Vashon Kelp Forest

About the Project

The Vashon Kelp Forest LLC project team is exploring the establishment of a regenerative ocean seaweed farm in Puyallup waters off the coast of Vashon Island in the second half of 2023.

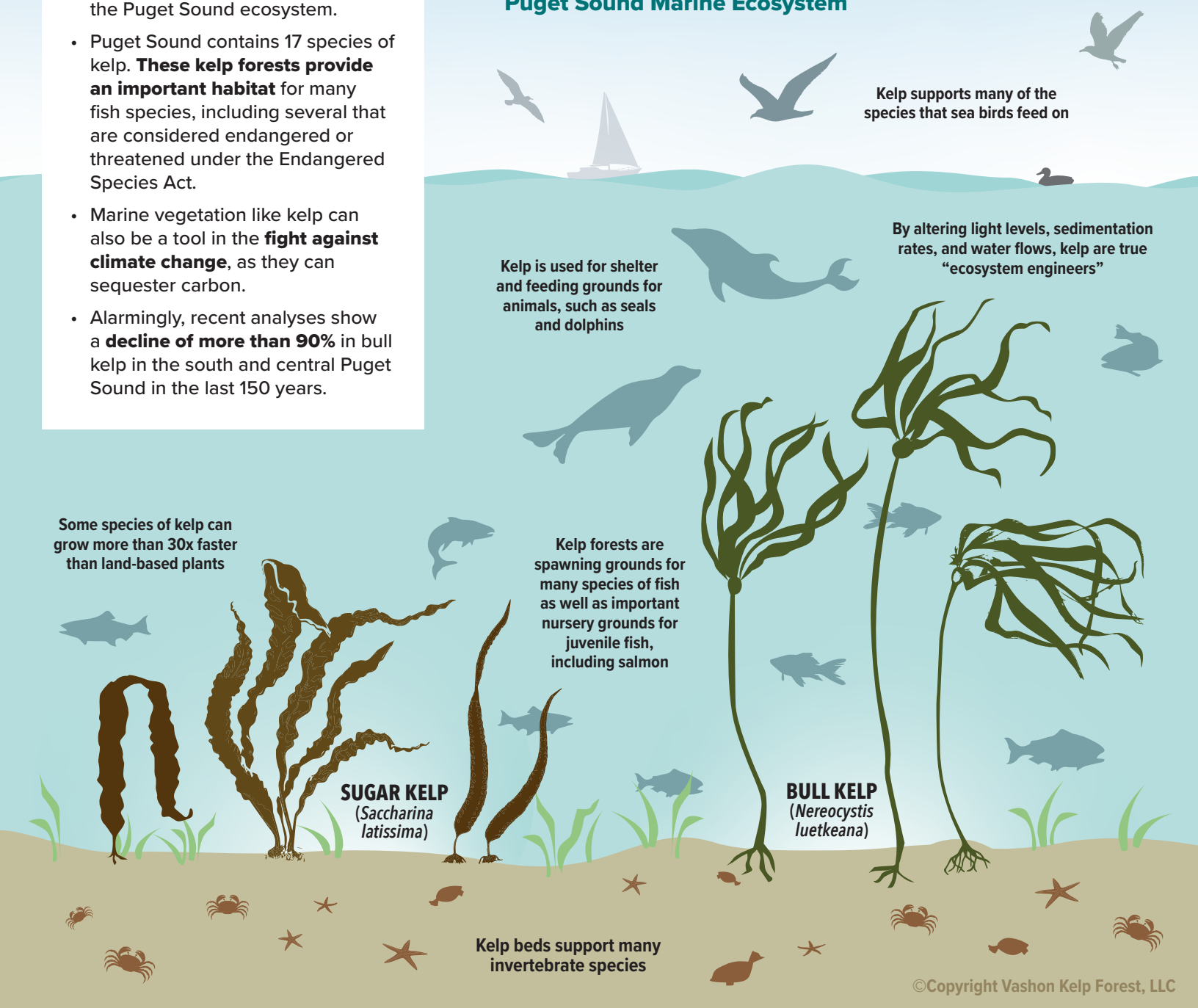
The goal is to launch a start-up company that can be financially sustainable through the sale of kelp as well as help the ocean and Vashon community in the following three ways:

- **Improve the environment and marine habitat** of Puget Sound with a focus on restoration of the historic kelp beds of the Colvos Passage.
- **Be a foundational research platform** for academic institutions and nonprofit organizations to learn about the Puget Sound marine ecosystem and the unique role that seaweed plays.
- **Create additional income and employment opportunities** for the Vashon community.

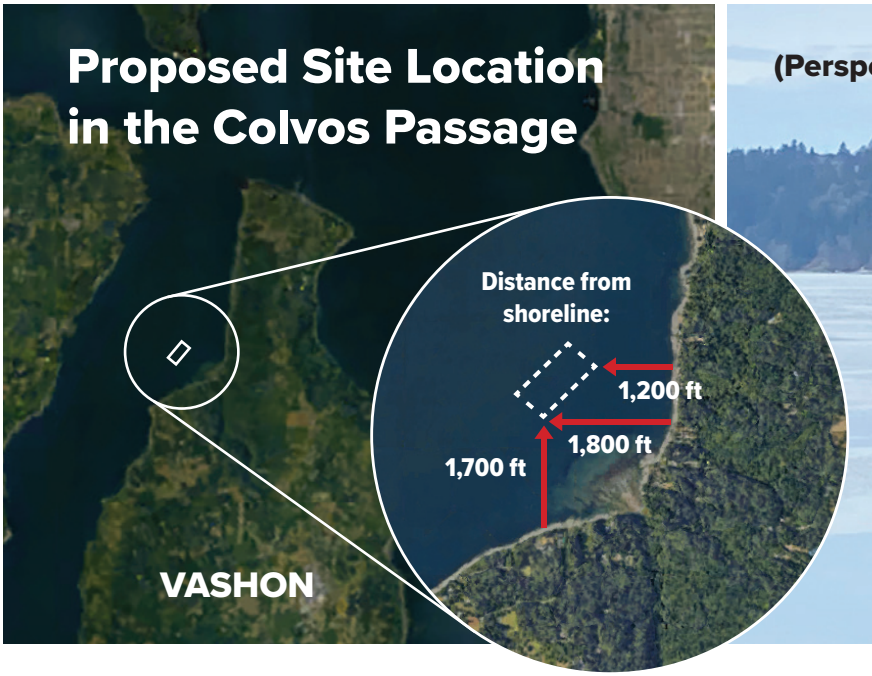
Why Kelp?

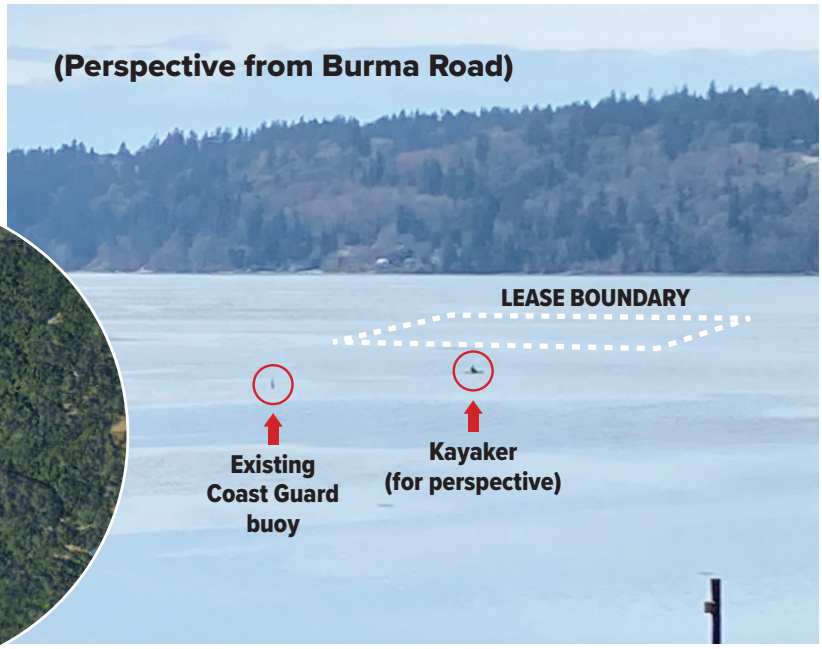
- Kelp are brown algae that serve as a **vital ecological component** in the Puget Sound ecosystem.
- Puget Sound contains 17 species of kelp. **These kelp forests provide an important habitat** for many fish species, including several that are considered endangered or threatened under the Endangered Species Act.
- Marine vegetation like kelp can also be a tool in the **fight against climate change**, as they can sequester carbon.
- Alarmingly, recent analyses show a **decline of more than 90%** in bull kelp in the south and central Puget Sound in the last 150 years.

Puget Sound Marine Ecosystem



Proposed Site Location in the Colvos Passage

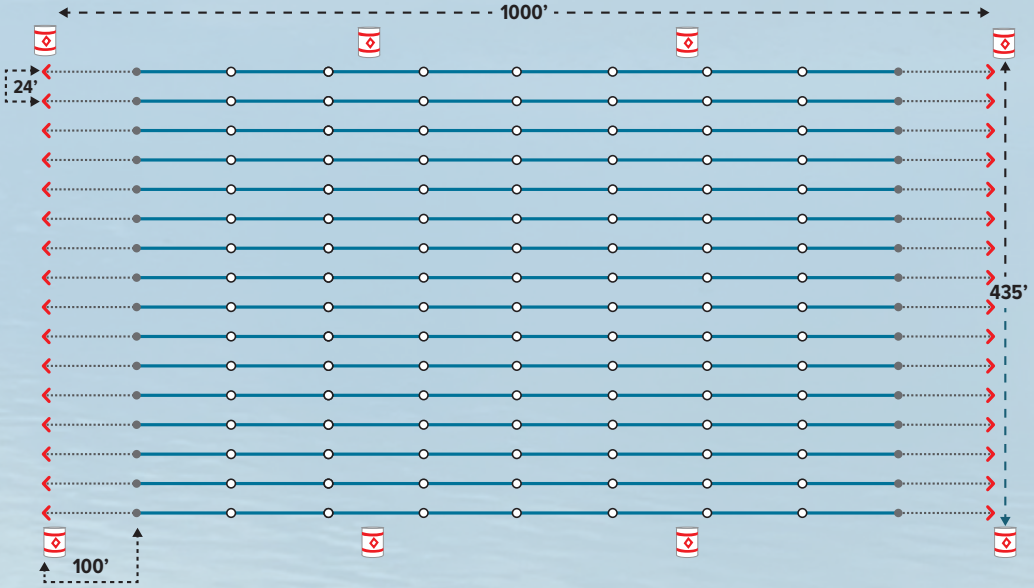




Kelp Forest Infrastructure

(Overhead Perspective)

- Kelp Line (submerged)
- Anchor Line (submerged)
- Helical Moorings (submerged)
- Polyform A3 Buoy
- Line Floats
- US Coast Guard Navigational Buoy



Research Partnerships

Vashon Kelp Forest will partner with research organizations and universities to study the effect of the project on repopulation of historical kelp beds around Vashon Island as well as any effects on key marine species like coho and chum salmon that spawn on Vashon Island. We have begun discussions to see ways we can build on the existing research about kelp farming.

We also plan to study the level of carbon capture of seaweed farming in Puget Sound. This information is critical to research as seaweed may be a key tool in mitigating climate change and ocean acidification.

> *Instead of continuing to rely on fossil-fuel–intensive manufacture of fertilizers, we can farm seaweeds that suck up carbon as they grow and can be used for food, animal feed, biofuels and fertilizer. Instead of pesticides making us and the ocean sick, we can grow food in the ocean that makes us well. Instead of fertilizer runoff creating algal blooms, we can use algae as fertilizer to make fruit trees bloom."*
>
> – Ayana Elizabeth Johnson, Ph. D.,
> Scientific American, November 2018

Rebuilding the Kelp Forest

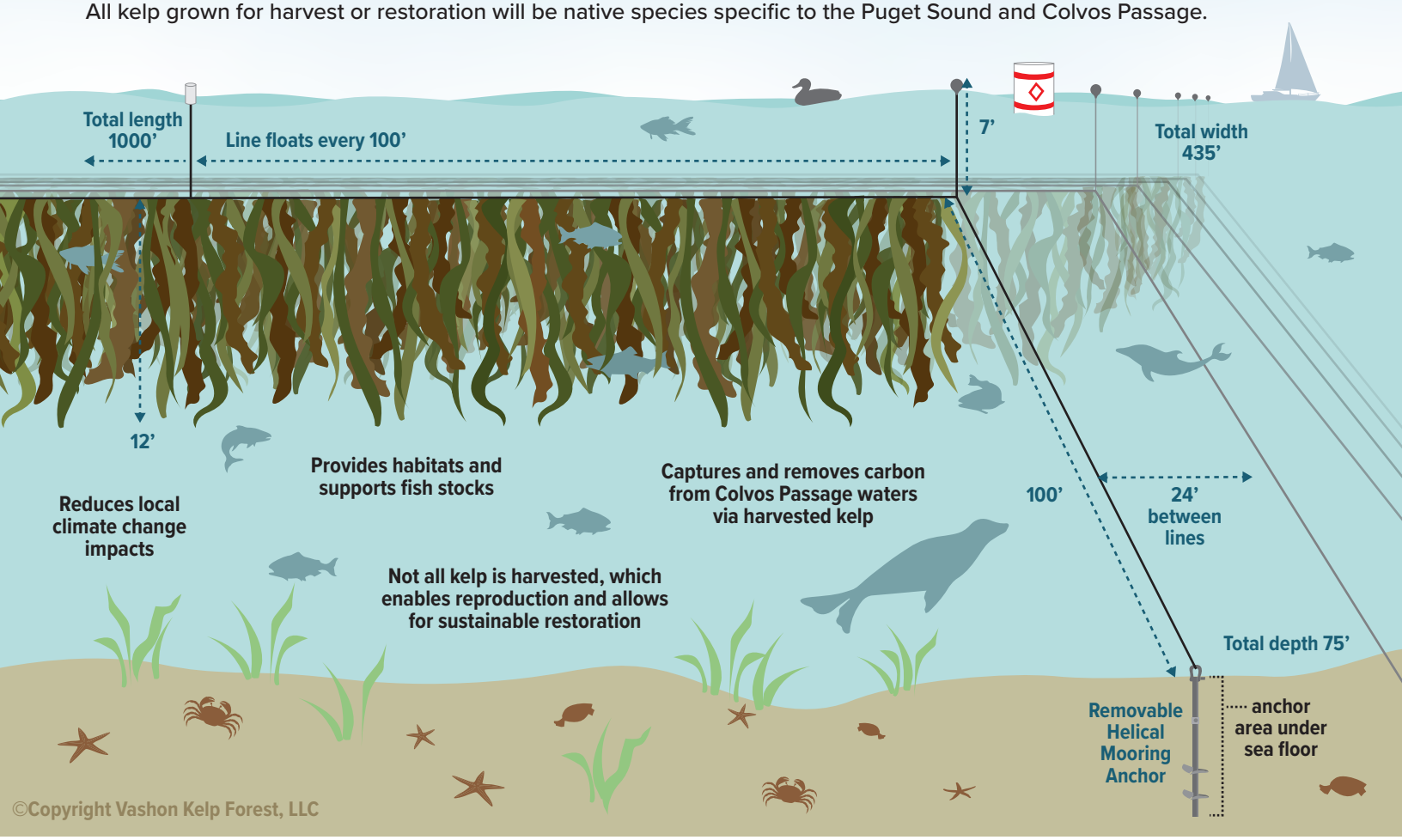
In the face of the massive decline of kelp in Puget Sound, the Vashon Kelp Forest project will work to regrow this critical species.

The Vashon Kelp Forest will grow new seaweed for two purposes:

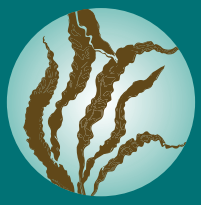
1) Some species of kelp will be grown and harvested to be used in a range of eco-friendly products,

2) Other species of kelp will be grown and deliberately not harvested to allow for restoration of the kelp forest around Vashon (particularly on the north end of the island).

All kelp grown for harvest or restoration will be native species specific to the Puget Sound and Colvos Passage.



Cultivation



- Initially, Sugar Kelp (*Saccharina latissima*) will be grown for sale.
- This farming activity will remove nitrogen from the ecosystem, which is helpful in reducing harmful algal blooms and the biotoxins they produce.
- Kelp harvested from the site will be used in a range of products including food (e.g. seaweed snacks) and non-food products (e.g. fertilizer, cosmetics, bioplastics).
- These eco-friendly products are crucial for our environment. Examples include: replacing chemical fertilizers with organic fertilizer, substituting single-use plastic with bio-plastic, and creating new high protein seaweed foods.

Restoration

- Vashon Kelp Forest will grow Bull Kelp (*Nereocystis luetkeana*) for restoration.
- Bull Kelp is an annual species — kelp will begin growing in the spring and will die in the winter. However, the blades are reproductive and will produce trillions of zoospores which will grow into gametophytes which will shed sperm and eggs.
- When fertilized, the eggs develop into juvenile sprorophytes.
- Vashon Kelp Forest's efforts will aim to repopulate the kelp beds on the North end of Vashon and elsewhere in Central Puget Sound.

The proposed site was selected based on a range of key criteria

- ✓ Area that is acceptable to local Tribes
- ✓ Area that is outside of navigation lanes
- ✓ Offshore location to minimize "visual pollution"
- ✓ Water with sufficient nutrients
- ✓ Area that is 50 – 100 feet deep and fairly flat
- ✓ Area without any eelgrass
- ✓ Area without any underwater cables
- ✓ Substrate that allows for removable helical anchors (highly secure and minimal impact)
- ✓ Water quality that allows seaweed to be used for food products
- ✓ Adequate water flow through the kelp forest
- ✓ Minimize overlap with native aquatic vegetation
- ✓ Avoids marine mammal feeding areas, migration corridors and known herring spawn locations

The Vashon Kelp Forest will NOT have:

- ✗ Cages or nets
- ✗ Fertilizer
- ✗ Feed
- ✗ Anything removed from the site to establish the kelp forest
- ✗ Anything permanent added to seafloor (no concrete anchors)
- ✗ Anything semi-permanently anchored to the site (i.e. no processing equipment, no work boats)
- ✗ Meaningful effect on seafloor
- ✗ Harvesting of fish
- ✗ Non-native species of kelp
- ✗ Overcrowding or overpopulating which can overwhelm local animal and/or kelp species
- ✗ Activity or equipment on shore (no noise)
- ✗ Restriction of the Colvos Passage to boats, kayaks, and other recreational uses

The Vashon Kelp Forest project is intended to be a community asset and we are eager to find ways to work together to make this a project the entire community is proud of.

We welcome your ideas and feedback.

Please contact:

Mike Kollins at **vashonkelpforest@gmail.com**
or visit **VashonKelpForest.com**

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Our family in front of the proposed site