Case Studies: Lifecycle replacement of Timber Wharves with Large Scale Concrete Floats

Vahid Kahnamelli, P.Eng.  Regional Engineer, DFO – Small Craft Harbours
Andrew Cornell, P.Eng.  Senior Project Engineer, DFO – Small Craft Harbours
Outline

Infrastructure replacement
Costing and Construction
Lifecycle
Loading
Usage
Foreshore and habitat
Safety
Case study: Infrastructure revitalization
Pacific Region Small Craft Harbours owns and maintains over 170 timber pile supported wharf structures.
These timber pile supported wharves serve as platforms for loading fish product, foundations for buildings, and support the economic activity of the fishing fleet.
Built mostly in the 1940s-1960s
These wharves have been incrementally repaired but are
Now past the end of their life-cycle...
This liability was the origin of the development of large scale floating wharves as an alternate that would match or improve the functionality, and improve lifecycle costs of ownership.
Features of a large scale concrete floating wharf

- Floating
- Concrete
- Long lifecycle – Minimal corrosion or rot
- Accessible to vehicles
- Space for traffic/parking
- Space for offloading / staging / industry activities
- Robust
Case study: Port Hardy
Features of a large scale concrete floating wharf
Case studies: Construction and Installation
Lifecycle planning
Simple monolithic structure
Concrete and foam
Case study: Heriot Bay

Pile Moorings
<table>
<thead>
<tr>
<th></th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber Wharf</td>
<td>$2500/m²</td>
</tr>
<tr>
<td>Concrete Float</td>
<td>$1800/m²</td>
</tr>
<tr>
<td>Crane</td>
<td>$50K</td>
</tr>
<tr>
<td>Mooring</td>
<td>$200/m²</td>
</tr>
<tr>
<td>Ramp</td>
<td>$50K</td>
</tr>
<tr>
<td>Ramp + Abutment</td>
<td>$300K each</td>
</tr>
</tbody>
</table>
Case studies: Access for vehicles
Case study: Port Edward
Case studies: Usage by Fishing and marine industry
Case study: Port McNeill
Case study: Heriot Bay
Shellfish aquaculture
Case study: Gibsons prawn boats
Case Studies: Foreshore and Habitat
Case study: Steveston Foreshore habitat
Case study: Steveston Foreshore habitat
Case Studies: Safety
End