Established at the beginning of the 20th century, mission of submarine rescue forces is rescue survivors of a Distressed Submarine – both domestic and foreign.

Capability validated during successful response to USS SQUALUS on 23 May 1939 when Submarine Rescue Chamber saved 33 submariners.

Submarining is a dangerous business as illustrated by sinking of RN Kursk (2000) and ARA SAN JUAN (2017), as well as near sinking of USS SAN FRANCISCO (2005), USS GREENVILLE (2001), and USS MONTPELIER (2012).

The fish emblem is the international symbol for submarine rescue.

DUTY OF CARE
Submarine Escape and Rescue (PMS391)
Submarine Rescue Process Overview

Global 96 Hour Time to First Rescue (TTFR)

96 hours

72 Hours for sea trials

Alert / Planning

MOSHIP Transit/Preparation

Aircraft Transit/Onload/Transit/Offload

Installation onto MCSHIP

Localization of DISSUB (By Fleet)

Intervention

Transit and Mate

Global 96 Hour Time to First Rescue (TTFR)
Submarine Escape, Survivability & Rescue

ESCAPE, SURVIVABILITY & RESCUE
ASSETS & EQUIPMENT
Submarine Survivability

Crash Bag & Misc. Below Deck Escape Equipment
- Guard Book (Procedure for survival and escape)
- Analox O2 & CO2 Analyzers

7 day Survivability
- LiOH Curtains, Extend Air Sheets, and deployment kits
- O2 Candles and Furnaces
- Draeger Tubes

Submarine Emergency Position Indicating Radio Beacon (SEPIRB)
- Launch from escape trunk or 3” launcher
- Obtains GPS fix and sends to satellites
- Emits homing signal for SAR assets

*Installed onboard every submarine
Submarine Intervention

Remotely Operated Vehicle “SIBITSKY”

STATS:
0-2000 fsw
Light Weight Configuration

Side scan sonar
Submarine Rescue

Submarine Rescue Chamber (SRC)

STATS:
0-850 fsw
1 ATA
6 rescues + 2 attendants

Submarine Rescue and Diving Recompression Chamber (SRDRS)

STATS:
~450-2000 fsw
1-6 ATA
16 rescues + 2 attendants
Submarine Escape and Surface Survival Personnel Equipment (SESSPE)

STATS:
0-600 fsw
1 ATA
2 escapers per cycle
Single-person life raft
Submarine Escape, Survivability & Rescue

RESEARCH AND DEVELOPMENT COLLABORATION INITIATIVES
Collaboration Initiatives

To establish collaboration with government agencies with similar focus areas for the survivable and rescue of personnel trapped in CONFINED, EXTREME, and AUSTERE environments

To establish MOU/MOA for technical exchange on current and future R&D efforts with the goal to synergize and capitalize on cross-organization efforts
PMS391 Technology Objectives

- Develop/implement shallow water pressurized rescue capability
- **Improve ability and length of time for DISSUB personnel to survive while awaiting rescue**
- Develop/improve mobilization technologies and processes to ensure mobilization for a DISSUB event in 96 hours or less
- Develop/improve capability to successfully rescue in heightened environmental conditions
- Improve ability to timely and successfully search and identify location of DISSUB
- **Develop/improve means to accurately and quickly determine risks associated with rescue of a DISSUB**
- Develop/improve and implement biomedical capabilities to maximize successful medical treatment of DISSUB survivors
Collaboration Synergy Recommendations

• Life support (passive and powered)
  – CO2 & other atmospheric contaminant monitoring & removal
  – O2 generation

• Communications

• Physiological stressors

• Rescuer risk determination

• Others?
Way Forward

• Intent to host cross-organizational technical information exchange meeting
  – January/February 2019
  – Government and industry participation