

# SPECIFYING NEEDS AROUND SAR RIBS

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FROM THE END USER POINT  
OF VIEW

Ibon Burgoa  
Spanish Red Cross

HSBO 2021 Gothenburg



# What are we going to talk about?

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- GENERAL DESIGN, TAKING INTO ACCOUNT END USER NEEDS
- PERFORMED TASKS IN A SAR BOAT AND THEIR SPECIFIC DESIGN CONSIDERATIONS
- WHAT WE REALLY NEED – A CALL TO MANUFACTURERS



# The hull design

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- SAR BOATS DON'T CHOOSE TIME OR WEATHER.
- BOW AREA VISIBILITY
- FREEBOARD AND GUNWALE HEIGHT
  - LOW GUNWALES
  - SIDE PORTS



# Console design

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- SIZE MATTERS
  - SHELTER VS VISIBILITY.
- GENDER MATERS
  - AVERAGE SIZE OF THE VOLUNTEERS
- WIND EFFECTS
  - SPRAY AND VISIBILITY
  - EXPOSURE
- PROPER LAYOUT (2+2) PREFERRED



# Ergonomics man-machine interface

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- LAYOUT OF THE COCKPIT
  - AVOID AWKWARD SETUPS.
  - PUT THE GAUGES AND INDICATORS:
    - FOR THE DRIVER
    - FOR THE NAVIGATOR
- SITUATIONAL AWARENESS
- ALL ROUND VISIBILITY
- RUDDER BANK INDICATOR
- REAR FACING CAMERAS



# Ergonomics

## Crew protection

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- G-LOADS AND VIBRATION
  - HULL DESIGN
  - VIBRATION ABSORBING DECKS
  - PROPER SUSPENSION SEATS
    - SAFE AND EFFECTIVE
    - LOW MAINTENANCE
- LOW GUNWALE HEIGHTS / SIDE PORTS
- DECKS WITHOUT PROTUBERANCES
- ENGINE NOISE REDUCTION
- PROPER LIGHTING
- PROPER TOW AREA



# Electronic devices

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- SCREENS
  - PROPER SIZE (KEEP IT BIG)
  - INTEGRATED DISPLAYS
- CONTROLS
  - PHYSICAL VS TACTILE - (GLOVES)
  - LOW MAINTENANCE
- SENSORS
  - RADARS
    - PROPERLY PLACED
    - SART COMPATIBLE
  - CAMERAS
- MANEUVERING AIDS / DRIVING INTERFACES
- PROPER LIGHTING



# Communications

- INTERNAL COMMUNICATIONS
  - FOR THE CREW IN THE BOAT
  - FOR THE RESCUE-SWIMMERS
- EXTERNAL
  - MARINE VHF RADIOS (MINIMUM 2)
  - TETRA RADIOS
  - MOBILE PHONES
  - LOUDSPEAKERS
- PROPER INTERFACE





# Boat layout

## Typical missions

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- TOWING
- SEARCHES
- RESCUE
- MEDICAL ASSISTANCE /MEDEVAC
- PREVENTIVE SERVICES
- FIREFIGHTING
- SUPPORTING OTHER ORGANIZATIONS

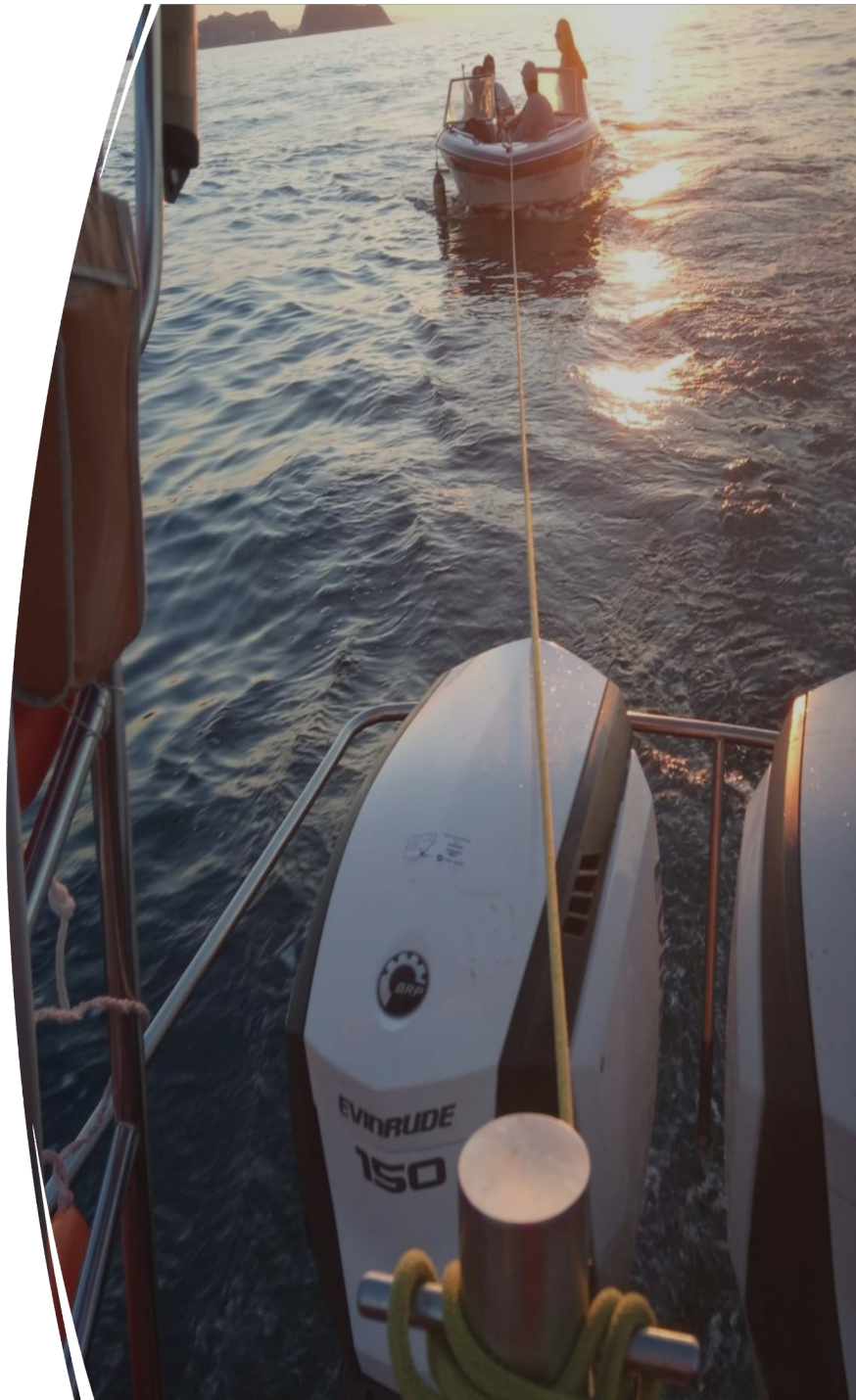


# Boat layout

## Towing

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- **HARDWARE:**
  - TOWING BITS FORE/AFT
  - REEL FOR THE TOWING LINE
  - CLEATS
  - TOWING LINE GUIDES
- **WORKING SPACE**
  - PROPER LIGHTING
  - UNCLUTTERED SPACE



# Boat layout - Rescue

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- ACCESS TO THE BOAT:
  - LOW GUNWALE
  - RESCUE DOOR
  - RESCUE NETS
- WORKING SPACE
  - PATIENT HANDLING
  - UNCLUTTERED SPACE



# Boat layout First Aid

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- WORKING SPACE:
  - PATIENT HANDLING
  - SHELTER
  - AED SAFETY
- STORAGE SPACE
  - SAFE
  - ACCESSIBLE
  - ORGANIZED



# Boat layout stretchers

- PROPER PLACEMENT
- SAFELY DEPLOYABLE
- IMPACT AND VIBRATIONS
- SHELTER
- WORKING SPACE



# WHAT WE REALLY NEED

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- G-FORCES AND VIBRATION RESEARCH.
  - REAL LIFE TEST OF THE BOATS.
  - PROPER PROTECTION FOR THE CREW AND PASSENGERS
  - SEATS THAT REALLY WORK
- PROTECTION FROM THE EXPOSURE
  - AERODINAMIC TESTS FOR CONSOLES
  - SPRAY REDUCION HULLS



# WHAT WE REALLY NEED

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- MAN-MACHINE INTERFACE.
  - PROPER LAYOUT
  - INTEGRATED ELECTRONICS
  - HANDLING AIDS
  - LOW VISIBILITY AIDS
- INTEGRATED COMMUNICATIONS
  - INTERNAL
  - EXTERNAL
  - WATERPROOF
  - NOISE TOLERANT



# WHAT WE REALLY NEED

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- CLEAN AND SAFE WORKING SPACES
  - NUT AND BOLT FREE DECKS
  - SAFE TOWING AREAS
  - GOOD VISIBILITY
  - PROPER LIGHTING
- PROPER STOWAGE SPACE
  - WATERTIGHT
  - EASY ACCES
  - WATERPROOF
  - SAFE FOR THE EQUIPMENT





# WHAT WE REALLY NEED

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- STRECHER TRANSPORT
  - SAFE
  - WORKABLE
  - WITH SHOCK MITIGATION
  - AED TESTED
- MORE RESEARCH
  - SHOCK AND VIBRATION EFFECTS ON EQUIPMENT



I wish to have no connection with any ship that does not sail fast; for I intend to go in harm's way.

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John Paul Jones 1778

