

# **Submarine Operational Safety**

- **2<sup>nd</sup> Submarine Operational Safety Conference**
- **Underwater Code for Unplanned Encounters at Sea**



# **2<sup>nd</sup> Submarine Operational Safety Conference (SMOSC)**



# Conference Objective

To enable senior submarine representatives of submarine operating nations to discuss matters pertaining to submarine operational safety to reduce the risk of submarine accidents



# 2<sup>nd</sup> SMOSC

- Co-hosted by Republic of Singapore Navy and Republic of Korea Navy
- From 29 May to 2 Jun 16, in conjunction with the ROKN-hosted *Ex Pacific Reach 2016*
- Venue: Jinhae, Busan, South Korea



# Invitations

- 22 Invited Delegations

- 20 Navies

- Led by Submarine Operating Authority or Submarine Force Commander and a staff officer from:

Australia	Bangladesh	Canada	China	Chile	France
Germany	India	Indonesia	Japan	Malaysia	Netherlands
Pakistan	Peru	Russia	Sweden	Thailand	UK
USA	Vietnam				

- 2 International Submarine Rescue and Escape Organisations

- Led by the Senior Officer In Charge and a staff officer from :

International Submarine Escape and Rescue Liaison Office	Submarine Escape and Rescue Working Group
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# Presentation Themes

- Conference will take format of keynote presentations, and plenary discussions under three main themes:
  - Information Sharing
  - Underwater Medicine
  - Underwater Safety Management framework



# Conference Programme

Date	Event
29 May	Delegates Arrival
	Icebreaker Dinner
30 May	2 <sup>nd</sup> SMOSC Opening Ceremony
	Conference
	Tour of ROKN Submarine Training Facilities
	Closing Ceremony
	Dinner
31 May	VIP Programme
1 Jun	
2 Jun	Delegates Departure



# Persons of Contact

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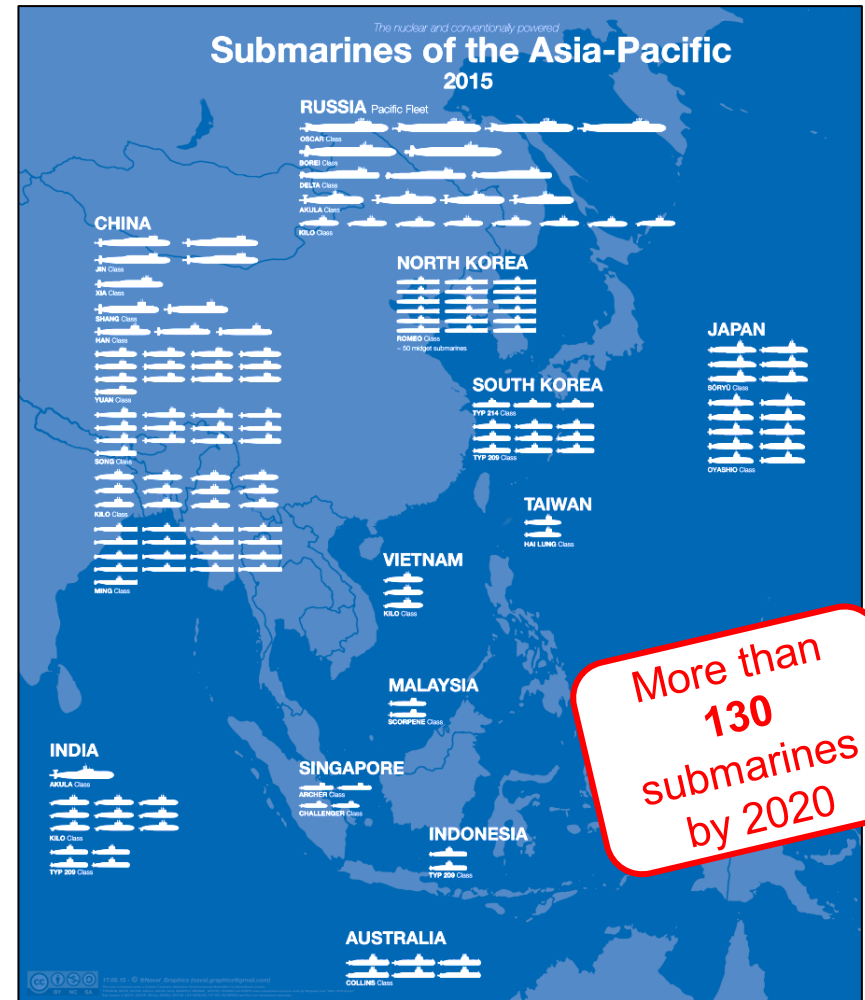


# **Underwater Code for Unplanned Encounters at Sea (CUES)**



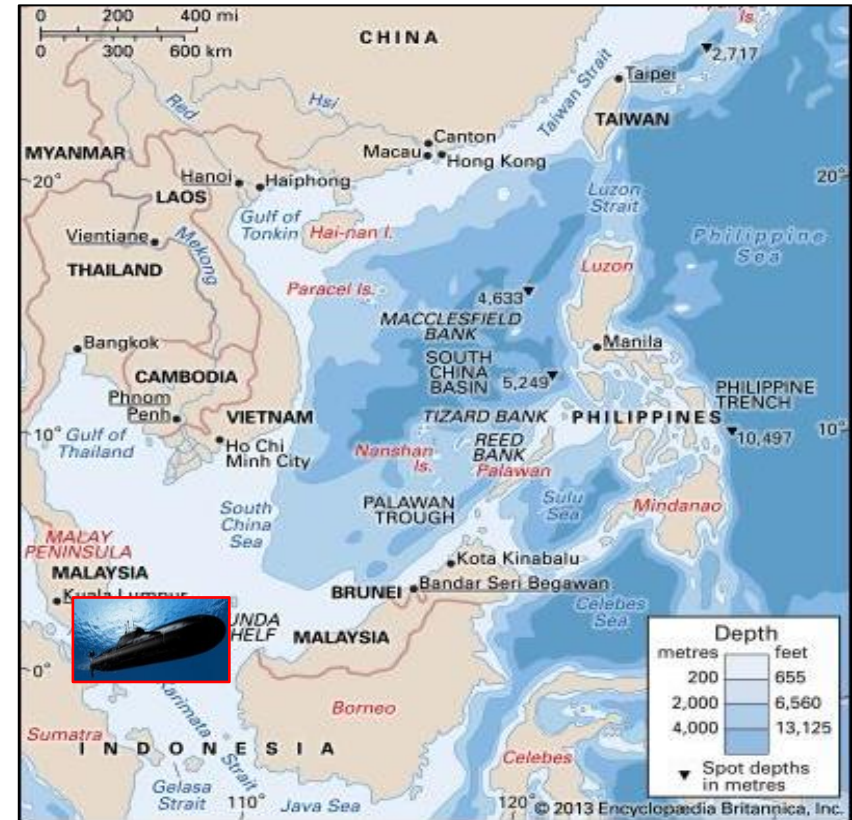
# Undersea Environment

- Increasing number of submarines / submarine-operating navies expected in the region



# Undersea Environment

- 2-Dimensional rather than 3-Dimensional operating space for submarines
  - Unlike airspace, the waters in parts of our region are so shallow that there is insufficient depth to separate submarines in the same water column



**The crowded underwater environment increases the possibility of submarine encounters, and underscores the importance of preventing accidents during such unplanned encounters**



# Underwater CUES

- A set of safety procedures to minimise uncertainty and avert catastrophic incidents involving submarines:
  - Submerged Submarine encountering Submerged Submarine
    - Basic manoeuvring instructions for collision avoidance
    - *COLREGS* currently does not include procedures for preventing collisions between underwater vessels
  - Surface Vessel encountering Submarine conducting Emergency Surfacing
    - Ships to clear the immediate area but not stop the propeller when encountering red flares fired from a submerged submarine (indicating emergency)
    - Extension of the NATO Submarine and Anti-Submarine Exercise Manual (MXP-1) for the purpose of enhancing safety
  - Surface Vessel, with Towed Submerged Body, encountering Submerged Submarine
    - Ships to communicate course, speed and depth of submerged body (towed sonar array, ROV) via underwater communications to the submarine



# Underwater CUES

- The Underwater CUES is a practical and inclusive cooperation to promote greater submarine operational safety in the region
- The RSN welcomes inputs from interested navies in development of the Underwater CUES
- The first draft of the Underwater CUES will be introduced at the 2<sup>nd</sup> SMOSC for discussion



# Person of Contact

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