

PROJECT LIST - FLOATING STRUCTURES

2009 Douglas Harbor Breakwater – Douglas, Alaska

- Foam filled breakwater moored with twelve guide piles through internal pile guides
- 230' x 18' x 8' deep
- Post-tensioned longitudinally with bonded strand tendons
- Cast-in-place method of fabrication

2008 Bangor Breakwater – Naval Base Kitsap, Bangor, Washington

- Foam filled breakwater float moored with chains and clump weights. Thick walls for a deep draft of 9 feet
- 100' x 18' x 11' deep
- Conventional reinforcing
- Cast-in-place method of fabrication

2005 Petro Marine Services Fuel Floats – Ketchikan and Petersburg, Alaska

- Foam filled floats with utility trenches around the perimeter, internal ballast tanks and oil-water separators
- A new, 7' deep x 25' x 200' float was fabricated for the Ketchikan, Alaska site.
- A 24' x 40' addition to an existing float was fabricated for the Petersburg, Alaska site
- Post-tensioned longitudinally with bonded strand tendons
- Cast-in-place method of fabrication

2005 Port Orchard Intermodal Facility – Port Orchard, Washington

- Irregular "C" shaped float providing slips for the smaller passenger only ferries of Kitsap Transit. The cells are foam filled and the deck is built up with ramps and protected waiting areas for the passengers.
- Overall size is approximately 95' x 75' x 7' deep
- Post-tensioned longitudinally through each leg with bonded strand tendons
- Cast-in-place method of fabrication

2003 Modular Hybrid Pier Test Bed Facility – San Diego, California

- Full scale mockup for testing and evaluation in the planning of full sized floating concrete piers for the US Navy. State of the art materials were used for long service life. The cells are fully open and there is an intermediate deck above the waterline with access openings through the exterior walls.
- Two floats were joined together to form one 50' x 100' x 30' deep float
- Post-tensioned in all directions with strand and bar tendons in walls, decks and keel
- CIP keel, precast walls and deck panels with CIP topping

2001 Ketchikan Transfer Facility - Inter Island Ferry Terminal - Ketchikan, Alaska

- Bridge Support Float - open celled - 10' deep x 60' x 60'
- Fendering Float - open celled - 10' deep x 120' x 30'
- The 60' x 60' float provides support for the automobile ramp and fendering for the stern of the vessel. The 120' x 30' float supports the steel fender system for the starboard side of the vessel.
- Post-tensioned walls, deck and keel with bonded strand tendons
- CIP keel and deck with precast walls

2000 Passenger Only Ferry Facility - Bremerton, Washington

- Open celled float, 12' deep x 145' wide x 240' long in a unique "arrow" shape, with passenger-only ferry berths on each side of the 19' wide center "stem" section of the float
- Complex elevated superstructure and ramp system facilitates rapid transfer of Seattle-Bremerton commuter passengers
- Post-tensioned longitudinally through the walls deck and keel with bonded strand tendons, and transversely through the keel with bonded high strength bars
- Precast method of fabrication in some areas of the float, and cast-in-place in others

1998 USCG Floating Breakwater - Ketchikan, Alaska

- Foam filled float, 7'-0" deep x 24' x 180'
- Moored with lines and clump weights to large fluke anchors on the bottom
- Post-tensioned longitudinally with bonded strand tendons
- Cast-in-place method of fabrication

1997 Ford Island Bridge - Pearl Harbor, Hawaii

- Floating drawspan for an over-water bridge. The roadway is elevated on superstructure at the ends of the float and rides on the pontoon deck in the center.
- Three open celled floats, 17'-6" deep x 50' x 310', transported to Pearl Harbor on the decks of barges. After launching in Hawaii, they were bolted together to form one 930' long float.
- Post-tensioned longitudinally through the walls deck and keel, and transversely through the keel with bonded strand tendons.
- CIP floor, precast walls, precast deck panels with CIP topping

1994 Alyeska Escort Vessel Pier - Valdez, Alaska

- Chosen as the preferred option over a steel float, this provides the base for emergency equipment to respond to oil spills in Prince William Sound
- Accessed from shore by a 125' span steel articulating ramp
- Open celled float, 20' deep x 60' x 200'
- Post-tensioned longitudinally through the walls deck and keel, and transversely through the keel with bonded strand tendons
- CIP floor, precast walls, precast deck panels with CIP topping

1991 Seattle Ferry Terminal South Floating Dolphin - Washington

- Open celled float, 14' deep x 48' x 80' with mitered corners
- Large timber fender system on 3 sides. Identical to the one built in 1985
- CIP construction with conventional reinforcing and no post-tensioning

1991 Whittier Breakwater - Whittier, Alaska

- Three foam filled floats, post-tensioned together longitudinally on a barge at the plant in Tacoma, then transported to Whittier and launched off the barge
- The 3 pieces were 5' deep x 16' x 40', to form a 120' long breakwater for the marina
- Cast-in-place method of fabrication

1991 Port Orchard Marine Fuel Float - Bremerton, Washington

- Fuel float with utility trench. Control booth and fuel dispensers installed on deck
- Foam filled, 5' deep x 14' x 96'
- Post-tensioned longitudinally with bonded strand tendons
- Cast-in-place method of fabrication

1991 Seattle Fireboat Float – Seattle, Washington

- Foam filled float which serves as a berth for one of the Seattle fireboats
- L-shaped, 6'-6" deep x 10' x 124' (widens to 18' at one end)
- Post-tensioned longitudinally with bonded strand tendons
- Cast-in-place method of fabrication

1989 Keyport Pier 1 Float – Keyport Naval Undersea Warfare Center, Washington

- Foam filled float used as a floating camel
- 6' deep x 12' x 180' with heavy fender system along one side
- Post-tensioned longitudinally with bonded strand tendons
- Cast-in-place method of fabrication

1989 McNeil Island Ferry Terminal – McNeil Island Corrections Center, Washington

- Serves as the berthing pier for the passenger boat that serves McNeil Island Prison
- Open celled float, 10' deep x 30' x 76'
- Post-tensioned longitudinally through the walls deck and keel, and transversely through the keel with bonded strand tendons
- Cast-in-place method of fabrication

1989 U.S. Coast Guard Boathouse/Shop Float Pier 36 - Seattle, Washington

- "E" Shaped float with a metal and wood building over two slips to serve as a boat repair shop
- Foam filled float, 7' deep x 62' x 75' outside dimension
- Post-tensioned longitudinally through each leg and the main spine with bonded strand tendons
- Cast-in-place method of fabrication

1989 Bremerton Breakwater and Ferry Terminal – Bremerton, Washington

- Multi-purpose facility functions as a passenger-only ferry terminal, recreational public pier, and marina breakwater
- Foam filled floats
 - 1 @ 8'-4" deep x 32' x 100'
 - 1 @ 9'-6" deep x 20' x 115'
 - 3 @ 7'-0" deep x 16' x 133'
- Post-tensioned longitudinally with bonded strand tendons, then towed to site and bolted together into one L-shaped float
- Cast-in-place method of fabrication

1985 St. Paul Caisson - Pribilof Islands, Alaska

- Towed to the site with a temporary deck, then sunk to the bottom and filled with ballast for use as a permanent fixed pier in the harbor at St. Paul Island. The temporary prestressed deck elements were subsequently used to construct a nearby pier.
- Open celled structure, 30' deep x 40' x 200'
- Post-tensioned longitudinally with bonded strand tendons
- CIP floor, precast walls, 6' high parapet wall on 3 sides

1985 Seattle Ferry Terminal Pontoon – Seattle, Washington

- Serves as a floating dolphin between two ferry slips
- Large timber fender system on 3 sides
- Open celled float, 14' deep x 48' x 80'
- CIP construction with conventional reinforcing

1985 Kasaan Breakwater – Kasaan, Alaska

- Small modules post-tensioned together in the field, into two rigid floats and restrained by center guide piles as an L-shaped breakwater
- Foam filled floats, 12 @ 4' deep x 12' x 21'
- CIP method of construction

1983 Friday Harbor Breakwater - San Juan Island, Washington

- Foam filled breakwater floats to protect Friday Harbor's busy marina are restrained by anchor lines and clump weights fastened to stake piles on the sea floor
- The floats, 3 @ 5' deep x 21' x 330' and 2 @ 5' deep x 16' x 300', are laid out end to end. The unique anchoring system keeps the floats in close contact during calm weather. During storms, the floats are allowed to separate and move independently, with their ends protected from each other by trapezoidal rubber fenders.
- The individual floats are post-tensioned longitudinally with bonded strand tendons
- Cast-in-place keel, walls and deck

1982 Valdez Floating Dock – Valdez, Alaska

- Two units, 350' long x 100' wide, were towed to Valdez, and then joined together by strand post-tensioning while floating in the water. Originally conceived as a container terminal, the dock is now used to load and unload all types of cargo with crawler cranes moving about on the deck.
- Open celled float, 30' deep x 100' x 700'
- Post-tensioned longitudinally in the keel, walls and deck w/ bonded strand tendons
- CIP floor, prestressed walls, prestressed deck panels with CIP topping

1982 East Bay Marina Breakwater - Olympia, Washington

- Foam filled breakwater floats, placed end-to-end to form a 660 foot breakwater to protect Swantown Marina
- Timber guide piles were driven through internal guides to restrain the units
- The three floats were 5'-3" deep x 16' x 218' long
- Post-tensioned longitudinally in keel, walls and deck with bonded strand tendons
- CIP keel, walls and deck

1980 Ketchikan Breakwater – Ketchikan, Alaska

- Single celled foam filled floats were shipped to Ketchikan where they were connected together to form 1080 feet of 23 foot wide ladder shaped breakwater to protect a marina.
- There were 54 floats @ 4'-6" x 6' deep x 40' and 54 @ 4'-6" x 6' deep x 14'
- The floats were post-tensioned in the field longitudinally and transversely
- Each float had CIP keel, walls and deck

1979 Skagway Ferry Terminal – Skagway, Alaska

- Functions as a ferry ship berth on one side and a commercial city pier on the opposite side
- Open celled float, 13' deep x 120' x 160'
- Post-tensioned horizontally in the exterior walls and both directions in the deck and keel slabs
- CIP floor, precast walls, precast deck panels with CIP topping

1979 Crown Zellerbach Floating Dock - Camas, Washington

- Serves as a 4-station barge loading pier on the Columbia River where annual water elevation varies 30 feet
- Open celled float, 13' deep x 60' x 180'
- Post-tensioned horizontally in the exterior walls and both directions in the deck and keel slabs
- CIP floor, precast walls, precast deck panels with CIP topping

1979 Floating Concrete Caisson Gate for CTC Graving Dock - Tacoma, Washington

- This floating gate replaced the driven sheet pile gate originally used to open and close the mouth of the graving dock. It is mechanically equipped to pump ballast water as required to adjust buoyancy
- Open celled float, 25' deep x 16' x 156'
- Post-tensioned longitudinally
- Precast walls with CIP floor and open-topped with steel grate walkway

1976 LPG Floating Storage Facility for Atlantic Richfield Indonesia, Inc. - Java Sea

- Supports crew quarters for 50 personnel and all equipment for the refrigeration and storage of LPG gas at an offshore oil field
- Open celled float, 56' deep x 136' x 461'
- Post-tensioning and prestressing was used extensively in all areas of the structure for durability and waterproof integrity
- Combination of CIP and precast segmental construction