Átl'ka7tsem/Howe Sound Biosphere Region
Best Management Practices for Marine Docks

Definitions:

The *Átl'ka7tsem/Howe Sound Biosphere Region* Best Management Practices (BMPs) for marine docks (including wharfs, piers, floats, buildings and associated pilings and moorages) within the Átl'ka7tsem/Howe Sound Biosphere Region *(refer to map),* is a compilation of best management practices from Federal and B.C. Provincial authorities, Islands Trust, and the Rights and Titles Department of the shishalh Nation.
The BMPs are intended to help minimize and mitigate impacts to marine foreshore and nearshore habitats by promoting responsible and appropriate development, construction and maintenance of marine docks.
The BMPs are also intended to ensure proponents follow measures and designs that conform to Sections 34 through 37 of the Federal Fisheries Act.
Adherence to the BMPs will contribute to efforts to protect the cultural and heritage resources within First Nations territories.

Best Management Practices:

Development, Construction and Maintenance

1. Wherever possible, proponents are encouraged to research existing opportunities for moorage prior to constructing new docks and to develop dock facilities that can facilitate numerous upland owners (Community Docks).

> In pursuing multi-owner/use facilities the footprint on the sub/inter tidal habitats is minimized. These types of facilities also help to alleviate potential cumulative impacts from high density, individual dock infrastructures.

2. No critical habitats can be impacted within the immediate vicinity of the proposed dock/float structure. Critical habitats are defined in the Canadian Species at Risk Act (SC 2002, c.29) as:

> '*the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species."*
>
> And more explicitly for a marine environment is defined as:
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> ***"**habitat that is important for: (a) sustaining a subsistence, commercial, or recreational fishery, or (b) any species at risk (e.g., terrestrial or aquatic Provincial red- and blue-listed species, those designated by the Committee on the Status of Endangered Wildlife in Canada, or those SARA-listed species), or (c) because of its relative rareness, productivity, or sensitivity (e.g. eelgrass meadows, kelp forests, foreshore salt marsh vegetation, herring spawning habitat, and potential forage fish spawning beach habitat)".*
>
> A Qualified Environmental Professional may be required to provide an assessment and opinion on the risks of any dock/float structures on critical habitat(s).

3. Design of a dock should not include components that block the free movement of water along the shoreline. Crib foundations or solid core structures made of cement or steel sheeting should

be avoided as these types of structures result in large areas of vegetation removal and erosion in sensitive shoreline habitats and riparian areas.
Buildings such as boathouses are discouraged due to concerns over structures casting shadows over the marine area that will impact eelgrass habitats and the inherent pollution risks of them being used to store hazardous and caustic contaminants.
All building codes and bylaws administered by all levels of government must be adhered to for all structures.

The applicant is responsible to determine and submit all relevant applications.

4. In order to mitigate shading of eelgrass habitats, docks should be aligned in a north-south direction to the maximum extent that is practicable. However, this may not be possible or practicable at many sites as property boundaries may limit alternate orientations. In this case, dock height becomes the most critical factor. Dock alignment must not impede vessel navigation.

5. Although distances may vary according to jurisdictions, all structures should be a minimum of 5.0 meters from the side property line (6.0 meters if adjacent to a dedicated public beach access or park) and at least 10 meters from any existing dock or structures, consistent with Federal requirements under Transport Canada's *Navigable Waters Protection Act*. Applicant must consult with local authorities.

6. When designing dock/float structures, the bottom of all floats should be a minimum of 1.5 meters above the seabed during the lowest water level or tide.

> With consideration that the negative impact on eelgrass coverage from floating docks is significantly higher than from elevated docks, floating docks should be avoided if possible. To decrease the impact from docks on eelgrass, the recommendation and common design of docks is to place floating docks only at water depths which exceed the natural maximum depth distribution of eelgrass in the area, and to use an elevated dock as a walkway out to the floating dock.
>
> This minimum depth is required to ensure bottom flora and fauna are not adversely impacted by shading and/or propeller wash or scouring from moored vessels.

7. Access ramps or walkways should be a minimum of 1.0 meters above the highest high-water mark of the tide and a maximum width of 1.2 meters. Docks should not exceed a maximum width of 1.5 meters. In situations where this is not physically possible, design variations supported by the appropriate Qualified Environmental Professionals should be provided.

8. In order to mitigate shading of eelgrass habitats, decking materials must allow for a minimum of 43% open space allowing for light penetration to the water surface. Various materials shaped in the form of grids, grates, and lattices to allow for light passage may be used. All efforts should be made in order to minimize artificial lighting and to maximize natural lighting around the dock structure.

9. The use of encased, wrapped or unwrapped expanded polystyrene (eg. Styrofoam) to keep docks afloat should not be used for new construction and repairs.

> Degraded and fragmented polystyrene (eg. Styrofoam) is a source of secondary microplastics and a significant contributor to marine environment pollution.

References:

sources-fate-and-effects-of-microplastics-in-the-marine-environment-part-2-of-a-global-assessment-en.pdf (gesamp.org)

Science assessment of plastic pollution - Canada.ca

Polystyrene floats on existing docks that are showing evidence of breakdown should be replaced using an alternative material.

See Appendix A for recommendations for alternative materials to polystyrene floatation.

10. Pile driving is the preferred method of pile installation. All pile driving must meet current Fisheries and Oceans regulations.

Wrapping piles to encourage herring spawn and to provide sea life habitat is recommended.

11. Steel is the preferred material, although concrete, treated or recycled timber piles are acceptable but should be used with caution. Detailed information on treated wood options can be obtained online from the Fisheries and Oceans Canada website (*Guidelines to Protect Fish and Fish Habitat from Treated Wood Used in the Aquatic Environment in the Pacific Region*).

12. Construction must never include the use of native beach materials (boulders, cobble, gravel, sand, logs).

Accessibility

13. Design of a dock should not unduly impede public access along the foreshore. Between high water and low water mark, structures cannot block public access along a beach or foreshore area, unless reasonable alternative means of passage are available to enable going around or across the structure (e.g. stairs over a dock).

14. Access to the beach for construction purposes is to be from the adjacent upland property wherever possible. Where upland access is not possible and/or the use of heavy equipment is required to access the dock location, marine access during construction may be preferred. The advice of a Qualified Environmental Professional and approval of Fisheries and Oceans Canada should be obtained by the applicant.

15. Dock/float structure and the vessel to be moored at the structure should not be allowed to rest on the seabed during the lowest water period of the year.

Foreshore Protection

16. The upland design of the dock including anchor points should not disturb the riparian area except at the immediate footprint. All efforts should be made to maximize riparian cover adjacent to the dock to reduce erosion and exposure to the foreshore.

17. Filling, dredging, or blasting at or below the High Water Mark is not recommended. If necessary, the work must conform to all government regulations and the applicant is responsible to determine and submit all relevant applications.

18. Works along the upland/water interface must be conducted when the site is not wetted by the tide. All work is to be conducted in a manner that does not result in the deposit of toxic or deleterious substances (sediment, un-cured concrete, fuel, lubricants, paints, stains) into waters frequented by fish. This includes refueling of machinery and washing of buckets and hand tools.

19. To maximize the protection of fish and fish habitat, marine foreshore construction activities should take place during the time periods when the timing windows of least risk are open. Timing windows are updated annually on the Fisheries and Oceans Canada website.

Navigation

20. Transport Canada enforces rules and regulations as stipulated in the *Canadian Navigable Waters Act* (*CNWA*). Specifically, (*Minor Works Order*) Section 4 details requirements and regulations for docks and boathouses. If a proponent is able to construct a dock that meets all the highlighted criteria, the work is pre-approved under the *CNWA* and is not subject to the requirement of the submission of an application for review and approval.

Alternately if a dock is unable to meet all the criteria outlined in the Order , (*Minor Works Order*), the proponent would be required to Apply for an approval to Transport Canada (TC), or seek authorization through the public resolution process.

First Nations interests

21. By nature, locations for docks are also often high potential archaeological areas and thus its important particularly for new dock installations that archaeology is considered and assessed EARLY. The entire shoreline contains good potential for archaeological features along the foreshore and in the intertidal zone.

22. Access or construction along the shoreline requires at least 45 days advance notification sent to the First Nations authority in the area of work and its Rights and Title Department to ensure cultural sites are not impacted or disturbed. A Preliminary Field Reconnaissance (PFR) for archaeology may be required, and provincial permitting times average 6 months.
A PFR is a field survey to assess the archaeological resource potential of the area, and to identify the need and appropriate scope of further studies and is to be performed by a Qualified Professional Archaeologist.

23. Improvements to existing docks may also require a PFR or archaeological assessment, particularly if none was conducted prior to the original construction.

24. Archaeological surveys should be conducted at the lowest possible tide, to ensure thorough observation of the intertidal zone.

25. Access to sub/intertidal resources should not be impeded or restricted by any dock/float structure.

This ensures First Nations maintain their rights to access for the harvest of marine resources for food, social and ceremonial purposes.

General

26. It is important to highlight the effects that climate change is contributing to the increasing intensity of storms and storm surges throughout the Howe Sound Biosphere Region. Where possible, to avoid damage to a dock during storm season, the floats should be removed from the sea and all boats sent to safe harborages. Seasonal installation as opposed to permanent placement should be encouraged.

27. Applications for Docks may require reviews and approvals by the federal, provincial, local governments and First Nations authorities. The applicant is responsible to determine and submit all relevant applications.

Acknowledgements:

The *Átl'ka7tsem/Howe Sound Biosphere Region Initiative Society* has compiled these Best Management Practices (BMPs) from a number of sources and wishes to acknowledge and thank these organizations for their contributions:

1. shishalh First Nation – Best Management Practices for Marine Docks-version 20180605 BMPs_marine_docks_Update_Final_27Jun18.pdf (shishalh.com)

2. B.C. Ministry of Forests, Lands, Natural Resource Operations and Rural Development – Land Use Operational Policy for Private Moorage. Effective date: January 21, 2019. SECTION 3 (gov.bc.ca) specific reference to Appendix 3 – Requirements and Best Management Practices

3. Islands Trust - A Landowner's Guide to Protecting Shoreline Ecosystems. August 2014.. Landowners-Guide-September-draft-revised.pdf (islandstrust.bc.ca)

4. Fisheries and Oceans Canada A modernized Fisheries Act for Canada (dfo-mpo.gc.ca) June 2019. Specific reference to Projects Near Water – Guiding documents

5. Transport Canada *Canadian Navigable Waters Act*. 2019, c. 28, s. 46

Attachments:

1. *Átl'ka7tsem/Howe Sound Biosphere Region Initiative* map
2. Appendix A: Recommendations for alternative materials to polystyrene floatation.

Appendix A:

Recommendations for alternative materials to polystyrene floatation.

History

For centuries anything that needed to float on water was made from wood. In the mid-20th century though the introduction of plastics included many consumer products made from polystyrene (https://en.wikipedia.org/wiki/Polystyrene).

Current state

The buoyancy properties of expanded polystyrene (EPS) made it a choice for the floatation components of docks and floats. However it's bead like structure will break down into micro particles under abrasion and impact.
These micro beads will continue to float on water and is a major source of pollution in aquatic environments.

References:

sources-fate-and-effects-of-microplastics-in-the-marine-environment-part-2-of-a-global-assessment-en.pdf (gesamp.org)

Science assessment of plastic pollution - Canada.ca

Alternatives to polystyrene – examples provided for reference only

1. **Floats that use wood construction**

   Timber and concrete Dock Building (squamishnationmarinegroup.com)

2. **Floats that use high density polyethylene (HDPE) materials**

   Rotational moulded float sections Roto Moulding | New Wave Docks
   Modular floating docks Our Products - Improve Your Candock Docks | Candock

3. **Floats that use encapsulated polystyrene**

   HDPE Float Welding | Squamish Nation Marine Group

4. **Floats that use HDPE thick wall pipe**

   HDPE pipe with aluminum crossers (tie bars) HDPE Pipe Docks (kropfindustrial.com)

5. **Remediation of existing floatation systems** In some cases it's possible to remediate non-encased EPS floats with an encasement of a spray coating.

   Canadian Aquaculture Styrofoam®-Encasement (dfo-mpo.gc.ca)