



Does dock grating affect the amount of light available to help kelp grow?

Kelp are ecologically important photosynthetic marine algae found throughout the Puget Sound, Strait of Juan de Fuca, and Washington's outer coast.

Photosynthetically active radiation (PAR) is the portion of sunlight that photosynthetic organisms (such as kelp) are able to use for energy and growth. PAR has been theorized to be the primary limiting factor for kelp growth when appropriate seafloor habitat is present.

In Puget Sound, the shoreline is punctuated with floating docks that could reduce PAR availability to kelp and other marine plants growing below. A previous DNR study found that grate open space, geometry and orientation can impact the amount of light available below the dock in a controlled environment. This current study aims to determine the effect different styles of commercially available dock gratings have on PAR available for kelp in Puget Sound.

In June 2019 DNR installed five docks in part of a known kelp bed near Ketron Island, Washington, in order to determine their shading impacts. The docks have a range of gratings styles from 60-70% open space, all with differing grate geometry, plus one control structure with no grating. DNR is aiming to determine if a larger amount of open space in a grating style allows more light through, or if there are other factors such as geometry, that might be more important for PAR availability beneath under natural conditions.



A dock before installation showing one grating design being tested; Eco Series Steel Deck 60% multidirectional open space.



DNR staff cleaning PAR sensors on a research dock, Ketron Island WA.

Why does this matter to DNR?

DNR is steward of over 2.6 million acres of aquatic land in Washington, including important kelp habitat. As such, DNR is entrusted with protecting aquatic habitat and promoting public access to state owned aquatic lands for future generations. Kelp greatly affect the ecosystems where they are found by forming large beds or floating canopies creating underwater forests. These forests create critical habitat for many marine organisms such as ecologically and economically important Pacific salmon and herring, provide wave buffering to beaches, and support recreational activities such as diving. Understanding shade impacts on kelp growth, distribution, and health is crucial to protecting Washington's kelp beds.

For more information

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