

Arctic Day 2019

Washington, DC, USA
13 September 2019

ISBN: 978-1-5108-9686-4

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2019) by American Society of Naval Engineers
All rights reserved.

Printed with permission by Curran Associates, Inc. (2020)

For permission requests, please contact American Society of Naval Engineers
at the address below.

American Society of Naval Engineers
1452 Duke Street
Alexandria, Virginia 22314
USA

Phone: (703) 836-6727
Fax: (703) 836-7491

asnehq@navalengineers.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Arctic Day 2019 Technical Proceedings Directory

TRACK	TITLE	AUTHORS	PAGE
Panel 1 - Naval Engineering Challenges in the Arctic	Antarctic Ice Operations and Engineering Challenges	CAPT Gregory Stanlik, USCG	1
Panel 2 - Current Naval Operations in Polar Regions	Technologies Enabling Sustained Surface Ship Arctic Operations	Glen Sturtevant	6
Track 1	Human Systems Integration for Polar Security Cutter Design	Debra Clark-De Tora, Jon Dachos	9
Track 1	Propulsion Technology for Sustainable Polar Shipping	Samuli Hanninen, Waqas Ali	17
Track 1	Structural Design Under the Polar Code	Andrew Kendrick, Jiancheng Liu	36
Track 2	Oil Recovery Operations with Icebreakers: New Learnings from LNG Use	Hanna Suutarla, Tom Ekegren	44
Track 2	Repair and Modernization of an Icebreaker of 15,000 Tons	Rodrigo Perez Fernandez, Juan Garcia de la Vega	48
Track 2	The Implementation of Azimuth Propulsion to Icebreaker Bows	Rob Hindley, Tuomas Romu	65
Additional Paper	U.S. Navy Surface Ship Arctic Capabilities	James Webster	75



September 13, 2019
FHI 360 | Washington, DC