by Jordan Manning, the underwater filmmaker who recorded video of Reef Check's 2026 survey footage. He confirmed on the record what the two sheephead captured on film show. Outside the protected area, the sheephead seen was a smaller female. Inside the protected area, at Crescent Bay, a larger male was filmed — consistent with what the long-term data shows: protected reefs in this system support larger sheephead than the unprotected reefs nearby.

That fishing pressure keeps sheephead smaller isn't surprising given the species' underlying biology. California sheephead can live up to 53 years but grow slowly, and often don't complete their natural transition from female to male until somewhere between ages 5 and 13 — consistent with the footage above, showing a larger male at protected Crescent Bay and a smaller female outside it. Because of this slow growth, sustained fishing pressure does not simply remove large fish once; it structurally prevents a population from replenishing them again, since each new generation takes years to grow large enough to become effective urchin predators. The IUCN lists California sheephead as a species of conservation concern for precisely these reasons.

Sources: Aquarium of the Pacific, California Sheephead Marine Species Report Card; Hamilton et al. (2011), PLOS ONE 6(9): e24580.

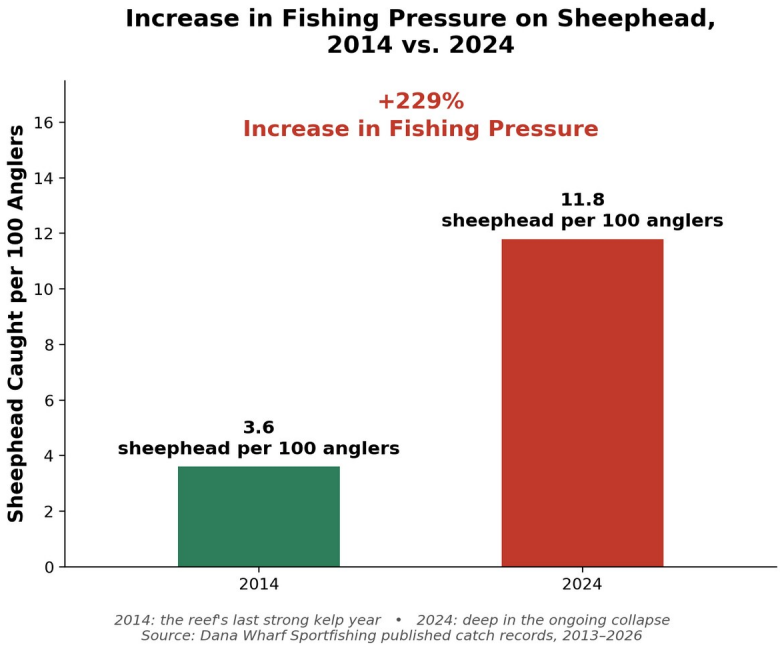
2.4 Sustained Fishing Pressure at Thousand Steps

The predation mechanism described above — that is, fishing pressure removing the large sheephead that would otherwise keep urchins in check — needs one more piece of evidence to complete the picture: proof that this kind of fishing pressure is actually happening at these specific reefs, not simply somewhere in the region. At Thousand Steps, that proof is more direct and more sustained than anywhere else in this record.

Over nearly three years, from October 2023 through August 2026, direct observation documented 50 dated sightings of Commercial Passenger Fishing Vessels (CPFV) anchored at Thousand Steps. Emails documenting these sightings, each with a photograph attached, were sent to Orange County Coastkeeper at the time for nearly all of them — not just a private log. Several boats were identified by name, including **Sum Fun**. One day in particular, September 21, 2025, recorded as many as three separate sightings within hours of each other — and Dana Wharf's own published catch records for that exact date confirm at least three distinct named boats ran half-day trips that day, independent confirmation that multiple genuinely distinct CPFV vessels were active, not the same boat observed repeatedly. Crew were seen on deck; anchor chains were heard dropping in real time. Large numbers of lobster traps are consistently observed at Thousand Steps during lobster season. This matters because California spiny lobster is the other major urchin predator in this case, alongside sheephead — meaning both key predator species are being actively fished at this same reef, not just one.

Note: on September 21, 2025, Dana Wharf's published catch records show Dana Pride (30 anglers, 11 sheephead), Reel Fun (28 anglers, 3 sheephead), and New San Mateo (7 anglers, 2 sheephead) all ran half-day trips, out of a fleet-wide total of 10 boats and 252 anglers that day.

This pattern was checked against Dana Wharf's own published catch records, and the results confirm something important: the days boats were seen at Thousand Steps were genuine, active fishing days, not incidental visits. Of 47 distinct, photographically documented dates in the sighting log, 45 matched directly to real, dated fleet catch records. This is evidence of active, sustained fishing pressure at this exact site — a different but complementary signal from the size data in Section 2.3: that data shows what fishing pressure has done to the population's size structure over time; this shows the pressure is real, current, and ongoing.



This same fleet has removed over 33,000 sheephead fleet-wide since 2015 — the exact year Thousand Steps' kelp bed disappeared — underscoring that pressure on this predator species has been sustained, not occasional, throughout the entire period this reef has needed it most to recover.

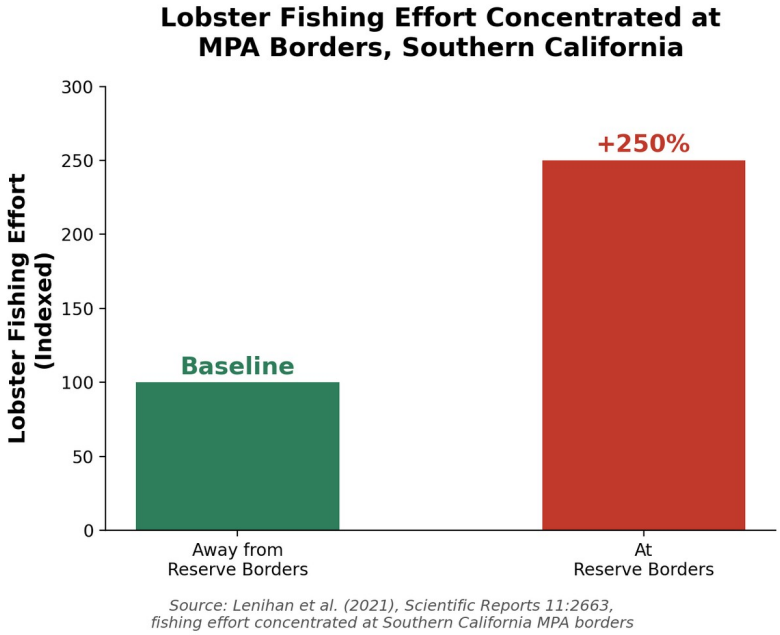
Fleet-wide sheephead catch rates, after rising steadily for a decade, have softened over the past three years — from a peak of 0.133 per angler in 2023 to 0.106 in 2026, a decline of roughly 20%, though this is fleet-wide, not site-specific, data. However, even a decade of rising catch should not be read as a sign of a healthy population. Catching a lot of fish is not the same as catching the right fish: this fleet-wide pattern is consistent with an abundance of small and medium sheephead rather than the large, urchin-controlling sheephead this reef needs — precisely the size imbalance already documented at Thousand Steps in Section 2.3. This catch number simply counts how many fish are being caught — it says nothing about their size, which is the only thing that actually matters for controlling urchins. A busy fishing spot and a healthy predator population are not the same thing.

This pattern is consistent with a well-documented phenomenon in marine protected area science known as “fishing the line” — the tendency for fishing effort to concentrate near MPA boundaries once fishing is displaced from the protected area itself. Using fifteen years of California-specific CCFRP data, marine ecologist Scott Hamilton (Moss Landing Marine Laboratories) confirms this effect is real and measurable in California's own MPA network: *“an examination of CPUE and biomass trends with increasing distance from MPA boundaries has revealed that fishing-the-line behavior and edge effects modify MPA responses in California.”* Thousand Steps' position makes this pattern especially predictable: it is the first reef immediately south of the Laguna Beach No-Take SMCA boundary at Table Rock, roughly a quarter mile away, which took effect January 1, 2012 — making it the nearest, most accessible target for fishing effort displaced from the newly protected area.

This concentration of fishing pressure at the boundary has not gone unnoticed by residents. In public comment to the Laguna Beach City Council on May 12, 2026, resident John Thomas — who lives two houses north of the current boundary — testified to watching this pattern intensify directly, year after year: *“What's happened over the time that the MPA has been in effect is that every year commercial*

lobster fishermen set more and more traps, lines, and floats hugging the southern boundary until there are now hundreds stretching as far as the eye can see."

This effect has been documented specifically for California spiny lobster, the other key predator species in this case. Lenihan et al. (2021, *Scientific Reports*) found a 250% increase in lobster fishing effort concentrated at marine reserve borders in Southern California, where this site sits, with fishers directly confirming they deliberately target reserve edges to intercept lobsters spilling over from protection — precisely the pattern John Thomas describes witnessing at this exact boundary, removing the predators this reef relies on to suppress urchins.



Source: Lenihan et al. (2021), Scientific Reports 11:2663.

This timing matters. Two years of concentrated fishing pressure at Thousand Steps, beginning when the boundary took effect in 2012, means the large sheephead and lobster capable of controlling urchins were already being removed from this reef well before the heatwave ever arrived — the same predation mechanism described in Section 2.3. With fewer large predators present to eat them, urchin numbers at Thousand Steps had likely already started increasing by 2014, beyond what a healthy reef would normally support. When the 2014–2016 heatwave hit, it struck a reef whose natural defense against an urchin outbreak had already been weakened, not a reef starting from full strength — which is exactly why Thousand Steps tipped into collapse while other nearby reefs recovered.

Source: Hamilton, S., Moss Landing Marine Laboratories, Ocean Seminar Series presentation summary.

2.5 Why This Petition Is Necessary

This case does not rest on a single piece of evidence. It rests on four separate lines of evidence:

- A documented Tipping Point in the kelp forest at Thousand Steps

- Clear and quantified evidence that fishing removes the large sheephead and lobster capable of controlling urchins
- Nearly three years of verified and sustained fishing pressure at Thousand Steps
- Independent scientific agreement that protection helps reefs recover from exactly this kind of disturbance

Together, this evidence is more than enough to justify action now — before more of South Laguna's reefs are lost the same way.

In July 2026, twelve independent marine scientists — from institutions including Stanford University, Cal Poly, the Marine Conservation Institute, and Heal the Bay — wrote directly to this Commission, and their message carries particular weight for this petition specifically. One of the twelve signatories is a co-author of the very Ortiz-Villa study that CDFW's own evaluation relies on to argue the 2014–2016 heatwave explains South Laguna's decline. That same scientist's signed letter states plainly that California's marine protected areas *"show significantly greater post-heatwave recovery and overall community stability compared to unprotected reference areas"* — the opposite conclusion from the one CDFW draws from the same underlying research. Their letter goes further, urging the Commission to apply the precautionary principle: where real scientific uncertainty remains, protection should be extended now, not withheld pending further proof. Applied to South Laguna, that principle points toward one outcome: filling the gap in protection at Thousand Steps and Three Arch Bay before the decline already documented here becomes irreversible.

3. Responding to CDFW's and OPC's Evaluations

Neither CDFW nor OPC disputes that kelp cover at these reefs has declined dramatically, or that extending protection would benefit them. Both evaluations explicitly concede the extension would increase protection and likely benefit fished species. Their objections rest on boundary clarity and enforcement — concerns OPC adopted directly from CDFW's own evaluation — and, in CDFW's case, a further disagreement over the cause and permanence of that decline: CDFW attributes it to the 2014–2016 heatwave alone, a question this report addresses directly below.

3.1 The boundary is clear and enforceable

Laguna Beach's Marine Safety Department already maintains active enforcement capacity along this exact stretch of coastline, and the proposed boundary itself is clearly defined. This can help address CDFW's stated concern about boundary alignment and enforcement. CDFW's evaluation notes the proposed boundary *"would not fall on an even line of latitude"* and lacks a clear landmark for enforcement. For the Commission's reference: the proposed boundary sits on a straight line of latitude, 33°29.052′N, within Laguna Beach city limits, at a site with a prominent 50-foot bluff — a landmark comparable in clarity to the existing Table Rock boundary CDFW already relies on today. This correction was shared with the Commission in testimony on May 19, 2026, by the Laguna Bluebelt Coalition.

It may also help the Commission to know that Laguna Beach's Marine Safety Department brings real, established experience to the task. Founded in 1929, the department has spent nearly a century developing the training, staffing, and equipment needed to operate along this coastline, and has directly patrolled South Laguna, including this exact stretch, since the City assumed jurisdiction over it in 2023. The department is responsible for ordinance enforcement across 16.5 miles of ocean and 5.5 miles of

coastline, staffs a dedicated Marine Protection Officer position, and operates Wave Watch, a 33-foot vessel commissioned in 2024 for offshore operations and interagency radio coordination. The department also operates personal rescue watercraft for active surf patrol and rapid ocean response. Their speed and maneuverability make them well suited to patrolling and enforcing boundaries across open water. Extending the boundary to a clearly defined, GPS-verifiable line of latitude falls well within capacity the City already maintains at this exact location.

3.2 The fishing-grounds impact, precisely accounted

The Commission may also benefit from having a precise accounting of the petition's actual impact on fishing grounds. This matters because CDFW's framing suggests a far larger disruption to fishing activity than the petition would actually cause. CDFW's evaluation describes the affected area as *"nearly half"* the fishing grounds within Dana Point SMCA. The real figure is closer to roughly one-third, based on a comparison of the length of coastline this petition would newly protect against the total Dana Point SMCA coastline, once Dana Point SMCA's already-protected, already-restricted tidepool zone is properly excluded from the comparison.

Note: this figure has been calculated in the range of 29-34% depending on precise methodology; 34% is used here for consistency with prior public testimony to the Commission.

Sources: CDFW Evaluation of 2023-24MPA_AM, Table 1; CDFW MPA quick-facts sheet for Dana Point SMCA; May 19, 2026 presentation.

3.3 The Heatwave Is Not a Singular Explanation

Section 2.2 already answered the question at the center of this dispute: whether the 2014–2016 heatwave alone caused South Laguna's kelp loss, or whether protection status determined which reefs recovered from it. CDFW's own evaluation reaches the opposite conclusion, and its reasoning is worth examining directly.

Ortiz-Villa et al. (2025) found that kelp forests inside marine protected areas recovered significantly faster and more fully from the heatwave than unprotected kelp forests — the opposite of how CDFW uses this study. CDFW cites it to justify denying protection for reefs in South Laguna, ruling out fishing pressure as a cause of kelp loss at Thousand Steps and Three Arch Bay, and arguing the 2014–2016 heatwave is instead responsible. The heatwave may well have caused the initial decline everywhere, as CDFW argues. But whether a reef recovers from it afterward depends on protection status. South Laguna has no such protection, whereas Laguna Beach's protected reefs to the north do. This means South Laguna's decline is not simply a fixed consequence of a climate event that has already happened. It is a condition this Commission still has the power to change, by extending the same protection that allowed the reefs to the north to recover.

Source: Ortiz-Villa et al. (2025), J. Applied Ecology 62(9).

Ray Hiemstra's May 19, 2026 testimony made the same point directly to the Commission, using CDFW's own SeaSketch kelp-persistence mapping tool. Areas inside the Laguna protected areas showed better post-heatwave recovery than Dana Point SMCA. But CDFW's evaluation never made that comparison — it only tracked kelp within Dana Point SMCA over time, checking whether kelp there declined after the heatwave. Tracking one place over time cannot tell you whether the heatwave affected every reef the same way, or whether recovery afterward depended on protection status. Hiemstra's testimony supplies

the missing comparison, and answers the question. As Hiemstra put it to the Commission: *"If no other site specific drivers exist other than fishing, then what is driving the disproportionate kelp recovery across these areas?"*

McPherson et al. (2021) explains why both things can be true at once: a kelp forest can absorb a heatwave alone, or predator loss alone, and recover. It's **the combination of both** that causes a permanent shift. The heatwave may well have triggered the initial decline at South Laguna. Whether a given reef recovers from it depends on whether its predator population remains healthy — meaning fishing pressure has not removed the large sheephead and lobster a reef needs to keep urchins in check. This is why extending no-take protection, as this petition requests, is necessary for these reefs to recover: it is the only action available to the Commission that directly restores the predator populations this recovery depends on.

Sources: McPherson et al. (2021), Communications Biology 4:298; May 19, 2026 presentation.

3.4 CDFW's Own Evaluation Confirms the Ecological Benefit

Answering its own Question 13 — "Does the proposed change maintain or enhance protection of marine resources?" — CDFW answered yes, stating the extension *"would increase the area protected… and hence, offer increased protection to the habitats contained within."* CDFW's own tables put numbers on that gain: the total protected area in the Laguna Beach SMCA would grow by nearly half again, protected rocky intertidal habitat would more than quadruple, protected beach habitat would nearly triple, and 0.36 square miles of kelp habitat — currently entirely unprotected — would gain protection for the first time — direct, quantified improvement to the exact habitats this petition is meant to protect. The extension fills the final gap in Laguna Beach's protected reef network, restoring the predator populations these ecosystems need to recover.

Note: CDFW's Table 1 reports these gains as percentage increases: 45% for total protected area, 321% for rocky intertidal habitat, and 176% for beach habitat.

3.5 Extending the Boundary Is Not Unprecedented

It may be useful context for the Commission to know that this boundary extension has real precedent in the original planning process for this MPA network. CDFW's evaluation notes that during the original Marine Life Protection Act planning process, a stakeholder proposal recommended extending protection at Laguna Beach even farther south than this petition asks for. The current boundary was one option chosen among several considered at the time, reflecting a range of reasonable approaches rather than a single fixed design.

Source: CDFW Evaluation of 2023-24MPA_AM, Question 7A.

3.6 OPC's Letter Offers Helpful Context of Its Own

Although OPC staff reached a similar recommendation as CDFW's, it was based on data CDFW presented in their evaluation regarding boundary and enforcement considerations. OPC's letter also importantly notes the extension *"would increase overall protection in the area and potentially benefit fished species."*

Source: OPC Staff Recommendations — Petitions to Adaptively Manage California's MPA Network, July 31, 2026.

OPC also states, discussing a separate petition, that healthy populations of California sheephead and California spiny lobster *"keep populations of kelp grazers like sea urchins in check, preventing urchins from overgrazing kelp,"* and that this effect has been documented specifically *"in Southern California, where lobster and Sheephead are abundant."* OPC's letter cites the same Ortiz-Villa study discussed above, noting that marine protected areas statewide show kelp canopy coverage up by roughly a twelfth compared to unprotected areas. Thousand Steps shows what that same gap can look like at its most severe: not a twelfth less kelp, but essentially all of it — a decline from 38.1% average coverage before the heatwave to just 0.2% today, in a reef with no protection at all.

Note: OPC's letter reports this as an 8.5% increase in kelp canopy coverage.

The specific factual points raised in Section 3.1 above — regarding the boundary's clarity and the City's enforcement capacity — were presented to the Commission on May 19, 2026, by petitioner Mike Beanan and Orange County Coastkeeper Associate Director Ray Hiemstra. This report shares that same context here, as the Commission continues their review.

4. Conclusion and Request

The Commission has rightfully set the standard for approval of petitions — that they be necessary and important to our fisheries and the goals of the MLPA. This petition is necessary because South Laguna's reefs have reached a Tipping Point. Under the real, documented risk to South Laguna's reefs, this report has shown that the Laguna Bluebelt Petition meets that standard, and provides strong evidence to justify your action to support it:

- A documented Tipping Point in the kelp forest at Thousand Steps
- Clear, quantified evidence that fishing removes the large sheephead and lobster capable of controlling urchins, consistent with direct observation of active urchin grazing at Thousand Steps
- Nearly three years of verified, sustained fishing pressure at Thousand Steps
- Independent scientific agreement that protection helps reefs recover from exactly this kind of disturbance

Together, this evidence meets the standard the Commission has set for action: not simply beneficial, but necessary.

We respectfully request that the Commission approve Petition 2023-24MPA_AM1.