

# VISUAL IMPACT ANALYSIS OF VASHON KELP FOREST PROJECT

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## 1.0 INTRODUCTION

Colvos Passage is a tidal strait in Central Puget Sound that runs between Vashon Island and the Kitsap Peninsula. Colvos Passage is relatively shallow with a maximum depth of approximately 60 m compared to other portions of Central Puget Sound.

Vashon Kelp Forest is proposing to convert approximately 10 acres to support a floating kelp aquaculture facility that is located approximately 1200 to 1800 feet from shore in water depths of approximately 45 to 100 feet below mean lower low water (MLLW) (Figure 1). A portion of the 10 acres will include anchors and subtidal lines. The remainder will be used for kelp grow lines that are suspended approximately 7 feet below the water's surface by line floats. These buoys, combined with private aides to navigation (PATONs) required by U.S. Coast Guard will be the primary permanent structures visible at the water's surface. It is anticipated that the PATONs will include lights to support night-time navigation.

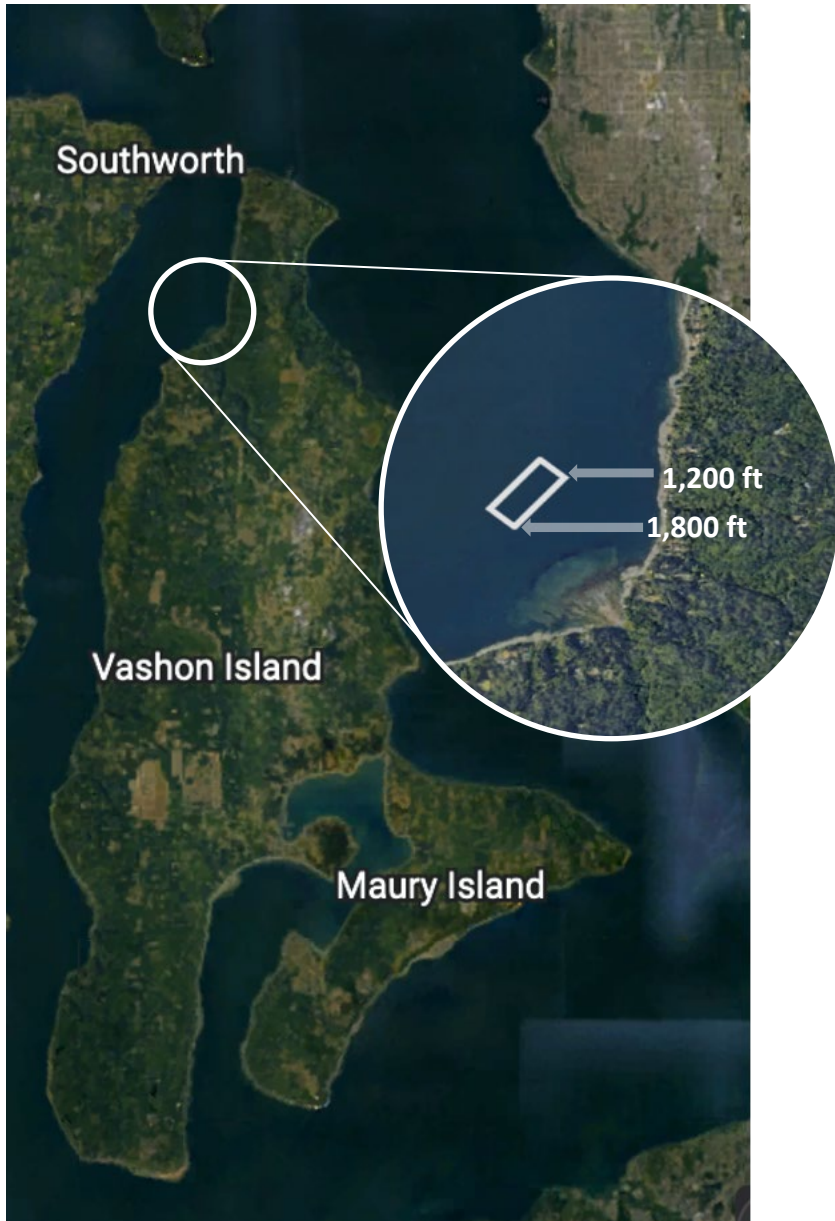
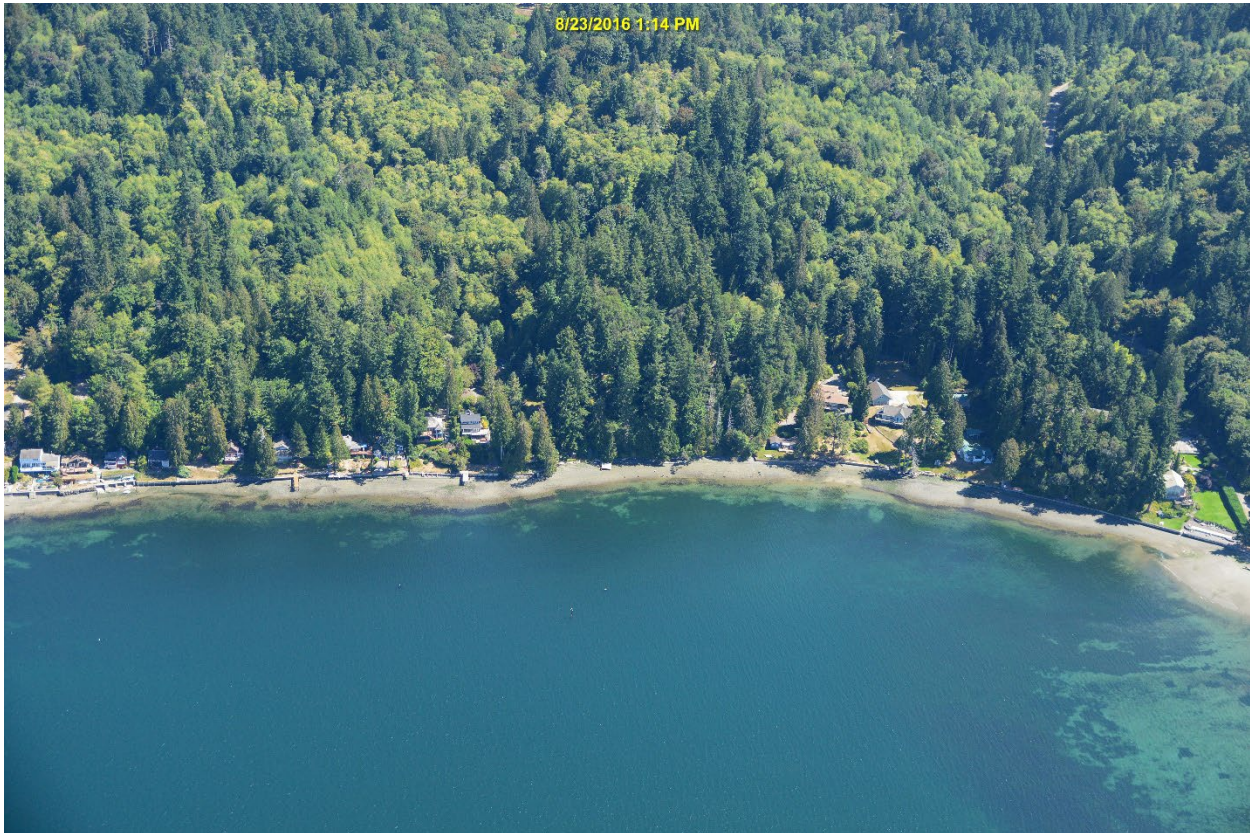


Figure 1. Approximate Location of Proposed Vashon Kelp Forest Project

## 2.0 EXISTING VISUAL RESOURCES

In the project vicinity the shorelines are primarily rural residential with a combination of year-round and summer only residential structures along the shorelines. Many residents have installed mooring buoys and keep recreational boats seasonally on the mooring buoys. Many residences maintain grassy lawns and have bulkheads, stairs, or short piers along the shoreline (Figure 2).



**Figure 2. Washington Department of Ecology 2016 Aerial Oblique Photo (2016) Showing Shoreline adjacent to Proposed Project**

Colvos Passage includes numerous mooring buoys located approximately 300 to 600 feet from OHWM. These buoys are used seasonally for vessel moorage and some vessels include anchor lighting to alert boaters of their presence. A navigational aid is located just north of Fern Cove which advises boaters to limit speed (Figure 3).



**Figure 3. Existing Navigational Aid Buoy near project site.**

Colvos Passage is used by recreational and commercial vessels as a navigational route connecting Gig Harbor and areas south of Tacoma Narrows to Central Puget Sound Navigational Channel (Figure 4). The route has some large vessel traffic, less than the primary navigation channels east of Vashon Island. Much of the traffic using this route is larger recreational boats which are most common during warmer summer months. However, container ships, barges, and articulated barge tugs also traverse Colvos Passage. In the project vicinity, vessel traffic tends to stay more than 2,000 feet from shore where vessels can maintain a direct route near the center of Colvos Passage (Figure 4).

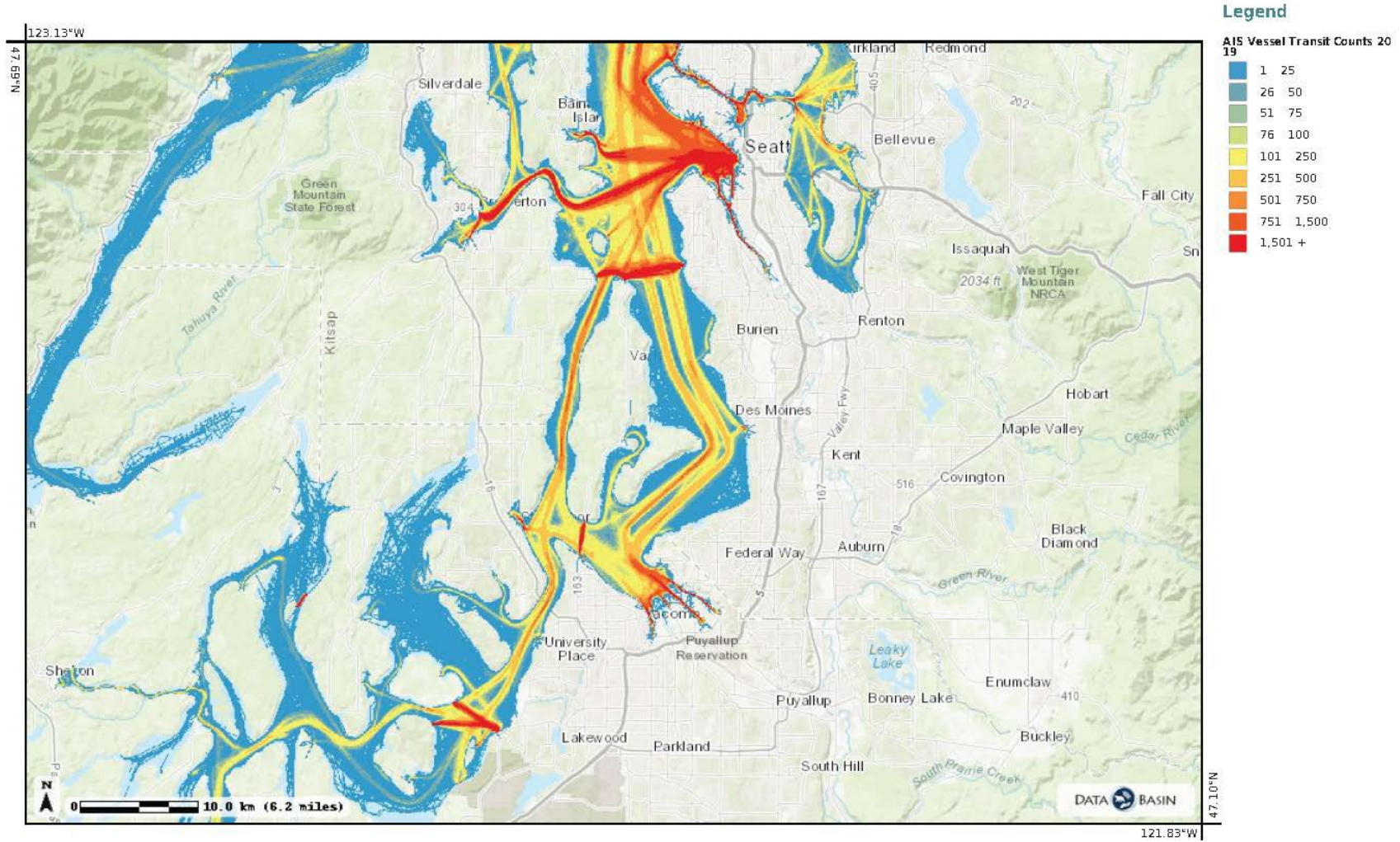


Figure 4. AIS Vessel Traffic Counts for 2019 (Source: Conservation Biology Institute 2021)

### **3.0 DESCRIPTION OF PROPOSED VASHON KELP FOREST PROJECT**

The Vashon Kelp Forest would be installed using boats with hoists to lift gear from the boat decks to the water surface or seabed. Divers are planned to install helical anchors and connect kelp lines to anchors.

Once the lines are installed, the kelp lines will be submerged, floating approximately 7-feet below the water's surface. Line floats spaced every 100-feet along each line will suspend the kelp lines and keep them near the surface where optimal growing conditions for kelp exist. Buoys will be the only part of the farm visible from the surface.

The corners and mid-point of each edge of the 10-acre parcel will be marked with floating PATONs. These navigational marker buoys will have signs indicating the presence of the kelp farm and are anticipated to have lights visible from 360-degrees at the top of each buoy to alert boaters to the gear at night. Buoy height is expected to be up to 5-feet above the water's surface.

Gear will be visited by staff using an approximately 25-foot vessel up to 5-days per week during active periods. Vessel trips are anticipated to be from permanent moorage in Quartermaster Harbor, however some vessel transits may be to/from Eagle Harbor or Bremerton.

### **4.0 POTENTIAL EFFECTS OF THE ACTION TO THE AREA'S VISUAL QUALITY**

Potential visual effects are associated with the presence of buoys, the presence of lighted buoys, and vessel activity during installation, maintenance and harvest activities. The effects of these activities on visual observers is dependent on the distance from the observer to the activity. The Vashon Kelp Forest and associated buoys and boat activity are a minimum of approximately 1,400 to 1,800 feet from OHWM and associated shoreline residential properties. The project is within 1,500 feet of 18 parcels owned by 16 owners (Figure 5).



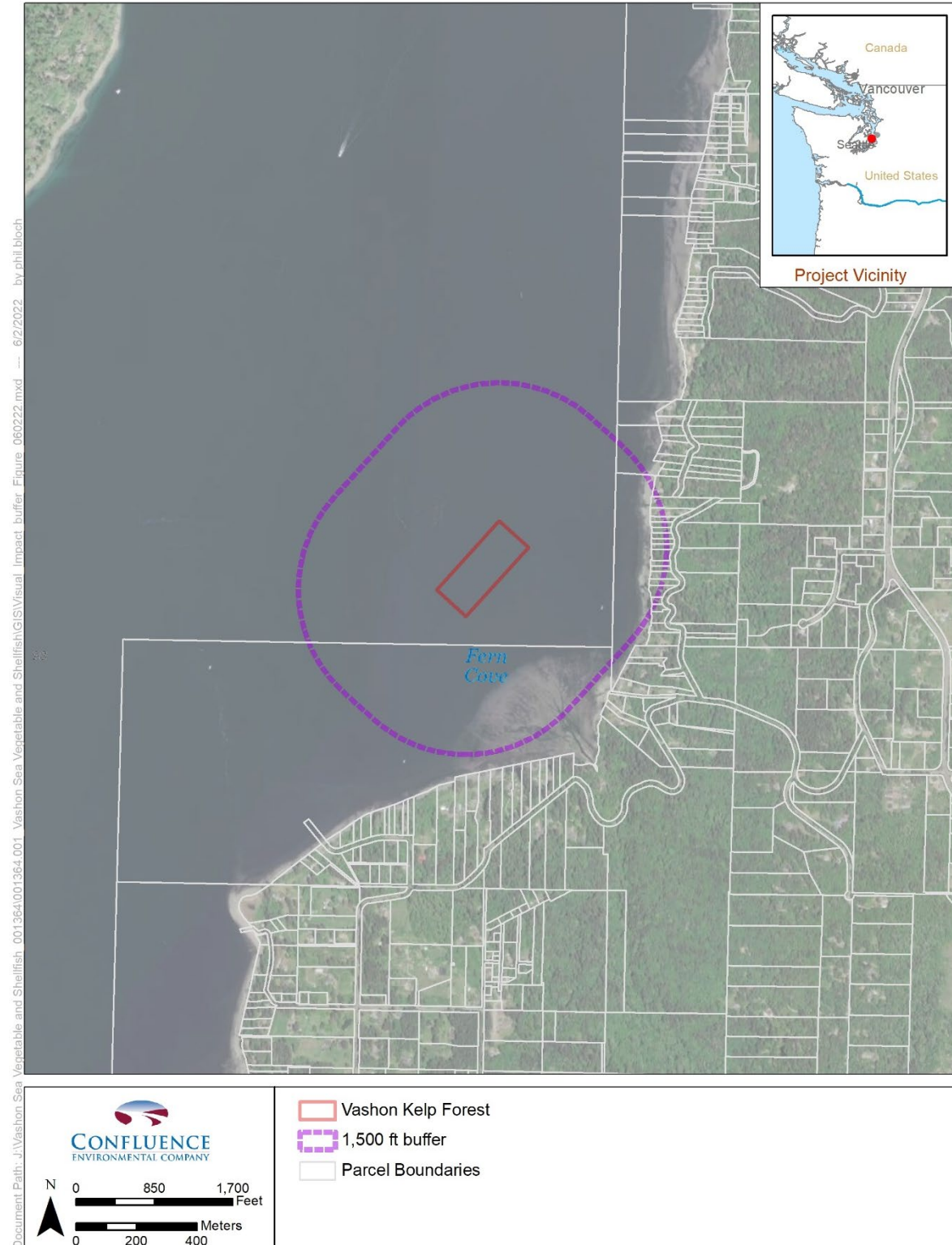
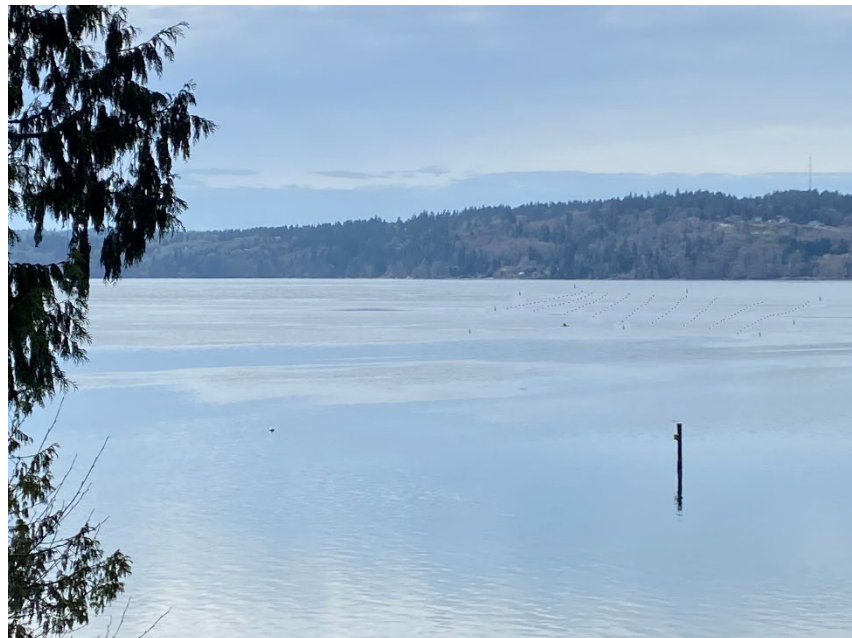


Figure 5. Navigational Aid Buoy near project site.

Permanent line floats used to suspend kelp lines are small enough that individual buoys would be visible to boaters near the project, however would not be readily observable from shore without the aid of binoculars (Figure 6). The group of buoys would likely be observable from shore. Figure 7 is a representative simulation what the group of buoys is likely to look like to a shore-based observer. This would appear as an array of dots on the water's surface. The growing kelp may attract wildlife including birds during periods when kelp is growing on lines. If flocks or groups of birds are attracted to the gear these would be visible from shore.



**Figure 6. Representative Appearance of Kelp Farm with Line Floats (Source: James Crimp)**



**Figure 7. Simulation of Vashon Kelp Forest project view from adjacent shoreline (Top = Existing View, Bottom = Projected Future View).**

Lighted PATON buoys would be visible up to 2.6 miles from the project site (USCG 2022). This is the standard predicted distance for lights placed up to 5-feet above the water's surface. Depending on guidance from USCG, lights may be steady or flashing. These lights are intended

to be seen from a distance but would not illuminate the water and would be visible as 8 points of light on the waterscape. These would likely be visible on most days from dusk to dawn.

Vessel activity is projected to be primarily during daylight hours with occasional trips to the site between dusk and dawn. Up to 5 transits to the site per week would occur with most transits travelling between permanent moorage in Quartermaster Harbor and the site. Secondary destinations could include Eagle Harbor or Bremerton. Automatic identification system (AIS) data for vessel transits shows that these travel routes are highly utilized by larger recreational and commercial vessels. Additional transits in Colvos Passage are unlikely to be detectable compared to baseline during summer months, however may provide incremental increases during winter months if regular transits are occurring then. The work vessel is planned to be approximately 25-feet in length and aluminum or fiberglass construction similar to typical aquaculture work or recreational vessels. The vessel will be in deepwater navigable waters throughout its transits and is not anticipated to adversely affect visual resources.

## 5.0 SUMMARY

The proposed Vashon Kelp Forest project would result in approximately 52 to 72 floating buoys (8 PATON buoys and 44 to 64 end-line buoys) and additional line floats that would be visible year-round. The visual appearance of these buoys is likely to be limited due to the distance from shore-based observation points. Boaters may navigate near the farm and would likely perceive the farm area as comparable to a popular recreational crabbing area as line floats have an appearance and spacing comparable to crab pot floats.

The PATON buoys would likely be equipped with lights to provide navigational aids at night. These lights would likely be visible up to 2.6 nautical miles from the site. These lights would be comparable to the light emitted from the existing navigational aid in the project vicinity. These lights should not be intrusive but would be noticeable to observers looking towards the project.

Vessel activity associated with the project will not measurably increase vessel traffic in Colvos Passage, however, there will be a notable increase and consistent activity near the project site where there is currently limited boat activity. The project site is near the corridor used by vessels transiting Colvos Passage, and more than 1,000 feet from shore. Therefore, this activity is not expected to have a significant effect on visual resources.

## 6.0 REFERENCES

Conservation Biology Institute. 2022. AIS Vessel Transit Counts 2019. Data available for online review at: <https://databasin.org/>. Accessed June 1, 2022.

USCG (United States Coast Guard). 2022. Light List: Volume VI: Pacific Coast and Pacific Islands. COMDTPUB P16502.6.

