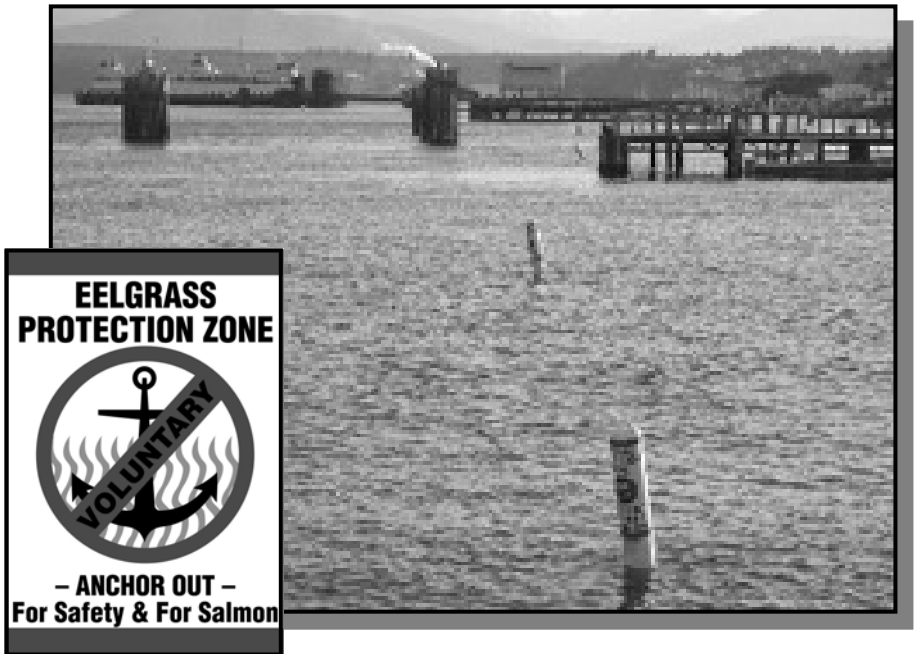
Voluntary Anchor-Free Eelgrass Protection Zone

A Non-Regulatory, Non-Harvest Marine Protected Area Project
in Port Townsend Bay, Washington

Phase II: Project Implementation



FINAL REPORT

Prepared for:

Jefferson County MRC Marine Resources Committee

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Summary

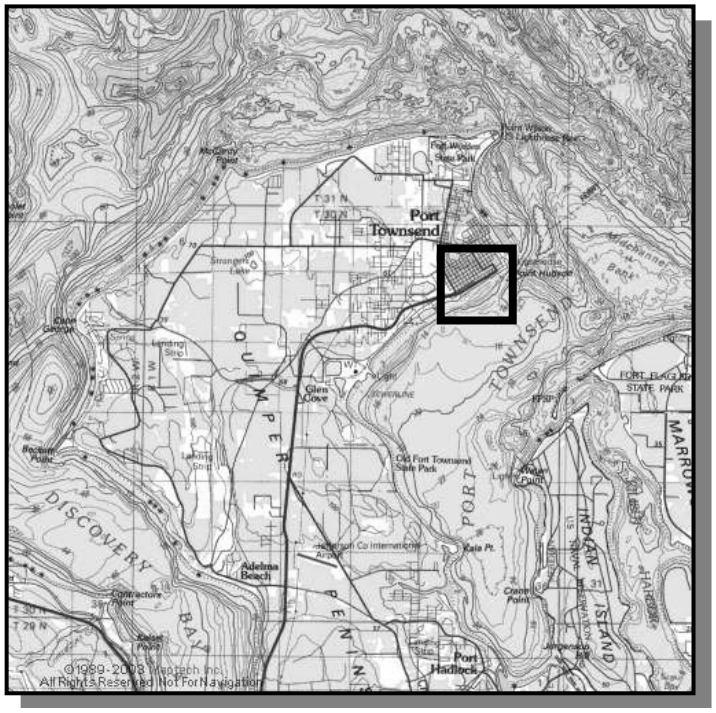
In an effort to minimize the negative impacts of boats anchoring in the nearshore eelgrass (*Zostera marina*) resources along the downtown Port Townsend waterfront and to increase boater safety in a risky anchorage area, the Jefferson County Marine Resources Committee has implemented a Voluntary Anchor-free Eelgrass Protection Zone.

The project employs seasonal marker buoys to delineate the offshore boundary of the fragile submerged habitat and a boater education strategy with informational signs along the shore, project brochures distributed at key locations and additional outreach in popular boating and tourism publications. The summer of 2004 was the pilot season of the project with buoys installed from June through October. Project monitoring of vessel locations showed the number of boats anchoring in the eelgrass dropped from a baseline of 20% during the 2003 boating season to 1.4% in 2004.

Background

In 2002, the Jefferson County Marine Resources Committee (MRC) set out to establish a boater education strategy to reduce the negative effects of boat anchors & chains on the nearshore eelgrass (*Zostera marina*) meadows along the downtown Port Townsend waterfront. Surveys completed in 1999 show about 20 acres of eelgrass are present with the mean maximum depth ranging from -10.5 ft to -17.0 ft MLLW (Norris and Fraser, 2002).

The Project Area is part of a one-mile stretch of waterfront from Point Hudson to Boat Haven. The current focus is on protecting eelgrass in the most heavily used portion, a half-mile section in front of the vibrant downtown commercial district, from Point Hudson to the Washington



Project location on Port Townsend's downtown waterfront.

State Ferry Terminal, where the Voluntary Eelgrass Protection Zone (VEPZ) is located. Shoreline development adjacent to the VEPZ is also recognized as a nationally-registered Historic District and Victorian Seaport and a popular tourist destination. The project is specifically designed with no regulatory or penalty components, making it a completely voluntary program.

Eelgrass is a valued marine resource because it provides critical habitat to commercially-, recreationally- and ecologically-important species including salmon, Brandt geese, crab and herring, and it helps reduce shoreline erosion by absorbing wave energy (Wyllie-Escheverria et. al., 2003). The state has a "no net loss" policy to help protect this priority habitat. Distribution of eelgrass habitat is affected by several physical parameters including type of substrate, water clarity, wave energy and tidal amplitude (Berry et. al., 2003). Over-water structures that cause shadowing can have negative effects by limiting available sunlight, (Snohomish County MRC, 2001) and dragging anchors and chains cause sediment disturbance, as well as crush and uproot eelgrass plants.

Phase I of the project began in the spring of 2003 with initial public scoping with the boaters and the local community, as well as a three-day project trial during the popular Wooden Boat Festival in the fall. The MRC proposed using a line of seasonal marker buoys to delineate the deepest edge of the fragile submerged vegetation along with informational signage, brochures and other outreach publications to inform boaters and the public of a half-mile long Voluntary Eelgrass Protection Zone. While delivered as a boater education strategy, the project also qualifies as a community-designated marine protected area (MPA). The term MPA refers in general to any site in a marine system with some type of management restriction in place that affects access, harvest or other human activities, whether regulatory or voluntary (Puget Sound Action Team, 2005.)

Public opinion has been generally very favorable and both local and visiting boaters have responded positively. A few initial concerns expressed about boater perceptions and the need for additional mooring options were addressed and baseline data were established showing that throughout the summer boating season, approximately 20% of boats anchored in the eelgrass of the project area – including the busy Wooden Boat Festival weekend. (McConnell, 2004) All required permits were obtained and the project was ready to move forward with buoy installation for the 2004 boating season. Phase II began in March 2004 and was completed in February 2005.

Inaugural Buoy Deployment

Equipment Acquisition & Specifications

The MRC purchased eight 74" can-style regulatory buoys with the project logo affixed to both sides of the 9"-diameter high-impact polyethylene cylinders. Each buoy is injected with polyurethane foam, and ballasted at the base with hydraulic concrete, weighing 70lbs in total. Each has a recessed forged-steel swivel eye installed in the base and sits upright in the water with 32" of the buoy above the waterline. Buoy tackle included ¼" diameter, three-strand polypropylene line, ¼" thimble eyes, 3/8" and 5/8" screw-pin shackles and jaw-eye swivels, 5" mid-line floats, and 50 lb. mushroom anchors.

Buoy tackle construction work "party".
***Source**: McConnell, 2004*

In late-May of 2004 the project work group assembled the buoy tackle systems by splicing lines, adding mid-line floats and securing shackle pins with wire keepers. Line scope on each buoy was left long at 60' to allow adjustment upon installation based on depth at location for each buoy. Regulatory permits required an additional 2' of scope beyond the highest estimated tide for a total of 14' above the water depth at mean lower low water (MLLW). Therefore, if the lateral and offshore placement located the buoy anchor in 20' of water (MLLW) the scope would be 34'.

Buoy Installations

During the first three days of June, eight (8) seasonal marker buoys were installed to delineate the deepest edge of the eelgrass beds along the downtown Port Townsend waterfront. Volunteer divers with surface support performed the installation operation, with key technical expertise and leadership from a local professional diver who was volunteering his time, equipment and materials for the project.

Day One of the operation was a learning experience, and only one buoy was deployed. Regulatory permits required that buoys be anchored 30' offshore from the deepest edge of the eelgrass. For the best visual impact and a clearly communicated message, buoys were planned to be evenly spaced between the docks and wharves. The varying depth and coverage density of the eelgrass along the shore, paired with constant tidal currents made it difficult to place the anchors on the exact locations desired. Surface

support personnel had to position the skiff visually based on shore points while divers in the water located the deepest edge of the eelgrass in that area. Surface support then had to lower the anchor into the water from the skiff for the divers to place on location. Tidal currents made it difficult to maintain position, and the outboard was not utilized when divers were at the surface near the boat to eliminate risk of injury. Multiple attempts were required to achieve success.

Based on the difficulties encountered, and safety concerns raised by one diver involved, the MRC formally decided that night at the regular monthly meeting to require an installation safety plan to be developed and a Dive Master to be onsite for all additional installation operations utilizing volunteer divers.

By the afternoon of Day Two, the project's volunteer dive professional had developed an installation and safety plan, provided a Dive Safety and Planning Checklist as well as a Liability Release form (Appendix A) and obtained the services of a certified Dive Master who volunteered to oversee that day's installation operations. The installation team met onsite, the Dive Master reviewed the safety and installation protocols with the group and work continued for the successful deployment of three more buoys.

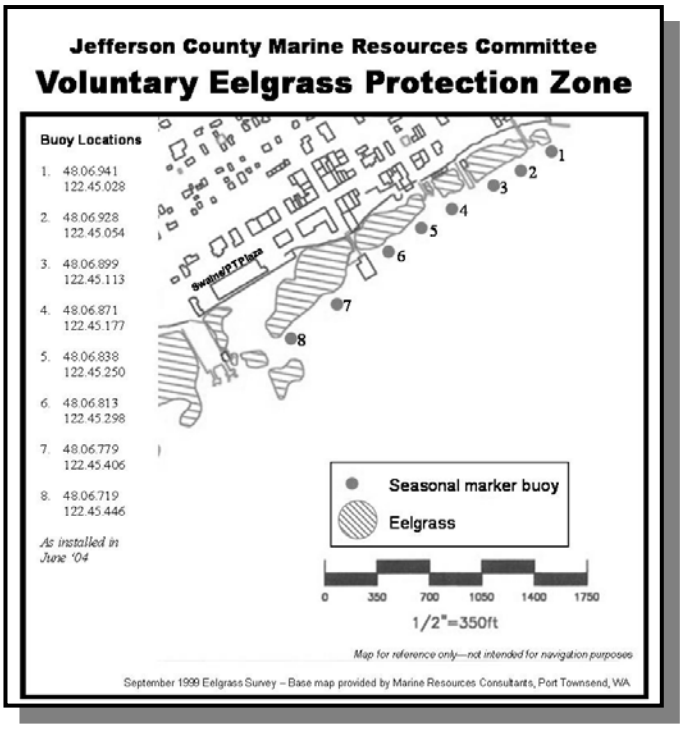
On Day Three of installation, a second Dive Master had volunteered to serve as replacement to oversee the operation. The group met onsite, reviewed the safety and installation plans and work continued to successfully deploy the last four buoys. In addition, GPS locations were recorded for each buoy for reporting to the proper permitting agencies. Installation locations were as follows:

Buoy #	Latitude (N)	Longitude (W)
1	48°06.941	122°45.028
2	48°06.928	122°45.054
3	48°06.899	122°45.113
4	48°06.871	122°45.177
5	48°06.838	122°45.250
6	48°06.813	122°45.298
7	48°06.779	122°45.406
8	48°06.719	122°45.446

Actions still needed at that point to finalize installations included the line scope adjustment for each buoy and the addition of clump weights on the line near the surface to reduce the risk of boat entanglement at low tides. Due to several installation team members being unavailable for final installation operations, these tasks were delayed. In the mean time, unfortunately, the project experienced some equipment failure.

Equipment Failure

On June 6, the skipper from Menzies Project, a local boat tour program, contacted the Project Manager to inquire whether a project buoy had been installed west of Point Wilson in the Strait of Juan de Fuca. Upon learning it had not, he advised that it appeared a project buoy was drifting west with the tide. He offered to provide transit to retrieve the wayward buoy and that recovery operation was completed within the next ninety minutes. This buoy was recovered in about 9 fathoms of water, 1/8 mile west of the Point Wilson Navigational Buoy at 48°09.145N by 122°46.154W complete with the anchor and all tackle still intact.



It turned out to be Project Buoy #2 and was suspected of anchor failure due to the extreme tidal exchanges occurring that week. For example, on June 4th the early morning high tide of 8.8 feet dropped to -3.9 feet by mid-morning and rose again to 9.4 feet that afternoon. These 12.7 and 13.3 foot exchanges create considerable current that may have pulled the mushroom anchor free, especially if it wasn't sufficiently buried upon installation. This buoy was later re-installed.

On June 7, Project Buoy #6 was noted as missing. The buoy and anchor with tackle were later recovered at different locations.

On June 19, Project Buoy #8 was noted off location, offshore by an additional 200 yards. An individual later advised the Project Manager that the possible cause was entanglement and dragging by a large

power boat. The individual had recently heard a third party talking about motoring along the Port Townsend waterfront at night and running into something that resulted in line being cut free from their propeller. No positive identification was made. This buoy was retrieved on June 23 with assistance from the Washington Department of Fish & Wildlife - Point Whitney survey vessel and crew. The buoy was taken ashore for later re-installment.

On July 9, Project Buoy #8 was reinstalled on location by volunteer divers and the Project Manager, just north of the Washington State Ferry terminal.

On July 21, Project Buoy #1 was noted as missing. The recent extreme tidal exchanges were again suspected of causing anchor failure. Upon further investigation, the anchor and tackle were confirmed as missing as well. This buoy has not been recovered.

Kelp wrack caught on marker buoy.
***Source**: LaRoche, 2004*

On August 6, Project Buoy #2 was re-installed at the vacant Project Buoy #6 location. During that operation, the anchor and some tackle from missing Project Buoy #6 was discovered on location. The line was cut about 10 feet below the water's surface. The line had a clean cut suggesting either a boat propeller or knife. At this point in the season, six project buoys remained on location in the project area.

On November 2, Project Buoy #6 was recovered on Whidbey Island. It was determined that Seattle Pacific University staff at the Fort Casey Conference Center had found the buoy washed ashore weeks earlier and transported it to their sea lab facility located at the state park. They had called the only phone number printed on the buoy to report their recovery, however that phone number was for the manufacturer and no reply was received. The MRC found the buoy only by chance in that two members waiting for the nearby Keystone ferry to Port Townsend took a beach walk and happened to see the buoy against the sea lab building upon their return! The buoy was retrieved by the Project Manager and a volunteer.

The effect of the strong tidal currents is believed to be the cause of the equipment failure, especially in light of repeated observations of kelp wrack (primarily bull kelp, *Nereocystis sp*.) entangled on the buoys. This additional surface area would only increase the buoy's drag and thereby the break-out

pressure being exerted on the anchor and tackle systems. The possibility of foul play or project sabotage was considered but with no evidence to suggest it or reasonable means to investigate such possibilities, the idea was dismissed.

The above described incidents show an overall equipment failure rate of 37.5% for the project. The project work group concluded a different anchor system would be required for better project success in the future.

Buoy Removal

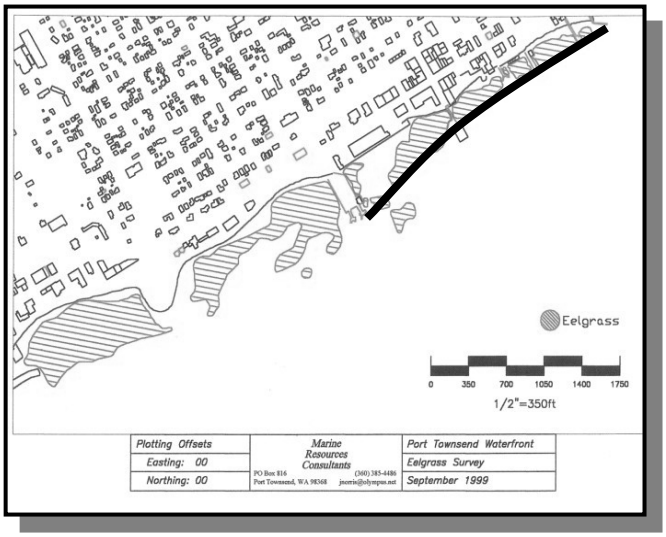
Operations for removal of the buoys were completed on October 24 with volunteer assistance and equipment from the Townsend Bay Dive Shop. This occurred later in the fall than anticipated for two reasons: 1) volunteer availability was limited, and 2) inquiries to the five permitting agencies were made regarding anchor removal. The project plan and permit applications had both specified that only the buoys and line would be removed seasonally, leaving the anchors in place over-winter to minimize disturbance to the seafloor. After the work group concluded a change in equipment was necessary, it was determined the mushroom anchors should come out at the same time as the buoys to condense volunteer work days. Once verbal reply had been received from each permit agency about if and/or how to proceed with permit modification, removal operations could be scheduled.

Using an 18' skiff, the Project Manager and two volunteers retrieved the six remaining buoys, pulled the anchors by applying direct upward pressure on the line, and delivered the equipment to shore. The Port of Port Townsend provided use of their wash-down facility to remove marine growth in preparation for over-winter storage. The Jefferson County Parks Department provided transport of the equipment to their maintenance yard in Port Hadlock for storage until seasonal installation in spring of 2005.

Project Monitoring

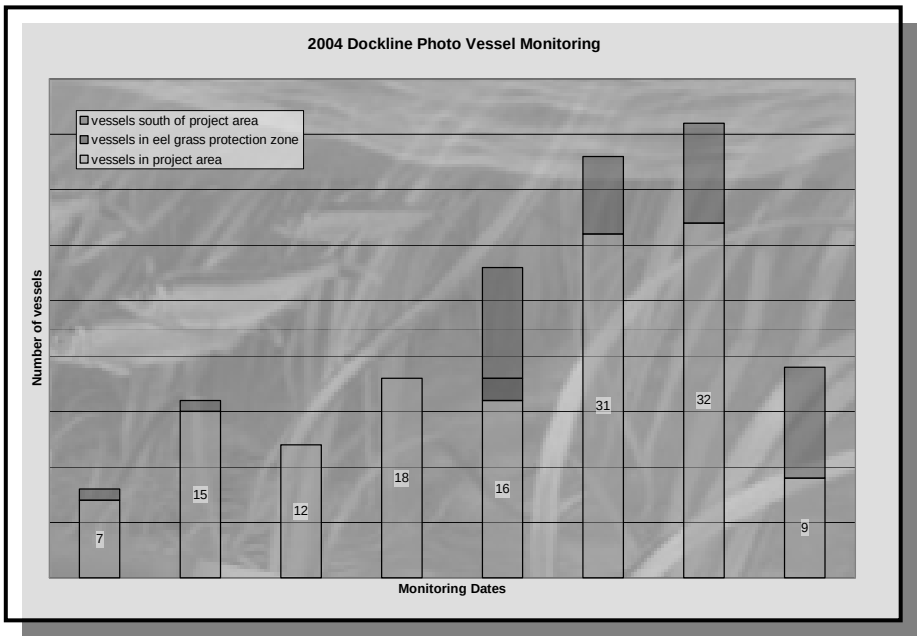
2004 Dockline Photos

In an effort to continue the monitoring begun during Phase I of the project, dockline photos were taken during the boating season to record data on anchoring activities along the Port Townsend waterfront. The most recent mapping of eelgrass in the Project Area and to the south shows the deepest edge of the vegetation inside the Voluntary Eelgrass Protection Zone (VEPZ) very closely follows the contour at the seaward ends of the various docks and wharves along the downtown waterfront.



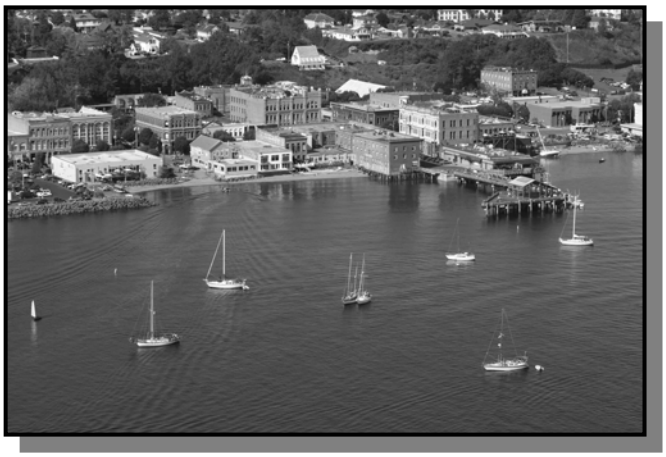
***Above**: 1999 eelgrass map by Marine Resources Consultants. **Below**: Chart of boating activities in and adjacent to the Voluntary Eelgrass Protection Zone. **Source**: Norris, 1999 and LaRoche, 2004 respectively*

A virtual line that connects the ends these over-water structures was used to establish baseline data on how many boats anchor in the eelgrass. There are two exceptions to this in that the dockline at Union Wharf passes through the dock at the shoreward side of the covered pavilion, and there is no eelgrass present the deep hole in front of Port Townsend Plaza. Dockline photos taken on 27 days during Phase I of the project showed an average of approximately 20% of boats anchoring in the Project Area anchored inside the dockline, and therefore in the nearshore eelgrass meadows.



Completed by a project volunteer during the 2004 boating season, the monitoring didn't begin until late-August. This delay was primarily due to a four month interim without any project management staffing to establish the monitoring schedule and protocol. Dockline photos were taken on 9 days during Phase II of the project and showed an average of only 1.4% of boats anchoring inside the VEPZ. (Appendix B) In addition,

anecdotal evidence collected by the Project Manager during this interim supports the findings of the project monitoring data that show very low numbers of boats anchoring inside the VEPZ. Given the significant drop in the number of boaters anchoring in the eelgrass, the buoys appear to be successful at changing boater behavior to the benefit of the submerged eelgrass habitat. Continued monitoring of the project is needed, especially while buoys are installed, and the project work group developed a monitoring plan for future implementation.



Even during Wooden Boat Festival weekend, 98.6% of boaters anchored outside the VEPZ. ***Source****: Leader, 2004*

Monitoring Plan

The following plan, developed as a stand-alone document, is included here in its entirety:

Background: In an effort to minimize the negative impacts of boat anchors on the nearshore eelgrass resources along the downtown Port Townsend waterfront and to increase boater safety in a risky anchorage area, the Jefferson County Marine Resources Committee (MRC) implemented a Voluntary Eelgrass Protection Zone.

Using seasonal marker buoys to delineate the offshore boundary of the fragile submerged habitat and a boater education strategy with informational signs along the shore, project brochures distributed at key locations and additional outreach in popular boating and tourism publications, the summer of 2004 was the pilot season of the project. To determine the effectiveness of the project, monitoring needs to assess both positive and negative results.

Monitoring Goals: In order to measure the effectiveness of this project, the MRC's Eelgrass Protection Work Group recognizes the need for monitoring. This group has overseen the project since the early planning and public scoping stages begun in 2003 and has identified the following as the monitoring goals for the project:

Monitoring Goals:

1. Confirm buoys remain on location using GPS
2. Confirm the condition of the equipment to avoid loss or resultant damage.
3. Minimize build-up of marine growth to maintain optimal equipment performance.
4. Document any damage to eelgrass in the Protection Zone.
5. Document anchoring activities in project area to compare Protection Zone to adjacent anchorage area.

These goals were selected as an expansion of the monitoring identified in the *Phase I Final Report* (McConnell. 2004), which also noted that development of a volunteer diver quarterly monitoring effort was in progress. At that time the volunteer diver effort was to include checking on buoy condition and

location, documenting eelgrass damage, and possibly tracking changes in basal coverage (number of plants/square meter)

Towards these early monitoring ideas, an initial volunteer diver reconnaissance effort was conducted in January '04, but actual results were minimal. Based on this experience, the Work Group has concluded that any volunteer effort must be clearly defined, replicate efforts standardized, and all activities closely supervised by a qualified person.

Additional input to the project's *Phase I Final Report* was correspondence with a local eelgrass research scientist and professional diver. The Work Group was advised that two main questions could be answered with monitoring efforts:

1. Estimate change in impact from boats anchoring on eelgrass
2. Document eelgrass recovery [as a result of project's Protection Zone]

Above-water assessments would answer the first question, while diver or underwater video surveys would answer the second. The Work Group recognizes that changes in density of eelgrass coverage in the Voluntary Eelgrass Protection Zone might be considered a measure of the effectiveness of the project, but requires more technical monitoring activities under a stringent experimental design. Tracking changes in basal coverage also fails to differentiate the effects of the Protection Zone from the effects of other factors such as ambient conditions (temperature, water quality, etc.) on the recovery of eelgrass resources. The Work Group has determined that eelgrass basal coverage and recovery will not be pursued as part of initial project monitoring.

The group decided it is very important to keep the monitoring plan and initial efforts simple and attainable for volunteers & recreational divers, with the option of expanding future efforts as applicable. The Work Group may expand these efforts in future years to build on project success, and to pursue additional scientific endeavors towards the conservation and protection of local marine resources. The group also recognizes the need for an 'adaptive management' approach to continually tailor monitoring activities to the project as it progresses and changes over time. Additional monitoring efforts could include, but are not limited to:

- Diver documentation of submerged municipal outfall locations
- Monitoring storm water impacts to adjacent eelgrass.
- Monitoring of eelgrass basal coverage/shoot density inside and outside the project area to determine changes over time (eelgrass recovery) related to and independent of the project.

Attaining the Monitoring Goals identified herein will require implementation of a monitoring program with clearly defined protocols & procedures.

Monitoring Program: MRC members, staff, contractors and volunteers involved in any project monitoring activities shall follow the intent and technique outlined below and must gain prior approval from the Work Group for project involvement.

Buoy Location & Condition
Goal 1: Confirm buoys remain on location using GPS.

Description - Project permitting issued by five different government agencies requires the seasonal marker buoys to be securely installed on location to minimize any unintended anchor dragging damage to surrounding resources - especially the eelgrass. Some agencies also required submittal of exact GPS locations after installation was complete. In addition, equipment loss is of concern for public safety and budgetary reasons. Early detection of a buoy off location may aid the prevention of equipment loss and the recovery of a buoy already "on the move".

Goal 2: Confirm the condition of the equipment to avoid loss or resultant damage.

Description - To help prevent loss of equipment, damage to habitat, and risk to public safety, equipment must be checked to ensure all components are in working condition. If an anchor is working loose from the bottom, or if hardware or tackle construction is failing, equipment could be lost and surrounding habitat and public could be at risk.

Goal 3: Minimize build-up of marine growth to maintain optimal equipment performance.

Description – Nearly any surface submerged in seawater will begin to accumulate marine growth of algae, barnacles and other encrusting organisms. While most marine equipment is designed to be somewhat resistant to damage by marine fouling, left unattended it can be detrimental to moving, flexible and/or floating parts. To ensure that project buoys retain optimal buoyancy, and tackle continues to securely connect the buoy to the seafloor, it's important to regularly de-foul the buoys, line, and other hardware.

Protocol & Procedure- Buoy location will be confirmed weekly at a minimum, and buoy condition will be confirmed bi-weekly using shore-based, boat-based, and /or underwater observations and maintenance activities during the boating season from May through September:

1. Shore-based observation will not utilize GPS information, nor be used to determine equipment condition, but will serve as the most frequent, simple and convenient means of monitoring location. This will be completed as part of the dockline photo monitoring effort. Outreach efforts should also provide contact information in case anyone from the MRC or general public notices a change in buoy location. A datasheet will be developed for use by project volunteers and the general public.
2. Boat-based observation will be performed by both the WDFW Point Whitney Field Survey Crew and the Jefferson County Sheriff Department Marine Patrol as both teams are available. By stationing the vessel next to or above the buoy and pulling on the line until it's taut and perpendicular to the surface, an accurate GPS reading can be taken. Buoy location and equipment condition above the waterline will be monitored, while equipment condition below the waterline will not. A simple datasheet will be provided to facilitate these partner groups to assist project monitoring.

3. Underwater observations will be performed by volunteer recreational divers who have completed a basic project orientation training and signed a liability release form. Buoy location, equipment condition and removal of marine growth can be monitored this way.
    a. Confirmation of location is likely not necessary unless shore-based and/or boat-based observations have indicated a problem. If a buoy is noted off-location, divers can ascertain whether the anchor and tackle are still in place.
    b. Equipment condition below the waterline will be assessed by visual and manual inspection to ensure the swivels, line, shackles, floats, weights and anchors are all intact and functional.
    c. Frequent removal of marine growth using manual tools like scrubbers and scrapers will help ensure equipment functions well, and will preserve the life of the equipment.

   A simple datasheet will be developed to facilitate volunteers' participation so that anytime a diver is in the water in the Project Area, monitoring data can be collected.

Eelgrass Damage

Goal 4: Document any damage to eelgrass in the Protection Zone.

Description - The main purpose of the project is to minimize anchor damage in the fragile nearshore eelgrass. In order to determine whether the marker buoys are effective, the project must survey the area for evidence of such damage. When a damage site is recorded it will be useful to track any changes at that site over time, to gather anecdotal data on eelgrass recovery. Given the submerged nature of the eelgrass habitat in the project area, these monitoring activities must be conducted underwater.

Protocol & Procedure-Underwater transects will be performed by volunteer recreational divers to document observable damage to the eelgrass in the project area. After completing the tasks outlined in Goal 3 above, dive teams will document eelgrass damage while swimming a straight line compass course from the buoy marker shoreward for approximately 200 feet. Dive teams will swim side-to-side and search an area approximately ten feet wide. The monitoring data will include: location (buoy number), direction of transect (compass heading), length of transect, depth at end of transect, date, time, and a description of any eelgrass damage that is observed noting the nature of the damage and the approximate distance shoreward from the buoy. If divers have GPS, they will surface over any observable damage sites and record the latitude and longitude.

Dockline Photos

Goal 5: Document anchoring activities in project area to compare Protection Zone to adjacent anchorage area.

Description - Continuing the dockline photos from Phase I of the project, a critical measure of the effectiveness of the Voluntary Eelgrass Protection Zone is whether boaters actually change their behavior to anchor outside the eelgrass area. By photo-documenting the number and locations of vessels at anchor in the project area, this behavior can be evaluated, especially to compare peak season events to the rest of the boating season.

Protocol & Procedure - Photographs will be taken to show the number and location of boats anchored inside and outside the protection Zone at various times of day, throughout the buoy season (May – September). Because the most recent eelgrass maps show the deep edge of the eelgrass follows the contour at the ends of the docks & wharves along the project area, it's easy to collect images from the end of one dock, looking along the buoy line or dockline to the end of an adjacent dock. This makes it simple to count the vessels at anchor present, and determine which are inside and outside the protection zone. Photos will be catalogued by date and data analyzed for percent of boats present that anchor inside the protection zone.

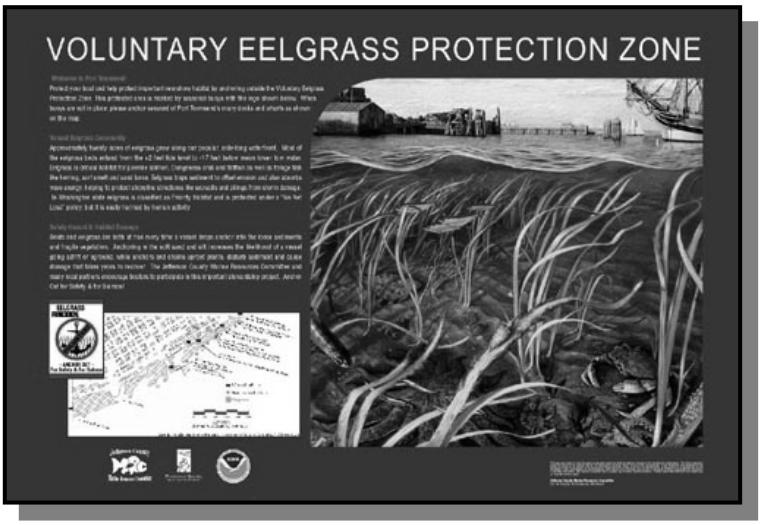
Boater Education & Public Outreach

Informational Signage

In the spring of 2004, six interpretive signs were installed along the shore to inform boaters and the public about the purpose of the seasonal marker buoys and the no-anchor zone. Several volunteers assisted with installations and construction of sign frames and bases. Signs are present at the following locations:

1. Point Hudson Marina Office
2. City Dock
3. Adams Street Beach
4. Union Wharf
5. Tyler Street Beach
6. Boat Haven Fuel Dock

These signs include the project logo, a map showing the extent of eelgrass coverage along the Port Townsend Waterfront, location of the seasonal marker buoys and prominent shoreline features as well as a beautiful full-color illustration of submerged eelgrass habitat and some of the marine wildlife that thrives there. (Appendix C)



Informational signage posted at six shoreline locations.
***Source**: Printery Communications, 2004*

Project Outreach

Because this project hinges on a boater education strategy, public outreach efforts are key to the project's success. Boater education and public outreach efforts were conducted throughout Phase II , including some completed during the 4-month (March through June) interim prior to re-hire of project management staff (Appendix D). These efforts included:

January 2004

- Northwest Straits (NWS) Initiative Independent Evaluation Panel slideshow presentation (*unintentionally omitted from Phase I Final Report, Feb. '04*)

March 2004

- LTAC *Olympic Peninsula Visitor's Planning Guide* brochure – 100K mailed annually by request;
- Revised Project Supporter Sticker
- *MPA News* newsletter request for project report

Spring 2004

- Port Townsend Marine Science Center *Octopress* newsletter– feature article on project with map & logo graphic

- *NWS News* newsletter (Spring/Summer 2004) – project logo featured with caption in feature article about MPAs

April 2004

- *Leader Visitor Guide* – full color 3-block (3 column x 33 pica) display ad featured project map & logo with descriptive text
- Project overview during *Science of Eelgrass* public forum

May 2004

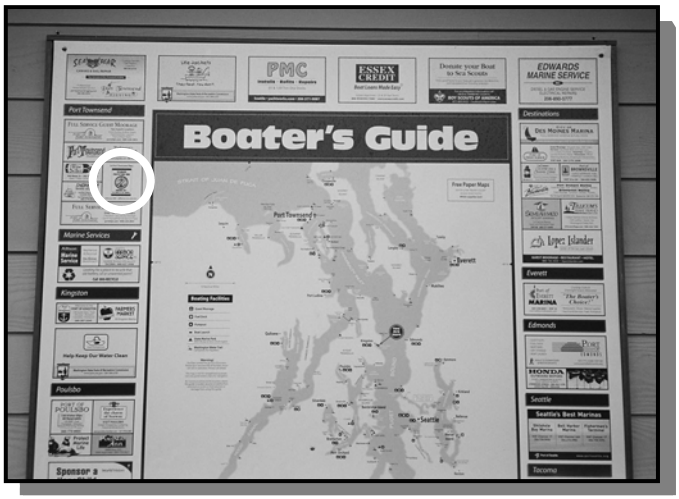
- Boaters Guide Marina Maps– wall mount signs at 65 locations around South Puget Sound, plus "take-home' paper versions at each location

June 2004

- *Leader* newspaper (6/2) feature article– Page 1 of Section B "Our Place"; titled Buoys out this week for eelgrass

July 2004

- City of Port Townsend newsletter– feature article by Judy Surber, Senior Planner titled Marine Resources Committee Supports City's Eelgrass Meadows
- Installation of 6 signs along downtown waterfront shore



Display ad on marina maps at popular waterfront locations in Puget Sound. ***Source****: McConnell, 2004*

August 2004

- Port of Port Townsend website *Useful Links*– top link listed on the Port's home page leads to project info posted separately as .pdf with map & logo graphic and descriptive text

September 2004

- *Peninsula Daily News* (9/3) newspaper article– Page A5 titled Marine committee seeks volunteers for boat fest
- *Leader* (9/8) newspaper article– Page A5 titled Buoys mark eelgrass beds, urge stewardship
- Project information booth at Wooden Boat Festival (9/10 – 12)

February 2005

- Project brochure reprint
- Project update flyer & Public Input Survey form (Appendix E)
- PTGuide.com website– map & logo graphic posted with link to MRC website for project description
- Project update presentation to Chamber lunch meeting (2/14)
- Project map & logo graphic with descriptive text accepted for publishing in *Port Townsend Leader Visitor Guide* tabloid (to publish April 2005)

In addition, contact was made to several popular boating magazines (Waggoner's Cruising Guide, 48° North, NW Boat Travel) to inquire about including project info in their publications. *48° North* indicated interest and the map & logo graphic was submitted and accepted for publication in the April

issue. No reply was received after repeated calls to the other publications. It will be important to the continued success of the project to maintain and expand boater education and public outreach efforts. Additional means of providing project information that can be pursued include:

- US Coast Guard Local Notice to Mariners
- Popular cruising magazines (i.e. Waggoner's Cruising Guide, Nor'westing, NW Boat Travel, MPC Boaters Directory, etc.)
- Yacht club newsletters
- Port mailings
- Trade shows
- Boating education organizations (Wooden Boat Foundation, Coast Guard Auxiliary, Power Squadron, Washington Sea Grant, etc)
- Community festivals
- Local TV

While the buoys are the most direct means of informing boaters and the public about the VEPZ, project outreach is necessary to prepare boaters before they arrive at the Port Townsend waterfront so they can plan their mooring options.

A Public Input Survey form was developed and distributed broadly in the community late in Phase II. Only two were completed and returned before preparation of this report. The outreach tools noted as ways in which the respondents had learned about the project included:

- Email
- Information booth
- Newspaper
- Presentation
- Saw buoys in water
- Shoreline signage

Both respondents identified themselves as boat owners, indicated "very strong" project support, had not experienced nor heard of anyone else experiencing negative interactions with the project, and both indicated support for additional mooring facilities in Port Townsend. Each of the three options presented were checked indicating the respondents are in favor of more mooring buoys, marina expansion and public docks. One of the respondents also offered to volunteer with the project.

Project Continuation

Equipment & Logistics Recommendations

Permit Revisions- Because the project work group recognized the need for use of a different anchor, the five permitting agencies were contacted to inquire about permit revisions. No permit change is needed for Army Corps of Engineers or US Coast Guard. Letters of request were submitted to Washington Department of Natural Resources, Washington Department of Fish & Wildlife (WDFW), and City of Port Townsend. WDFW issued a modified Hydraulic Project Approval, and the other two requests are pending.

Equipment Revisions – Due to the 37.5% equipment failure rate during the 2004 season, the project work group investigated other anchor options (Appendix F) to ensure better equipment stability. The anchor system selected to replace the 50 lb. mushroom anchor is the helical screw anchor with these features:

- 5.5ft. x 1in. shaft with 8in. helix; hot dip galvanized
- 9,000 lb. breakout/holding strength in Soil Class #6 (soft clay/sand/silt)
- manual installation

Helical screw anchor for next installation. ***Source****: Go2Marine .com website*

It was also decided that a heavier line is needed, based on a comparison study during the 2004 season. The ¼ inch polypro line will be replaced with heavier "crab line" as tested last year.

Because of the sheer luck involved with Project Buoy #6 being recovered on Whidbey Island, and the fact that Project Buoy #1 may be in someone's possession without any project contact information, the project work group decided that contact info must be affixed to the buoys. The group will pursue the use of small engraved pet tags that will be riveted to the buoy.

Use of Dive Professionals – Project buoy installation and removal operations are considered underwater construction activities. Given the technical nature of these activities, the project work group has determined that a professional diver(s) will be hired to conduct buoy deployment, rather than using volunteers. The selected dive professional will help design & construct the buoy tackle system, and be responsible for conducting installation operations and ensuring all permit requirements are met. This will also reduce the personal risk and the County's liability inherent to involving volunteer divers with varying levels of training and experience. Dive volunteers will be welcomed and encouraged to participate in the monitoring program.

Installation Plan – While the gap in project staffing was not intentional, it certainly proved problematic for keeping the project on schedule and for meeting permit requirements. The project needs an

installation/removal plan schedule that meets permitting requirements and includes timely project staffing, hiring of dive contractors, acquisition of materials and supplies, and coordinated volunteer involvement. Permit requirements are summarized below:

City of PT – Shoreline Substantial Development Permit Exemption

- 6-8 seasonal marker buoys, removed during winter & reinstalled each season
- Permit issued 12/12/03, no expiration unless activities not conducted

US Army Corps of Engineers – Nationwide Permit 1 Aids to Navigation

- 8 anchor buoys, remove buoys (detached from anchors) each fall and reinstall each spring
- Use underwater floats &/or neutral density/buoyant lines to prevent scour
- Scope of line must be no greater that the distance from the bottom to tidal elevation 14 feet above MLLW (that is 2 feet greater than the elevation of the Highest Estimated Tide)
- Diver will install each anchor by hand to minimize turbidity
- Mushroom anchors placed 30 feet waterward of the eelgrass
- Preconstruction notification not required
- Permit issued 12/17/03, expires 12/17/05

US Coast Guard – Private Aids to Navigation (PATON) Approval

- 8 regulatory buoys operated annually May 1 to September 30
- Approval issued 11/4/03

WDFW – Hydraulic Project Approval

- 6-8 seasonal marker buoys shall be installed from May 1 to November 1 of any year
- Copy of project plan shall be onsite during construction/installation
- Buoy should be marked with HPA Control Number (i.e. F9358WDFW)
- Locate buoys a minimum of 30 linear feet waterward of the eelgrass
- Use buoyant line or subsurface float to keep the line from contacting the bottom during low tide cycles
- Subsurface float shall be located 1/3 of the way up from the bottom
- Scope of line shall not be more than extreme high tide depth plus 20%.
- Permit issued 2/2/04, modified 3/8/05 and expires 2/2/09

WDNR – Right of Entry Agreement

- 8 seasonal marker buoys will be located May through September
- Shall notify DNR at least 2 weeks prior to project activities
- Mushroom anchors will be placed 30’ waterward of the eelgrass beds
- Permit issued 4/7/04, effective 5/1/04 and expires 9/30/05

Based on the permit requirements listed above, the following implementation plan schedule is provided:

March
- Hire Project Manager staff
- Select professional dive contractor for buoy deployment operations
- Obtain and construct all needed equipment
- Notify permit agencies of installation date
- Solicit & train dive volunteers for monitoring
- Begin boater education & project outreach

April
- Install seasonal marker buoys to meet all permit requirements
- Begin project monitoring

May - September
- Ongoing monitoring
- Begin permit renewal processes
- Notify permit agencies of removal date

October
- Remove buoys leaving anchors in place
- Transport buoys to over-winter storage

The Project Manager will oversee this plan and schedule and coordinate with the professional dive contractor(s) and project volunteers.

Possible Project Expansion

As the MRC reflects on its first successful year of the project, the group can consider possible project expansion to further protect nearshore eelgrass resources. One option discussed in early planning stages is to extend the VEPZ south to the Boat Haven to include the eelgrass habitat south of the current project area. While boat anchoring activity is less intense in this area, the data shows such activity is present on a regular basis.

Another option would be to acquire more recent eelgrass mapping data in the project area and for all of East Jefferson County shorelines. The private research firm that is the premier eelgrass mapping team in Puget Sound, Marine Resources Consultants, led by Dr. Jim Norris, is based in Port Townsend. When this project began in 2002, the 1999 map was sufficient on which to base initial project planning and implementation. Now that the eelgrass survey data is six years old, the MRC would be wise to invest in an updated data collection effort to ensure the project's future is based on the most current information.

During Phase I of the project, several Puget Sound municipalities expressed interest in the efficacy of the buoys for possible use along their shorelines. In addition, other nearshore areas may benefit from voluntary compliance with restricted boating activities. The work group may pursue contact with such

interested parties to offer support and guidance as others implement similar educational and protective efforts.

Conclusion

Despite the difficulties of disrupted project staffing and equipment failures, the buoys have affected boating activities to reduce negative impacts to the sensitive eelgrass habitat along the downtown Port Townsend shoreline. Further monitoring and project continuation and expansion are warranted. The MRC is at an exciting juncture with a promising first year of project implementation completed and a horizon of continued success ahead.

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Appendix A – ’04 Installation & Safety Plan, Dive Safety & Planning Checklist, and Liability Release

Appendix B – ’04 Dockline Photo Data Summary

Appendix C – Signage Installed on Location

Appendix D – Project Outreach

Appendix E – Public Input Survey Form

Appendix F – Anchor & Tackle Options

Appendix G – List of Participants