



PROFESSIONAL CREW TRAINING
&
CPD – COMPETENCE FOR ADVANCED OPERATIONS
HSBO 2012



FRC INTERNATIONAL

HSBO 2012

INTRODUCTION

FRC-INTERNATIONAL

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Technical Director



FRC INTERNATIONAL

HSBO 2012

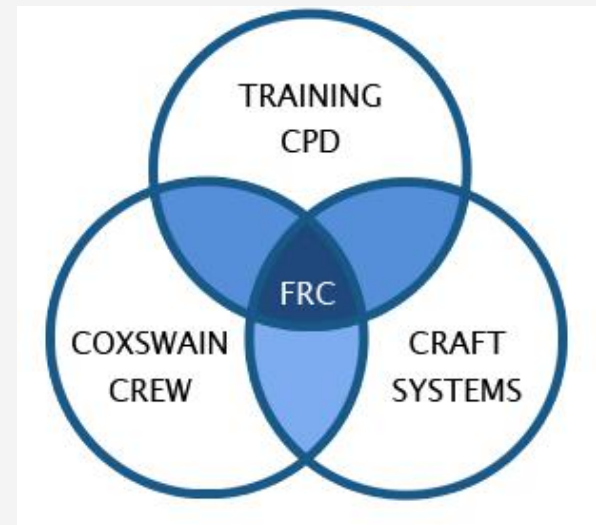
INTRODUCTION

WHAT IS FRC-INTERNATIONAL ?

***Develops and delivers
education & training solutions
for the <24m maritime sector***

***Focus on planing craft
operations***

A training facilitator





FRC-INTERNATIONAL

HSBO 2012

INTRODUCTION

FRC AIMS & OBJECTIVES

ENHANCE SEAFARER SAFETY

<24M PLANING CRAFT

STANDARDISE / BENCHMARK

GLOBAL BEST PRACTICE

INTEROPERABILITY

BETWEEN ORGANIZATIONS / NATIONS

PROFESSIONAL DEVELOPMENT

CAREER STRUCTURE



INTERNATIONAL RECOGNITION

• **The Nautical Institute**

- The Nautical Institute is an international representative body for maritime professionals.
- Members are drawn from all sectors of the maritime world.
- The Nautical Institute is recognised by the International Maritime Organization (IMO).





FRC QUALIFICATIONS

FRC-CREW :: FRC-12 :: FRC-18

INTRODUCTION

QUALIFICATIONS – EDUCATION – SUPPORT

- **QUALIFICATIONS**

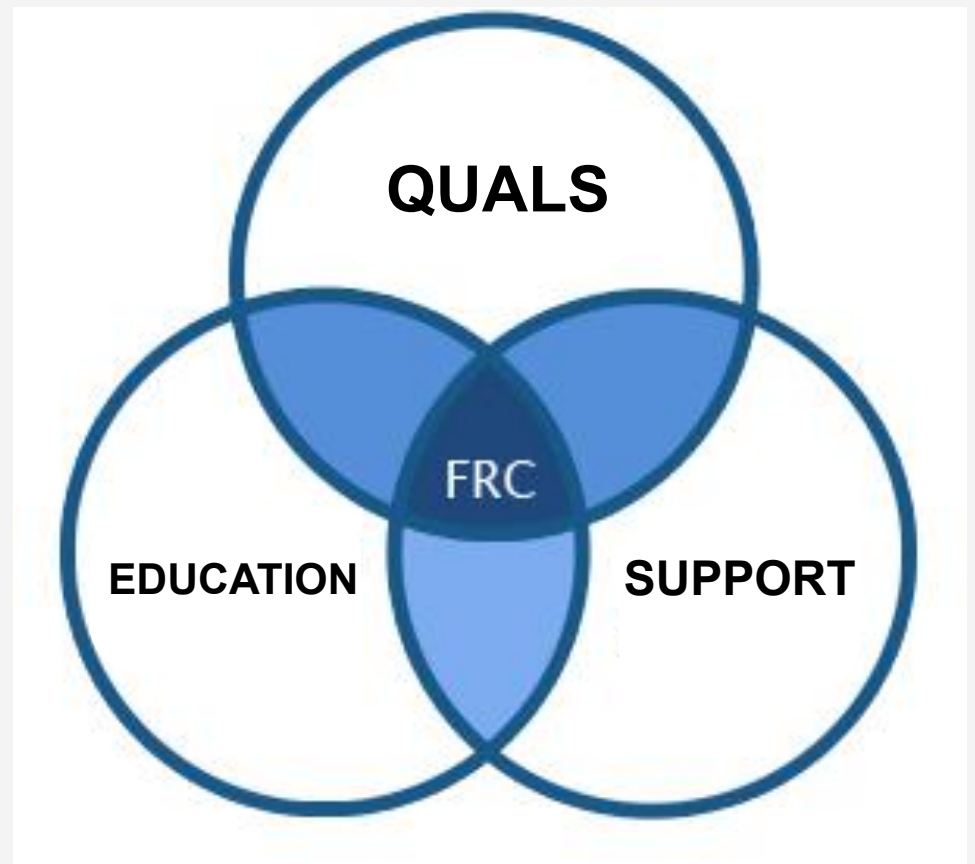
- FRC-CREW
- FRC-12
- FRC-18
- Modules

- **EDUCATION**

- FRC WBV MANAGER
- FRC WBV CREW
- FRC EVENT

- **SUPPORT**

- H-SURV AWARE
- H-SURV MONITOR
- H-SURV PRO





QUALIFICATIONS

FRC-CREW

- Skills for the crew and regular passengers of FRC (e.g. boarding team, offshore installation workers) to support the coxswain, and ensure the safety and effective operation of the craft.
- The CREW qualification develops competent crew with the skills to take control of the craft.

FRC-12

- Coxswain skills for craft up to 12m (40 feet) in length, and generally operating at speeds up to 30 knots, during both day and night time.
- Options to undertake additional task-specific modules.

FRC-18

- Coxswain skills for craft up to 18m (60 feet) in length, and generally operating at speeds up to 30 knots, during both day and night time.
- Including the management of the crew, with options to undertake additional task-specific modules.



FRC EDUCATION

FRC-WBV

INTRODUCTION

FRC EDUCATION

FRC WBV MANAGER

- Manager awareness of Repeated Shock & Whole Body Vibration to aid compliance and duty-of-care within the <24m maritime sector, including shore-based management.

FRC WBV CREW

- Crew (including regular passenger) awareness of Repeated Shock & Whole Body Vibration to aid compliance and duty-of-care within the <24m maritime sector.

FRC WBV EVENT

- WBV EVENT is a half day course for occasional crews and passengers on any type of craft. Suitable for event organisations needing to train large groups with time constraints.





FRC SUPPORT

FRC H-SURV AWARE

- 1Day H-SURV AWARE provides attendees with background to European legislation, requirements for compliance, plus an understanding of marine sector health issues..

FRC H-SURV MONITOR

- H-SURV MONITOR provides data collection capability with feedback.

FRC H-SURV PRO

- H-SURV Monitor, plus
- Integration of boat exposure recording
- Trend Analysis and feedback



FRC QUALIFICATIONS



BACKGROUND



FRC INTERNATIONAL
 FRC QUALIFICATIONS
 CRAFT OPERATION

GLOBAL MARITIME SECTOR





CREW TRAINING REQUIREMENT: PROFESSIONAL / COMMERCIAL

Fixed platform interaction

Mother vessel - Daughter
craft operations

Launch & Recovery

- Fixed platforms
- Floating platforms





MAIB REPORTS & RECOMENDATIONS

Example MAIB Reports:

- Celtic Pioneer (South Wales)
- Ocean Ranger (South Wales)
- Delta RIB (River Thames)
- Two Cardiff Bay Yacht Club RIBs (South Wales)





MARITIME & COASTGUARD AGENCY (MCA) GUIDANCE



Maritime and Coastguard Agency

MARINE GUIDANCE NOTE

MGN 436 (M+F)

WHOLE-BODY VIBRATION: Guidance on Mitigating Against the Effects of Shocks and Impacts on Small Vessels.

Notice to all builders, owners, managers and operators of all small vessels.

5 Operating the vessel

5.1 Training

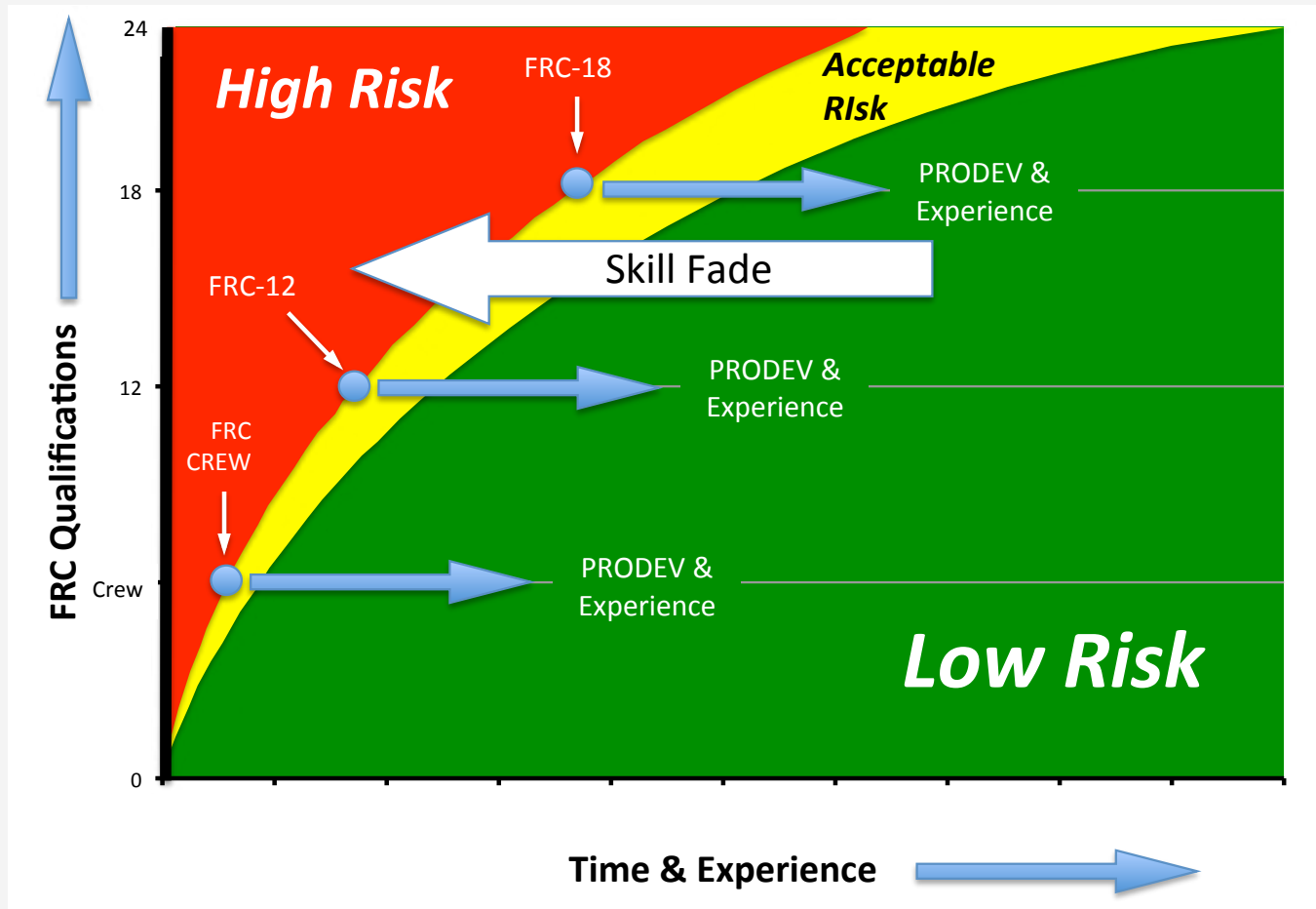
- 5.1.1 The person conning the vessel should undertake training in handling vessels at high speed and in a relevant range of operating conditions. This should reduce the likelihood of an incident occurring.
- 5.1.2 Training should also incorporate an awareness of the requirement under health and safety legislation to assess the risks, including WBV exposure, and practicable means of reducing them, and the duty-of-care of the operator to the passengers and crew.
- 5.1.3 Risk of injury to those on board may be reduced by regular breaks from work. During voyages it may be appropriate to provide opportunities to allow those on board to rest and adjust their posture during 'throttle-off' moments where it is safe to do so.

5.2 Use of the throttle and steering

- 5.2.1 Investigation has been undertaken which indicates that throttle use has a greater effect on reducing the impact of vertical movement of the vessel than steering the vessel. Attention should therefore be given to improving the coxswain's throttle control when operating in waves or choppy conditions.

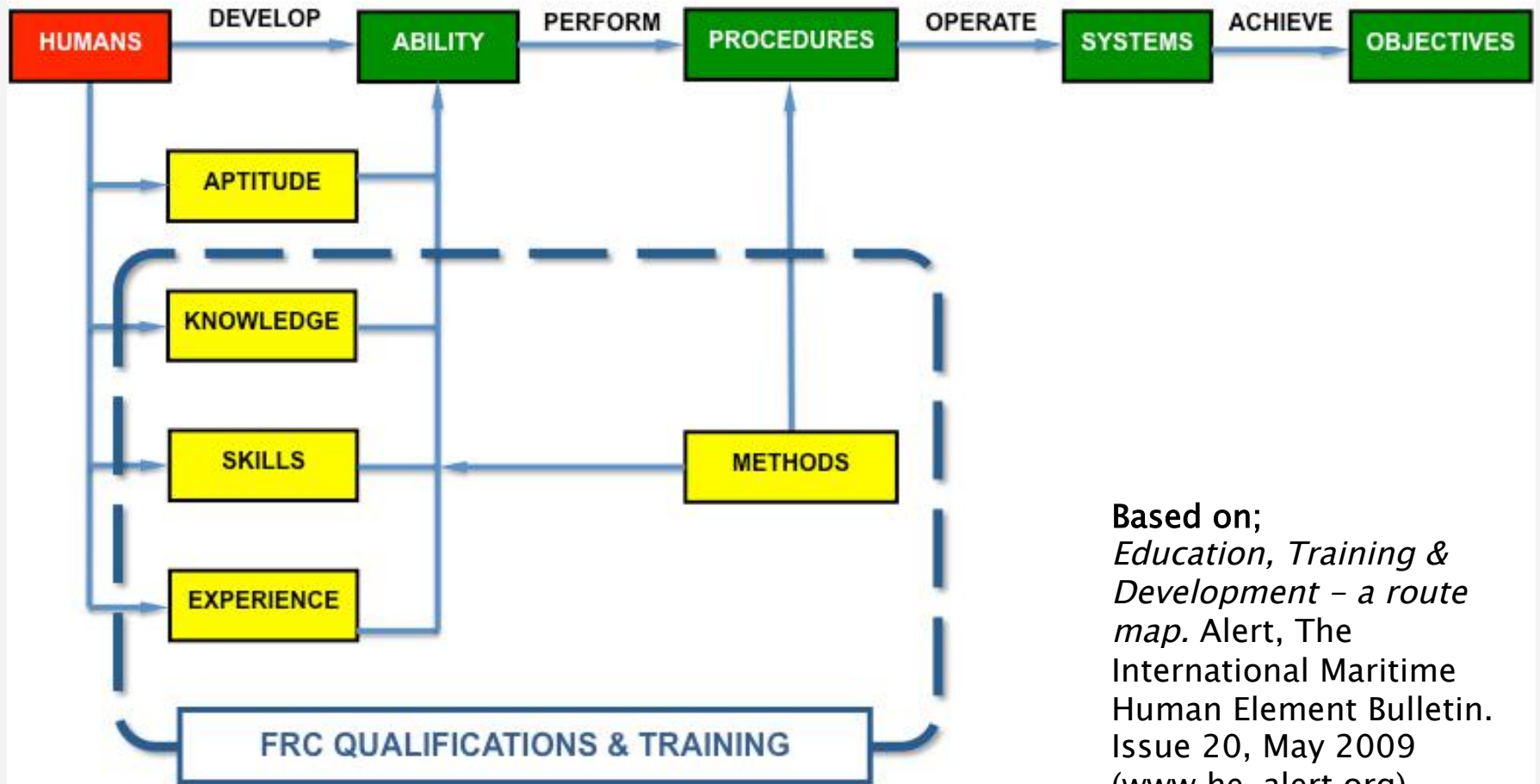


RISK MANAGEMENT – INCREMENTAL QUALIFICATIONS





COMPETENCY BASED TRAINING – 1



Based on;
Education, Training & Development – a route map. Alert, The International Maritime Human Element Bulletin. Issue 20, May 2009 (www.he-alert.org).



COMPETENCY BASED TRAINING – 2

Four principal aspects of competency-based training:

1. **Knowledge** – Education provided before, during and after training courses.
2. **Skills** – Provided during the course and supported by Computer-Based-Training (CBT).
3. **Methods** – Best practice to enhance and support the individual / team, e.g. Command, Control & Communication (C3).
4. **Experience** – FRC provides support to the traditional ‘logbook’ requirement with Professional Development (PRODEV) and recording of sea time, which are part of the FRC Resilience Programme.



FRC TRAINING ORGANISATIONS

- **TIER 1**

- Typically a government maritime organisation with the appropriate high-level training and audit trail infrastructure.

- **TIER 2**

- Typically smaller Government organisations. Some established commercial training organisations may fall into this Tier by using the FRC administration system.



- **TIER 3**

- Typically newly established commercial training organisations using benchmarked FRC administration system.

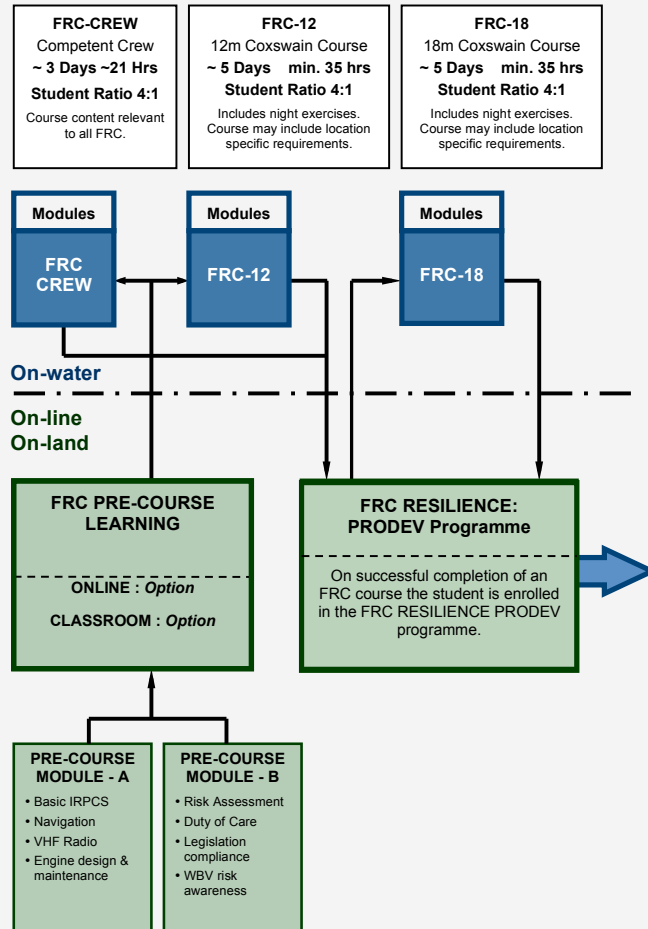


FRC QUALIFICATIONS

FRC-CREW :: FRC-12 :: FRC-18

STRUCTURE

FRC COURSE / QUALIFICATIONS OUTLINE



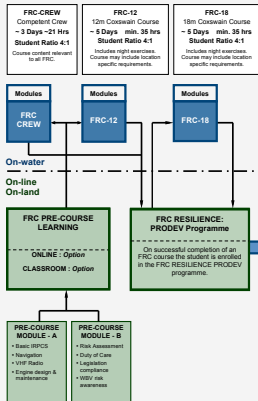


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STRUCTURE

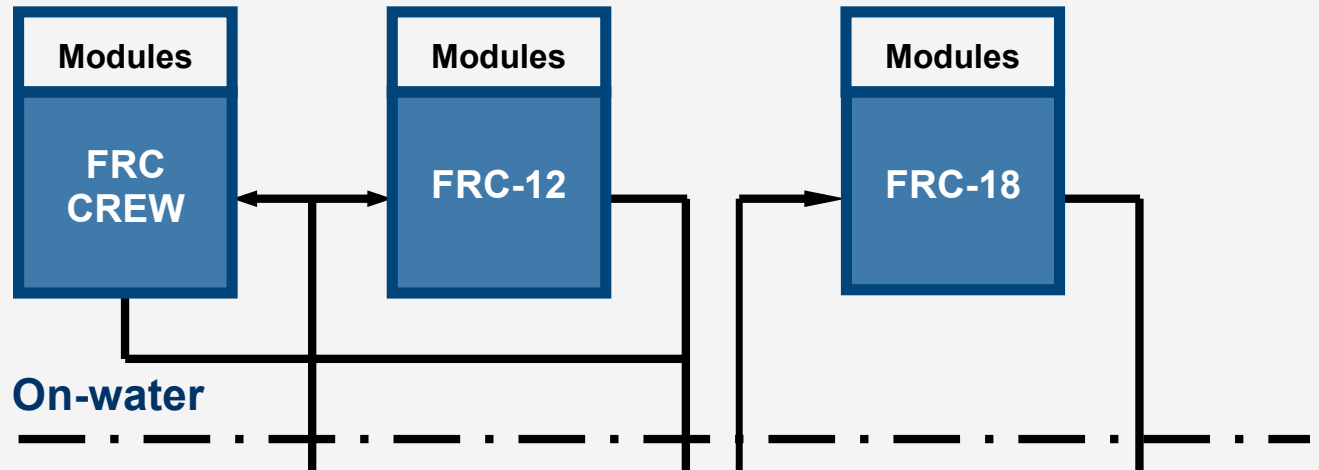
FRC COURSE / QUALIFICATIONS OUTLINE



FRC-CREW
 Competent Crew
 ~ 3 Days ~21 Hrs
 Student Ratio 4:1
 Course content relevant to all FRC.

FRC-12
 12m Coxswain Course
 ~ 5 Days min. 35 hrs
 Student Ratio 4:1
 Includes night exercises.
 Course may include location specific requirements.

FRC-18
 18m Coxswain Course
 ~ 5 Days min. 35 hrs
 Student Ratio 4:1
 Includes night exercises.
 Course may include location specific requirements.



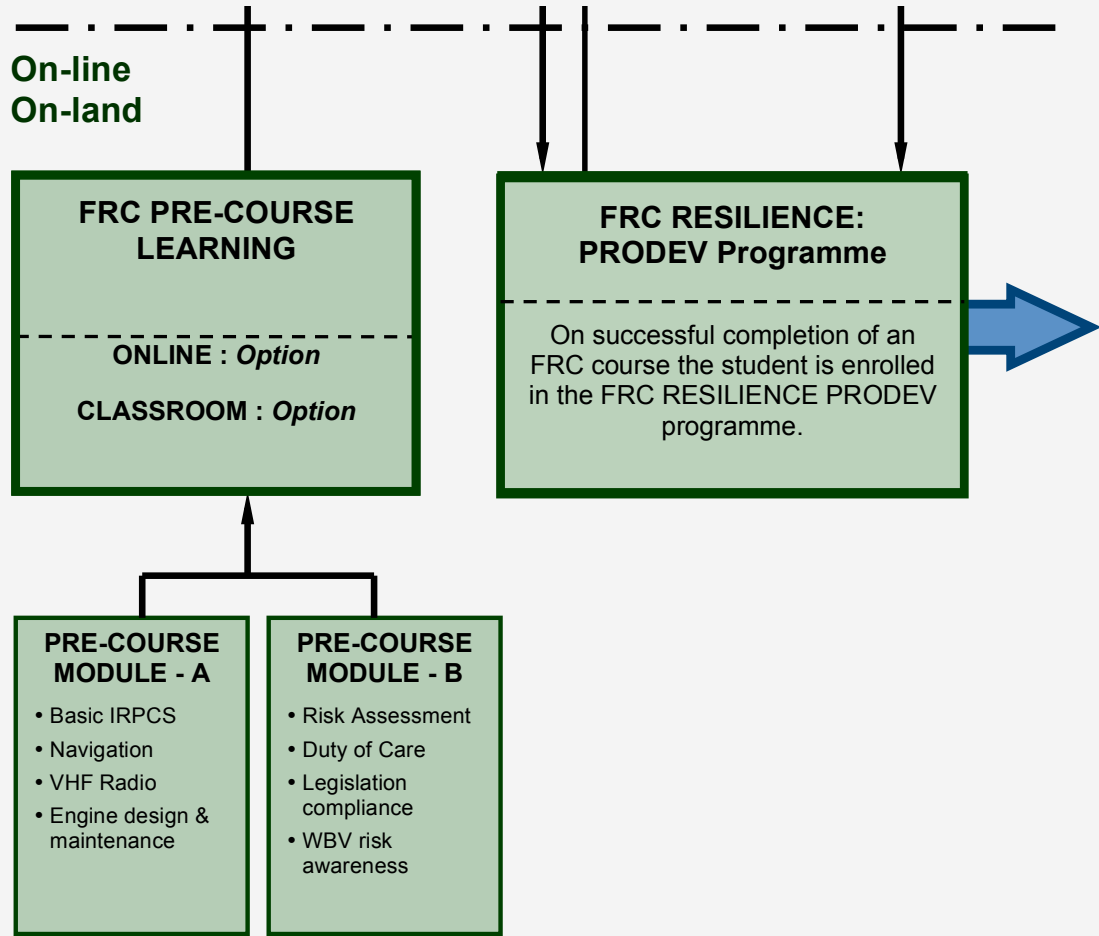
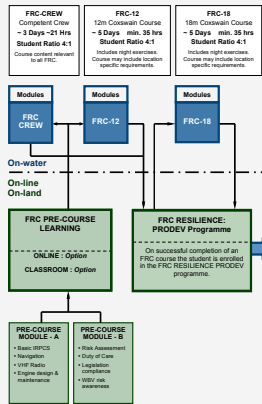


FRC QUALIFICATIONS

FRC-CREW :: FRC-12 :: FRC-18

STRUCTURE

FRC COURSE / QUALIFICATIONS OUTLINE





FRC RESILIENCE – CONTINUING PROFESSIONAL DEVELOPMENT

- **LEGAL UPDATES**

- e.g MCA MGN

- **SIMULATION**

- Knowledge / skill development
- Reduction in skill fade.

- **HEALTH SURVEILLANCE**

- Input and feedback



FRC RESILIENCE – CONTINUING PROFESSIONAL DEVELOPMENT

ONLINE SIMULATION AND TRAINING

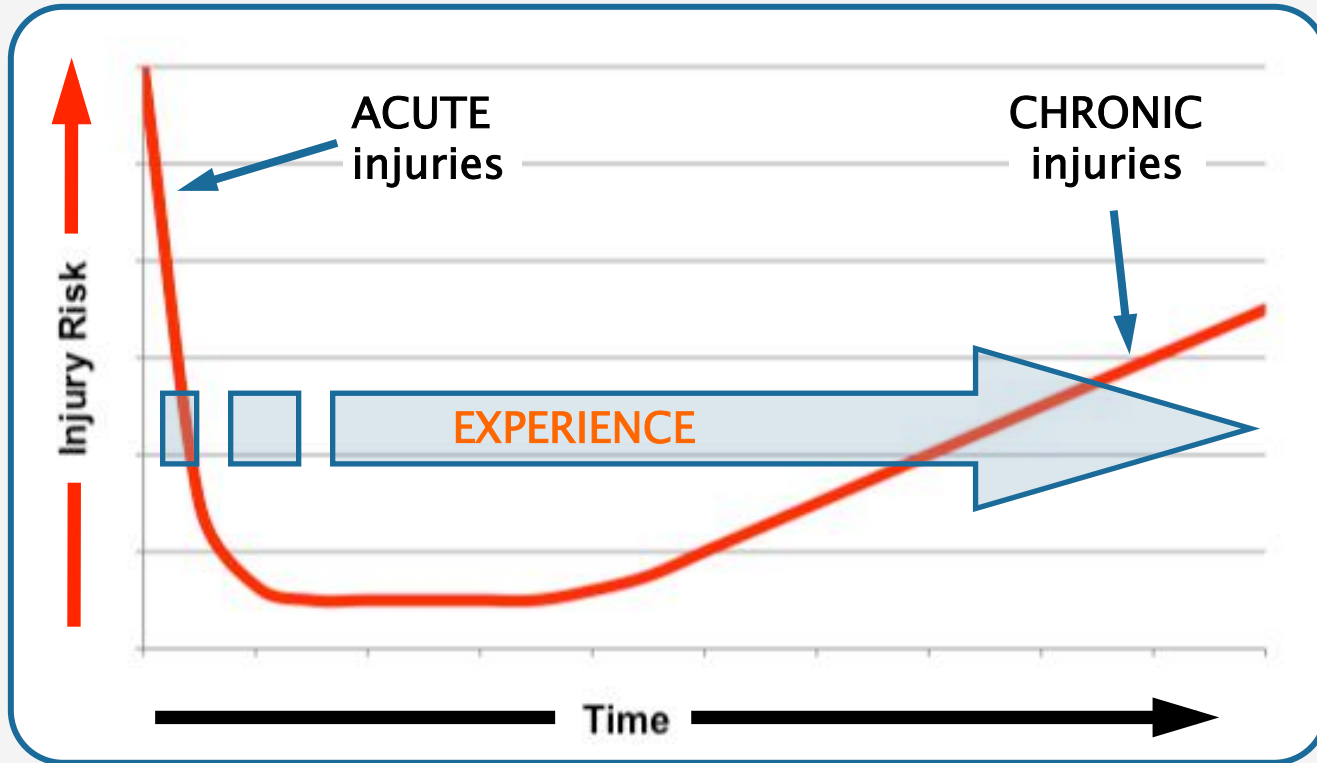
The screenshot displays the NetSim 1.2.5 software interface, which is used for online simulation and training. The interface is divided into several sections:

- Top Left:** Radar display showing a green radar return on a black background. The radar mode is set to "Heads-up".
- Top Right:** Electronic Chart Display and Information System (ECDIS) showing a map of the region with a red crosshair indicating the vessel's position.
- Center:** Control panel with directional buttons, "PAGE", "OK", "CANCEL", "MENU", and "MOB" buttons.
- Bottom Left:** Instrument panel including a digital timer (00:00:00), a digital clock (10:11:35), a tachometer (RPM x 70 / 1000), and a steering wheel.
- Bottom Center:** A digital depth gauge showing a depth of 034 METRES.
- Bottom Right:** GPS Status panel showing satellite signal strength and status for 15 satellites, HDOP (1.8), FIX STATUS (Dfix), and Datum (WGS84).

FRC H-SURV

- **HEALTH SURVEILLANCE**

- Risk of injury - Acute : Chronic





FRC H-SURV

• HEALTH SURVEILLANCE

- Legal Requirement
- Duty of Care
- Standardise data collection
- Identify those at risk of injury
- Take action
- Maintain healthy crew
- Extend their career

FAST RESPONSE CRAFT QUALIFICATIONS TRAINING

FRC SCHOOL LOGIN
Login to officially view student information online

REGISTER INTEREST IN FRC INT
Join our Mailing List for News & Upcoming Events

HOME ABOUT FRC QUALS TRAINING FEEDBACK CONTACT

FRC CREW FRC T2 FRC T8 FRC WBV FRC H-SURV

H-SURV - DAILY PAIN EXPOSURE

Record your Discomfort or Pain:
Click on the body part you wish to identify pain for

Record the Pain Intensity on the Scale of 1 - 10 below:
Click on the number that best represents the pain per body part

LEFT BACK VIEW RIGHT

10 Unimaginable / Unspeakable
9 Excruciating / Unbearable
8 Utterly Horrible
7 Very Intense
6 Intense
5 Very Distressing
4 Distressing
3 Tolerable
2 Discomforting
1 Very Mild
0 Click here to record NO PAIN TODAY

CLEAR SUBMIT ADD NOTE CONTINUE

HOME ABOUT FRC QUALS TRAINING FEEDBACK CONTACT NEWS

Background FRC Craft FRC Careers FRC Core Skills FRC Type Approval FRC Modules Booking Form Training Phases Instructors Specialist Fast Attendees WBV Aware Orgs

Recognised By The Nautical Institute Member of British Marine Federation



FRC H-SURV

• HEALTH SURVEILLANCE

- Use the output
- Demonstrate mitigation effectiveness

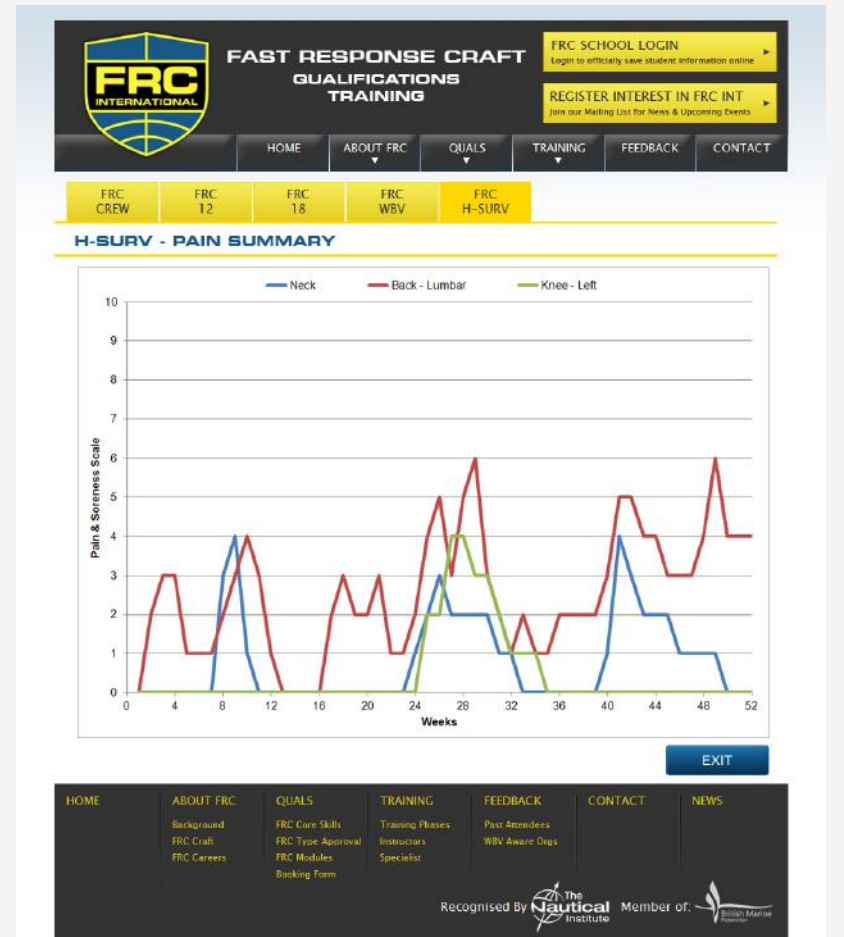
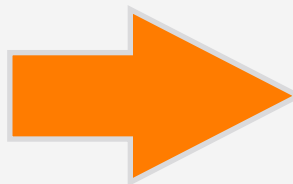
H-SURV - DAILY PAIN EXPOSURE

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10	Unimaginable / Unspeakable
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7	Very Intense
6	Intense
5	Very Distressing
4	Distressing
3	Tolerable
2	Discomforting
1	Very Mild
0	Click here to record NO PAIN TODAY

Buttons: CLEAR, SUBMIT, ADD NOTE, CONTINUE







FRC QUALIFICATIONS



MODULES



FRC MODULES

STANDARD *			
Coastal Nav.	C3**	Radar	Stability
FOR COMMERCIAL ENDORSEMENT 			
Radio	First Aid	Sea Survival	Fire 
TYPE APPROVAL			
Twin Engine	Water Jet	Multi-hull	Others
SPECIALIST			
High Speed Navigation	High Speed Helm/Cxn.	Launch & Recovery	Security
Riverine Operations	Helicopter Operations	Test Coxswain	Others

FRC MODULES – BOARDING OPERATIONS

- **MISSION PLANNING**
 - e.g. Risk Management
- **BOAT HANDLING**
- **APPROACH**
- **SAFETY**
 - Training
 - Operations
- **ACTIONS ON TARGET**
- **POST INCIDENT PROCEDURES**





FRC MODULES – BOARDING OPERATIONS

UNDERPINNING THEORY

Dobbins, T., Myers, S., Stark, J. and Mantzouris, G. (2010)

Modelling Human Performance In Maritime Interdiction Operations.

Conference Proceedings; Modelling Human Performance in Maritime Interdiction Operations, NATO RTO-MP-HFM-202, Amsterdam, NL.

MODELLING HUMAN PERFORMANCE IN MARITIME INTERDICTION OPERATIONS

Dr Trevor Dobbins; STRResearch Ltd, Chichester, UK. td@str.eu.com
Dr Steve Myers; University of Chichester, Chichester, UK
Dr Julie Stark; Combatant Craft Division, NSWC Carderock, USA
Lt Georgios Mantzouris H.N.; NMIOTC, Greece

Maritime Interdiction (MI) operations are an increasing important element of the littoral environment. This is demonstrated by the International anti-piracy operations around the Horn of Africa and the establishment of the NATO Maritime Interdiction Operational Training Centre.



Operational Analysis demonstrates that MI operations using high-speed boat insertions have two single points of failure as shown in Figure 1:

- The coxswain
- The ladder climb

The development of the MI human performance model (Figure 2) enhances operational effectiveness by providing a greater understanding of how the environmental stressors and engineering systems interact with human operators to influence performance.

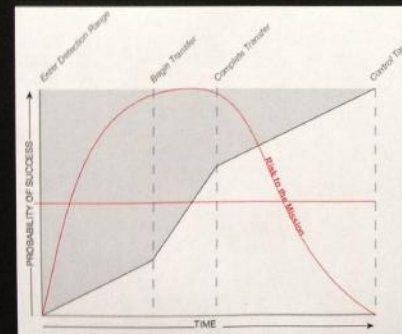


Figure 1: The Risk to Mission Success During the Maritime Interdiction Operational Time-Line.

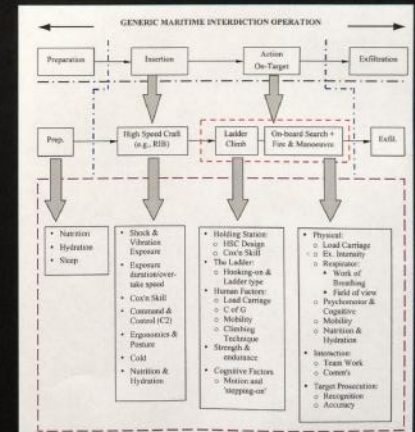


Figure 2: A Model of the Human Factors Implications on Performance in Maritime Interdiction Operations

An integrated modeling approach enhances MI operational effectiveness and readiness for both NATO and its Partners.

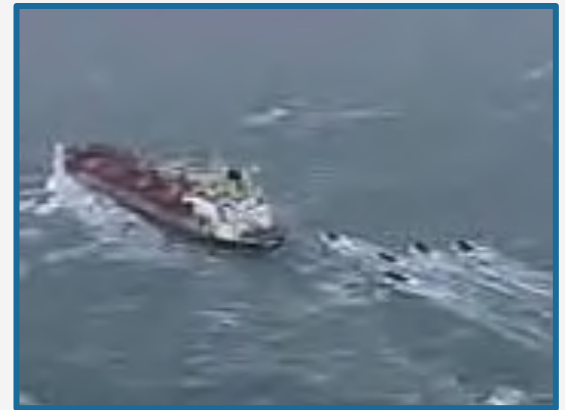




FRC QUALIFICATIONS
FRC-CREW :: FRC-12 :: FRC-18
MODULES



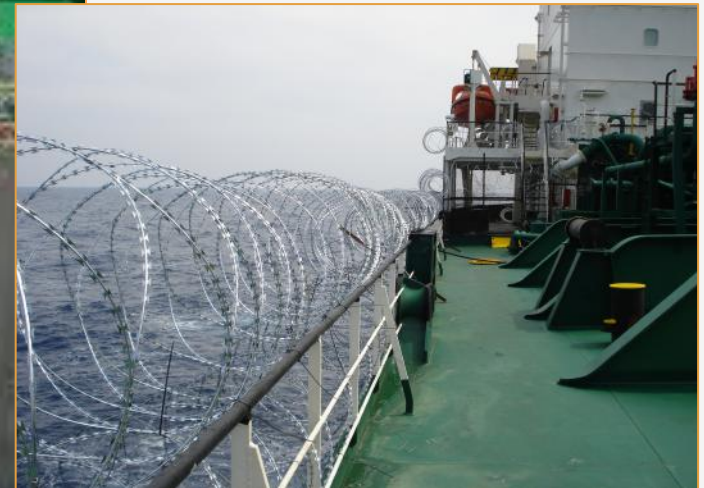
FRC MODULES – BOARDING OPERATIONS





FRC MODULES – BOARDING OPERATIONS

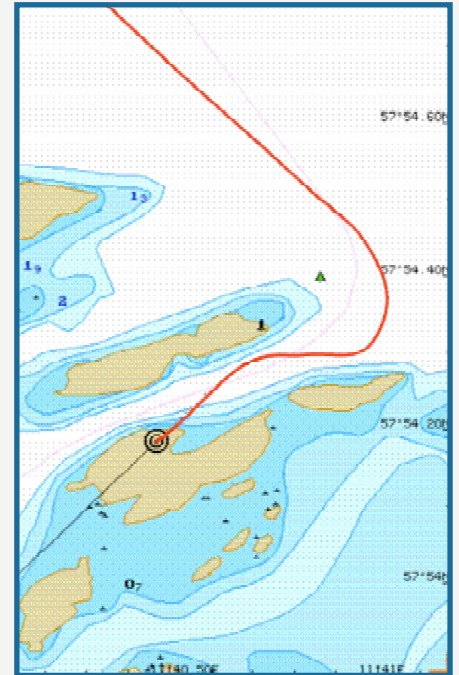
NEW ISSUES / IMPLICATIONS



FRC MODULES – NAVIGATION & C2

- ***Evidence Based:***

- Hill, et al (2009) **Advanced Coxswain Training**. RINA, SURV-7
- Dobbins et al (2010) **High speed craft command & control: a model of navigation and crew interaction to enhance performance and safety in the harsh shock and vibration maritime environment**. Conference Proceedings; NAV-10, Royal Institute of Navigation, London.
- Forsman et al. (2011) **Developing a Standard Methodology For Dynamic Navigation in the Littoral Environment**. Accepted for presentation; RINA Human Factors in Ship Design Conference, London, November, 2011.



DYNamic NAVigation : DYNNAV

Foundation of the methodology:

- 4 Working phases
 - Plan : Communicate : Execute : Control
- Standard instructions
- Location techniques (Situational Awareness)
 - Knowing where you are.....OR
 - Knowing where you are NOT

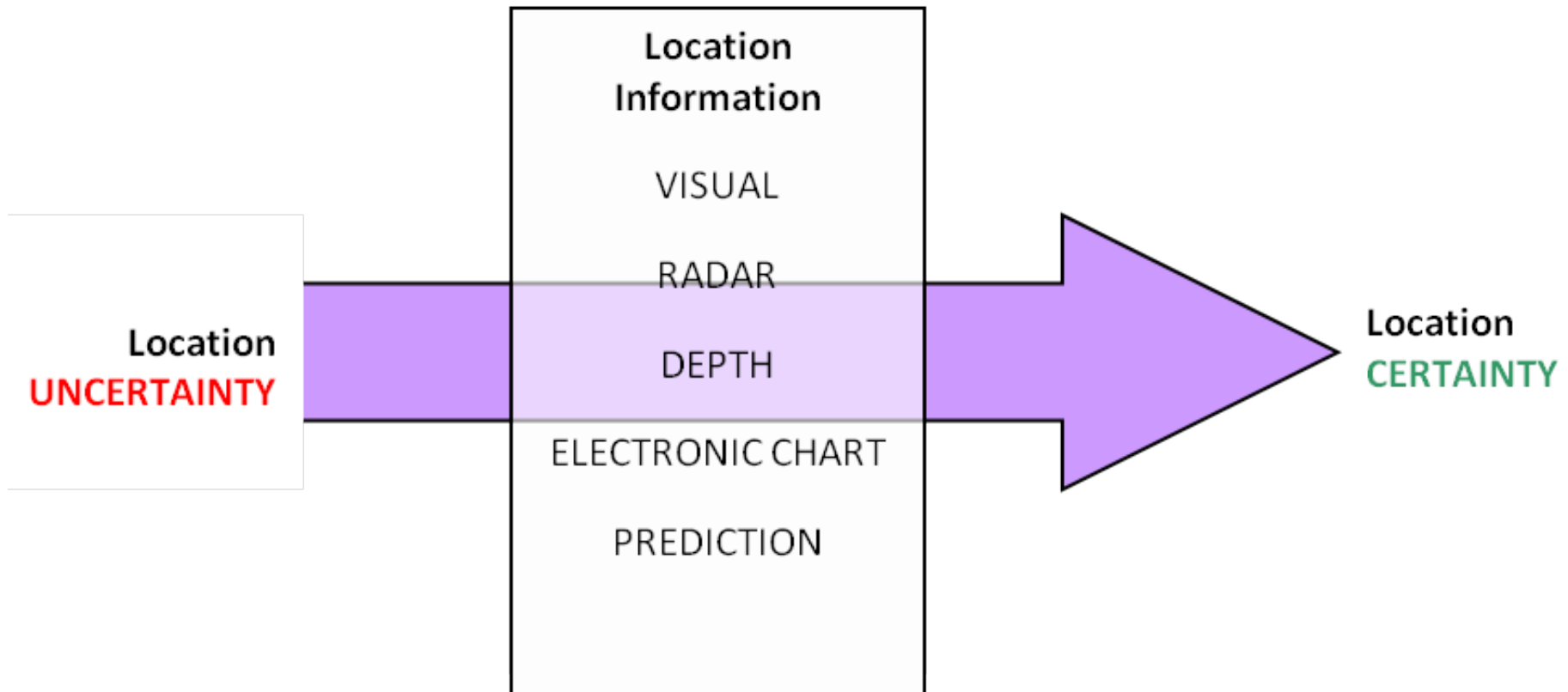
DYNamic NAVigation : DYNAV

Standard instructions:

- **Where they are going now**
- **Where and how to do next turn**
 - **Turn point**
- **Where they are going next**
 - **Course**
 - **Headmark**
- **Where they should not be**
 - **Dangers**
 - **How I know I'm safe**

DYNamic NAVigation : DYNAV

The SITUATION ASSESSMENT process:
Obtain and maintaining location certainty



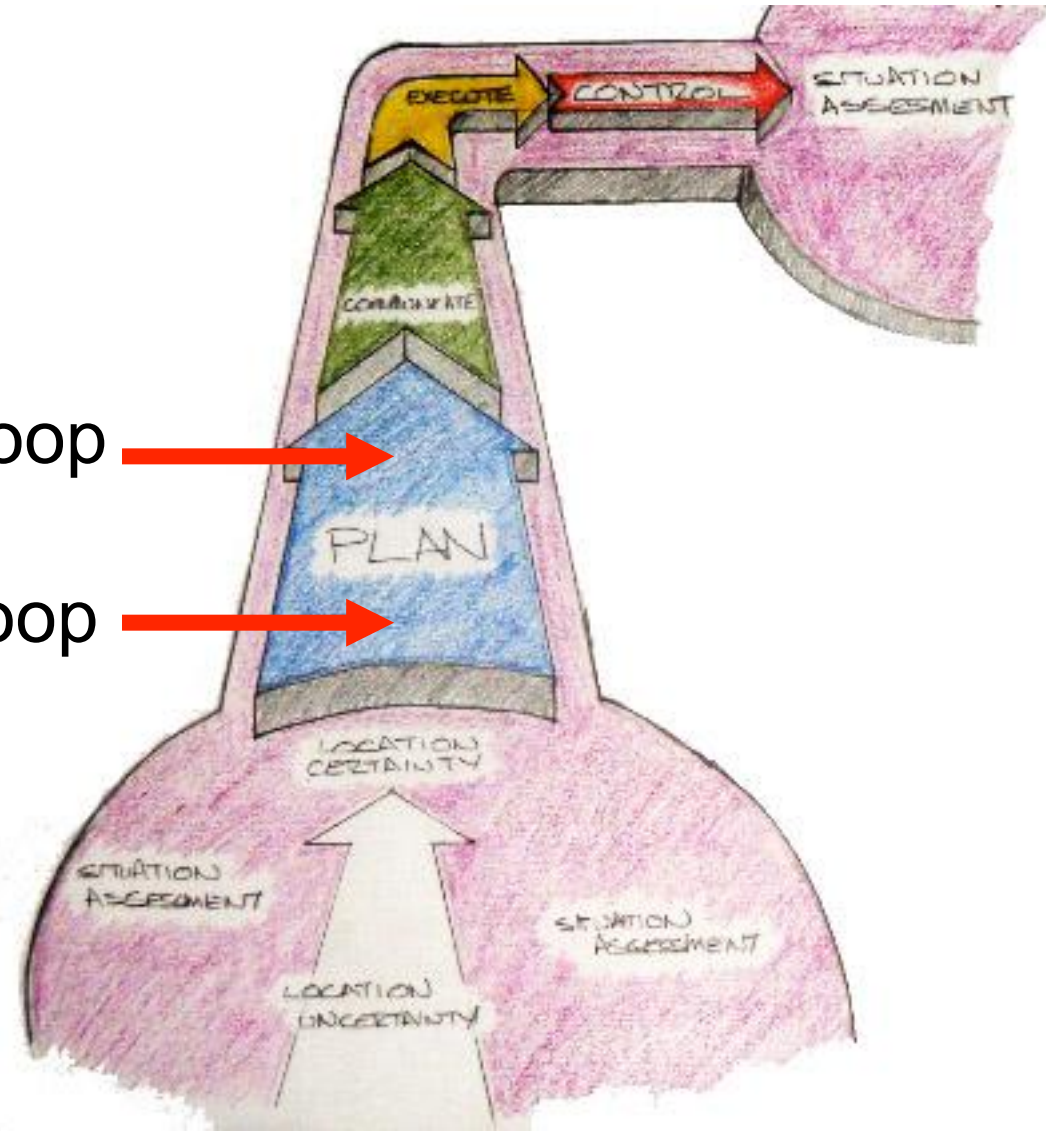
DYNamic NAVigation : DYNAV

PLANNING / DECISION MAKING

The 4 Phases

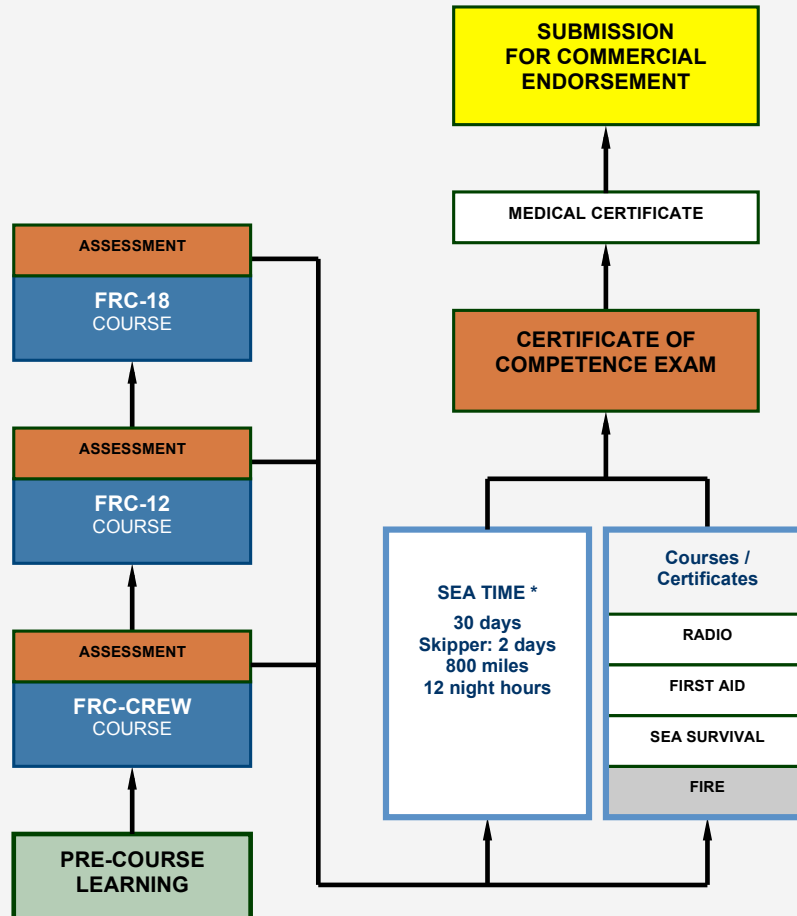
Tactical planning loop

Operational planning loop





EXAMPLE OF COMMERCIAL ENDORSEMENT PROCESS





FRC INTERNATIONAL

FRC-CREW :: FRC-12 :: FRC-18

CONCLUSION

QUALIFICATIONS – EDUCATION – SUPPORT

• QUALIFICATIONS

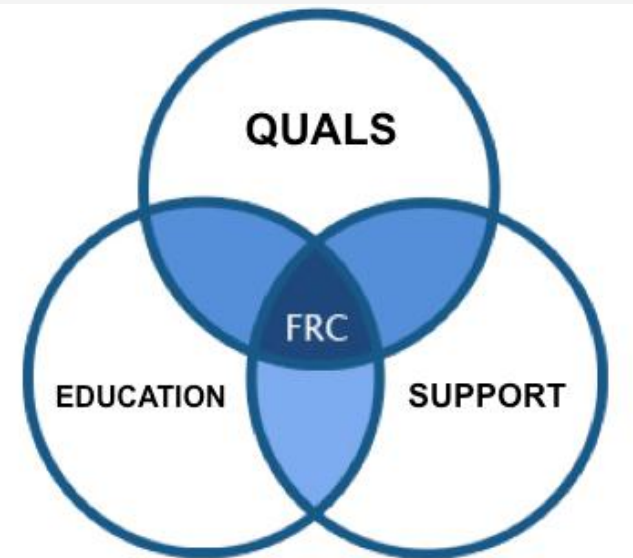
- FRC-CREW, 12, 18
- Modules
 - Boarding
 - Nav-C2

• EDUCATION

- FRC WBV MANAGER, CREW, EVENT

• SUPPORT

- H-SURV AWARE, MONITOR, PRO
- FRC RESILIENCE / CPD
 - SIMULATION
 - R&D





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