



# Shellfish at Work: Nutrient Bioextraction

Nutrients flow into Puget Sound from many sources including ocean currents, fertilizers, human and animal wastes. Excess nutrients can fuel blooms of microscopic phytoplankton in fresh and marine waters. When plankton die, the decay process depletes oxygen levels in the water column, which can harm marine life.



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Fostering sustainable shellfish resources and a healthy marine environment through research and education



Wild mussels grown and harvested from southern Puget Sound, on straps under existing docks.



Plant growth trials comparing various products, including the Surf to Turf Mussel Compost.

After lab testing to ensure safety, mussels were chipped, mixed with additional carbon sources (like wood chips) and turned into compost.

Low oxygen levels also raise concerns about Puget Sound's overall health. To address these concerns, researchers placed hundreds of straps under existing docks as an attractive home for mussel larvae to settle and grow. The mussels filtered phytoplankton from the water, improving water clarity and incorporating nutrients into their tissues.

Mussels were harvested, tested and turned into rich organic compost. This closed loop cycle naturally removes nutrients from Puget Sound and returns them to the upland environment where they can be reused. Results demonstrate that bioextraction is a promising way to remove nutrients from Puget Sound while yielding a potentially marketable product: Surf to Turf Mussel Compost!

Nutrient Bioextraction:  
Growing and harvesting shellfish or seaweed to remove nutrients from natural water bodies. Also called nutrient bioharvesting.

### You Can Help Reduce Nutrient Pollution

- 1 Choose organic, slow release fertilizers & phosphate-free cleaning products
- 2 Properly dispose of pet waste: Scoop it, Bag it, Trash it!
- 3 Maintain septic systems & responsibly manage farm manure

