Norman F. Allyn, P.Eng.

Offshore and Coastal Projects

Overview

Mr. Allyn has 44 years of experience in the analysis and design of coastal, maritime, river, aquaculture, floating and Arctic offshore structures. He has designed a number of major maritime structures for waves, ice and ship motions/berthing, and has developed a number of sophisticated computer analysis tools for dynamics of vessels and semisubmersibles in ice environments, maritime structures analysis and design, aquaculture systems, renewable power systems and offshore structures.

He is presently working with C-CORE on the operational limits of an FPSO for icebergs on the Grand Banks using ICESHIP, a non-linear iceberg/vessel impact program. He developed a world leading oil spill response centre for the Central Coast of BC, and he is currently working on a number of and harbours in the Arctic, and tsunami risk studies for the North Coast of BC that includes sea level rise due to global warming, plus storm surge and tidal fluctuations.

In the Canadian Beaufort Sea he worked on all of the fixed exploration structures, and on the East Coast he performed the ice design for the Confederation Bridge, the Terra Nova FPSO and the Hibernia Tankers.

Mr. Allyn is a member of ISO and CSA Arctic Offshore Structures code committees and has authored and coauthored over 40 technical papers.

Areas of Expertise

- Arctic Structures
- Floating Structures/Mooring Design
- Coastal Engineering
- Aquaculture
- Bridges - Vessel Collisions

Relevant Experience

Independent Contractor | 2014 to present

Various projects including hurricane, storm surge, beach restoration and shore protection for a Belize resort; oil spill response centre for the Central Coast of BC; the ice design for a proposed new port on Canada's east coast; the ice design for wind turbines in Lake Erie; and numerous coastal engineering and pipeline scour

mitigation projects in BC; and currently engaged in designing ports and small craft harbours in the Arctic, and the operating limits for an FPSO in an iceberg environment.

Technical Director, Offshore and Coastal Projects | WorleyParsons/Advisian Westmar │ 1989 to 2010

Falconbridge Ltd., Toronto, ON (and later Xstrata Nickel) – Raglan Mine Wharf Improvements.

Northumberland Strait Crossing, PEI/NB – Ice Loads on Bridge Piers.

INCO Technical Services, Edwards Cove, NL – Voisey's Bay Port Facilities – Bankable Feasibility Study.

Davis Engineering & Associates, Natuashish, NL –Structure Concepts for Davis Inlet Pier at Natuashish, Labrador

Terra Nova Alliance, Grand Banks, NL – FPSO Hull Validation.

Chevron Shipping Company, San Francisco, CA – Analysis of Ice Strengthening of Hibernia Tankers

Vancouver Port Authority, Vancouver, BC – Concrete Pile and Deck Alternative for Container Terminal.

Project Manager / Design Engineer | Swan Wooster and Sandwell Swan Wooster │ 1974 to 1989

- Arctic Projects including the design of all of the offshore drilling rigs in the Canadian Beaufort Sea in the 70's and 80's.
- Developed a number of computer programs including those for vessel motions, and applied them to the design of Arctic structures, ports, floating bridges and aquaculture facilities.

Qualification & Affiliations

- M.Eng., Civil/Structural Engineering, University of British Columbia, Vancouver, BC, 1974
- B.A.Sc., Engineering Physics, University of British Columbia, Vancouver, BC, 1972
- Association of Professional Engineers and Geoscientists of British Columbia
- Canadian Standards Association (CSA) Steering Committee for Offshore Concrete, Steel and Floating Structures
- International Standards Organization (ISO) Code Committee for Floating Offshore Arctic Structures
- ISO/TC98/SC3/21650 – Coastal Structures, Reviewer for Canada
- CSA S471 Offshore Structures Code, Original Member
- Arctic Institute of North America
- Coasts, Oceans, Ports and Rivers Institute of ASCE

Awards/Patents

- Consulting Engineers of British Columbia:
  - Design of Upper Baker Lake Downstream Fish Passage Project, 2009
  - Design of Meadow Avenue Remediation Project, 2004
  - Design of Kennecott Utah Copper Corporation Decant Barges, 1999
  - Design of Kelsey Bay Breakwater, 1996
  - Design of Montserrat Jetty, 1994
- Design of Thompson River Bin Wall, British Columbia Ministry of Transportation, 2004
- OMAE Outstanding Paper Award, American Society of Mechanical Engineers, 1990
- Patent Application for three wave power generation concepts, 2008.
- Steel Caisson Retained Island for offshore artificial islands in the Canadian Beaufort Sea. Designed for ease of transport and fast installation, the structure is capable of withstanding large loads from ice and waves. Patent with others, 1980.

Publications/Presentations (4 of 49 are listed below)

- Croasdale, K. and Allyn, N. "Ridge Loads on Wind Turbine Structures", Arctic Technology Conference, Houston, Texas, Nov 5-7, 2018.
- Allyn, N.F. et al (seven members of ISO 19906 code committee) "Ice Management and Operational Strategy for Floaters in Ice", POAC 2011, Port and Ocean Engineering under Arctic Conditions, Montreal, Canada, Jul 10-14, 2011.
- Houman, G., Allyn, N.F. and Foschi, R.O. "Navigation of Inland Waterways at Bridge Crossings", PORTS 2010, ASCE 12th Specialty Conference on Ports and Harbour Development, Jacksonville, FL, Apr 25-28, 2010.
- Allyn, N.F., Li, J., Yang, G., and Johnson, J. "Design of Moorings for Complex Fish Passage Project", ISOPE 2008, Offshore, Ocean and Polar Engineering Conference, Vancouver, Canada, Jul 6-11, 2008.