



AGENDA ITEM SUMMARY

BACKGROUND

The Shellfish Program of the Oregon Department of Fish and Wildlife (department) provides regulatory oversight, management, and monitoring for the recreational and commercial fisheries for sea urchins along the Oregon coast. Ripe gonads from healthy sea urchins are sold as a high-value seafood product (uni). To address the recent widespread increase in the abundance of purple sea urchins along the Pacific coast of North America, **department staff are seeking the Commission's consideration of three issues: (1) approval of a proposed increase in the daily bag limit for recreational take of purple sea urchins for personal use; (2) evaluation of the merits of a proposed new permit for commercial take of purple sea urchins for the retail seafood market; and (3) approval to allow for issuance of a Letter of Authorization to enable culling of purple sea urchins to reduce grazing pressure and assist with conservation of seaweeds and kelp.**

Changing Ocean Conditions Impact Sea Urchin Abundance: Regional shifts in the marine environment along the Pacific coast of North America over the past decade have resulted in changes to habitats, ecological communities, and populations of shellfish. A massive marine heatwave persisted along the west coast from 2014 to 2016 and subsequent shorter-term ocean warming events occurred over the period from 2019 to 2023. All of these oceanographic events are driven by changes in atmospheric conditions, and the periodic marine heatwaves and elevated seawater temperatures are projected to be a recurring ocean manifestation of climate and ocean change.



Figure 1. Purple sea urchin (*Strongylocentrotus purpuratus*)

Commercial and recreational interest in the take of purple sea urchins (*Strongylocentrotus purpuratus*; Figure 1) has historically been very low in Oregon and accounts for less than 1% of

the total historic catch (PSMFC, 2022; Groth, 2024). However, recent shifts in regional ocean conditions contributed to an episodic recruitment event and dramatic increase in the abundance of purple sea urchins from 2014 to 2019 in rocky habitats at many locations along the Oregon coast. Surveys conducted by the department indicate that the local population has increased to about 350 million purple sea urchins at Orford Reef alone (Figure 2; Groth, 2024), and it is estimated that the population may now exceed a billion sea urchins coastwide. These abundant purple sea urchins typically occur in dense aggregations (known as urchin barrens) where grazing pressure is high, seaweeds and kelp are in decline, and the sea urchins are undernourished with little market value. Nevertheless, interest has grown in the recreational and commercial take of purple sea urchins, and a few commercial operations are now engaged in activities to take, hold, and feed purple sea urchins at land-based mariculture facilities for eventual sale on the retail seafood market (aka “urchin ranching”). Interest is also growing in the deliberate removal (or culling) of purple sea urchins in an effort to reduce grazing pressure and assist with the recovery of seaweeds and kelp.

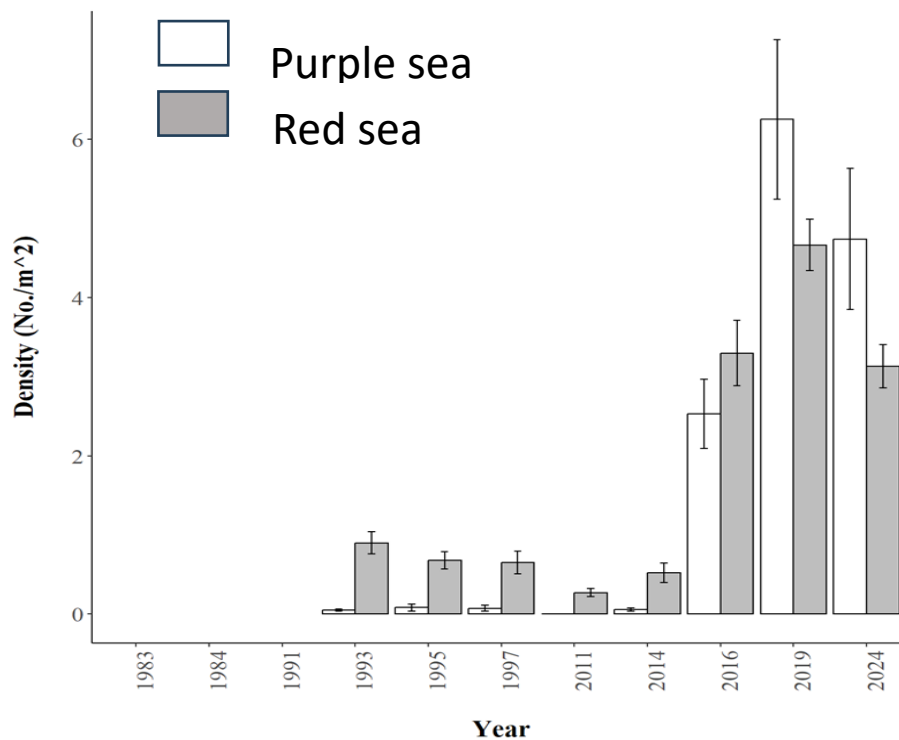


Figure 2. Changes in the abundance of purple sea urchins (open bars) and red sea urchins (shaded bars) at Orford Reef, OR (1993-2024). Note dramatic increase in abundance of purple sea urchins between 2014 and 2016; error bars indicate standard error (SE).

The proposed revisions to ODFW regulations regarding sea urchins are summarized below:

ISSUE	Current Regulations	Proposed Regulations
1. Recreational take of purple sea urchins	Daily catch limit is 10 in aggregate for urchins, snails, shore crab, and all other marine invertebrates not listed	Increase daily catch limit to 35 purple sea urchins per person per day
2. Commercial take of purple sea urchins	Commercial divers must obtain a special collection permit for purple sea urchins that is only available to 12 holders of a commercial Sea Urchin and Sea Cucumber Restricted Participation Permit	Consider merits of proposal to issue 24 new Commercial Purple Sea Urchin Permits; without requirement to hold a Sea Urchin and Sea Cucumber Restricted Participation Permit
3. Controlled culling of sea urchins	None applicable; currently addressed by joint NOAA/ODFW Scientific Take Permit	Letter of Authorization (LOA) to allow controlled culling of sea urchins; applicable at 3 priority sites to assist with conservation and recovery of kelp

Literature Cited:

- Grime, B.C., R. Sanders, T. Ford, H. Burdick, and J.T. Claisse. 2023. Urchin gonad response to kelp forest restoration on the Palos Verdes Peninsula, California. *Bulletin Southern California Academy of Sciences* 122(1):1-18. <https://doi.org/10.3160/0038-3872-122.1.1>
- Groth, S.D. 2024. History and trends in Oregon’s red sea urchin, *Mesocentrotus franciscanus*, and purple sea urchin, *Strongylocentrotus purpuratus*, fisheries, 1986-2022. *Marine Fisheries Review* 85(4): <https://doi.org/10.7755/MFR.85.1-4.1> (17 pp.)
- Miller, B.A., and R.B. Emlet. 1997. Influence of nearshore hydrodynamics on larval abundance and settlement of sea urchins *Strongylocentrotus franciscanus* and *S. purpuratus* in the Oregon upwelling zone. *Marine Ecology – Progress Series* 148:83-94.
- Pacific States Marine Fisheries Commission, 2022. Pacific Fisheries Information Network (PacFin). <https://pacfin.psmfc.org/>

PUBLIC INVOLVEMENT

Issue 1. Increase Recreational Take of Purple Sea Urchins: The department has received periodic requests from the public to consider increasing the recreational take of purple sea urchins in response to their recent increase in abundance along the Oregon coast. In addition, the department sent a letter (July 2024) to all holders of active commercial sea urchin and sea cucumber permits to solicit input and comments regarding the proposal to increase the recreational daily catch limit to 35 purple sea urchins per person per day. To date, the department has not received any input in opposition to this proposal.

Issue 2. Permit for Commercial Take of Purple Sea Urchins: The Shellfish Program sent a letter and survey to commercial sea urchin divers (July 2024; 12 active divers) to request input regarding permitting for the commercial purple sea urchin fishery. Active commercial sea urchin divers were asked if they support or oppose an open-access (unlimited) permit system for purple sea urchins. We also gained input about current and expected future levels of income attributable to commercial take of purple sea urchins.

Feedback received from the commercial sea urchin divers was 100% opposed (0 in favor / 7 opposed) to removal of the current requirement for permit holders to have a limited-entry Sea Urchin and Sea Cucumber Permit to participate in the commercial take of purple sea urchins. Commercial sea urchin divers raised general concern about expected negative impacts to the current commercial purple sea urchin fishery. They pointed out that an unlimited number of permits would: (1) increase competition and pressure for a limited supply of high-quality sea urchins; (2) bring inexperienced participants into the commercial fishery leading to safety risks; (3) be ineffective at removing purple sea urchins safely, efficiently, and at a magnitude that may impact local populations; and (4) decrease the economic value of current permits and diminish future business opportunities for current divers.

Additional unsolicited comments were mixed. One comment expressed support for an open-access commercial purple sea urchin permit as a means to provide more sea urchins to local seafood markets. Two respondents opposed an unlimited number of permits and pointed out that many purple sea urchins are empty (no commercially viable “uni” inside), that harvesting empty sea urchins is not commercially viable, and that the commercial market for purple sea urchins is not yet established.

Issue 3. Culling of Purple Sea Urchins: The department received mixed responses from commercial sea urchin divers (2 in favor / 2 opposed) related to the proposal to issue a Letter of Authorization (LOA) to allow controlled culling of sea urchins within select areas where the abundance of kelp is low. Half of the respondents supported controlled culling of purple sea urchins to study the impacts in urchin barrens and healthy kelp beds, and also supported engagement of scientific divers and commercial sea urchin harvesters in the investigations and culling work. Additional comments voiced support for culling as a method to facilitate recovery of kelp and an investment toward sustainable fisheries, and as an outreach activity to increase community involvement and improve awareness of the overabundance of sea urchins. Respondents who opposed controlled culling of sea urchins specifically objected to the removal of red sea urchins (which make up the vast majority of the commercial take).

The ODFW Shellfish Program presented an overview of the proposed actions during a meeting of the Oregon Kelp Alliance / Science and Technical Advisory Committee (ORKA/STAC; November 26, 2024). Members of the ORKA/STAC expressed support for the staff recommendations regarding recreational and commercial take of purple sea urchins, and to

proceed with controlled culling of purple and red sea urchins at priority sites. Over the period from December 5-11 (2024) the department received 15 letters from the public to express their support (100 % support) for the recommendation to issue Letters of Authorization to allow controlled culling of sea urchins. One letter recommended culling of only purple sea urchins, and another letter requested specific revisions to the draft LOA to address additional issues associated with culling of sea urchins.

Table 2. Summary of feedback received from commercial sea urchin fishery (2024).

TOPIC	RESPONSES IN SUPPORT (%)	RESPONSES IN OPPOSITION (%)
Unlimited commercial purple sea urchin permits:		
Commercial divers	0 (0%)	7 (100%)
Unsolicited input	1 (33%)	2 (66%)
LOA to allow controlled culling of sea urchins at priority sites	2 (50%)	2 (50%)
	RANGE	# RESPONSES
Commercial diving income from purple sea urchins before 2024	0 – 100%	3
Expected commercial diving income from purple sea urchins after 2024	95 – 100%	4

ISSUE 1

Recreational take of purple sea urchins

ANALYSIS

Oregon Sport Fishing Regulations for the Marine Zone (2025) currently allow for recreational take of “Urchins” at a daily limit of 10 (in aggregate) per person per day under the broad category of “Urchins, Snails, Shore Crabs, and all other marine invertebrates not listed.” Recreational take of sea urchins is currently very low along the Oregon coast, (some sea urchins are occasionally taken for personal use, exploration of a novelty seafood item, and for drying as souvenirs). However, due to the recent increase in abundance of purple sea urchins in Oregon (ca. 4,000% increase in some shallow subtidal habitats over the period from 2016 to 2024) public awareness and interest has grown to increase the daily catch limit and provide additional opportunities for recreational take.

The department recommends an increase in the daily catch limit for purple sea urchins to 35 per person per day to allow for an enhanced level of recreational harvest. Purple sea urchins may be

taken by hand or hand-powered tools and with dive gear (skin diving or SCUBA using hand or hand-held tools). The department will continue to require compliance with existing regulations regarding the recreational take of invertebrates (including sea urchins) from designated management areas such as Marine Reserves, Marine Protected Areas, Marine Research Areas, Marine Conservation Areas, Marine Gardens, Shellfish Preserves, and other special management areas.

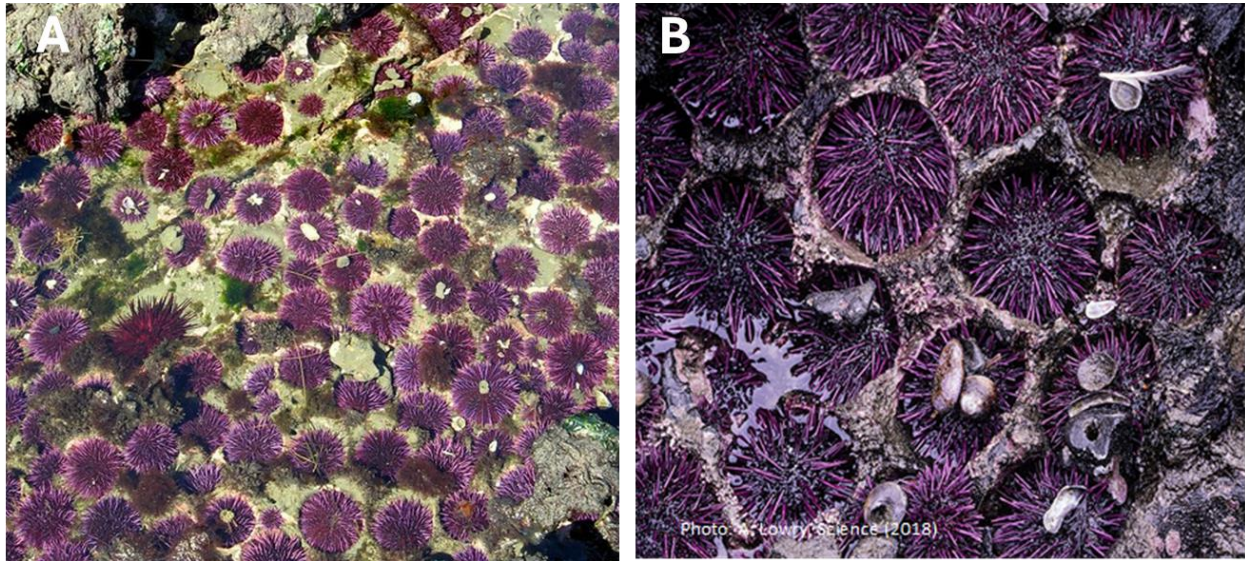


Figure 3. Purple sea urchins: (A) in the intertidal zone at Boiler Bay, OR; (B) in multi-generational pits excavated into rock.

Local populations of purple sea urchins are patchy and they have become overly abundant in some areas and remain at normal abundance in other areas (Figure 3). In addition, purple sea urchins frequently occupy “pits” scoured into the rock where they subsist largely on capture of drift algae and have little opportunity to exert grazing pressure on intact kelp or seaweeds. Moreover, purple sea urchins that reside in pits are not expected to have an immediate impact on local kelp because the sources of larvae that settle and recruit into Oregon’s rocky shore habitat are believed to originate largely in northern California (Miller and Emlet, 1997).

The proposed recommended daily catch limit for purple sea urchins (35 per person per day) is a modest increase that will provide enhanced opportunity for recreational shellfish gatherers, and also safeguard against the possibility for disturbance and ecological damage within special marine management areas along the Oregon coast. The proposed increase is consistent with statewide regulations in California regarding recreational harvest of purple and red sea urchins (35 per person per day) by the California Department of Fish and Wildlife (CDFW). The CDFW also allows for daily take of forty gallons of purple sea urchins (and no possession limit) while skin or SCUBA diving at specific locations (Humboldt, Mendocino, and Sonoma counties) to aid with conservation of kelp. The Washington Department of Fish and Wildlife allows recreational take of 18 purple sea urchins per person per day.

OPTIONS

1. Adopt proposal to increase the recreational daily catch limit for purple sea urchins to 35 per person per day as outlined in Attachment 3
2. Modify the proposal.
3. Status quo.

STAFF RECOMMENDATION

The staff recommendation is to: **Revise the Oregon Sport Fishing Regulations for the Marine Zone (2025) to allow a daily catch limit of 35 purple sea urchins per person per day.**

ISSUE 2

Commercial purple sea urchin permit

ANALYSIS

Proposed legislation introduced in 2023 (HB-2219) sought to require the Commission to create a new unlimited open-access permit for the commercial take of purple sea urchins. The department engaged in due diligence to explore the statutory and regulatory requirements associated with initiation of a new open-access permit system, and to gain feedback from existing commercial sea urchin divers before bringing this issue (Issue #2) forward for consideration by the Commission.

The recent increase in abundance of purple sea urchins along many areas of the Oregon coast has elevated interest in the commercial fishery, particularly among prospective new divers who do not hold an active commercial Sea Urchin and Sea Cucumber Restricted Participation Permit. Current statutes (ORS 508.760 through 508.762) require the department to establish a system for limiting participation in the commercial sea urchin fishery, establish criteria for initial entry and continued participation in the fishery, and collection of annual fees. In addition, current department regulations require that commercial purple sea urchin divers obtain a special permit for purple sea urchins that is only available to a holder of a commercial permit for the take of sea urchins and sea cucumbers (see OAR 635-005-0790 through 635-005-0850). This means that any new take of purple sea urchins is currently limited to existing commercial urchin divers, and participation is restricted to 12 active permits. Inactive permits may periodically become available in a department lottery, and they may also be sold on an open market. All 12 commercial permits are currently active, and no commercial Sea Urchin and Sea Cucumber Restricted Participation Permits are available at this time.

Recent interest has emerged in the exclusive take of purple sea urchins for the purpose of sea urchin ranching. During the ranching operation, purple sea urchins are collected by commercial divers from subtidal habitats, sold to wholesale shellfish dealers, and held in land-based tanks where they are fed and develop gonadal tissues until they are sold on the retail seafood market. Purple sea urchins held in ranching operations are currently obtained from commercial divers who hold limited-entry Sea Urchin and Sea Cucumber Permits.

Rather than an open-access (unlimited) permit system, the department considered issuing a limited number (24) of new permits that are restricted only to the commercial take of purple sea urchins, with no restrictions placed on the size of sea urchins taken by the new Commercial Permit for Purple Sea Urchins, and making all other department regulations applicable regarding the commercial harvest of sea urchins, including OAR 635-005-0795 (Requirements) through 635-005-0820 (Renewal), OAR 635-005-0830 (Transferability), and OAR 635-005-0835 (Logbook Required) through 635-005-0850 (Size and Catch Limits). This option of a new limited permit system for the commercial take of purple sea urchins would be consistent with the statutory requirements of ORS 508.760 through 508.762 (limiting participation to individuals licensed as commercial fishers under ORS 508.235). And the department expects that 24 new permits would be sufficient to accommodate the current level of interest and reduced market demand for purple sea urchins, and also provide an opportunity for new divers to participate in

the exclusive take of purple sea urchins without major economic impact to the existing commercial sea urchin fishery (which primarily targets take of red sea urchins).

Drawbacks associated with this option include the expected substantial costs required to implement a new commercial sea urchin permit system. Establishment of a new commercial purple sea urchin permit will require department time from License Services (estimated at 0.1 FTE) to set up the administrative framework to handle requests for new permits, process applications, issue the permits, and to review compliance with requirements for recordkeeping, fish tickets, and reporting of commercial logbooks. In addition, establishment of a new commercial purple sea urchin permit will also require time from the Shellfish Program (estimated at 0.2 FTE) to conduct correspondence with prospective and new permit holders, routinely process logbooks, conduct quality assurance steps to ensure accuracy of data entries, compile information about the commercial landings, and periodically conduct temporal and spatial analyses that are relevant to management of the commercial purple sea urchin fishery.

It is estimated that these administrative costs to the department (total 0.3 FTE; ca. \$35-40K) would greatly exceed the revenue brought in by the purchase of licenses, permits, and ad valorem taxes accrued from landings of purple sea urchins (ca. \$6-10K).

Additional factors also contribute to the staff recommendation to maintain the existing two-permit system: (1) market demand for purple sea urchins is currently low, particularly at this time when they are undernourished due to the regional decline in kelp and seaweeds and the quantity and quality of gonadal material (uni) are poor; (2) an administrative avenue already exists within the department to provide a steady supply of purple sea urchins into sea urchin ranching operations (urchin ranchers are authorized as Wholesale Fish Dealers who may purchase unlimited supplies of purple sea urchins from licensed commercial divers); and (3) the department is working to issue Letters of Authorization to interested parties that will allow controlled culling of sea urchins at priority sites in an effort to reduce grazing pressure and assist with conservation of kelp. Consequently, the proposal to establish a new commercial permit does not appear to be cost effective nor viable at this time.

OPTIONS

1. Establish 24 new commercial permits for the take of purple sea urchins as outlined in Attachment 4
2. Modify the proposal.
3. Status quo

STAFF RECOMMENDATIONThe staff recommendation is to: **Maintain status quo and do not establish a new commercial purple sea urchin permit system.**

ISSUE 3

Culling of Sea Urchins

ANALYSIS

The rocky coastlines of Oregon and northern California experienced substantial declines of bull kelp (*Nereocystis leutkeana*) over the past decade (2014 to 2024) due to poor environmental conditions and intense grazing pressure by abundant sea urchins. The department periodically monitors the distribution and abundance of canopy kelp along the Oregon coast, and our most recent assessment estimated a statewide decline of 66% between 2010 and 2022 (with over 80% loss of bull kelp at some priority sites). Bull kelp is identified by the Oregon Conservation Strategy / Nearshore Strategy as ecologically valuable habitat that provides multiple benefits for fish, invertebrates, and marine mammals. Sea urchins are widely recognized as grazers that consume kelp and understory seaweeds. Deliberate removal of sea urchins (culling) has been identified as an activity that can potentially reduce localized grazing pressure and assist with conservation and recovery of kelp.

In 2021, the department first issued a Scientific Take Permit (STP) to the Oregon Kelp Alliance to allow culling of up to 250,000 sea urchins at each of three sites (Kiwanda Rock, Nellies Cove, Macklyn Cove). These sites were selected as priority areas for controlled culling activities because they are readily accessible by divers, and because underwater surveys were carried out before and after the removal of sea urchins. About 70,000 purple sea urchins were removed from Nellies Cove between 2021 and 2024, and recent observations indicate an overall decrease in the abundance of purple sea urchins but no recovery of kelp at that site.

The staff proposal is to allow the department to issue a Letter of Authorization for controlled culling of red and purple sea urchins within three priority sites. The intent is to authorize holders of the LOA to engage in efforts to reduce the abundance of sea urchins in the subtidal zone at selected sites where monitoring is already underway to track the spatial distribution and cover of kelp. Information generated by the localized culling activities and follow-up monitoring will be used to evaluate the efficacy of sea urchin culling as a potential management action to assist with conservation and recovery of kelp. The LOA would be open to all interested parties, and not restricted to holders of commercial Sea Urchin and Sea Cucumber Restricted Participation Permits, licensed commercial fishermen, or other permits. Commercial harvest of purple and red sea urchins would also be allowed in the priority sites identified for controlled culling of sea urchins (identified in Appendix A; Nellies Cove, Macklyn Cove, and Kiwanda Rock). Staff recommend controlled culling of sea urchins in these locations as a prudent management action that generates science-based monitoring data and helps convey the department's commitment to conservation of kelp beds and other living marine resources along the Oregon coast.

OPTIONS

1. Adopt proposal to issue Letters of Authorization to allow controlled culling of purple and red sea urchins as outlined in Attachment 5
2. Modify the proposal.
3. Status quo.

STAFF RECOMMENDATION

The staff recommendation is to: **Revise OAR 635-011-0066 to allow the department to issue a Letter of Authorization for controlled culling of red and purple sea urchins within three priority sites.**

DRAFT MOTION

I move to amend OAR Chapter 635, Divisions 11 and 39 as proposed by staff in Attachment 3 and Attachment 5.

EFFECTIVE DATE: On or after February 17, 2025.