



## Will elevated water temperatures affect eelgrass growth rate and shoot density?

There is an increasing understanding that climate change and other anthropogenic factors could have a negative impact on eelgrass habitat. Indicators of resilience and recovery are needed to better understand and predict the ecosystem response to large-scale environmental change. DNR will investigate stressors that may cause eelgrass decline and work to identify populations that demonstrate the greatest resilience to these stressors.

Two separate controlled indoor experiments will be run to explore how eelgrass collected from five DNR ANEMONE sites respond to change. The first experiment will look at the effects of elevated water temperature on growth rate and shoot density by exposing the five populations to a range of temperature increases. The second experiment will then look at the effects of light availability on growth rate and shoot density by exposing the eelgrass to four different light levels over a three-month period. Throughout each three-month period, we will be measuring the photosynthetic rate with a PAM (Pulse-Amplitude-Modulation) chlorophyll fluorometer as well as shoot and leaf count on a weekly basis. Additionally, water parameters including pH, dissolved oxygen and salinity will constantly be recorded by computerized controllers.



Fig 1. The pump room upgrades are complete. Two new pumps have been installed to pull water from the Puget Sound and to push water through the filtration system. The chiller, to the right, was installed inside the pump room alongside some major electrical upgrades.

## Why does this matter to DNR?

Understanding how environmental stressors due to climate change might impact eelgrass populations can help resource managers develop effective mitigation and restoration strategies.

We have started upgrading Marine Aquatic Vegetation Experimental Nursery (MAVEN) at the marine station to accommodate this project as well as for future projects, including eelgrass micropropagation and kelp aquaculture to establish MAVEN as DNR's own aquatic research facility.

## For more information

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Fig 2. (left) These are the 12 indoor mesocosms. The electrical wiring has been upgraded to accommodate the heavy load. The frame for the lights and controllers is still being constructed.