SOLIS
MARINE ENGINEERING

CURRICULUM VITAE

PATRICK FAAS MSc, AMRINA, P.E.
NAVAL ARCHITECT

Webb Institute, B.S. in Naval Architecture and Marine Engineering, 2007
University of Strathclyde and TUHH, MSc in Ship and Offshore Technology, 2019
Associate Member of the Royal Institution of Naval Architects 2017
Member of the Society of Naval Architects and Marine Engineers 2003

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Patrick is a Naval Architect at Solis Marine Engineering Ltd, providing engineering, design, and analysis services to the offshore, shipping, and renewable sectors. His work has included structural calculations and finite element analyses, weight estimates, stability assessments, hull form design, arrangements, hydrodynamic analyses, model testing supervision, regulatory compliance and approval, and broader engineering support for the marine industry. His work is focused on providing practical and functional designs which meet all operational requirements while remaining cost effective and simple to construct.

Patrick received his Bachelor of Science in Naval Architecture and Marine Engineering from Webb Institute in 2007. After graduation he began work as a Naval Architect with Elliott Bay Design Group. His work with EBDG included designs of, and engineering support for, a broad range of vessels, including passenger and passenger-vehicle ferries, work boats, tugs, barges, fishing vessels, offshore support vessels, landing craft, research vessels, cruise ships, and more. Patrick became a licensed Professional Engineer in the state of Washington in 2012, followed by P.E. licenses in the states of Alaska, New York, and Louisiana.

In 2017 Patrick left America to begin a joint Masters program in Ship and Offshore Technology with the University of Strathclyde in Glasgow, Scotland and Hamburg University of Technology in Hamburg, Germany. For his Masters thesis he developed a multi-vessel manoeuvring simulation tool for use in the evaluation and optimisation of towed manoeuvres. Upon completion of his Masters degree in 2019 he returned to the UK to work on the development of a smart wind assisted propulsion system for SMAR Azure Ltd in Edinburgh. The work included structural design and analysis, mechanical design, work on a velocity prediction program and route analysis tools, validation of aerodynamic analyses, working to obtain approval in principle, and planning for construction and model testing of half-scale models.

SMAR AZURE LTD

- SMART WIND ASSISTED PROPULSION SYSTEM
  Research and development for a novel wind assisted propulsion system. Tasks included structural and mechanical design, working towards approval in principle (AIP) by regulatory agencies, development of a velocity prediction program and route analysis for evaluating wind propulsion, and design of half scale models for wind tunnel testing.

ELLIOTT BAY DESIGN GROUP

- NCDOT NEW RIVER CLASS FERRY RODANTHE
  Design of the new river class ferry for North Carolina Department of Transportation, including hull form, arrangements, structure, stability and subdivision, fire protection, resistance and powering, and Voith Schneider propeller integration.
- STATEN ISLAND FERRIES OLLIS CLASS FERRY
  Lead naval architect for the design of new 4,500 passenger ferries for Staten Island Ferries. Oversaw arrangements, weight estimate, stability, fire protection and safety, obtaining regulatory approval, and model testing. Worked closely with SIF management and crew to ensure optimal integration with their facilities and operations.
- NAUTILUS DATA BARGE
  Assisted with the retrofit of a dedicated server facility onto a deck barge. Tasks included validation of structural design, weight estimates, environment assessment, mooring analysis, and shore connection methods.
- DIVING SUPPORT VESSEL
  Diving equipment payload lashing calculations and structural analysis. Performed FEA for the supporting deck structure and attachments points for a launch and recovery system installed on an offshore supply vessel.
- KELLY SLATER WAVE CO
  Weight and buoyancy support for the concept design of a surfing wave generator apparatus.
- DAY BOAT ALASKA CLASS FERRIES (TAZLINA AND HUBBARD)
  Worked on the design for daily-operational ferries for the Alaska Marine Highway System. Beyond the standard design tasks, a heavy emphasis was placed on operational efficiency for the vessels. This including hull form optimisation for transit speed and design margin, plus evaluation of terminal approach, manoeuvring, and loading process to meet a strict twelve-hour day for crew requirements. Final FEA for the detailed design and installation of the side and stern car doors supporting structure.

- T-PONTOON

  Design of a custom pontoon structure to assist in the floating free of newly constructed bridge pontoons from the graving dock due to insufficient buoyancy because of tidal restrictions.
- 520 FLOATING BRIDGE

  Preliminary calculations assessing the tow of various configurations of rectangular bridge pontoons from their construction sites to the installation location.
- AMHS COLUMBIA REPOWER

  Structural design, weight estimate, FEA, and vibration analysis for a repower of the Alaska Marine Highway System ferry vessel COLUMBIA. Provided engineering support to the owner and shipyard during installation and performed the inclining experiment and updated the stability booklet after.
- RESEARCH VESSEL BOLD

  Performed stability analysis for the research vessel (former offshore supply vessel) BOLD.
- AET INNOVATOR

  Assisted in the design of the lightering support vessel AET INNOVATOR. Tasks included hull form design, stability and loading, subdivision, and deck equipment installations.
- NORTHERN EAGLE

  Stability assessment for the fishing vessel NORTHERN EAGLE following processing equipment improvements. Recommended adjustment of fixed ballast resulting in improved vessel handling.
- BAE SAN FRANCISCO CRUISE SHIP DRYDOCKING

  Assisted with the drydocking of several Princess Cruises ships in floating drydock at BAE Systems San Francisco shipyard. Designed custom pockets installed in the wing-wall of the floating drydock to allow for removal and maintenance of the ships' active anti-roll fins. Performed stability and wind assessments to meet the requirements of MIL-STD-1625.
- QIT'RWIK

  Stability assessment for the landing craft QIT'RWIK operating in the Katmai National Park.
- INCIDENT RESPONSE SUPPORT

  Took part in dedicated incident response preparedness for several commercial marine companies and ferry operators. Available for immediate assistance on an ongoing basis. Assisted with structural evaluation of cracked trunk barge, and for the mooring and removal of a vessel grounded in a river.
- LANDING CRAFT RAMP FEA

  Analysis for the design of a new retractable ramp on a landing craft for unloading heavy machinery.
- USCG BALLAST WATER PILOT STUDY

  Review and summary of the available ballast water treatment technologies. Development of two concept installation design packages for retrofit of ballast water treatment systems to existing vessels for USCG evaluation of regulatory impact.

- AMHS AURORA ACCOMMODATIONS UPGRADE
  Survey of the AMHS ferry AURORA for design and retrofit of new crew accommodations.
- DEEP PACIFIC AND LILLI ANN
  Performed inclining experiments and stability analyses for the two fishing vessels DEEP PACIFIC and LILLI ANN following modifications.
- DRYDOCK CAISSON TOWING
  Calculations assessing the tow of a newly constructed drydock caisson to delivery, including drag forces plus the effects of yaw, lift, and possible vortex-induced forces and their impact on control.
- WELL STIMULATION VESSEL
  Structural analyses for equipment foundations and masts for the design of a well stimulation vessel.
- WASHINGTON STATE FERRIES – 64 CAR FERRY
  Performed scantling calculations, structural design, weight estimate, and stability analyses for the new design of a 64-car ferry for Washington State Ferries.
- USCG ICE BREAKER HEALY
  Assisted with a deadweight survey of the USCG Healy following modifications.

EMPLOYMENT HISTORY

2020 to Present	Solis Marine Engineering Ltd
	Naval Architect
2019 to 2020	SMAR Azure Ltd
	Senior R&D Engineer
2007 to 2017	Elliott Bay Design Group
	Naval Architect
2006 to 2007	Elliott Bay Design Group
	Naval Architecture Intern
2005	Horizon Lines, LLC
	Engine and Deck Cadet Intern
2004	Puget Sound Naval Shipyard
	Shipyard Intern (Plate, Sheetmetal, and Lofting)

TRAINING RECEIVED

SNAME – Ship Design for Construction
ANSYS – Workbench Training
NavCad – Propeller Design and Optimisation
GHS – Probabilistic Damaged Stability
Cold Regions Engineering (Alaska P.E.)