

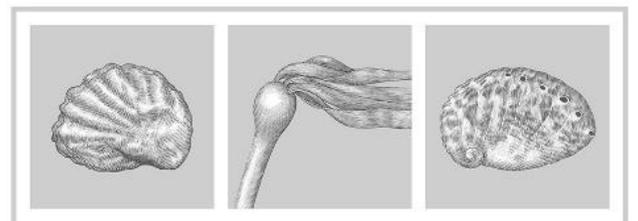


Recovering & Rebuilding

PINTO ABALONE

In Washington, pinto abalone is our one and only abalone species, and the population has dropped precipitously (-97%; 1992-2017). The decline of this native species is a loss for Tribes who rely on abalone for cultural uses, for divers who seek the species for sport and food, and for rocky reefs and kelp beds that benefit from abalone grazing. The iconic pinto abalone is headed towards the State endangered species list and the population is not likely to recover without our help.

In response to early signs of trouble, Washington Department of Fish & Wildlife, the University of Washington, Puget Sound Restoration Fund (PSRF) and NOAA launched a collaborative effort in the early 2000s to use conservation aquaculture to produce healthy, genetically diverse pinto abalone for restoration. Since 2009, we have released more than 15,000 juveniles in the San Juan Islands. We have made great strides in developing best practices to produce and outplant abalone. Now we are ready to scale up to rebuild these iconic, important pinto abalone populations here in Washington waters.



**PUGET SOUND
RESTORATION FUND**

a plan for scaling up

PSRF is raising additional resources to substantially scale up recovery. An expanded program would triple the number of abalone produced for outplant on rocky reefs in the San Juan Islands and build new partnerships to sustain the effort moving forward. PSRF's Manchester nursery will continue to serve as the hub of abalone production. The expansion includes:



Construction of 3 satellite grow-out nurseries Hoop buildings, tanks and rack structures, plumbing and electrical, insulation, equipment for water quality monitoring, seawater buffering, and heating.

Personnel at satellite nurseries Nursery system build-out, maintenance and husbandry.

PSRF Nursery Management Oversight and monthly visits for all 3 nurseries; training, guidance materials, abalone care protocols.

Broodstock import Selection and certification of a quarantine facility, disease testing of out-of-state broodstock animals and collection sites, permits for collection, transfer, and import, production of 2nd-generation, disease-free abalone to use for hatchery production, and PSRF oversight.

Conservation Genetics DNA extractions, RADseq library development, Novogene sequencing service, equipment & supplies for tissue sample collection, and conservation genetics consultant.

Hatchery Production & Research Optimization of hatchery production and broodstock conditioning, and research on the impacts of ocean acidification and microbiome conditions on post-settlement.

Outreach and Education Expanded outreach and education, including broader collaborations with academia, Tribes, agencies, marine research centers and aquaria.

PHOTOS. Front: 1. adult abalone at the hatchery, 2. 3-week old post-set abalone, 3. young adult abalone showing epipodial tentacles, eye stalks, foot, 4. PSRF divers preparing for a dive. Back: 1. tagged hatchery-reared juvenile abalone ready for outplanting, 2. 9-month juveniles with shell banding due to change in diet from diatoms to red algae



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