

NAVAL ARCHITECTURE & MARINE ENGINEERING

Art Anderson offers traditional naval architecture and marine engineering services for new vessel design, renovations, repairs and improvements. We have a high degree of expertise in the design and renovation of non-powered floating structures and facilities and fixed over water structures and systems. We work with owners and shipyards to monitor and support vessel construction. We also maintain a research and development group that is on the cutting-edge of emerging technologies. Over the decades, Art Anderson has built a reputation of offering unmatched value to our clients by providing crucial experience and expertise in support of naval architecture and marine engineering challenges.

New Vessel Design

For clients looking to build new, we can customize one of our existing designs, or start from scratch and develop an entirely new one that effectively meets the vessel's intended mission.

- I-90 Bridge Tender
- Canby Ferry
- WSDOT Olympic Class Hybrid Ferry

Vessel Refurbishment

Our naval architecture/marine engineering practice emphasizes working within an existing ship envelope to deliver clients superior value throughout the life cycle of their vessel investment.

- AMHS Tustumena Refurbishment
- DSSV Pressure Drop Support
- NOAA Okeanos Explorer Conversion
- AMHS Columbia Bridge Deck Refurbishment

Floating Structures

Art Anderson is the industry leader for floating structures. Working as an integrated team through many projects, we offer a highly integrated, collaborative environment that can address the variety of unique challenges that face non-powered floating infrastructure projects:

- Floating Powerhouse
- Port of Poulsbo Fuel Barge
- Detroit Floating Screen Structure (FSS)
- North Fork Floating Surface Collector (FSC)
- Lower Baker Debris Boom

Barge Design & Stability

Our Art Anderson team can analyze the stability of the floating structure and how it reacts in particular situations to ensure safe operation for both the equipment and crew.

- Morony Dam Barge Stability Analysis
- Tiger Creek Barge Analysis
- J Percy Priest Reservoir Stability Analysis
- Alcatraz Loading and Stability
- Equipment Barge Design Services
- Chabot Dam Excavator Barge
- Chili Bar Dam Barge Operation Review

Research & Development

For over ten years, and spanning more than a dozen contracts, we have investigated a number of technologies and approaches in the areas of:

- High-speed sealift
- Riverine assault systems
- Marine vessel constructability
- Floating off and onshore platforms

Shipyards Support

We work hard to represent the interests of our clients, whether it's an owner or boat builder, to ensure a successful project outcome for all stakeholders. We understand the design and we understand the construction process assisting our clients from pre-bid to post construction.

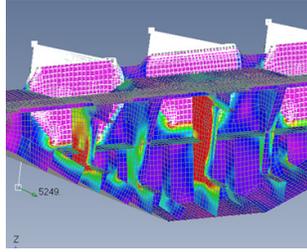
- National Oceanographic and Atmospheric Administration (NOAA)
- Alaska Marine Highway System (AMHS)
- Washington State Ferries



IN-HOUSE CAPABILITIES

- Feasibility studies
- Marine electrical engineering
- Hybrid power system engineering
- Ballast water treatment, and vessel VGP design & engineering
- Regulatory (ABS, USCG, API) compliance
- Vessel overhauls and life extension projects
- Propulsion type evaluation
- Propulsion sizing and design
- Preliminary design
- Structural finite element analysis (FEA) steel and aluminum
- Contract level and detailed (final) design
- Computational Fluid Dynamic (CFD)
- Cost estimates
- Vessel inspections and condition evaluations
- Shipyard construction inspections
- Shipyard engineering phase support
- Related design studies, analysis and reports
- Vessel inclining tests

PROJECT HIGHLIGHTS



600hp Outboard Structural Engineering

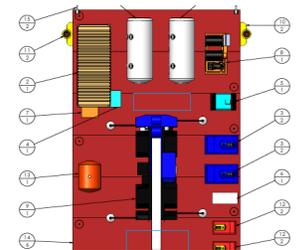
A new Mercury Verado 600hp V12 outboard engine has recently become available and our client wanted to see if the new, larger engine would fit their vessel as it was currently designed. The vessel was designed to fit a certain sized engine and the extra force, higher acceleration and reaction thrust force from the new engine might cause stress on the transom.

Art Anderson performed a Finite Element Analysis (FEA) to determine if the transom would accommodate the larger engine. We modeled the transom and supporting structure to see where the weak points were. We were able to determine the stressed areas that would need supporting in order for the new engine to be used on the vessel.



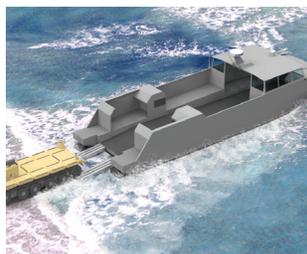
MV Tustumena Refurbishment

Art Anderson performed all planning and design documentation for the improvements to the MV Tustumena, which included significant main deck, hull and tank surveys and steel. The project required naval architecture and marine engineering design services for upgrades or renovations to equipment, systems, and spaces on the vessel.



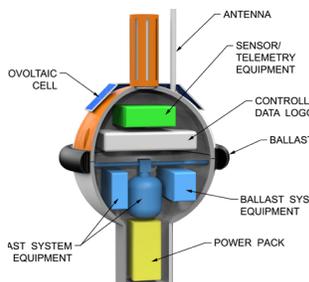
Chili Bar Dam Barge Operation Review

A barge design, loading/unloading plan, and stability analysis for a crane barge used in support of construction on the Chili Bar Reservoir dam in Placerville, CA. This task involved writing loading and unloading plans based on established operational parameters and equipment load outs and assessing the vessels stability during loading, unloading, and lifting operations.



SBIR S.H.A.R.C.

Development of a small high-speed watercraft that can serve as a littoral surface connector capable of delivering smaller autonomous, remote, and manned vehicles and systems. We created a viable, feasible, and achievable concept design for a SHARC that satisfies program objectives of speed, payload, operations, and amphibious capability, while demonstrating that it can be developed into a useful product for the Marine Corps.



NPS San Francisco Bay Buoys

The NPS wanted to mark marine closures identifying no-entry zones protecting sensitive natural resources in San Francisco Bay. Art Anderson gathered data to determine alternatives that would meet NPS goals at two sites and then performed a trade-off analysis. Efficiency in terms of buoy system cost and plans for long-term deployment were considerations in final selection of the buoy systems.



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