

CURRICULUM VITAE

PERSONAL:

Name: Asbjørnslett, Bjørn Egil

Born: June 3rd 1965

Nationality: Norwegian

Marital status: Married, two children

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Position: Professor.

Marine Systems Design research group, Department of Marine Technology, the Norwegian University of Science and Technology, NTNU, Trondheim, Norway.

EDUCATION:

2003: Dr.ing., Production and Quality Engineering, NTNU.

1990: M.Sc. ('Sivilingeniør'), Industrial Economics and Technology Management, Department of Industrial Economics and Technology Management, the Norwegian Institute of Technology, NTH, Norway.

1988: B.Eng. ("Ingeniør"), Mechanical and Process Engineering, Trondheim Engineering College, TIH, Norway.

EMPLOYMENT:

2009 - : Professorship in Marine System Design and Logistics, Department of Marine Technology (IMT), NTNU

2015 - : Head of the Marine Systems Design research group, IMT

2014 (spring): Visiting Researcher at University of California, Berkeley

1999 -2008: Senior Researcher, Maritime Logistics, MARINTEK, the Norwegian Marine Technology Research Institute

1998-1999: Researcher, the European Institute of Advanced Project and Contract Management, Epci

1996-1999: Research assistant, Project 2000, the Norwegian Institute of Technology, NTH

1993-1996: Supply Chain Systems Manager, Nidar AS

1991-1993: Cost Engineer, Aker Engineering AS

1991-1991: Research assistant, Department of Economics, the Norwegian Institute of Technology, NTH.

TEACHING DEVELOPMENT, TEACHING AND COURSE RESPONSIBILITY

Development of Study Programs and Other Teaching Activities:

- Member of NTNU's development project '[Future Technology Studies](#)', focus area 2 – definition of *NTNU's future technology candidate profiles*.
- [Minor in Aquaculture](#): Development of and responsible for a minor study (30 ECTS) in aquaculture development to be given to around 10 engineering/technology study programs. Key word: *Technology on the premises of biology*. Start: Fall 2019.
- [BIHAV, Engineering bachelor in aquaculture](#): Development of a three year, 180 ECTS engineering bachelor study program in aquaculture development and operations. Start: Fall 2020.
- Innovative education development project, NTNU. Digital twin of NTNU's research vessel FF Gunnerus to be used in the marine technology study program – [report](#) and [videoanimation](#). Undergraduate Research Opportunity Project (UROP), for 2nd and 3rd year students at IMT. Test project for the UROP model at Faculty of Engineering Science and Technology.
- HydroContest, [Student competition for energy efficient model boating](#) (maritime parallel to 'Shell Eco Marathon'). Responsible for NTNU's team.

Master courses at NTNU:

- TMR4130 Risk Analysis and Safety Management in Maritime Transport (7,5 ECTS, fall term) (2008-2018)
- TMR4135 Design Methods II – Special Vessels (7,5 ECTS, spring term) (2015-)
- TMR4137 Sustainable utilization of marine resources (7,5 ECTS, fall term) (2016-2022)
- TMR4256 Marin teknikk 6 – Design av marine systemer (2014 - , nytt 'capstone' emne for 3.årskurs i studieprogrammet i marin teknikk)

Bachelor courses at NTNU for the BIHAV study program

- INGT1001 Introduction to the engineering profession, aquaculture
- BMR2000 Aquaculture technology – systems design and operations
- BMR3000 Aquaculture technology – systems design and operations II
- BMR3900 Bachelor thesis aquaculture engineering

Additional teaching when course responsible have sabbatical leave:

- TMR4115 Design Methods (7,5 ECTS)
- TMR4565 Fleet Management and Supply Chains (3,75 ECTS)
- TMR4565 Ocean System Simulation (3,75 ECTS)

Continuing education

- 2008-2010, *Marine Insurance and Risk Management (MIRM)*; Master of Arts continuing education program for the [Nordic Association of Marine insurers, CEFOR](#). Collaboration between the University in Oslo, NTNU, Copenhagen Business School and the University in Gothenburg. Responsible for revision of the program.

RESEARCH

Research interest is within marine system design and operation, covering four levels from onboard systems, via the unit level (ship, cage, floater, ...), the fleet and field development level, to the value chain or transport system level. Application areas: energy and emission reduction in maritime transport, risk and resilience in maritime transport and energy systems, safety management in maritime transport, aquaculture and food from the Oceans, digitalization in maritime transport.

PHD STUDENTS:

PhD student(s) under supervision: Mr. Bjørnar B. Smestad: *AIS vs AIS+ - Data analysis of Shipping Operations*.

Graduated PhD students: Dr. Astrid Vamråk Solheim: *Exploring the performance of conceptual offshore production systems for deep-sea mining* (2023); Dr. Hans Tobias Slette: *Marine system design for exposed aquaculture* (2023); Dr. Endre Sandvik: *Sea passage scenario simulation for ship system performance evaluation* (2019); Dr. Sigurd Pettersen: *Resilient maritime fleet design* (2018); Dr. Vincentius Rumawas: *Human factors in marine systems design* (2016); Dr. Haakon Lindstad: *Strategies and measures for reducing maritime CO₂ emissions* (2013); Dr. Øyvind Berle: *Risk and resilience in global maritime supply chains* (2012).

Graduated PhD students as co-supervisor: Dr. Benjamin Lageman: *Conceptual design of low-emission ships* (2023); Dr. Ali Ebrahimi: *Handling ship design complexity to enhance competitiveness in ship design* (2021); Dr. Jose Jorge Garcia Agis: *Effectiveness in decision-making in ship design under uncertainty* (2020); Dr. Siri Marianne Holen: *Safety issues of fish farming in exposed locations* (2019); Dr. Carl Fredrik Rehn: *Handling uncertainty in design of ocean engineering systems* (2018); Dr. Minjoo Choi: *Value robustness for ship design* (2018); Dr. Øyvind Patricksson: *Flexible design of low-energy and emission ships* (2016).

Coordinator for Doctoral Defence committees: Dr. Siamak Karimi: *Shore-to-ship charging systems for battery-electric ships – Power system architecture, performance analysis and future trends* (2022); Dr. Vladimir Krivopolianskii – *Experimental Investigation of Injection and Combustion Processes in Marine Gas Engines Using Constant Volume Rig* (2019); Dr. Wenting Zhu – *Impact of emission allocation in maritime transport* (2015); Dr. Juned Akhtar – *The effects of human fatigue on risk at sea* (2014); Dr. Henrique Gaspar - *Handling aspects of complexity in conceptual ship design* (2013).

MSC STUDENTS:

Supervised more than 100 master thesis students in marine system design and maritime logistics.

CURRENT RESEARCH PROJECTS AND RESEARCH CENTRE POSITIONS:

Bridgehead Aquaculture 2050; Competence development program for aquaculture at university study level.

Design Re-Engineering and Automation of Marine Systems, DREAMS. Collaboration project with Ulstein International, DNV, Pon Power and BI Norwegian Business School.

PREVIOUS RESEARCH PROJECTS AND RESEARCH CENTRE POSITIONS:

2015-2023: *SFI Exposed*, Centre for Research-Based Innovation on exposed aquaculture operations – **Board member, supervisor and co-supervisor** for PhD and master students in research area four and five – sponsored by Norwegian Research Council and industry.

2016-2023: *SFI Smart Maritime*, Centre for Research-Based Innovation; Norwegian Centre for improved energy efficiency and reduced harmful emissions - **Board member, supervisor and co-supervisor** for PhD and master students in WP one, four and five – sponsored by Norwegian Research Council and industry.

2012-2019: *Low energy consumption and emission design of ships, LEEDS* – **Project manager**,

supervisor and co-supervisor for PhD and master students – sponsored by Norwegian Research Council and industry.

2010-2013: *Maritime fleet size and mix, MARFLIX* – **Project manager, supervisor and co-supervisor** for PhD and master students – sponsored by Norwegian Research Council and industry.

2006-2012: *Risk and resilience in maritime transport, MARRISK* – **Project manager, supervisor and co-supervisor** for PhD and master students – sponsored by Norwegian Research Council and industry.

OTHER ENGAGEMENTS:

2017-2021: *Faculty of Engineering Science, NTNU*. Board member.

2017-2021: *Faculty of Engineering Science, NTNU*. Member of Employment Committee.

2016-2023: *SFI Exposed, Centre for Research Based Innovation in Exposed Aquaculture*. Board member.

2016-2023: *SFI Smart Maritime, Centre for Research Based Innovation in Energy Efficient Shipping*. Board member.

SELECTED PUBLICATIONS – structured by topic:

Asbjørnslett, Bjørn Egil and Marvin Rausand (1999) Assess the vulnerability of your production system, *Production Planning & Control*, 10:3, pp. 219-229.

Asbjørnslett, B.E. (2009). Assessing the Vulnerability of Supply Chains. In: Zsidisin, G.A., Ritchie, B. (eds) *Supply Chain Risk. International Series in Operations Research & Management Science*, vol 124. Springer, Boston, MA.

Berle, Øyvind, James B. Rice Jr. & Bjørn Egil Asbjørnslett (2011) Failure modes in the maritime transportation system: a functional approach to throughput vulnerability, *Maritime Policy & Management*, 38:6, pp. 605-632.

Berle, Ø., Norstad, I. and Asbjørnslett, B.E. (2013), Optimization, risk assessment and resilience in LNG transportation systems, *Supply Chain Management*, Vol. 18 No. 3, pp. 253-264.

Øyvind Berle, Bjørn Egil Asbjørnslett, James B. Rice, (2011) Formal Vulnerability Assessment of a maritime transportation system, *Reliability Engineering & System Safety*, Volume 96, Issue 6, 2011, pp. 696-705.

Pettersen, Sigurd Solheim; Asbjørnslett, Bjørn Egil. (2019) Assessing the Vulnerability of Supply Chains: Advances from Engineering Systems. I: *Revisiting Supply Chain Risk*. Springer Nature 2019 ISBN 978-3-030-03813-7. pp. 15-35.

Pettersen, Sigurd Solheim; Erikstad, Stein Ove; Asbjørnslett, Bjørn Egil. (2018) Exploiting latent functional capabilities for resilience in design of engineering systems. *Research in Engineering Design*, 29, pp. 605-619.

Elin E. Halvorsen-Weare, Kjetil Fagerholt, Lars Magne Nonås, Bjørn Egil Asbjørnslett, (2012) Optimal fleet composition and periodic routing of offshore supply vessels, *European Journal of Operational Research*, Volume 223, Issue 2, 2012, pp. 508-517.

- Sandvik, Endre; Nielsen, Jørgen Bremnes; Asbjørnslett, Bjørn Egil; Pedersen, Eilif; Fagerholt, Kjetil. (2020) Operational sea passage scenario generation for virtual testing of ships using an optimization for simulation approach. *Journal of Marine Science and Technology* 2020
- Sandvik, Endre; Jørgensen Lønnum, Ole Johan; Asbjørnslett, Bjørn Egil. (2019) Stochastic bivariate time series models of waves in the North Sea and their application in simulation-based design. *Applied Ocean Research* 2019 ;Volum 82. pp. 283-295
- Rumawas, Vincentius; Asbjørnslett, Bjørn Egil; Kløckner, Christian. (2016) Human Factors Evaluation in Ship Design: A Case Study on Offshore Supply Vessels in the Norwegian Sea, Part I: Theoretical Background and Technical Constructs. *Naval Engineers Journal (Print)*; Volume 128.(4) pp. 81-96.
- Rumawas, Vincentius; Asbjørnslett, Bjørn Egil; Kløckner, Christian. (2017) Human Factors Evaluation in Ship Design: A Case Study on Offshore Supply Vessel in the Norwegian Sea, Part II: Multivariate Analyses and Structural Modelling. *Naval Engineers Journal (Print)*; Volume 129.(1) pp. 45-58.
- Hassel, M., BE Asbjørnslett and LP Hole (2011). Underreporting of maritime accidents to vessel accident databases. *Accident Analysis and Prevention*, 43 (2011), pp. 2053-2063.
- Lindstad H, BE Asbjørnslett, E Jullumstrø, (2013), Assessment of Profit, cost and emissions by varying speed as a function of sea conditions and freight market, *Transportation Research Part D*, 19, pp.5-12.
- Lindstad, H, BE Asbjørnslett, AH Strømman (2012), The Importance of economies of scale for reductions in greenhouse gas emissions from shipping *Energy Policy Journal* 46 (2012) 386-398.
- Lindstad, H., B.E. Asbjørnslett and A.H. Strømman (2011). Reductions in Greenhouse gas emissions and cost by shipping at lower speeds. In *Energy Policy Journal*, 39, pp. 3456-3464.
- Kim, Ekaterina; Smestad, Bjørnar Brende; Asbjørnslett, Bjørn Egil. (2020) Predicting ship speeds in the Arctic using deep learning on historical AIS data. I: *Proceedings of the Thirtieth (2020) International Ocean and Polar Engineering Conference Shanghai, China, October 11-16, 2020*. International Society of Offshore & Polar Engineers 2020 ISBN 978-1-880653-84-5. s. 622-626
- Smestad, Bjørnar B.; Asbjørnslett, Bjørn Egil; Rødseth, Ørnulf Jan. (2017) Expanding the Possibilities of AIS Data with Heuristics. *TransNav, International Journal on Marine Navigation and Safety of Sea Transportation* 2017 ;Volum 11.(2) s. 93-100
- Slette, H.T., B.E. Asbjørnslett, S.S. Pettersen, S.O. Erikstad. (2022) Simulating emergency response for large-scale fish welfare emergencies in sea-based salmon farming, *Aquaculture Engineering*, 97 (2022)
- Slette, H.T., Asbjørnslett, B.E., Fagerholt, K. *et al.* Effective utilization of service vessels in fish farming: fleet design considering the characteristics of the locations. *Aquaculture International*, **31**, pp. 231–247 (2023). <https://doi.org/10.1007/s10499-022-00974-9>
- Solheim, A.V., A.B. Raucy, P.O. Brett, S. Ellefmo, T. Hatling, R. Helmons, B.E. Asbjørnslett, (2023) Assessment of expected production of a deep-sea mining system: An integrated model-based systems engineering and discrete event simulation approach, *Systems Engineering*, Wiley, <https://doi.org/10.1002/sys.21699>.
- Solheim, A.V., S.S. Pettersen, J.J.G. Agis, P.O. Brett, B.E. Asbjørnslett, S.O. Erikstad, S. Ellefmo, (2023) Early stage decisions in marine systems design for deep-sea mining, *Int. Journal of Maritime Engineering*, Vol. 164, No. A4, pp. 357-372.