"Boat found but four Mayaro fishermen still missing"

"Hope fades for four missing fishermen"

Image and headlines by Trinidad and Tobago Guardian & Daily Express (**5 February 2023**)

SMART SEAS TOOLKIT TRAINING WORKSHOP

DAY 2

Under the ITU/CTU/TATT Smart Seas Toolkit for Disaster Resilience Project

Presented by the Smart Seas Team
13 Apr 2023

Say hi in the chat while we wait for the session to begin!

Day 2 Check-In

Day 2 Overview

Day 1

- Toolkit Presentation

- Training: Plenary

- Q&A

- Training: MRCC & Coast Stations

- Q&A

- Day 1 Closure

Day 2

- Training: Spectrum Mgmt Agencies

- Q&A

- Day 2 Closure

Day 3

- Training: All Other Agencies

- Q&A

- Workshop Closure: All agencies

Training: Spectrum Management Agencies

3 Cases

1. Compliance with UN regs & recs

2. Information product development & dissemination

3. RF monitoring & measurements

Smart Seas Tools

Compliance Checklist

UN Compliant Licensing Form

Key Website Messaging Guidelines

Maritime Measurements

Measurement Strategies & Tools Used in TTO

System Developer Manual Template

Campaign Planning Template

System User Manual Template

Ongoing Maritime Monitoring Assessment Template

System Development Template

System Feasibility Template

Case #1: Compliance with UN Regs & Recs

Case

Fulfilling national **obligations** under **UN regs & recs**

Smart Seas Tools

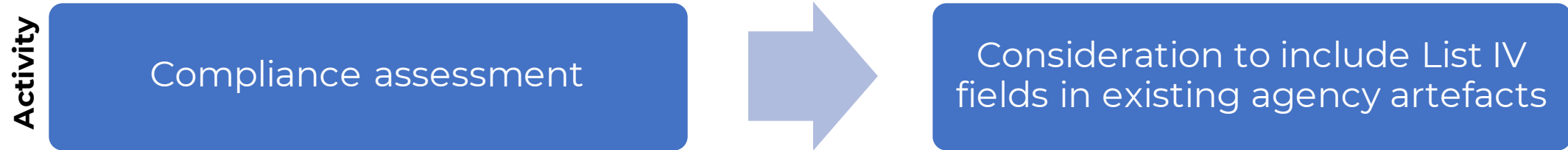Compliance Checklist

UN-compliant Licensing Form

Trigger

For use:

- On prescribed schedule by UN

- On prompt from UN (in notifications)

For update:

- On changes to UN conv & recs

Case #1: Compliance with UN Regs & Recs

Activity

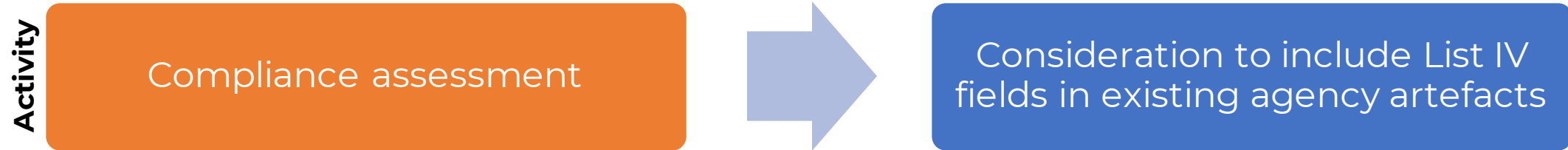| Compliance assessment | → | Consideration to include List IV fields in existing agency artefacts |

Scenario

National Spectrum Management Agency has received reminders from the ITU on their notification obligations and recognized the need for monitoring their compliance. They have decided to make use of Smart Seas':

Tool	Purpose
Compliance Checklist for Spectrum Management	to keep track of their compliance
UN-Compliant Licensing Form Template	to consider for adoption to aid in getting notification info

Case #1: Compliance with UN Regs & Recs

Activity

Compliance assessment

Consideration to include List IV fields in existing agency artefacts

Compliance Checklist Scenarios

Assignment of frequencies to prevent harmful interference

The national SMA assigns frequencies as required by law which has provisions for monitoring of harmful interference. However, the national SMA does not always consider the possibility of harmful interference to the maritime mobile band on assigning and routine monitoring is rarely conducted

MMSI assignments

MMSIs are assigned to licensees who operate maritime DSC radios according to the national SMA's policy

Case #1: Compliance with UN Regs & Recs

Activity

Compliance assessment → Consideration to include List IV fields in existing agency artefacts

Key List IV Fields

General Station Info

- Station Name
- Call sign
- Num. Notes
- Admin
- MMSI
- Remarks
- Admin Sym
- Languages
- Services
- Sea Areas

Contact Information:

Telephone
Mobile
Fax
Telex

Satellite Phone
Station Address
Email
Website

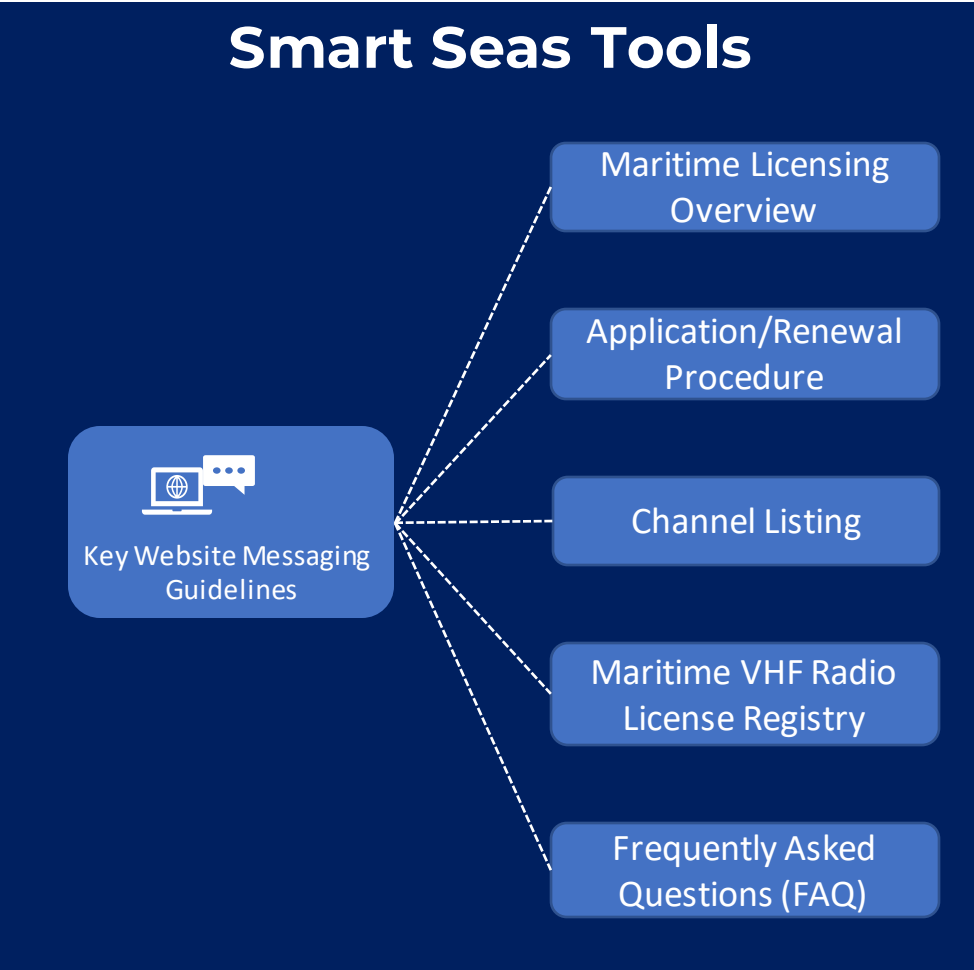## Channel Ops

- Service
- Rx & Tx Freqs
- Watch/Tx Hours
- Sel Call
- Channel
- Time Zone
- Coordinates
- Freq Band
- Emission Class
- Remote Name
- Tx Power

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Case #2: Info Product Dev & Dissemination

Case

Making key **info publicly available**

Smart Seas Tools

Key Website Messaging Guidelines

- Maritime Licensing Overview
- Application/Renewal Procedure
- Channel Listing
- Maritime VHF Radio License Registry
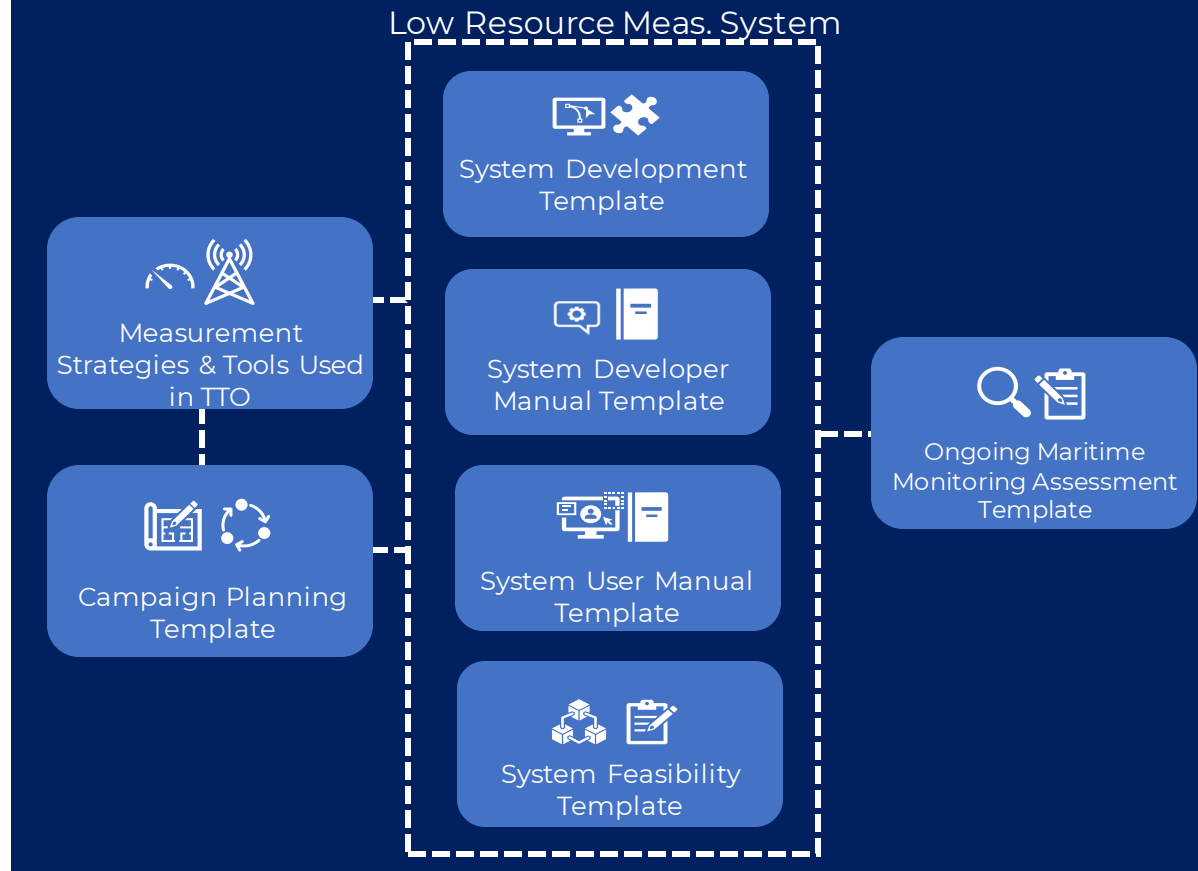- Frequently Asked Questions (FAQ)

Trigger

On designing and update of website resources

Case #3: RF Monitoring & Measurements

Case

Monitoring & **measuring** RF coverage to **support obligations** under UN regs & recs

Smart Seas Tools

Low Resource Meas. System

- System Development Template
- System Developer Manual Template
- System User Manual Template
- System Feasibility Template

Measurement Strategies & Tools Used in TTO

Campaign Planning Template

Ongoing Maritime Monitoring Assessment Template

Trigger

- Notification on sea area A1 by the maritime administration

- Routine (annual) spectrum monitoring

Case #3: RF Monitoring & Measurements

Activity

| Identify the key campaign planning steps | → | Identify methodologies for developing measurement tool | → | Identify how ongoing monitoring methodologies can be assessed |

Scenario

The National Maritime Administration (MARAD) has asked the National SMA for assistance in specifying Sea Area A1.

The National SMA has decided to use Smart Seas tools to assist MARAD in fulfilling its notification obligations.

Artefacts & Their Uses

Measurement Strategies & Tools Used in TTO	Provides review of TATT's land-based monitoring strategies recommending modifications for maritime measurements
Campaign Planning Template	Provides project mgmt resources to assist in conducting maritime measurements
Maritime Measurement System Templates	Provides resources to develop low-resource RF measurement systems
Ongoing Maritime Monitoring Assessment Template	Provides resources for assessing options for future monitoring activities

Case #3: RF Monitoring & Measurements

Activity

| Identify the key campaign planning steps | → | Identify methodologies for developing measurement tool | → | Identify how ongoing monitoring methodologies can be assessed |

A1 Notification

Notification Req	Designation of Sea Area A1
Notify to	International Maritime Organization (IMO)
Agency Responsible	Typically MARADs
Methodologies	1. Use of IMO's Equation 2. Coverage Simulations 3. Field Measurements

Question for the Attendees:

Has your agency ever participated in:
1. maritime RF measurements
2. coverage simulations @ sea

But what data is required to notify the IMO on Sea Area A1?

Case #3: RF Monitoring & Measurements

Activity

Identify the key campaign planning steps	→	Identify methodologies for developing measurement tool	→	Identify how ongoing monitoring methodologies can be assessed

A1 Notification Data

Sea Area A1 Notification Information

- Much of the data can be gathered from SMAs during MARS notifications

- SMAs can also generate coverage maps for MARADs

NAV/MET Area
Country
RCC Associated

VHF-DSC Coast Station

Type	Name	MMSI
Position	Range (NM)	Purpose
Status of implementation		Watch Hours on CH70

Map including:

- Name and location of main VHF stations
- Transmitter & receiver coverage
- Name and location of associated RCC(s)

Question for the Attendees:

What coverage simulation tool does your agency use?

Case #3: RF Monitoring & Measurements

Activity

Identify the key campaign planning steps

Identify methodologies for developing measurement tool

Identify how ongoing monitoring methodologies can be assessed

Station	Height
Coast Station	100 m
Ship Station	1 m

Calculation

$$A = 2.5(\sqrt{H} + \sqrt{h})$$

Where:
- A = coverage radius (in nm)
- H = height of coast station VHF tx antenna (in m)
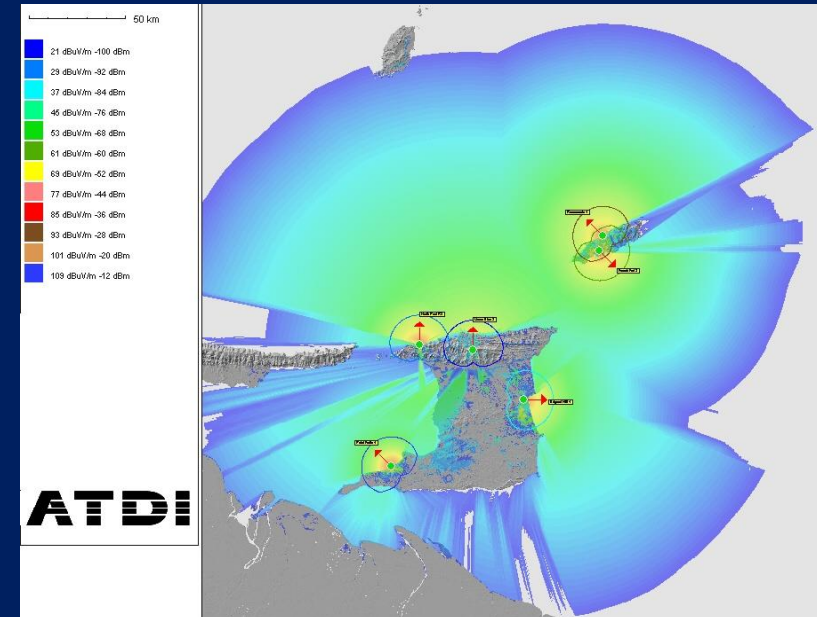- h = height of ship station's VHF tx antenna (in m)

$$A = 2.5\,(\sqrt{H} + \sqrt{h}) = 2.5\,(\sqrt{100} + \sqrt{1})$$
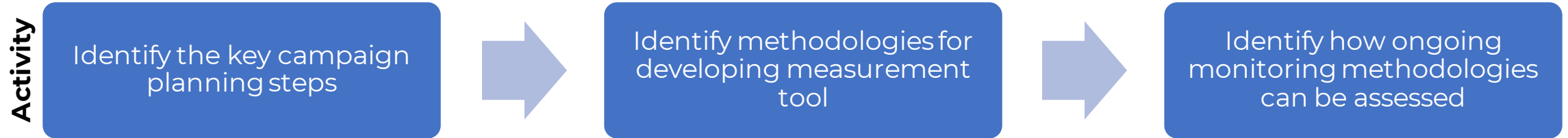$$A = 2.5\,(10 + 1)$$
$$A = 27.5 \approx 28\,nm$$

Simulation

Case #3: RF Monitoring & Measurements

Activity

Identify the key campaign planning steps	→	Identify methodologies for developing measurement tool	→	Identify how ongoing monitoring methodologies can be assessed

Confirming Data through Field Measurements

IMO recommends that sims & calculations be verified through field measurements

Question: How can we conduct maritime measurement campaigns to gather this data?

Let's look at the following tools:

Tool	Use
Measurement Strategies & Tools Used in TTO	Provides review of TATT's land-based monitoring strategies recommending modifications for maritime measurements
Campaign Planning Template	Provides project mgmt resources to assist in conducting maritime measurements

Case #3: RF Monitoring & Measurements

Identify the key campaign planning steps → Identify methodologies for developing measurement tool → Identify how ongoing monitoring methodologies can be assessed

Ongoing Assessments

- Sampling Strategy
- Hardware Req
- Software Req
- HR Req
- Other Req
- Brief Methodology
- Capital Cost
- Maintenance Cost
- Merits
- Limitations

Activity

The National SMA recognizes the limitations of conducting maritime measurements, and wishes to use drones for future RF monitoring at sea, as part of their annual maritime survey.

Brainstorm and complete this entry into the Smart Seas Ongoing Maritime Monitoring Assessment Template

Case #3: RF Monitoring & Measurements

Activity

Identify the key campaign planning steps	→	Identify methodologies for developing measurement tool	→	Identify how ongoing monitoring methodologies can be assessed

Ongoing Assessments

- Sampling Strategy
- Hardware Req
- Software Req
- HR Req
- Other Req
- Brief Methodology
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Activity

The National SMA recognizes the limitations of conducting maritime measurements, and wishes to use drones for future RF monitoring at sea, as part of their annual maritime survey.

Brainstorm and complete this entry into the Smart Seas Ongoing Maritime Monitoring Assessment Template

Case #3: RF Monitoring & Measurements

R&S PR200 Portable Monitoring Receiver

Charger and battery

Specs:

Weight	3.5kg
Battery	3.5hr
Freq. Range	8kHz to 8GHz
Metrics	Signal Str (dBm)
Power Cons.	16W

Carry-on harness

VHF Radio Measurement Instrumentation

R&S PR200 Portable Monitoring Receiver

Charger and battery

Specs:

Weight	3.5kg
Battery	3.5hr
Freq. Range	8kHz to 8GHz
Metrics	Signal Str (dBm)
Power Cons.	16W

Carry-on harness

Case #3: RF Monitoring & Measurements

Qualitative Assessment

Signal Strength

Proword	Meaning (signal strength…)
LOUD	strong
GOOD	good
WEAK	weak
VERY WEAK	very weak
FADING	fades to such an extent that continuous reception unreliable

Readability

Proword	Meaning (TX quality is…)
CLEAR	excellent
READABLE	satisfactory
UNREADABLE	so bad that I cannot read you
DISTORTED	bad and I am having trouble reading you
WITH INTERFERENCE	very bad and I am having trouble reading you due to interference

Let's Recap

Question 1: For what notification/s are SMAs responsible?

(a) IMO Global SAR Plan

(b) WMO-No.9 Volume D

(c) ITU MARS List IV

(d) IMO GMDSS Master Plan

According to RR No. 20.16, administrations are required to notify ITU's BR on immediately on changes to List IV information

Let's Recap

Question 2: What are the 5 key maritime-communications-related areas recommended for inclusion on SMAs' websites?

(a) Maritime Licensing Overview

(b) Application/ Renewal Procedures

(c) Licence Register

(d) Boat Registration Information

(e) Weather Information

(f) Channel Listing

(g) Boating Event

(h) FAQ

Note that these are only for consideration & SMA's can modify and adapt as they see fit

Let's Recap

Question 3: How can SMAs support maritime administrations Sea Area A1 notifications? (Choose multiple)

(a) Performing VHF radio coverage simulations

(b) Operating a coast station

(c) Conducting measurements periodically

(d) Providing a vessel for measurement campaigns

Let's Recap

Case 1

Compliance with UN Regs & Recs

- Structured monitoring of maritime comms-related UN compliance
- Integration of List IV fields into existing artefacts to obtain on-hand data required for notification

Case 2

Info Product Dev & Dissemination

- Presenting key maritime communications-related information on agencies' websites in a structured way with organized & well-defined content

Case 3

RF Monitoring & Measurements

- Supporting maritime administrations' obligations to notify on sea area A1 as well as monitoring to regulate use of spectrum for smooth operations

Questions: Your Turn

(Please raise your hand & we will call on you)

Session feedback:
http://bit.ly/3KE0wkL

Day 2 Recap

Day 1

- Toolkit Presentation

- Training: Plenary

- Q&A

- Training: MRCC & Coast Stations

- Q&A

- Day 1 Closure

Day 2

- Training: Spectrum Mgmt Agencies

- Q&A

- Day 2 Closure

Day 3

- Training: All Other Agencies

- Q&A

- Workshop Closure: All agencies

Thank You

Tomorrow: Workshop Day 3
(All Other Agencies & Closure)