

# LOCAL ADMINISTRATOR MANUAL

## Fisheries Early Warning and Emergency Response (FEWER)



*Source: Winsbert Harry, St. Vincent Waters (2017)*



# **LOCAL ADMINISTRATOR MANUAL: FISHERIES EARLY WARNING AND EMERGENCY RESPONSE (FEWER)**

Prepared by:  
**ICT4Fisheries Consortium**

under contract through the Marine sub-component of the Investment Plan for the Caribbean Regional Track of the Pilot Program for Climate Resilience, co-implemented by the Caribbean Regional Fisheries Mechanism (CRFM).

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## Foreword

This document was produced under the Marine sub-component of Component 4, Applied Adaptation Initiatives, of the Caribbean Regional Track of the Pilot Programme for Climate Resilience (PPCR).

As a programme of the Climate Investment Funds (CIF), PPCR helps developing countries integrate climate resilience into development planning and investment. The PPCR comprises 28 national programmes and two regional tracks (the Caribbean and the Pacific) across the developing world. The CIF, through the Inter-American Development Bank (IDB), has provided grant funding to implement the Caribbean Regional Track of the PPCR. The University of the West Indies, Mona, through its Mona Office for Research and Innovation (MORI) is executing the PPCR regional programme. The Caribbean Regional Fisheries Mechanism (CRFM) is co-implementing the Marine sub-component of PPCR Component 4 to reduce the impact of climate change-related risks on the fisheries industry in the Caribbean.

The Marine sub-component of Component 4 seeks to reduce the risks to fishers associated with climate change and variability. Through one of the initiatives in this sub-component, a consultant was contracted to develop an early warning and emergency response system (EWERS) for fishers in Grenada, Dominica, Saint Lucia and St. Vincent and the Grenadines; and to provide associated training. The specific deliverables of the consultancy were:

1. Inception Report
2. Reports of stakeholder consultations with proposals for each country
3. Memoranda of Understanding among stakeholder groups for each country
4. Prototype EWERS for testing
5. Draft user and administrator manuals for EWERS
6. Report of training workshops and associated materials including impact assessment tool
7. Final EWERS, including e-services, installed and tested
8. Final user and administrator manuals for EWERS.

The EWERS has come to be referred to as Fisheries Early Warning and Emergency Response (FEWER). In its capacity as a co-implementing agency for the Marine sub-component of PPCR Component 4, the CRFM was responsible for technical oversight of FEWER's development by the ICT4Fisheries Consortium.

The general requirements for FEWER were specified through face to face consultations with fishers and a rich spread of other stakeholders in Grenada, Dominica, Saint Lucia and St. Vincent and the Grenadines during the months of March and April 2017. Co-design teams of fishers, as well as non-fisher stakeholders, were subsequently constituted, and regular meetings held remotely with them and the development team, the ICT4Fisheries Consortium. Co-design meetings with fishers were conducted through skype and with non-fishers through Zoom. A FEWER Fishers' WhatsApp group was used for asynchronous communications with and among fishers.

## Acronyms and Abbreviations

<b>API</b>	Application Programming Interface
<b>CAP</b>	Common Alerting Protocol
<b>CDEMA</b>	Caribbean Disaster Emergency Management Agency
<b>CIF</b>	Climate Investment Funds
<b>CNFO</b>	Caribbean Network of Fisherfolk Organizations
<b>CRFM</b>	Caribbean Regional Fisheries Mechanism
<b>CTA</b>	Technical Centre for Agricultural and Rural Cooperation
<b>DM</b>	Disaster Management
<b>DMA</b>	Disaster Management Agency
<b>DRM</b>	Disaster Risk Management
<b>EWERS</b>	Early Warning and Emergency Response System
<b>FEWER</b>	Fisheries Early Warning and Emergency Response
<b>HDD</b>	Hard Disks Drives
<b>HTTP</b>	Hyper Text Transfer Protocol
<b>ICT</b>	Information Communication Technology
<b>IDB</b>	Inter-American Development Bank
<b>IDRC</b>	International Development Research Centre
<b>IDS</b>	Intrusion detection system
<b>ISO</b>	International Organization for Standardization
<b>JS</b>	Java Script
<b>JSON</b>	Java Script Object Notation
<b>LEK</b>	Local Ecological Knowledge
<b>MORI</b>	Mona Office for Research and Innovation
<b>NAS</b>	Network Attached Storage
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NPM</b>	Node Package Manager
<b>OOP</b>	Object Oriented Programming
<b>OS</b>	Operating System
<b>PPCR</b>	Pilot Programme for Climate Resilience
<b>RAID</b>	Redundant Array of Independent Disks
<b>RAM</b>	Random Access Memory
<b>RDBMS</b>	Relational Database Management System
<b>REST</b>	Representational State Transfer
<b>SAME</b>	Specific Area Message Encoding
<b>SMS</b>	Short Message Service
<b>SSL</b>	Secure Sockets Layer
<b>UNISDR</b>	United Nations Office for Disaster Risk Reduction
<b>URL</b>	Uniform Resource Locator
<b>UWI</b>	University of the West Indies
<b>WEA</b>	Wireless Emergency Alerts
<b>WSGI</b>	Web Server Gateway Interface

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# Background

## **1.1 *Small-scale fishers' vulnerabilities to hazards***

The US Bureau of Labour Statistics (2017)<sup>1</sup> ranks fishing as the job with the second highest rate of work-related deaths in America, based on 2015 figures. Forbes (2017)<sup>2</sup> ranks fishers and fishing workers as those with the most dangerous jobs, attributing the ranking to extreme weather, heavy equipment and drowning. Though harsh winter weather is not a factor, fishing methods differ, and there are few related statistics for the Caribbean, small-scale fishers in the region are particularly vulnerable on account of the modest safety provisions in their vessels and variable weather systems with seasonal hurricanes.

## **1.2 *National Disaster Risk Management (DRM) framework***

Reduction of risk to fishers is best undertaken within a national framework for disaster risk management (DRM). Such frameworks make provisions for the four phases of the disaster management (DM) cycle: mitigation, preparedness, response and recovery. They include policies, legislation, plans for preparedness and management, early warning systems, public awareness and capacity building as well as established organisational arrangements and procedures for all segments of society. National DRM frameworks are supported by sector- and community-specific plans which align with an integrated system of all-hazards mitigation, preparedness, response and recovery for all citizens.

## **1.3 *Multi-agent roles in disaster management for fishers***

National fisheries, disaster management and meteorological agencies play lead and ancillary roles in support of small-scale fishers within the national DRM framework. The following sections capture key aspects of these roles, drawing heavily on UNISDR (2006)'s Checklist for Developing Early Warning Systems<sup>3</sup>.

### **1.3.1 *Role of fishers***

Fishers should be involved in all aspects of the establishment and operation of early warning systems that are targeted to benefit them. They are to be aware of the hazards and potential impacts to which they are exposed and be able to take actions to minimise the threat of loss or damage by reducing sensitivity and increasing adaptive capacity. They are also to be knowledgeable, prepared and ready to react to warnings and emergency situations.

### **1.3.2 *Role of fisheries authorities***

As a division of government, fisheries authorities are required to be aware of national policies and frameworks for early warning. They are responsible for ensuring that these adequately serve the special needs of small-scale fishers. They should be actively involved in the design and maintenance of early warning systems by their considerable knowledge of the hazards to which fishers are exposed, of the communications capabilities of fishers and of message formulation that would be most meaningful to fishers.

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<sup>1</sup> US Bureau of Labour Statistics (2017). Available at <https://blogs.bls.gov/blog/2017/06/27/most-dangerous-jobs/>. Last accessed 30 November 2017

<sup>2</sup> Forbes (2017). Available at <https://www.forbes.com/pictures/efkk45kifl/americas-10-deadliest-jobs-2/#76d7c59d1670>. Last accessed 30 November 2017

<sup>3</sup> UNISDR (2006). Developing Early Warning Systems: A Checklist. Third International Conference on Early Warning. *From concept to action*. 27-29 March 2006. Bonn, Germany. Available at <https://www.unisdr.org/2006/ppew/info-resources/ewc3/checklist/English.pdf>. Last accessed 30 November 2017.

Fisheries authorities must understand advisory information received and be able to advise, instruct and engage fishers to increase their safety and reduce loss and damage before and during emergency situations. They are an important intermediary between fishers and disaster management agencies, as well as between fishers and national meteorological (“Met”) services and must maintain corresponding lines of communication.

It is important that fisheries authorities track the use and interpretation of early warning messages by fishers over time and accordingly direct revisions to message formats and dissemination processes. Fisheries authorities are also responsible for providing support to fisherfolk organisations to ensure that operational capabilities are built.

### **1.3.3 Role of fisherfolk organisations**

Fisherfolk organisations play a critical role in effective early warning and emergency response for fisherfolk. They have regular access to fishers and considerable knowledge of the hazards to which they are exposed. Fisherfolk organisations can raise and sustain awareness about early warning and emergency response systems and procedures. They should assist fisheries authorities to implement such systems and procedures; and assist fisherfolk in preparing for and responding to natural disasters. They also play an important advocacy role to help ensure that early warning and emergency response for fishers remain on the national development agenda.

### **1.3.4 Role of meteorological services**

National meteorological (Met) services have the expertise to analyse the risks to seafarers from natural hazards, and to translate the findings into messages that fishers can understand. The Met services are also able to specify the measurement parameters and warning thresholds associated with each relevant hazard. They, therefore, provide important inputs into the design and operation of early warning systems for seafarers, including the dissemination of clearly recognisable and consistent warnings that adhere to international standards and protocols.

### **1.3.5 Role of disaster management agencies**

National disaster management agencies (DMAs) are responsible for coordinating agencies that manage all phases of the disaster management cycle. They specify the processes, roles, responsibilities and protocols for generating and issuing authoritative warnings. These specifications cover the warning dissemination chain and channels for technical warning services. DMAs must ensure consistent warning dissemination and communication systems are used for all hazards, and that alerts and messages are targeted to those at risk only. They play a critical role in the design and operation of early warning systems for fishers to ensure compliance with the protocols and rules of conduct for national early warning. DMAs also provide post-disaster relief and rehabilitation services; and play a very important role in the provision of learning resources and training to assist fishers to prepare for, and manage themselves during and after, natural disasters.

## **1.4 FEWER**

**Fisheries Early Warning and Emergency Response (FEWER)** is a set of tools that link small-scale fishers with each other and with agencies that play critical roles in the overall DRM framework. These links are effected through a system of information and communications facilities. The tools comprise a mobile application and web-based administrators’ dashboard. FEWER is built on the [mFisheries](#) framework which provides services common to a range of applications that support various aspects of fishers’ livelihoods. FEWER is one of several tools that reduce fishers’ risks. No single tool can meet all needs.

### 1.4.1 Aims

FEWER aims to reduce fishers' risks from natural hazards associated with weather (short term) and climate (long-term) through improved information and communications regarding issues of particular concern to fisheries, and to do so within the national DRM framework.

### 1.4.2 Strategy

The overarching strategy to reduce weather- and climate-related risks for fishers is to build their **resilience**. FEWER is the information and communications technology (ICT) component of this strategy. Other key aspects of the strategy ensure fishers' understanding of risks and mechanisms for mitigation and response, enable context-appropriate reinforcement of these mechanisms, build relevant skills, and provide operational support. They also crucially call for the incorporation of fisher engagement and support into the planning and regular operations of a number of agencies, primarily fisheries authorities, fisherfolk organisations, Met services and DMAs.

### 1.4.3 Objectives





The objectives of FEWER are to provide specific risk-reducing capabilities that small-scale fishers can access through the mobile phone, and key agencies can manage through a web-based administrators' dashboard. These capabilities together span all phases of the disaster management cycle with particular emphasis on the four crosscutting elements of early warning.





### 1.4.4 Modules

For most effect, the communication between fishers and key agencies is sustained through all phases of the disaster management cycle. For the mitigation phase, an acute awareness of the marine environment and any noticeable changes is key, as is the practice of letting others know of plans to set out before trips. For the preparedness phase, information about the weather and sea conditions, how to plan around these and what to do if they are unavoidable, are key. For the period during a disaster, emergency contacts and knowledge of what to do in the event of an emergency is vital. Also, during and immediately following a disaster, identification of missing persons is critical. In the latter period of the response phase and the early stages of recovery, the reporting of damage is an essential input for subsequent planning exercises.

FEWER provides support for all four DM phases through eight modules: Local Ecological Knowledge (LEK), Messaging, Weather, Alerts, Emergency Contacts, Emergency Procedures, Damage Reporting and Missing Persons as shown in Table 1.

Table 1 FEWER Modules and Key Time to Use

DM Phase	FEWER Module		Fishers ...
Mitigation		LEK	<ul style="list-style-type: none"><li>• <b>record</b> anything in the marine environment that should be noted to reduce fishers' risks</li></ul>
		Messaging	<ul style="list-style-type: none"><li>• keep <b>in touch</b> with other fishers to be aware if, where and when anyone goes missing</li></ul>
Preparedness		Weather	<ul style="list-style-type: none"><li>• <b>receive</b> and <b>share</b> information from local and international sources with indicators when things look risky</li></ul>
		Alerts	<ul style="list-style-type: none"><li>• <b>receive</b> from and <b>send</b> alerts to Fisheries, Met and Disaster Offices, and other fishers</li></ul>

Response		<b>Emergency Contacts</b>	<ul style="list-style-type: none"> <li>• <b>access</b> up to date Emergency Contacts directly</li> <li>• <b>receive</b> trusted guidance on procedures to follow in emergency situations</li> </ul>
		<b>Emergency Procedures</b>	
Recovery		<b>Damage Reporting</b>	<ul style="list-style-type: none"> <li>• <b>share</b> reports based on property damage with the Authorities</li> <li>• <b>broadcast</b> information to help in the recovery of missing fishers.</li> </ul>
		<b>Missing Persons</b>	

Together, these modules cover the UNISDR early warning checklist elements: risk knowledge, monitoring and warning service, dissemination and communication, and response capability.

#### 1.4.5 Administration

All FEWER modules except Messaging require either configuration and updating by local agencies; or interaction between these agencies and FEWER fishers who use the mobile app. Such administrative tasks are assigned to different types of FEWER administrators (“admins”) with access privileges set accordingly. The Messaging module does not require interaction between FEWER admins and fishers so is not treated explicitly in the Administrator Manual.

### 1.5 *Intended audience for this manual*

The target audience for this manual are representatives of national fisheries authorities, fisherfolk organisations, meteorological (Met) services and DMAs, who will take on the role of FEWER **country** and **agency administrators** in Grenada, Dominica, Saint Lucia and St. Vincent and the Grenadines. As the national body with responsibility for search and rescue at sea, the Coast Guard in FEWER countries are also target readers for the local administrator manual.

This manual and the companion manual for fishers are accessible from the FEWER mobile and desktop applications.

A superset of this document is available as the FEWER global administrator manual. The audience for that document comprises representatives of Caribbean authorities in fisheries, hydrometeorology and disaster management; as well as the Caribbean Network of Fisherfolk Organisations, who will all take on the role of FEWER regional reviewers. The primary audience for the global administrator manual is the regional agency with responsibility for FEWER global administration. Any other information technology specialists who assist or support the technical aspects of FEWER installation and regional administration are also target readers.

### 1.6 *Purpose and arrangement of this manual*

The purpose of this manual is to enable FEWER country and agency administrators to:

1. understand the role of FEWER in the reduction of climate-related risk to small-scale fishers;
2. understand the role of the host agency in the system of FEWER agencies;
3. distinguish between different FEWER administrator roles; and
4. conduct all tasks required of the host agency’s admin role.

Section 1 Background addresses aspects 1 and 2 of the document’s purpose (above). The following sections address aspects 3 and 4 of the document’s purpose: Section 2 outlines the scope and role of the

FEWER country administrator and that of the FEWER agency administrator. Section 3 describes the administrators' dashboard through which FEWER administrators manage the application features used by fishers. Sections 4 and 5 walk through a representative selection of tasks performed by FEWER country and agency administrators by module and by country respectively. The appendix features the manual for the weather module's extractor facility.

The roles which may execute each task are identified as **C.A.** for country administrator, **A.A** for agency administrator, **T.A** for country-level technical administrators, **C.G** for the Coast Guard (marine police) and **R.R** for regional reviewers. Global administrators are able to execute all administrative tasks so their role is not tagged with any task in the manual.

In preference to references at the end, footnotes are used for convenient access to resources.

## 2. FEWER Administrators

The administration of fisher early warning and emergency response communication falls to the fisheries authorities as the FEWER **country administrators (CA)**; and the disaster management agencies, Met services and fisherfolk organisations as FEWER **agency administrators (AA)**. The overarching coordination of FEWER is the responsibility of the CRFM as the regional authority for fisheries. The CRFM is joined by regional authorities for hydrometeorology and disaster management, and the Caribbean Network of Fisherfolk Organisations, as FEWER **regional reviewers (RR)**. These administrators view all information accessible to country and agency administrators, and can draw on this information to create reports, but do not otherwise play a role in the day to day support of FEWER operations at the national level. As a software application, the technical aspects of FEWER are managed at the national level by **technical administrators (TA)** and regionally by the **global administrator (GA)**. Technical administrators are local administrators that are technical representatives from either the I.T. unit of the fisheries-related ministry or the national ministry responsible for ICT. Global administrators are technical representatives sourced from the regional agency with responsibility for hosting and managing FEWER. Each class of administrator is defined by the set of allowable tasks. The relative scope of tasks is shown in Figure 2.1.

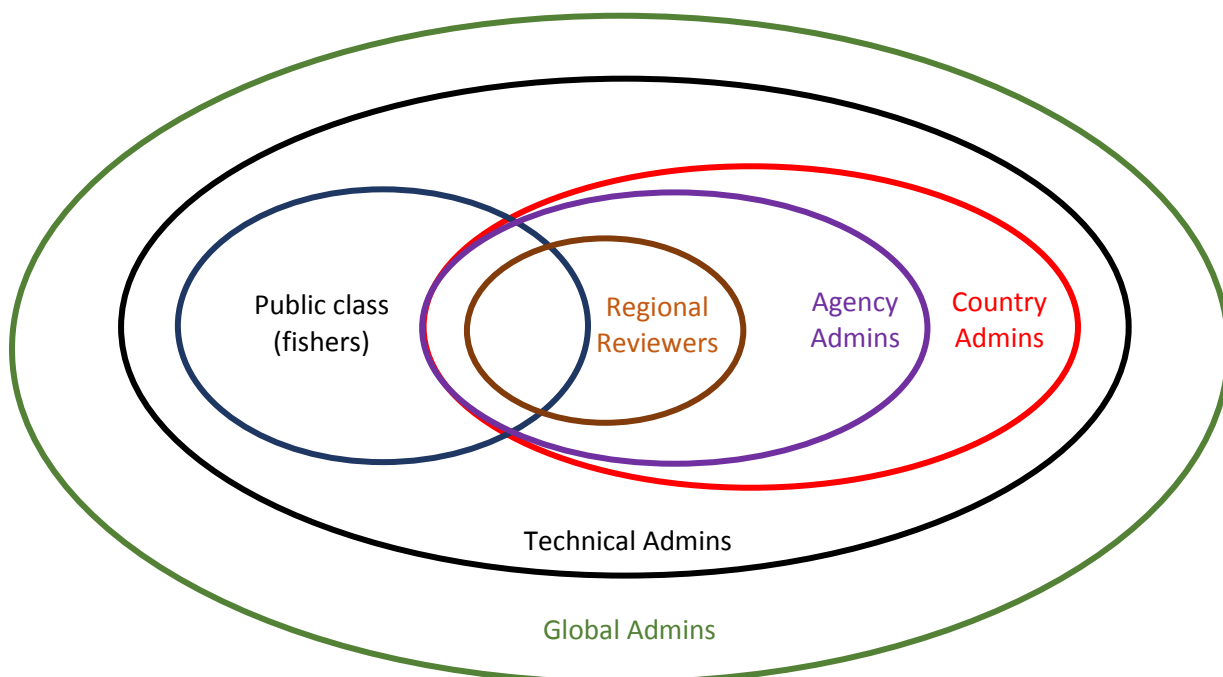


Figure 2.1 Relative scope of tasks for FEWER Users

### 2.1 FEWER country administrator

FEWER country administrators, referred to in this manual by a red “**C.A**”, are responsible for the configuration, management and administration of the national FEWER installation with country-level moderation privileges. They perform their role through FEWER’s web-based administrators’ dashboard. Once familiarised with their role, their expected average load for such activities is one hour per week. It is expected that country-level FEWER administration will rest with the fisheries authorities.



They perform tasks such as the following:

I. General:

- a) Create Users
  - a) Create Agency Administrator
  - b) Create Marine Unit/Coast Guard User

II. Alerts:

- a) Manage Alert Sources
  - a) Add new CAP alert source
- b) Manage community alert groups
  - a) Create Alert Group
  - b) View Alert Groups
  - c) Edit Alert Group
  - d) Delete Alert Group
  - e) View Alert Group members
- c) Manage community alerts & CAP alerts
  - a) View List of community alerts & CAP alerts received
  - b) View details of community alert & CAP alert
  - c) Verify community alert
  - d) Create community alert & CAP alert
  - e) Distinguish FEWER from External CAP alerts
  - f) Cancel FEWER CAP alerts
  - g) Update community alert & CAP alert
  - h) View alert delivery reports

III. Damage Reporting:

- a) Manage Public Damage Reporting
  - a) View damage reporting categories
  - b) Create damage reporting category
  - c) View damage reports
  - d) Create damage report
  - e) Update damage report
  - f) Delete damage report
  - g) Export damage reports

IV. Emergency Contacts:

- a) Manage Emergency Contacts
  - a) View a list of emergency contacts
  - b) Create an emergency contact
  - c) Add additional details for an emergency contact
  - d) View additional details
  - e) Update an emergency contact
  - f) Delete an emergency contact
  - g) Export emergency contacts

V. Emergency Procedures:

- a) Manage Emergency Procedures
  - a) View emergency procedures
  - b) Upload emergency procedures

- c) Update emergency procedures

VI. Weather:

- a) Manage Weather Data Sources
  - a) Create a new weather source
  - b) Edit weather source
  - c) Add weather parameter thresholds
  - d) Delete weather source
  - e) Upload extractor file
  - f) Manually update weather information from a source
  - g) View weather source details
  - h) View weather source readings
  - i) View weather sources from another country

VII. Missing Persons:

- a) Manage Missing Persons
  - a) View Missing Persons
  - b) Remove Missing Person report
  - c) Create a Missing Person report
  - d) Mark a person as found
  - e) Export Missing Person reports

VIII. Local Ecological Knowledge (LEK):

- a) Manage Public LEK Reporting
  - a) View LEK categories
  - b) Create LEK categories
  - c) View LEK reports
  - d) Create LEK reports
  - e) Update LEK reports
  - f) Delete LEK reports
  - g) Export LEK reports

**FEWER country administrator: description**

- *An authoritative source on fisheries resource management in his/her country*
- *Able to provide information on sector-specific climate change and disaster risks*
- *Supervises fisheries extension officers*

**FEWER country administrator: requisites**

- *Regular access to, and proficiency with, web & productivity software tools*
- *Access to a smartphone and familiarity with web and social media applications*
- *Experience with extension services & training*

## 2.2 FEWER agency administrator

FEWER agency administrators, referred to in this manual by a red “A.A”, provide key inputs into the application design and configuration; and provide direct support for fishers through different vantage points: (i) fisheries (ii) hydrometeorology and (iii) disaster management. There are generally, therefore, several FEWER agency administrators in each country.

FEWER agency administrators are responsible for managing, disseminating and moderating communications relating to early warning and emergency response. They do this through FEWER’s web-based administrators’ dashboard. Once familiarised with their role, their expected average load for such activities is one hour per week. FEWER agency administrators perform tasks such as the following:

Tasks	Agency Administrator Categories
I. Alerts	
1. Manage community alert groups	Fisher Organisations
a) Create Alert Group	Fisher Organisations
b) View Alert Groups	Fisher Organisations
c) Edit Alert Group	Fisher Organisations
d) Delete Alert Group	Fisher Organisations
e) View Alert Group members	Fisher Organisations
2. Manage community alerts & CAP alerts	
a) View List of community alerts & CAP alerts received	All
b) View details of community alert & CAP alert	All
c) Verify community alert	Disaster Management Authority
d) Create community alert & CAP Alert	Disaster Management Authority
e) Distinguish FEWER CAP Alerts from External CAP Alerts	Disaster Management Authority
f) Cancel FEWER CAP alerts	Disaster Management Authority
g) Update community alert & CAP alert	Disaster Management Authority
h) View alert delivery reports	Disaster Management Authority
II. Damage Reporting	
1. Manage Public Damage Reports	
a) View damage reports	All
b) Create damage report	Fisher Organisations; Disaster Management Authority
c) Update damage report	Fisher Organisations; Disaster Management Authority
d) Export damage reports	All
III. Emergency Contacts	
1. Access Emergency Contacts	
a) View a list of emergency contacts	All
b) View additional details	All
c) View all contacts from another country	All
d) Export emergency contacts	All
IV. Weather	
1. Manage Weather Data Sources	

<b>Tasks</b>	<b>Agency Administrator Categories</b>
a) Create a new weather source	Meteorological Services
b) Edit weather source	Meteorological Services
c) Add weather parameter thresholds	Meteorological Services
d) Delete weather source	Meteorological Services
e) Upload extractor file	Meteorological Services
f) Manually update weather information from a source	Meteorological Services
g) View weather sources from their country	All
h) View weather source details	All
i) View weather source readings	All
j) View weather sources from another country	All
V. Missing Persons	
1. Manage Missing Persons	
a) View Missing Persons	All
b) Create a Missing Person report	All
c) Remove a Missing Person report	Fisher Organisations; Disaster Management Authority
d) Mark a person as found	Fisher Organisations; Disaster Management Authority
e) Export Missing Person reports	All
VI. Local Ecological Knowledge	
1. Manage Public LEK Reporting	
a) View LEK Categories	All
b) View LEK reports	All
c) Create LEK reports	Fisher Organisations; Disaster Management Authority
d) Update LEK reports	Fisher Organisations; Disaster Management Authority
e) Export LEK reports	All
VII. Emergency Procedures	
1. Manage Emergency Procedures	
a) View emergency procedures	All

**FEWER agency administrators: description**

- *Responsible for managing, disseminating or moderating information and communications related to early warning and emergency response in fisheries organisations, disaster management agencies or meteorological services*
- *Currently in a role within a fisheries organisation, meteorological services or disaster management authority consistent with the activities required of the relevant FEWER Administrator tasks (as itemized above)*

**FEWER agency administrators: requisites**

- *Proficiency with web and productivity software tools*
- *Access to, or ownership of a mobile phone (feature), as well as familiarity with SMS text messaging*
- *Experience with activities required of the relevant FEWER Administrator tasks within the fisheries organisation, meteorological services or disaster management authority, as appropriate*

## **2.3 FEWER administrator scope: country vs agency**

FEWER country administrators can execute the same tasks as agency administrators and more. Fishers, who have public class access privileges, also execute some of these tasks using the FEWER mobile app.

## **2.4 Other FEWER administrators**

The technical administrator (T.A) has all the access privileges of the country administrator. While the country administrator manages fisheries-related use of the system, the technical administrator ensures that all the software-related operations are functional for the respective countries. They are additionally responsible for creating, updating and uploading data extractors for the Weather module. The coast guard (C.G) is a specialised version of the agency administrator (A.A). The operations are restricted and focused specifically on the tasks related to the coast guard of the respective territories. They are responsible for monitoring the daily tracks of users as well as viewing records for the Alerts, Missing Persons and Weather modules. The regional reviewers are agencies that can access information that fishers identify as public. These agencies have a strategic priority for their support of FEWER and are a critical component for sustaining of FEWER. The regional reviewers (R.R) cannot modify any of the information generated in each territory but can produce a variety of reports that provide an understanding of FEWER's usage, and the impact of natural hazards in the Caribbean. FEWER requires technical support for regional hosting and management. These operations are the responsibility of the global administrators. The global administrators ensure that the hosting infrastructure and technical components of the FEWER system are correctly configured for the countries' use. They can execute all FEWER tasks.

### 3. The FEWER Administrators' Dashboard

The FEWER administrators' dashboard is a web-based application that provides services to both administrators and public users. The dashboard provides controls and operations for administrators to manage and submit information to ensure the smooth operation of the FEWER services in their respective countries.

#### 3.1 The Browser

The FEWER administrators' dashboard works in modern web browsers on both the desktop and mobile devices. The following browsers are tested and supported:

Desktop	Mobile
1. Chrome (v 62)	1. Chrome (v 62)
2. Firefox (v 57)	2. Firefox (v 57)
3. Internet Explorer 11	3. Webkit (v 533)
4. Microsoft Edge (v16)	4. Safari mobile
5. Safari (v 11+)	

#### 3.2 Accessing the administrators' dashboard

To access the FEWER administrators' dashboard, navigate to <https://fewer.cirp.org.tt>. The browser will display the FEWER website with its drop-down menu. It will also display a log-in screen as shown in Figure 3.1.

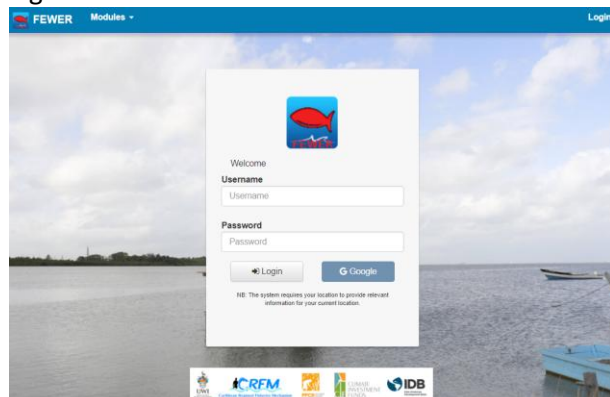


Figure 3.1 FEWER login screen

All administrators must log-in. Credentials (username and password) are provided as follows:

- Country administrator: configured on FEWER commissioning, with edit privileges assigned to the approved country administrator
- Agency administrator: created, assigned and managed by the country administrator

As regional FEWER Coordinator, the CRFM will specify the points of contact for the provision of access credentials. They may be contacted via [secretariat@crfm.int](mailto:secretariat@crfm.int), subject "FEWER".

#### 3.3 How do I access the FEWER administrative features?

After logging into the application with country administrator's credentials the country administrator's dashboard, shown in Figure 3.2, is displayed. The administrators menu is visible at the top of the screen. To access FEWER-specific management functions, hover over the "modules" menu option. The drop-down menu with FEWER modules is displayed. Click on any menu item to access the relevant module controls.

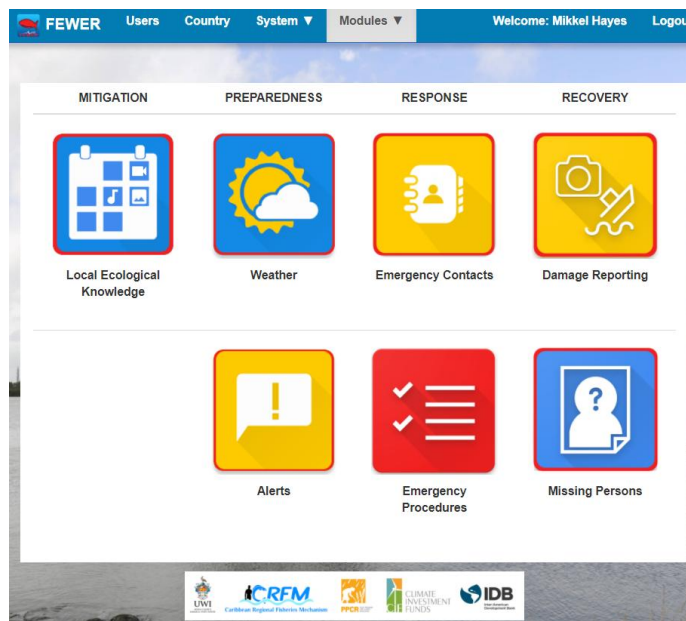


Figure 3.2 FEWER country administration features via the menu

After logging into the application with the agency administrator's credentials the administrator's dashboard illustrated in Figure 3.3 is shown. Similarly, the FEWER-specific management features can be accessed either using the respective module icons or hovering over the "modules" menu option.

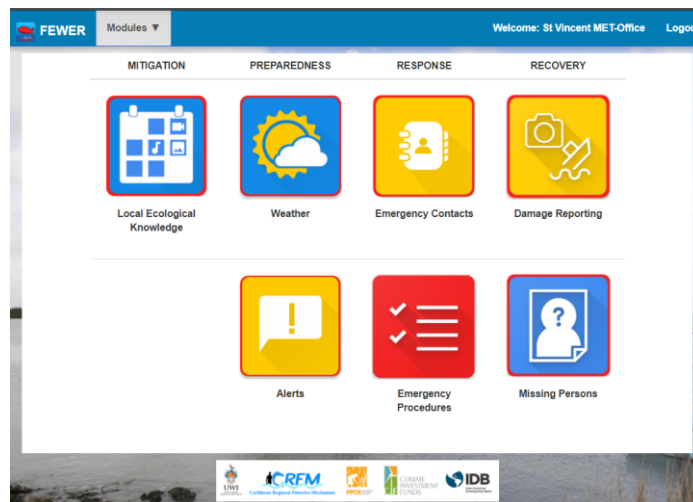


Figure 3.3 FEWER agency administration features via the Dashboard

Regional reviewers will access the same dashboard as agency administrators illustrated in Figure 3.3. However, regional reviewers will have read-only access for FEWER modules. This implies that all of them create, update and delete operations will be unavailable for regional reviewers.

## 4. Administrative Tasks by Module

### 4.1 Alerts

#### 4.1.1 How do I access the Alerts Module? (A.A, C.A, C.G, T.A, R.R)

After logging in to the FEWER administrators' dashboard using the credentials provided, hover over the FEWER option in the menu and click the Alerts option from the list as shown in Figure 4.1.

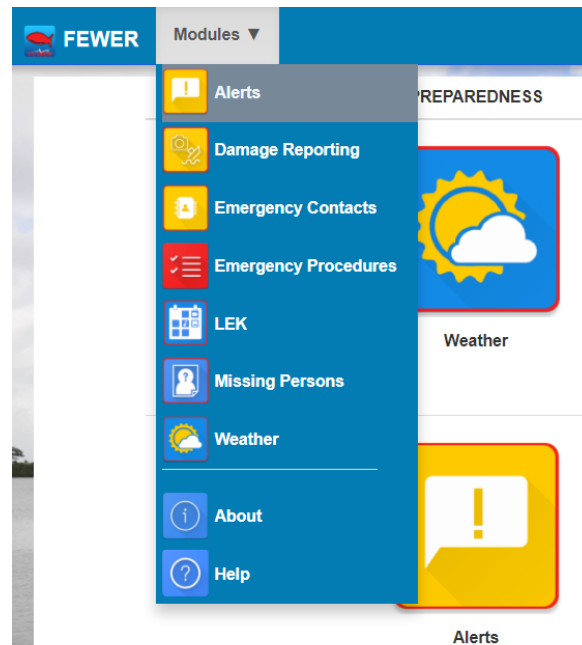


Figure 4.1 Accessing the Alerts Module from the FEWER main menu

When the Alert module is selected, the Alerts dashboard is displayed. It is organised by CAP and community alerts, each with the controls to manage the respective alert type, as in Figure 4.2.

#### 4.1.2 What is a CAP alert?

CAP stands for Common Alerting Protocol. It is an international standard that specifies a common message format for public alerts and warnings issued over different communications systems including broadcast television, free to air radio, cell phones etc. It is backwards-compatible with NOAA Weather Radio's Specific Area Message Encoding (SAME) and Wireless Emergency Alerts (WEA).



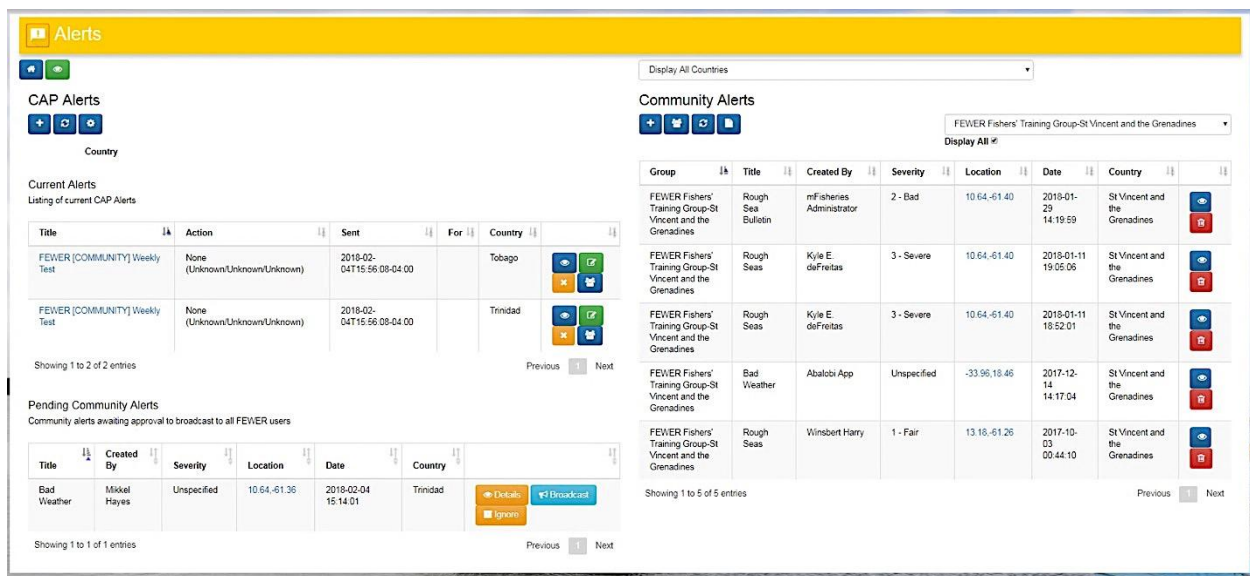


Figure 4.2 Alerts controls and listings

### 4.1.3 What is the difference between a CAP and a community-based alert?


FEWER facilitates both Common Alerting Protocol (CAP) and community alerts. Table 2 summarises the key differences.



Table 2 Key distinctions between FEWER CAP and community-based alerts

	Common Alerting Protocol (CAP)	Community Alert
Scope	Multi-device	Mobile only
	All FEWER users	Community-wide
Protocol	International	FEWER specific
Source	Administrator	Public User




### 4.1.4 How do I view CAP alerts? (A.A, C.A, T.A, R.R)

CAP alerts are displayed in the left-hand area of the Alerts dashboard. Current alerts display alerts approved for dispatch to all FEWER users. The “Pending Community Alerts” section display alerts that originate from fishers who wish to broadcast beyond their community. These broadcasts must be approved by the administrator. Each alert entry comprises the title of the alert, the action to be taken, the date issued and the set of administrator controls, as shown in Figure 4.3.

 Alerts









### CAP Alerts

Country

Current Alerts

Listing of current CAP Alerts




Title	Action	Sent	For	Country	
FEWER [COMMUNITY] Weekly Test	None (Unknown/Unknown/Unknown)	2018-02-04T15:56:08-04:00		Tobago	   
FEWER [COMMUNITY] Weekly Test	None (Unknown/Unknown/Unknown)	2018-02-04T15:56:08-04:00		Trinidad	   

Showing 1 to 2 of 2 entries

Previous 1 Next

Pending Community Alerts

Community alerts awaiting approval to broadcast to all FEWER users

Title	Created By	Severity	Location	Date	Country	
Bad Weather	Mikkel Hayes	Unspecified	10.64,-61.36	2018-02-04 15:14:01	Trinidad	 Details  Broadcast  Ignore


Showing 1 to 1 of 1 entries

Previous 1 Next


Figure 4.3 CAP Alerts and Pending Community Alerts controls and listings

#### 4.1.5 How do I create a new CAP alert? (A.A, C.A, T.A)

To create a new CAP alert, select the plus icon, located at the top left of the CAP Alerts area of the Alerts dashboard. A form, comprising general information (Figure 4.4), details (Figure 4.10) and map-based alert area facilities (Figure 4.11), is displayed. Complete all mandatory fields (those marked with the red asterisks) and all other fields as appropriate. Table 3 summarises the fields and valid options for a FEWER CAP alert.



## New Alert



English (US)

Message Template (Optional):

Status: \* Actual

Type: \* Alert

Scope: \* Public

Hazard Type: \* Meteorological

Protective Action: \* Recommended Action

Message Priority: \*

Urgency

Severity

Certainty

Time to Expiration: \* 6 Hours

Figure 4.4 General section of a New CAP Alert

Table 3 Fields for General section of a New CAP Alert

Name	Description	Options
Message template	Pre-configured alert templates to enable faster creation of common alerts	FEWER Strange Current Alert FEWER Low Visibility Alert FEWER ground swell alert FEWER Whitecaps Alert FEWER Storm Surge Alert FEWER Coastal Flash Flood Alert FEWER [COMMUNITY] Weekly Test FEWER [COUNTRY] Monthly Test
Status	The code denoting the appropriate handling of the alert message	Actual Exercise Test Draft
Type	The code denoting the nature of the alert message	Alert Update Cancel
Scope	The code denoting the intended distribution of the alert message	Public Private

Name	Description	Options
Hazard Type	The extended message identifier(s) (in the form sender, identifier, sent) of an earlier CAP message or messages referenced by this one.	Meteorological Environmental Not Otherwise Categorized
Protective Action	The code denoting the type of action recommended for the target audience	Take Shelter Evacuate Make Preparations Execute Pre-Planned Action Avoid the Area Monitor Conditions Resume Normal Activities Take No Action
Message Priority: Urgency	The code denoting the urgency of the subject event of the alert message	Immediate Expected Future Already Occurred Future
Message Priority: Severity	The code denoting the severity of the subject event of the alert message	Extreme Severe Moderate Minor Unknown
Message Priority: Certainty	The code denoting the certainty of the subject event of the alert message	Observed Event Likely Possible Unlikely Unknown
Time to Expiration	The expiry time of the information of the alert message	15 minutes      3 hours 30 minutes      4 hours 45 minutes      5 hours 1 hour           6 hours 90 minutes      Other 2 hours

#### 4.1.6 Are the CAP field specifications unique to FEWER? (A.A, C.A, T.A)

No. The FEWER CAP alert fields comply with the Common Alerting Protocol. Protocol specifications are detailed at [http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2-os.html#\\_Toc520973453](http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2-os.html#_Toc520973453).

#### 4.1.7 What is a CAP template? (A.A, C.A, T.A)

CAP templates are the basis for creating stock as well as customised alerts. Each country specifies its own set of templates for national alerts. FEWER CAP templates have been created to serve the special

needs of seafaring fisherfolk. These extend the national portfolio of CAP alerts. The nominal set of FEWER CAP templates is shown in Figure 4.5.

A screenshot of a web form showing a dropdown menu for 'Message Template (Optional):'. The menu is open, displaying a list of seven templates. To the left of the dropdown, there are labels for 'Status: \*', 'Type: \*', and 'Scope: \*', each followed by a red asterisk indicating a required field.

Field	Value
Message Template (Optional):	FEWER Strange Current Alert
	FEWER Low Visibility Alert
Status: *	FEWER ground swell alert
	FEWER Whitecaps Alert
Type: *	FEWER Storm Surge Alert
	FEWER Coastal Flash Flood Alert
	FEWER St Vincent and the Grenadines Monthly Test
	FEWER [COMMUNITY] Weekly Test
Scope: *	Public

Figure 4.5 FEWER CAP templates

#### 4.1.8 What is the Type of Message field? (A.A, C.A, T.A)

The CAP type of message comprises three components: status, code and scope. The status, in turn, has four possible values shown in Figure 4.6 as the drop-down options in the dashboard:

1. Actual – this is treated as an actionable alert for all users
2. Exercise – used for drills
3. Test – used for technical testing to ensure the system is working
4. Draft – a preliminary alert and not actionable at this time

A screenshot of a web form showing a dropdown menu for 'Status: \*'. The menu is open, displaying four options: 'Actual', 'Exercise', 'Test', and 'Draft'. To the left of the dropdown, there is a label for 'Type: \*' followed by a red asterisk.

Field	Value
Status: *	Actual
	Exercise
Type: *	Test
	Draft

Figure 4.6 Drop-down options to complete CAP Alert Status

The type parameter in CAP field has three possible values as follows and shown as the dashboard drop down options in Figure 4.7:

1. Alert - initial information requiring attention by targeted recipients
2. Update - updates and supersedes the earlier message(s)
3. Cancel - cancels earlier message(s) identified

A screenshot of a web form showing a dropdown menu for 'Type: \*'. The menu is open, displaying three options: 'Alert', 'Update', and 'Cancel'. To the left of the dropdown, there is a label for 'Scope: \*' followed by a red asterisk.

Field	Value
Type: *	Alert
	Update
	Cancel
Scope: *	Public

Figure 4.7 CAP Alert Code

The scope parameter in the CAP type of message field has three possible values as shown in the drop-down options in Figure 4.8:

1. Public - For general dissemination to unrestricted audiences
2. Private - For dissemination only to specified addresses.

Status: \* Actual

Type: \* Alert

Scope: \* ☒ Public  
Private

Figure 4.8 Type of Message options

#### 4.1.9 What options does the Hazard field support? (A.A, C.A, T.A)

The CAP protocol specifies various categories of hazards: geophysical (including landslide), meteorological (including flood), safety (general emergency and public safety), security (law enforcement, military, homeland and local/private security), rescue and recovery, fire (suppression and rescue), health (medical and public health), Environmental (pollution and other environmental), transport (public and private transportation), Infrastructure (utility, telecommunications, other non-transport infrastructure), CBRNE (chemical, biological, radiological, nuclear or high-yield explosive threat or attack), and other events. FEWER CAP Hazard types include the environmental and other categories and refer to the met category as the weather. These are shown in Figure 4.9:

Hazard Type: \* ☒ Meteorological  
Environmental  
Not Otherwise Categorized

Protective Action: \* Recommended Action

Figure 4.9 CAP Alert Hazard Type

#### 4.1.10 What options does the Recommended Action field support? (A.A, C.A, T.A)

Protective action is a required field. It specifies the recommended actions for the intended audience. Its options are: take shelter, evacuate, make preparations, execute pre-planned action, avoid the area, monitor conditions, resume normal activities and take no action.

#### 4.1.11 What options do the Message Priority fields support? (A.A, C.A, T.A)

The Message Priority fields (urgency, severity and certainty) are required. The respective options are:

- Urgency: immediate, expected, future, already occurred and unknown
- Severity: extreme, severe, moderate, minor, unknown
- Certainty: observed event, likely, possible, unlikely, unknown

#### 4.1.12 What is the Time to Expire field? (A.A, C.A, T.A)

The Time to Expire field is optional. It refers to the expiry time of the information carried in the alert message. It has a default value of 6 hours.

#### 4.1.13 What fields are included in CAP Alert Details? (A.A, C.A, T.A)

Figure 4.10 illustrates the Alert Details section of the New CAP Alert popup; Table 4 summarises the fields and elaboration follow.

The Event field is required. It provides further details of hazard type and is to be completed with brief text identifying the type of event conveyed in the alert message.

The short-text headline is a succinct, actionable headline. Some devices such as feature phones are only capable of displaying this headline. FEWER imposes a maximum limit of 140 characters to ensure readability on such devices. An extended description of the hazard or event that occasioned this message is provided in the following field. Similarly, the “What should affected people do” provides the opportunity for further details of the protective action.

## Alert Details

Event\*

Short-Text Headline:   
(140 characters left)

Describe the Event or Hazard:

What Should Affected People Do:

Who is the Contact:

Alternate alert website:

Sender Name:\*

Figure 4.10 Details section of New CAP Alert popup

The optional contact field identifies the person or agency for follow-up and confirmation of the alert message. The sender Name refers to the agency or authority issuing the alert. The optional alternate alert website provides a full link to a web page or other text resource with additional or reference information regarding this alert.

Table 4 Fields for Details section of New CAP Alert popup

Name	Description	Options
Event	The text denoting the type of the subject event of the alert message	Open-ended text input
Short-Text Headline	A brief human-readable headline. It should be made as direct and actionable as possible while remaining short	Open-ended text input
Describe the Event or Hazard	An extended description of the hazard or event that occasioned this message	Open-ended text input
What Should Affected People Do	An extended instruction to targeted recipients	Open-ended text input

Name	Description	Options
Who is the Contact	The text describing the contact for follow-up and confirmation of the alert message	Open-ended text input
Alternate alert website	A full, absolute URI for an HTML page or another text resource with additional or reference information regarding this alert	Open-ended text input
Sender Name	The human-readable name of the agency or authority issuing this alert	Open-ended text input
Add Parameter	A system-specific additional parameter associated with the alert message	Open-ended text input

#### 4.1.14 What does “Add a Parameter” mean in CAP Alert Details? (A.A, C.A, T.A)


FEWER provides the capability for customisation of an alert message through the creation of additional fields that extend the default set. For example, if an administrator wished to issue alerts in Creole instead of English, the Add a Parameter feature may be used to say create a field “Danje kalite” (hazard type) with a value “tan” (weather).

#### 4.1.15 Can the area affected by a hazard be specified? (A.A, C.A, T.A)

Alert Area

Select Area Template (Optional)

Describe the Alert Area: \*

Map: 

Drag Circle Shape Clear Last Clear All

Geocodes:

Coordinates:

Yes. You must include a textual description of the affected area and may specify the area affected by the alert in a number of ways as shown in Figure 4.11 and summarised in Table 5. Options are predefined templates for fisher communities, drawing a circle or polygon of the area on a map, specifying a geographic code (“geocode”) or specific coordinates.

Figure 4.11 Alert Area section of New CAP Alert popup

Table 5 Fields for Alert Area section of New CAP Alert popup

Name	Description	Options
Select Area Template	Pre-configured area templates to enable selection of affected areas	To be added
Describe the	The text describing the affected area of the alert	Open-ended text input



Name	Description	Options
Alert Area	message	
Map	Enable the visual selection of the area affected	Open-ended text input
Geocodes	Geocodes are geographically-based code to describe a message target area. Use this button to add multiple locations affected by the alert	Open-ended text input
Coordinates	Coordinates are numerical GPS latitude and longitude values. Use the button to add GPS coordinates of locations affected by the alert	Open-ended text input
Review message content	Displays the raw alert based on specifications	N/A

The geocode delineates the affected area of the alert message using a variety of national or international standards including Specific Area Message Encoding (SAME) used in NOAA Weather Radio, ZIP codes etc. The coordinates option may be used if the hazard is located at a point rather than an area, or if it is known to be affecting a location, but the scope of the affected area is unknown.

#### 4.1.16 Can any arbitrary person issue a FEWER CAP alert? (A.A, C.A, T.A)

No. CAP Alert creation requires an additional authentication to prevent accidental or unauthorised use.

#### 4.1.17 Can CAP alerts be sent prematurely?

No. Figure 4.12a shows the visual indication that not all required fields have been set. When all fields are correctly configured, the cancel and release alert buttons become available as shown in Figure 4.12b.

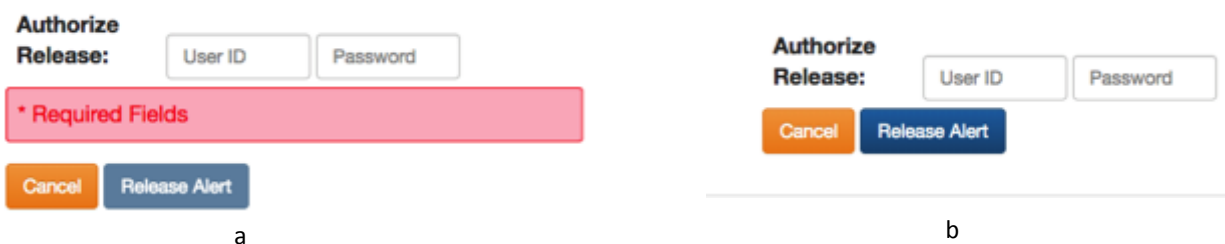



Figure 4.12 CAP Alert Authorisation

#### 4.1.18 How do I update a CAP alert? (A.A, C.A, T.A)

A set of controls is available for the management of each alert. The green edit icon  in Figure 4.13 launches the screen used to configure an alert. The system references the unique identifier of the current alert in the specification of the new “Update Alert”. The remaining steps are similar to the process for creating a CAP alert. The system replaces the existing CAP alert with the matching unique identifier.

## CAP Alerts



### Current Alerts


Title	Action	Sent	For	
FEWER St Vincent and the Grenadines Monthly Test	None (Unknown/Unknown/Unknown)	2017-12-04T06:07:17-04:00		   

Figure 4.13 CAP Alerts listing within controls

#### 4.1.19 How do I cancel a CAP alert? (A.A, C.A, T.A)

To cancel a CAP alert, follow the same process as the update then simply select the yellow cancel button instead.

#### 4.1.20 How do I view how many members have viewed the CAP alert? (A.A, C.A, T.A, R.R)

To view the delivery confirmation of an alert, select the blue group icon  in the menu shown in Figure 4.13. The system will navigate to the delivery confirmation page shown in Figure 4.14.

Delivery					
Show 10  entries		Search: <input type="text"/>			
Alert ID	Fullname	Sent	Medium	Delivery Status	
f1fc4190-0a0a-11e8-ba89-0ed5f89f718b	Kyle De Freitas	Feb 4, 2018	App	delivered	
f1fc4190-0a0a-11e8-ba89-0ed5f89f718b	Mikkel Hayes	Feb 4, 2018	App	delivered	
f1fc4190-0a0a-11e8-ba89-0ed5f89f718b	Will Steward	Feb 4, 2018	SMS	delivered	
Showing 1 to 3 of 3 entries			Previous	1	Next

Figure 4.14 Alert Delivery Confirmation page

#### 4.1.21 How do I view community alerts? (A.A, C.A, T.A, R.R)

In the Community Alerts area of the Alerts page, shown in Figure 4.15, select the desired Group from the drop-down menu on the top right.

Display All Countries ▾

Community Alerts

+

FEWER Fishers' Training Group-St Vincent and the Grenadines ▾

Display All


Group	Title	Created By	Severity	Location	Date	Country	
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Sea Bulletin	mFisheries Administrator	2 - Bad	10.64,-61.40	2018-01-29 14:19:59	St Vincent and the Grenadines	 
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Seas	Kyle E. deFreitas	3 - Severe	10.64,-61.40	2018-01-11 19:05:06	St Vincent and the Grenadines	 
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Seas	Kyle E. deFreitas	3 - Severe	10.64,-61.40	2018-01-11 18:52:01	St Vincent and the Grenadines	 
FEWER Fishers' Training Group-St Vincent and the Grenadines	Bad Weather	Abalobi App	Unspecified	-33.96,18.46	2017-12-14 14:17:04	St Vincent and the Grenadines	 
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Seas	Winsbert Harry	1 - Fair	13.18,-61.26	2017-10-03 00:44:10	St Vincent and the Grenadines	 

Showing 1 to 5 of 5 entries

Previous 1 Next

Figure 4.15 Community Alerts controls and listings

#### 4.1.22 How do I view community alert groups? (A.A, C.A, T.A, R.R)

In the Community Alerts area of the Alerts page, select the group icon  to view alert groups.

#### 4.1.23 How do I view members of an alert group? (A.A, C.A, T.A, R.R)

Select the Community Alert group of your choice from the listing, as shown in Figure 4.16.

Alert Groups

+

Show 10 ▾ entries

Search:

Group Name	Broadcast Only	
National Fishers' Group-St Vincent And The Grenadines	<input type="checkbox"/>	
Public Advisories-St Vincent And The Grenadines	<input checked="" type="checkbox"/>	

Figure 4.16 Community Alerts group listing

#### 4.1.24 How do I create a new alert group? (A.A, C.A, T.A)

After navigating to Alert Groups, select the blue plus button in the top left corner. Complete the popup, shown in Figure 4.17 as necessary.

Add Group

Group Name

Country

Trinidad ▾

Can fishers send alerts?

☒

Selecting this option will allow alerts to be sent between public users within their communities and wider audience.

Close

Figure 4.17 Creating a new alert group

#### 4.1.25 How do I create a new community alert? (A.A, C.A, T.A)

After navigating to Community Alerts section in the Alert module dashboard, select the blue plus button in the top left corner.

Figure 4.18. Complete the popup shown in Figure 4.19, as necessary.

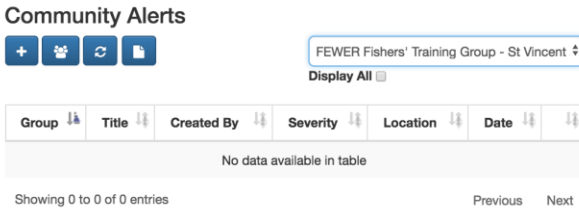



Figure 4.18 Create new community alert – select + icon

Figure 4.19 Provide details for new community alert

#### 4.1.26 How do I update a community alert? (A.A, C.A, T.A)

To update a community alert, navigate to the Community Alerts area of the Alerts page, select the edit icon  in line with the relevant group as shown in Figure 4.20 and revise as appropriate. You will receive a prompt, shown in Figure 4.21, to confirm the update. When you confirm, you will receive a confirmation, shown in Figure 4.22, that the record has been successfully updated.




Group Name	Can fishers send?	
FEWER Fishers' Training Group - St Vincent And The Grenadines	YES	  

Figure 4.20 Community Alert Group Record controls

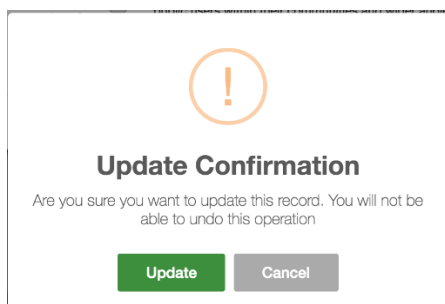


Figure 4.21 Alert group update confirmation

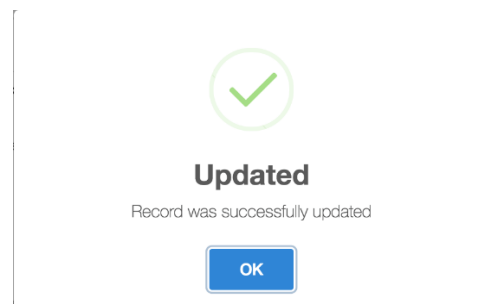


Figure 4.22 Alert group operation success

#### 4.1.27 Can I construct a CAP alert from a community alert? (A.A, C.A, T.A)

Yes. Select the broadcast option, shown in Figure 4.23, for the alert entry of choice. This will launch the CAP alert creation form, shown in Figure 4.24, for the administrator to provide the additional information required to post a CAP alert to the wider audience, as explained earlier in this manual.

## Community Alerts






Content 	Severity 	User 	Location 	Date 	
Rough Seas	Kyle E. deFreitas	3 - Severe	10.6410495,-61.4002982	2017-11-24 18:20:07	  

Figure 4.23 Community Alerts entry

Status: \*

Type: \*

Scope: \*

Hazard Type: \*

Protective Action: \*

Message Priority: \*

Time to Expiration: \*

### Alert Details

Event\*

Short-Text Headline:





(130 characters left)

Figure 4.24 Community alert imported into CAP template

## 4.1.28 How do I export an administrator report from Community Alert records? (A.A, C.A, T.A, R.R)

To export the records listed in Community Alerts, we click on the blue button with the “page” icon in the top left corner of the Community Alerts section of the Alerts dashboard as shown in Figure 4.25.

## Community Alerts

FEWER Fishers' Training Group-St Vincent and the Grena ▼

Display All ☒







Group	Title	Created By	Severity	Location	Date	Country	
FEWER Fishers' Training Group-St Vincent and the Grenadines	KICK EM JENNY ALERT LEVEL LIFTED TO ORANGE DUE TO INCREASED ACTIVITY	mFisheries Administrator	1 - Fair	12.30,-61.64	2018-03-13 05:23:05	St Vincent and the Grenadines	 
FEWER Fishers' Training Group-St Vincent and the Grenadines	Bad Weather	Ashwa Stewart	2 - Bad	13.15,-61.23	2018-03-08 13:10:32	St Vincent and the Grenadines	 
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Seas	Ashwa Stewart	Unspecified	13.15,-61.23	2018-03-08 13:10:32	St Vincent and the Grenadines	 

Figure 4.25 Community Alerts Administrator report button

After the button is clicked, the system will generate a report formatted as a comma separated value (CSV) file. The report contains the set of records displayed. The downloaded CSV file can be opened in Microsoft Excel to view the operations within the file. An example of the report viewed in Excel is provided in Figure 4.26.

A	B	C	D
Group	Title	Created By	Severity
FEWER Fishers' Training Group-St Vincent and the Grenadines	KICK EM JENNY ALERT LEVEL LIFTED TO ORANGE DUE TO INCREASED ACTIVITY	mFisheries Administrator	1 - Fair
FEWER Fishers' Training Group-St Vincent and the Grenadines	Bad Weather	Ashwa Stewart	2 - Bad
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Seas	Ashwa Stewart	Unspecified
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Seas	Sam Bracken	Unspecified
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Seas	Peter Regis	3 - Severe
FEWER Fishers' Training Group-St Vincent and the Grenadines	Injured Person onboard	Ashwa Stewart	0 - Not Applicable
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Seas	Ren Roy	2 - Bad
FEWER Fishers' Training Group-St Vincent and the Grenadines	Bad Weather	winsbert hazlewood	Unspecified
FEWER Fishers' Training Group-St Vincent and the Grenadines	Rough Seas	Don O'Garro	3 - Severe
FEWER Fishers' Training Group-St Vincent and the Grenadines	Boat damaged / sinking	Ren Roy	0 - Not Applicable

Figure 4.26 Example of an administrator report using Community Alert records.

## 4.2 Damage Reporting

### 4.2.1 How do I access the Damage Reporting Module? (A.A, C.A, T.A, R.R)

After logging in to the FEWER Administrators' dashboard using your administrator credentials, click the FEWER drop down in the main menu and select the Damage Reporting module from the list, as shown in Figure 4.27.

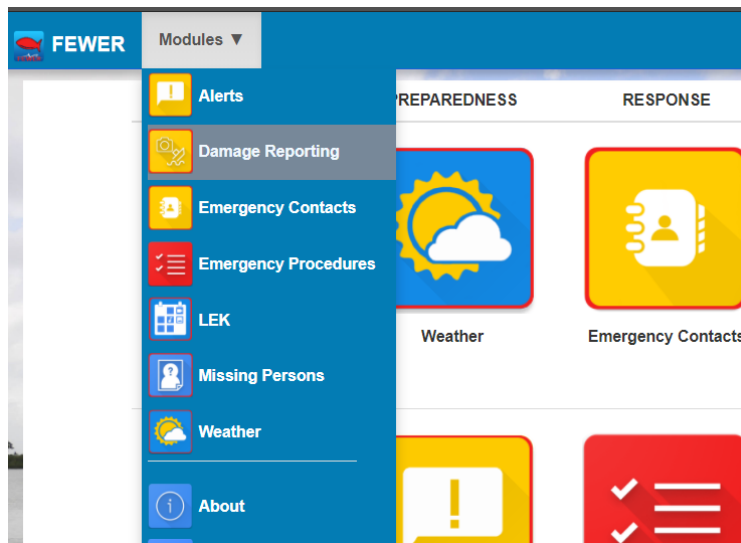


Figure 4.27 Accessing the Damage Reporting module from the FEWER main menu

FEWER's Damage Reporting dashboard displays categories on the left and report entries on the right, as shown in Figure 4.28.

 The image shows the 'Damage Reports' dashboard. At the top, there's a yellow header with the text 'Damage Reports'. Below this, there are two main sections: 'Categories' on the left and 'Reports' on the right. The 'Categories' section has a search bar and a table with columns 'Name', 'Parent', and 'Actions'. It lists 'Beach', 'Boats', and 'Buildings'. The 'Reports' section also has a search bar and a table with columns: 'Title', 'Reported By', 'Category', 'Location', 'Cost', 'Type', 'Date', and 'Actions'. It lists three reports: 'Boat run a ground', 'Broken hull', and 'Fishing net damaged'. Each report entry has a set of action icons (eye, edit, delete) on the right.
 

Name	Parent	Actions
Beach	None	[Edit] [Delete]
Boats	None	[Edit] [Delete]
Buildings	None	[Edit] [Delete]

Title	Reported By	Category	Location	Cost	Type	Date	Actions
Boat run a ground	Kyle E. deFreitas	Boats	13.01,-61.23	3000	image/*	16/02/2018	[View] [Edit] [Delete]
Broken hull	Kyle E. deFreitas	Boats	13.13,-61.19	2500	image/*	16/02/2018	[View] [Edit] [Delete]
Fishing net damaged	Kyle E. deFreitas	Equipment	10.63,-61.42	2500	image/*	16/02/2018	[View] [Edit] [Delete]

Figure 4.28 Damage Reporting dashboard showing listings and controls

#### 4.2.2 How are damage reports organised in FEWER? (C.A, T.A)

FEWER organises damage reports in categories. A report is assigned to only one category. The list of default configured categories is shown in Figure 4.29.

## Categories



Show 10 entries

Search:















Name	Parent	
Beach	Environment	 
Boats	None	 
Buildings	Man-made	 
Environment	None	 
Equipment	None	 
Man-made	None	 
Other	None	 

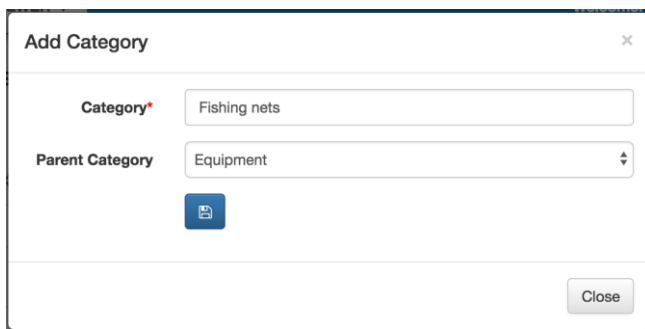
Figure 4.29 Default Damage Report Categories

To provide flexibility in reporting and the categorisation of damage reports, the public user can choose either general or specific categories. These categories are represented in a parent-child hierarchical relationship. For example, Environment is a general category and Beach is a specific category. Environment is the parent category of beach. The hierarchical categorisation provides the opportunity for further analysis of reports as FEWER is utilised by public users.

### 4.2.3 How do I create a damage report category? (C.A, T.A.)

Select the blue plus button illustrated in Figure 4.29. This will launch a window to enter the name of the new category. You can specify if the new category is related to any of the existing categories. Figure 4.30 shows this window. Once the category is created successfully, the system will display a message asking for your acknowledgement as shown in Figure 4.31.





**Add Category**

Category\*

Parent Category

Figure 4.30 Form to create new Category

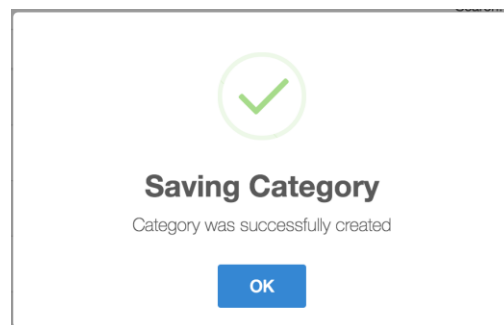


Figure 4.31 Damage Reporting Category success notification

#### 4.2.4 How do I view damage reports? (A.A, C.A, T.A, R.R)

The area on the right of the Damage Reporting dashboard, shown in Figure 4.28, displays the listing of public damage reports made by the public users in the host country. This area is shown on its own in Figure 4.32.

**Reports**

Show 10 entries Search:

Title	Reported By	Category	Cost	Type	
Boat run a ground	Kyle E. deFreitas	Boats	3000	image/*	<input type="button" value="View"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
Broken hull	Kyle E. deFreitas	Boats	2500	image/*	<input type="button" value="View"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
Fishing net damaged	Kyle E. deFreitas	Equipment	2500	image/*	<input type="button" value="View"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
Title	Reported By	Category	Cost	Type	

Showing 1 to 3 of 3 entries Previous 1 Next

Figure 4.32 listing of Damage Reports

#### 4.2.5 How do I create a damage report? (A.A, C.A, T.A)

Click on the blue button with the “plus” icon (Figure 4.32) at the top left of the Damage Reports dashboard to open a damage report creation form shown in Figure 4.33. The report fields are summarised in Table 6. The report can be created by the public user using the mobile app. Figure 4.34 shows the post on mobile after the report is constructed.

**Damage Report**

**Title\*** Enter Title of Damage Report

**Category\*** Environment

**Latitude\*** 13.17243586791525

**Longitude\*** -61.253172073564485

Map Satellite

Optional Fields

**Description** Enter the details of damage observed

**Cost** \$ 0 EC

**Date** 02/16/2018

**Audience** Public

**Resource Type** Text

Select a file type for upload

Figure 4.33 Create Damage Report Form

**Create Damage Report**

Map

ATTACH MEDIA

Enter Name

**Damaged boat Hull**

**Category** Boats

**POST**

Figure 4.34 Damage Report Post as seen on mobile

Table 6 Damage Report Fields

Name	Description	Options
Title	The title an author wishes to associate with a report	Open-ended text input
Category	The category of damage to be reported	Beach Boats Buildings Environment Equipment Man Made Other
Latitude	Estimated or exact latitude at which damage occurred	The default is automatically filled in as the latitude of the input device
Longitude	Estimated or exact longitude at which damage occurred	The default is automatically filled in as longitude of input device
Description	Details of the damage observed	Open-ended text input
Cost	Estimated cost of damage in EC\$	Open-ended text input

Name	Description	Options
Date	Date damage occurred	Specification through a choice of calendar or textual date with selection controls for each field: day, month, year
Audience	Scope of persons who may view this damage report	Public (all FEWER users can view this damage report) Private (only the author of a report can view it)
Resource Type	Medium used to record evidence of the damage	Text                      Image Audio                      Video
Upload File	Upload a file that provides evidence of damage	Upload by selecting file through file explorer

#### 4.2.6 How do I update a damage report? (A.A, C.A, T.A)

Click on the green edit button next to a damage report record (Figure 4.32) to open the popup window to update its details. The popup window with details for editing is illustrated in Figure 4.35.

Damage Report

×

Title\*

Boat run a ground

Country\*

St Vincent and the Grenadines

▼

Category\*

Boats

▼

Latitude\*

13.011705899999999

Longitude\*

-61.2272312

Map

Satellite

Port Elizabeth

Map data ©2018 Google

Terms of Use

Optional Fields

Description

Boat on reef due to hurricane Maria

Cost

\$ 3000

EC

Date

16/02/2018

Audience

Public

▼

Resource Type

▼

Select a file type for upload

Indicates required fields. \*

Close

Figure 4.35 Damage report update form

#### 4.2.7 How do I delete a damage report? (C.A, T.A.)

Navigate to the damage reporting dashboard to see the list of reports. The dashboard provides several operations that can be performed on each entry. These are available through icons that appear in the right-most column of the record. The list and operations are illustrated in Figure 4.32.

The set of operations includes delete. This is accessed through the red trash can icon. Clicking the red delete button of the record, will display a confirmation for deleting the record.

Special care must be exercised when deleting and updating records because there is no undo operation within FEWER. After the request is sent the system displays a notification message to confirm whether the operation was successful.

## 4.2.8 How do I export an administrator report from damage reports? (A.A, C.A, T.A, R.R)

To export the records listed in a damage report, we click on the blue button with the “page” icon in the top right corner of the Damage Reporting dashboard as shown in Figure 4.36.

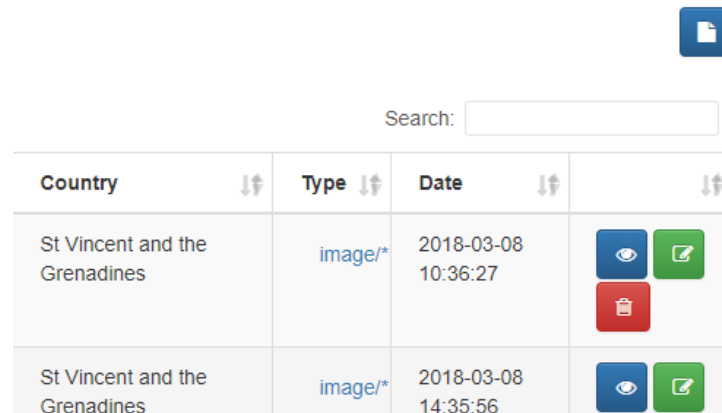


Figure 4.36 Damage Reporting Administrator report button

After the button is clicked, the system will generate a report formatted as a comma separated value (CSV) file. The report contains the set of records displayed. The downloaded CSV file can be opened in Microsoft Excel to view the operations within the file. An example of the report viewed in Excel is provided in Figure 4.37.

Clipboard		Font		Alignment		Number		Styles	
7									
A	B	C	D	E	F	G	H		
Title	Reported By	Category	Location	Country	Cost	Type	Date		
Automated Test	Mikkel Hayes	Boats	10.64,-61.40	Trinidad	0	{{report.filetype}}--> text/*	14/05/2018		
Bad boat	Caribbean ICT Research Programme TT	Boats	12.05,-61.76	Trinidad	0	{{report.filetype}}--> image/*	22/02/2018		
boat	Sam Bracken	Fishing nets	13.15,-61.23	St Vincent and the Grenadines	10	{{report.filetype}}--> image/*	03/08/2018		
Boat Engine electrical fried	Kevon Andrews	Equipment	10.64,-61.40	Saint Lucia	0	{{report.filetype}}--> image/*	11/06/2017		
Boat on land	Winsbert Harry	Beach	13.15,-61.23	St Vincent and the Grenadines	0	{{report.filetype}}--> image/*	03/08/2018		
Boat run a ground	Kyle E. deFreitas	Boats	13.01,-61.23	St Vincent and the Grenadines	3000	{{report.filetype}}--> image/*	16/02/2018		
Broken bone out at sea	Joel Wacott	Man-made	12.05,-61.75	Grenada	0	{{report.filetype}}--> image/*	22/02/2018		
Broken hull	Kyle E. deFreitas	Boats	13.13,-61.19	St Vincent and the Grenadines	2500	{{report.filetype}}--> image/*	16/02/2018		
Canoe	Don O'Garro	Beach	13.15,-61.23	St Vincent and the Grenadines	0	{{report.filetype}}--> image/*	03/08/2018		
Carelessness	Elisia Glasgow	Beach	13.15,-61.23	St Vincent and the Grenadines	0	{{report.filetype}}--> image/*	03/08/2018		

Figure 4.37 Example of an administrator report using Damage Reporting records

## 4.3 Emergency Contacts

### 4.3.1 How do I access the emergency contacts module? (A.A, C.A, T.A, R.R)

After logging in to the FEWER administrators' dashboard using the credentials provided, click the FEWER drop down in the main FEWER menu and select the Emergency Contacts option from the list as shown in Figure 4.38.

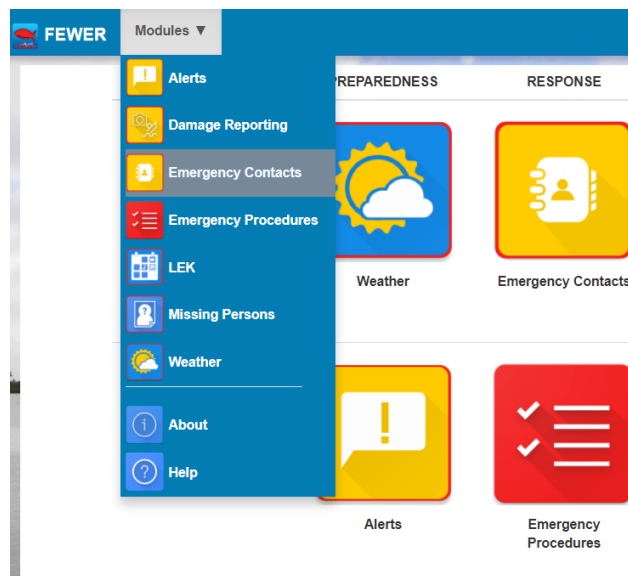


Figure 4.38 Accessing Emergency Contacts from menu

#### 4.3.2 How do I view emergency contacts? (A.A, C.A, T.A, R.R)

When the Emergency Contacts option is selected, the system will display its dashboard, Figure 4.39, showing all the emergency contacts in the system for the administrator's country. There is a standard set of information for each contact as shown in the figure, but additional fields may be included when a new contact is created. The details column identifies the number of additional items of information provided beyond the standard set.


Emergency Contacts						
<div> <div>Show 10 entries</div> <div>Search: <input type="text"/></div> </div>						
Profile	Name	Contact #	Email	Type	Additional	Operations
	St Vincent and the Grenadines Red Cross Society	7844561888	support@svgredcross.org	Organization	NO	<div> <div>View</div> <div>Edit</div> <div>Delete</div> </div>
	Svg Ambulance Service	911		Organization	NO	<div> <div>View</div> <div>Edit</div> <div>Delete</div> </div>
	Svg Coast Guard	7844574578	svgcoastguardoffice@gov.com	Organization	YES	<div> <div>View</div> <div>Edit</div> <div>Delete</div> </div>
	Svg Fire Department	911		Organization	NO	<div> <div>View</div> <div>Edit</div> <div>Delete</div> </div>

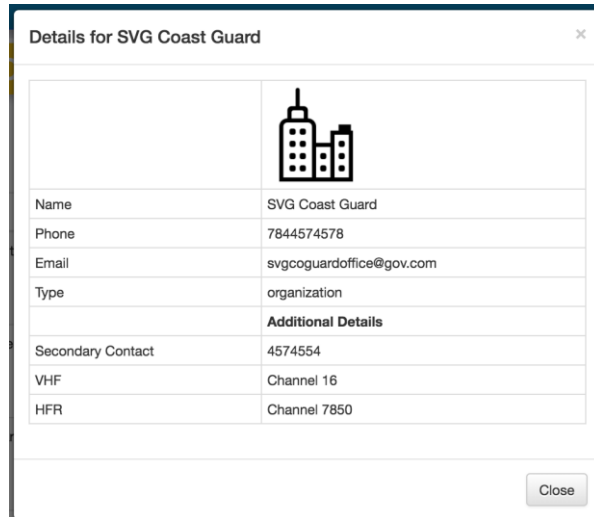
Figure 4.39 Emergency Contacts dashboard

#### 4.3.3 Can fishers see emergency contacts countries other than their own?


Yes. Emergency contact information for all countries is accessible by all FEWER fishers. This enables fishers who drift into territories outside of their own to access the relevant contacts in the event of an emergency.

#### 4.3.4 How do I view emergency contact details? (A.A, C.A, T.A, R.R)

On the Emergency Contacts dashboard, click on the eye icon  to open a window displaying emergency contact information as shown in Figure 4.40.



A window titled "Details for SVG Coast Guard" with a close button (X) in the top right corner. The window contains a table with the following information:

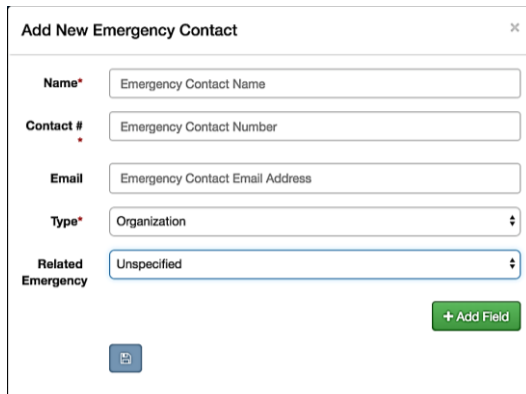
	
Name	SVG Coast Guard
Phone	7844574578
Email	svgcoguardoffice@gov.com
Type	organization
<b>Additional Details</b>	
Secondary Contact	4574554
VHF	Channel 16
HFR	Channel 7850

At the bottom right of the window is a "Close" button.

Figure 4.40 Details of an emergency contact entry

#### 4.3.5 How do I create an emergency contact? (C.A, T.A.)

Click on the blue plus button at the top left of the Emergency Contacts dashboard to launch a window to enter the specifics of a new emergency contact, as shown in Figure 4.41. Once the contact has been successfully added, the system will display an appropriate message as shown in Figure 4.42.

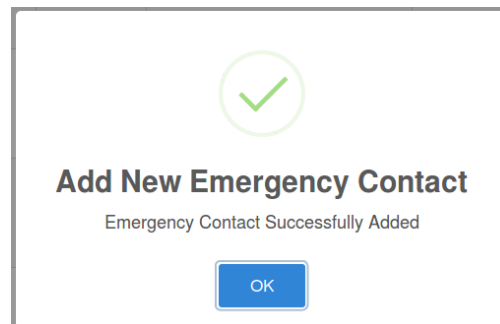


A form titled "Add New Emergency Contact" with a close button (X) in the top right corner. The form contains the following fields:

- Name\***: Text input field with placeholder "Emergency Contact Name".
- Contact #**: Text input field with placeholder "Emergency Contact Number".
- Email**: Text input field with placeholder "Emergency Contact Email Address".
- Type\***: Dropdown menu with "Organization" selected.
- Related Emergency**: Dropdown menu with "Unspecified" selected.

At the bottom right is a green "+ Add Field" button. At the bottom left is a blue icon of a document with a plus sign.

Figure 4.41 Add emergency contact details




A confirmation message window with a green checkmark icon at the top. The text reads:

**Add New Emergency Contact**  
Emergency Contact Successfully Added

At the bottom is a blue "OK" button.

Figure 4.42 Confirmation of successful addition of emergency contact

#### 4.3.6 How do I update an emergency contact? (C.A, T.A.)

In the Emergency Contacts dashboard click on the green edit icon  for the record to be updated, as shown in Figure 4.43. This opens a popup window with the contact details for an existing contact. It will appear as a completed version of the window shown in Figure 4.41. Update fields as appropriate.





Profile	Name	Contact #	Email	Type	Additional	Operations
	Svg Coast Guard	7844574578	svgcoguardoffice@gov.com	Organization	YES	  

Figure 4.43 Emergency contact listing

On successful update, a confirmation message, shown in Figure 4.44 is displayed.

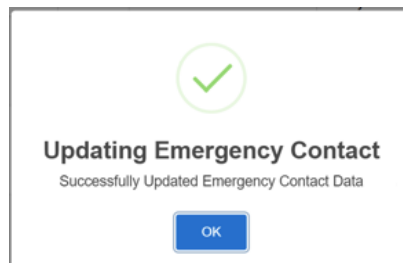


Figure 4.44 Emergency contact update window

#### 4.3.7 How do I provide additional details for an emergency contact? (C.A, T.A.)

Click on the “Add Field” button in the *Add New Emergency Contact* window to include an extra field. This is shown in Figure 4.45. The additional fields store information in key-value pairs. The key represents the label of the characteristic about the contact while the value represents the information that is recorded. For example, a common additional detail for the coast guard will be the key “VHF radio” and the value “Channel 16”.

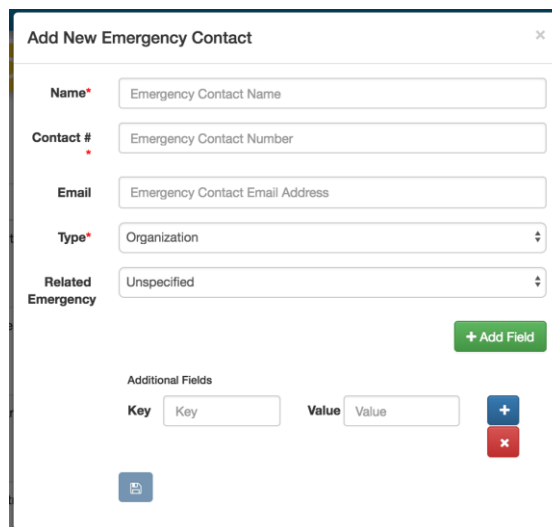


Figure 4.45 Add additional emergency contact details

#### 4.3.8 How do I delete an emergency contact? (C.A, T.A.)

Click on the red trash can button for the entry to be deleted, shown Figure 4.39. This displays a delete confirmation message, Figure 4.46, before deleting the emergency contact.



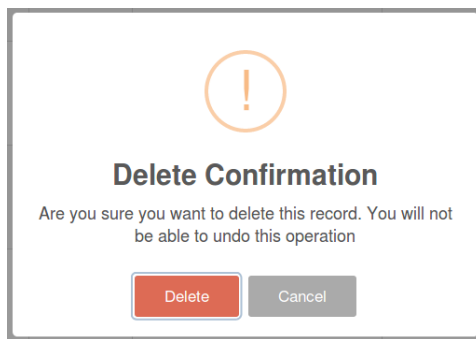



Figure 4.46 Delete confirmation for emergency contact

Special care must be exercised when deleting and updating records because there is no undo operation within FEWER. After the request is sent the system displays a notification message to notify whether the operation was successful.

#### 4.3.9 How do I view contacts from another country? (A.A, C.A, T.A, R.R)

To view contacts from another country, select eye icon  in the emergency contact dashboard to access the full public listing of all emergency contacts. Select the desired country using the drop-down menu as shown in Figure 4.47.

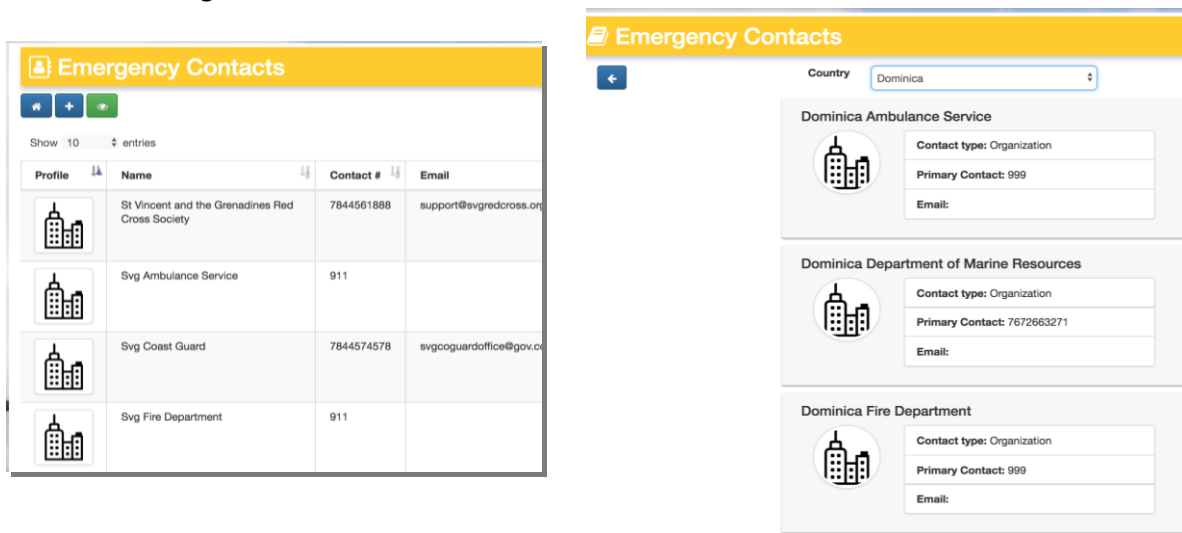


Figure 4.47 View emergency contacts from another country

#### 4.3.10 How do I export an administrator report from Emergency Contact records? (A.A, C.A, T.A, R.R)

To export the records listed in Emergency Contacts, we click on the blue page button in the top right corner of the Emergency Contacts dashboard as shown in Figure 4.48.

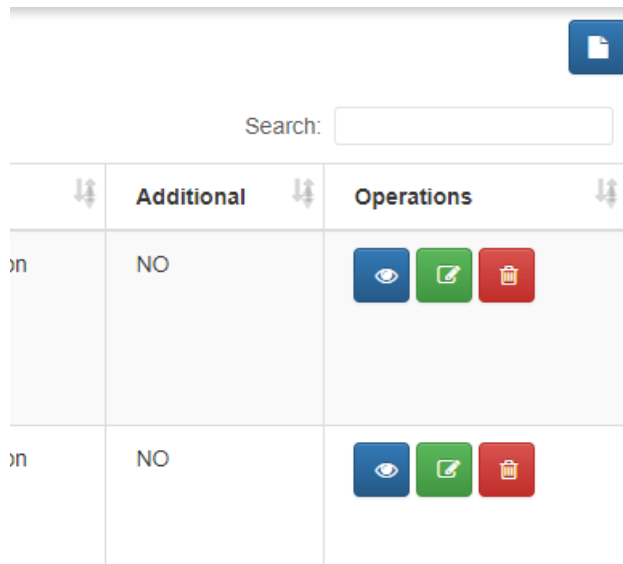


Figure 4.48 Emergency Contacts Administrator report button

After the button is clicked, the system will generate a report formatted as a comma separated value (CSV) file. The report contains the set of records displayed. The downloaded CSV file can be opened in Microsoft Excel to view the operations within the file. An example of the report viewed in Excel is provided in Figure 4.49.

	A	B	C	D	E	F
1	Name	Contact #	Email	Country	Type	Additional
2	St Vincent and the Grenadines Red Cross Society	7844561888	support@svgredcross.org	St Vincent and the Grenadines	Organization	0 --> NO
3	Svg Ambulance Service	911		St Vincent and the Grenadines	Organization	0 --> NO
4	Svg Coast Guard	7844574578	svgcoguard@vincysurf.com	St Vincent and the Grenadines	Organization	0 --> 0" class="ng-scope">YES 0 -->
5	Svg Fire Department	911		St Vincent and the Grenadines	Organization	0 --> NO
6	Svg Fisheries Division	7844562738	fishdiv@caribsurf.com	St Vincent and the Grenadines	Organization	0 --> NO
7	Svg Police Service	911		St Vincent and the Grenadines	Organization	0 --> NO

Figure 4.49 Example of an administrator report using Emergency Contacts records

## 4.4 Emergency Procedures

### 4.4.1 How do I access the Emergency Procedures module? (A.A, C.A, T.A, R.R)

After logging in to the FEWER administrators' dashboard using appropriate credentials, click the FEWER option in the menu and select the Emergency Procedures option from the menu list (Figure 4.50).




Figure 4.50 Accessing emergency procedures from menu

This displays the Emergency Procedures dashboard, which is configured as a table whose records show a listing of procedures available for the host country as shown in Figure 4.51.

Name	Type	
Emergency at sea and sailing	Video	
Navigation lights	Video	
Pre sea check	Video	
Search and rescue	Video	
Stability and trim	Video	
Vhf radio	Video	

Figure 4.51 Emergency Procedure dashboard

#### 4.4.2 How do I view the details of an emergency procedure? (A.A, C.A, T.A, R.R)

Click on the blue eye icon  on the dashboard, Figure 4.51. The video for the selected emergency procedure will be displayed in a pop-up window.

#### 4.4.3 How do I upload emergency procedures content? (C.A, T.A.)

To upload content to the emergency procedure module, click on the blue plus icon in the top left corner of the dashboard as shown in Figure 4.52.

This opens a popup window to select a zip file containing all the videos to be uploaded for host country's emergency procedure.

Videos for the Emergency procedures are stored on the phone to allow fisherfolk to access procedures without internet access. Therefore, strong consideration should be given for ensuring that video files are reasonably small for the limited space available on phones.

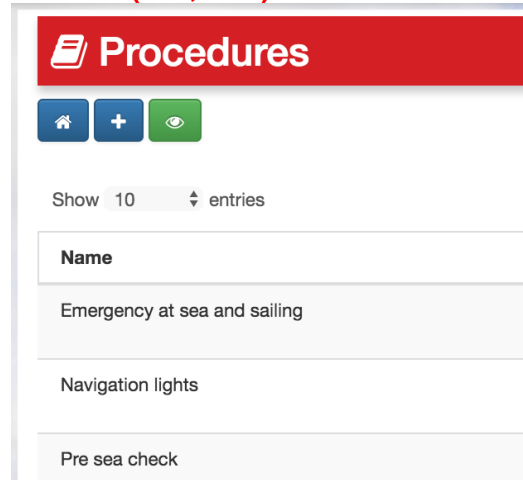


Figure 4.52 Upload Emergency Procedure icon

The following steps are recommended for preparing video files for upload:

1. Using a video compression software. We recommend Handbrake (<https://handbrake.fr/>), a free and open source software that performs all the needed operations.
2. The Handbrake software has preconfigured options for compression. We recommend that you use the option "Gmail Small 10 minutes".
  - a. This compresses the video file in the MP4 format
  - b. Reduces the framerate to 30 FPS
  - c. And optimizes the video for the web.
3. Using this setting we were able to compress a 170MB video to only 3MB while maintaining compatibility with majority Android and web browsers.

#### 4.4.4 How do I edit emergency procedures details? (C.A, T.A)

Procedures are packages and downloaded collectively on the fisher's phone. The videos are compressed and packaged in a zip archive. Editing country procedures requires that the entire set of video resources in the zip archive for the host country be re-uploaded and current procedure videos are replaced. The steps for uploading emergency procedures are given in section 4.4.3.

#### 4.4.5 How do I delete an emergency procedure? (C.A, T.A)

FEWER does not support the deletion of existing emergency procedures. Therefore, no delete option in the list of procedures, as highlighted in Figure 4.51, was provided.

### 4.5 Local Ecological Knowledge

#### 4.5.1 How do I access the Local Ecological Knowledge (LEK) module? (A.A, C.A, T.A, R.R)

After logging into the FEWER Administrators' dashboard using your administrator credentials, click the FEWER drop down in the main menu and select the LEK module from the list, as shown in Figure 4.53.

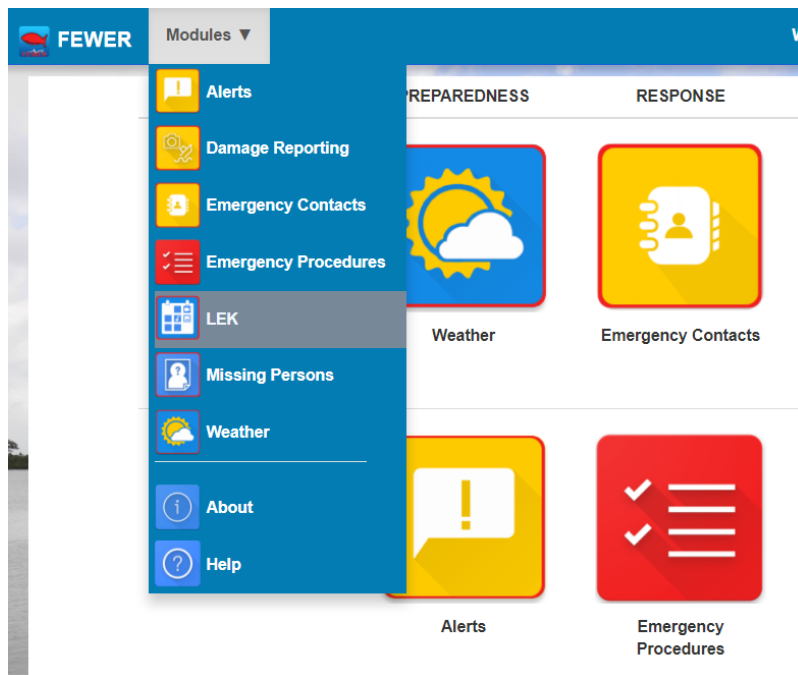


Figure 4.53 Accessing the Local Ecological Knowledge module from the FEWER main menu

FEWER's Local Ecological Knowledge dashboard displays categories on the left and entries on the right, as shown in Figure 4.54.

 The image shows the 'Local Ecological Knowledge' dashboard. It has a blue header with the title. Below the header, there are two main sections: 'Categories' on the left and 'Reports' on the right. The 'Categories' section has a search bar and a list of four categories: Beach, Coast Line, Environmental, and Open Seas. Each category has a green 'add' icon and a red 'delete' icon. The 'Reports' section also has a search bar and a table of reports. The table has columns for Description, Reported By, Category, Location, Type, and Date. There are two reports listed. Each report has a blue 'view' icon, a green 'edit' icon, and a red 'delete' icon.
 

Description	Reported By	Category	Location	Type	Date
Dear fish in the no	Kyle E. deFreitas	environmental	10.62,-61.49	image/*	2018-02-09 13:54:49
Unusual turtle sighted on calliaqua Beach outside of season	Kyle E. deFreitas	beach	13.14,-61.19	text/*	2018-02-10 07:14:44

Figure 4.54 Local Ecological Knowledge dashboard showing listings and controls

## 4.5.2 How are LEK reports organised in FEWER? (C.A, T.A)









FEWER organises LEK reports in categories. The list of default categories and its interpretation is shown in Figure 4.55.

## Categories



Show 10 ▼ entries

Search:

Category	
Beach	 
Coast Line	 
Environmental	 
Open Seas	 

Category	Description
Beach	Interested events that occur upon the sandy areas close to major water bodies
Coastline	Interesting events that occur close to the shore
Environmental	A general category for events not directly related to the sea
Open Seas	Interested events that occur far from shore

Figure 4.55 Default LEK categories

### 4.5.3 How do I create a LEK category? (C.A., T.A)

Select the blue plus button illustrated in Figure 4.54. This will launch a window to enter the name of the new category. Figure 4.56 shows this window. Once the category is created successfully, the system will display a message asking for your acknowledgement and will confirm the success of the operation as illustrated in Figure 4.57.

The form is titled 'Add Category' and has a close button (X) in the top right corner. It contains a text input field labeled 'Category'. Below the input field is a blue button with a document icon. At the bottom right of the form is a 'Close' button.

Figure 4.56 Form to create a new LEK Category

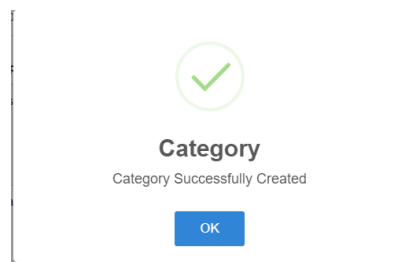


Figure 4.57 Success notification for category creation

### 4.5.4 How do I view LEK reports? (A.A, C.A, T.A, R.R)

The area on the right of the LEK dashboard, shown in Figure 4.54, displays the listing of LEK reports made in the host country. This area is shown on its own in Figure 4.58.

## Reports



Show 10 ▾ entries

Search:

Description	Reported By	Category	Location	Type	Date	
Dear fish in the no	Kyle E. deFreitas	environmental	10.62,-61.49	image/*	2018-02-09 13:54:49	  
Unusual turtle sighted on calliaqua Beach outside of season	Kyle E. deFreitas	beach	13.14,-61.19	text/*	2018-02-10 07:14:44	  
Description	Reported By	Category	Location	Type	Date	

Figure 4.58 Listing of LEK reports

### 4.5.5 How do I create a LEK report? (A.A, C.A, T.A)

Click on the blue plus icon in the reports area (Figure 4.54) of the LEK dashboard to open a LEK report creation form, shown in Figure 4.59. The LEK report fields are summarised in Table 7.

Add Local Ecological Knowledge

Category\*

Latitude\*
13.076779567446247

Longitude\*
-61.203776119531256

Map
Satellite

Description\*
Enter the details of observed event

Optional Fields

Date
17-Feb-2018

Resource Type
Audio

Upload Audio File
Choose File No file chosen

Indicates required fields. \*

Close

Figure 4.59 Form to create a LEK report

#### 4.5.6 How do I delete a LEK report? (C.A., T.A)

To delete a LEK report, click on the red trash can button displayed next to the LEK report in the table displayed in Figure 4.58.

Special care must be exercised when deleting and updating records because there is no undo operation within FEWER. After the request is sent the system displays a notification message to notify whether the operation was successful.

Table 7 LEK Record Fields

Name	Description	Options
<i>Title</i>	The title an author wishes to associate with a report	Open ended text input
<i>Category</i>	The category of the event reported	Beach Coast line Environmental Open Seas
<i>Latitude</i>	Estimated or exact latitude at which event occurred	Default is automatically filled in as latitude of input device
<i>Longitude</i>	Estimated or exact longitude at which event occurred	Default is automatically filled in as longitude of input device
<i>Description</i>	Details of the event observed	Open ended text input
<i>Date</i>	Date damage occurred	Specification through a choice of calendar or textual date with selection controls for each field: day, month, year
<i>Resource Type</i>	Medium used to record evidence of the damage	Text Audio Image Video
<i>Upload File</i>	Upload a file that provides evidence of damage	Upload by selecting file through file explorer

#### 4.5.7 How do I update a LEK report? (A.A, C.A, T.A)

Click on the green edit button next to a LEK report (Figure 4.58) to open the popup window to update its details shown in Figure 4.60.



Figure 4.60 LEK Form with existing record details

Once the report is updated and save button clicked, the system will display a message asking for your acknowledgement as shown in Figure 4.61 and when operation is completed the system will display Figure 4.62.

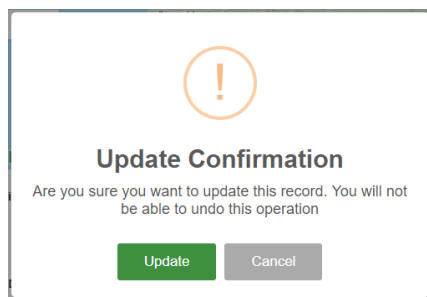


Figure 4.61 Confirmation display for updating LEK record

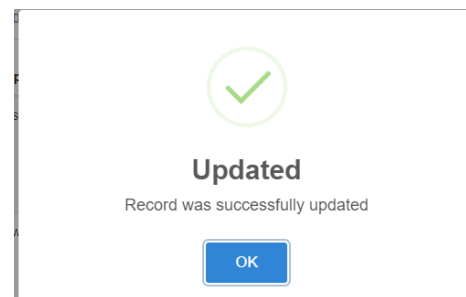


Figure 4.62 Success notification for updating record

#### 4.5.8 How do I export an administrator report from LEK records? (A.A, C.A, T.A, R.R)

To export the records listed in LEK, we click on the blue page button in the top right corner of the LEK dashboard as shown in Figure 4.63.

entries

Search:










	Reported By	Category	Location	Country	Type	Date	
a large area of sargassam	Ashwa Stewart	unspecified	13.15,-61.23	St Vincent and the Grenadines	image/*	2018-03-08 10:36:27	  
	Winsbert Harry	Other	13.15,-61.23	St Vincent and the Grenadines	image/*	2018-03-08 14:35:56	  
	Silvanus Bynoe	Other	13.15,-61.23	St Vincent and the Grenadines	image/*	2018-03-08 11:39:21	  

Figure 4.63 LEK Administrator report button

After the button is clicked, the system will generate a report formatted as a comma separated value (CSV) file. The report contains the set of records displayed. The downloaded CSV file can be opened in Microsoft Excel to view the operations within the file. An example of the report viewed in Excel is provided in Figure 4.64.

Clipboard Font Alignment Number Styles						
5						
A	B	C	D	E	F	G
Description	Reported By	Category	Location	Country	Type	Date
a huge log with a large area of sargassam	Ashwa Stewart	unspecified	13.15,-61.23	St Vincent and the Grenadines	{{report.filetype}}-> image/*	08/03/2018
b	Winsbert Harry	Other	13.15,-61.23	St Vincent and the Grenadines	{{report.filetype}}-> image/*	08/03/2018
boat	Silvanus Bynoe	Other	13.15,-61.23	St Vincent and the Grenadines	{{report.filetype}}-> image/*	08/03/2018
brown water	Micheal Benjamin	unspecified	12.12,-61.62	Grenada	{{report.filetype}}-> text/*	22/02/2018
brown water	Kim Walker	unspecified	12.12,-61.62	Grenada	{{report.filetype}}-> text/*	22/02/2018
Brown water	Joel Wacott	open seas	12.12,-61.62	Grenada	{{report.filetype}}-> text/*	22/02/2018
brown water	mFisheries TestAccount	open seas	12.05,-61.75	Grenada	{{report.filetype}}-> text/*	22/02/2018
brown water in mid ocean off Grenvill	Gilbert De Roche	unspecified	12.05,-61.75	Grenada	{{report.filetype}}-> text/*	21/02/2018
brown water off Grenville	Royan Isaac	unspecified	12.05,-61.75	Trinidad	{{report.filetype}}-> text/*	22/02/2018
brown water off Grenville in deep water	Micheal Benjamin	unspecified	12.12,-61.62	Grenada	{{report.filetype}}-> text/*	22/02/2018

Figure 4.64 Example of an administrator report using LEK records

## 4.6 Missing Persons

### 4.6.1 How do I access the Missing Persons Module? (A.A, C.A, C.G, T.A, R.R)

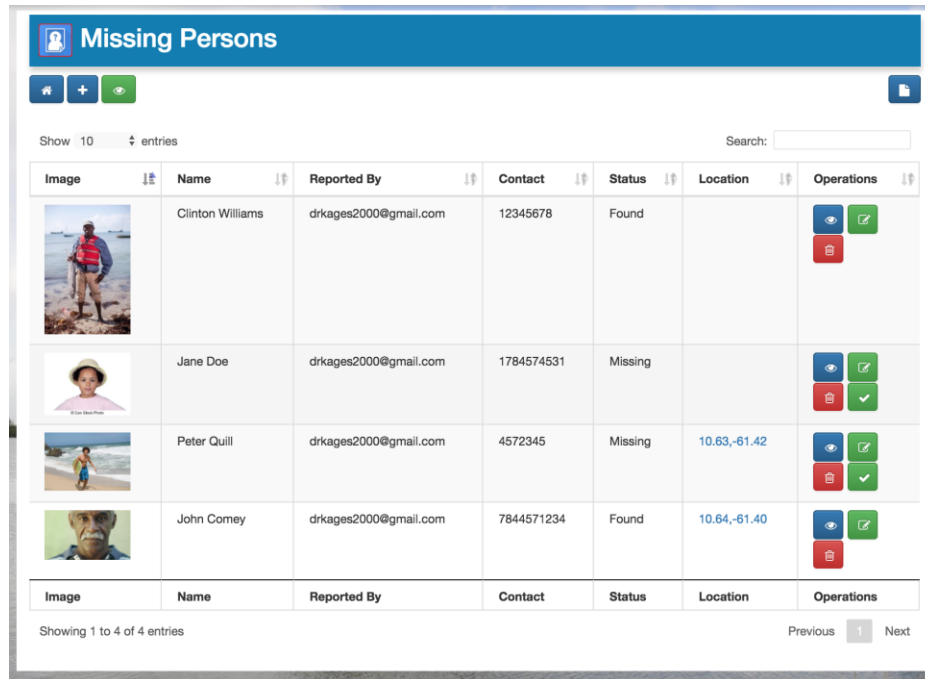
After logging in to the FEWER administrators' dashboard using the credentials provided, click the FEWER option in the menu and select the Missing Persons option from the list as shown in Figure 4.65.



Figure 4.65 Accessing Missing Person Module from the Menu

#### 4.6.2 How do I view Missing Persons from my country? (A.A, C.A, C.G, T.A, R.R)

After selecting the Missing Persons module from the FEWER menu, the dashboard displays the listing of missing persons in a table. The list is sorted in order of creation date, with the most recently created appearing first, as illustrated in Figure 4.66.



The screenshot shows a web interface titled "Missing Persons". Below the title bar, there are navigation icons (home, plus, eye) and a search bar. The main content is a table with columns: Image, Name, Reported By, Contact, Status, Location, and Operations. The table contains four entries. The first entry is for Clinton Williams, status "Found", with a location of 12345678. The second entry is for Jane Doe, status "Missing", with a location of 1784574531. The third entry is for Peter Quill, status "Missing", with a location of 10.63,-61.42. The fourth entry is for John Comey, status "Found", with a location of 10.64,-61.40. Each entry has a set of operation icons (eye, plus, minus, checkmark, and a red X) in the Operations column. At the bottom, there is a pagination bar showing "Showing 1 to 4 of 4 entries" and "Previous 1 Next".

























Image	Name	Reported By	Contact	Status	Location	Operations
	Clinton Williams	drkages2000@gmail.com	12345678	Found		    
	Jane Doe	drkages2000@gmail.com	1784574531	Missing		    
	Peter Quill	drkages2000@gmail.com	4572345	Missing	10.63,-61.42	    
	John Comey	drkages2000@gmail.com	7844571234	Found	10.64,-61.40	    

Figure 4.66 Viewing Missing Persons

#### 4.6.3 How do I create a Missing Person's report? (A.A, C.A, C.G, T.A)

In the Missing Persons dashboard, click the plus icon to launch the popup window to create a new missing person's report. The button can be seen in Figure 4.67. Fill in the new report window, shown in Figure 4.68.

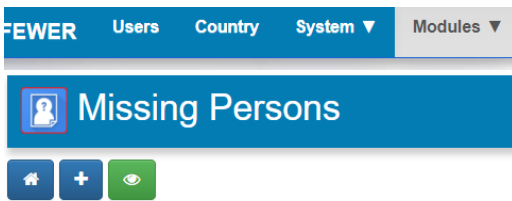


Figure 4.67 Button to add Missing Person report

Figure 4.68 Missing Person report form

The fields are elaborated in Table 8. Once the operation is successful, the system notifies the user.

Table 8 Missing Person report fields

Name	Description	Particulars
Description	Description of the physical characteristics of the person	Optional
Contact	Contact information for person reporting	Required
Latitude	GPS reading for person making report	Automatically provided by app
Longitude	GPS reading for person making report	
Additional	Suggestions include contact info for the missing person and the area last seen or last known bearing	Optional

#### 4.6.4 How do I mark a person as missing and found? (A.A, C.A, C.G, T.A)

The administrator can mark a person as missing. In the listing page, the status of the report is displayed in the “status” column. If the report’s status is missing, the record has an additional option to mark the report as found. This “mark as found” icon is indicated as a green button with a tick as shown in Figure 4.69.

Image	Name	Reported By	Contact	Status	Location	Operations
	Clinton Williams	drkages2000@gmail.com	12345678	Found		 
	Jane Doe	drkages2000@gmail.com	1784574531	Missing		 
	Peter Quill	drkages2000@gmail.com	4572345	Missing	10.63,-61.42	 
	John Comey	drkages2000@gmail.com	7844571234	Found	10.64,-61.40	 

Showing 1 to 4 of 4 entries

Figure 4.69 Missing Person report listing

If you press the green “mark as found” button, the system will display a prompt for you to confirm the operation. If the operation is successful, then the system will display a confirmation to the user.

#### 4.6.5 How can I remove a missing person report? (A.A, C.A, C.G, T.A)

Navigate to the missing persons module to see the list of reports. The dashboard provides several operations that can be performed on each entry. These are available through icons that appear in the right-most column of the record.

The set of operations includes delete. This is accessed through the red trash can icon. Clicking the red delete button of the record, will display a message for you to confirm that you would like to delete the record.

Special care must be exercised when deleting and updating records because there is no undo operation within FEWER. After the request is sent the system displays a notification message. Prompts are presented for operation failure and success.

#### 4.6.6 How do I export an administrator report from Missing Persons records? (A.A, C.A, C.G, T.A, R.R)

To export the records listed in Missing Persons, we click on the blue page button in the top right corner of the Missing Persons dashboard as shown in Figure 4.70.













	Location	Time Created/Updated	Operations
the Grenadines		Created:Thu Mar 08 2018 12:12:13 GMT-0400 Updated:Thu Mar 08 2018 12:12:13 GMT-0400	   
the Grenadines		Created:Thu Mar 08 2018 12:16:20 GMT-0400 Updated:Thu Mar 08 2018 12:16:20 GMT-0400	   
		Created:Thu Feb 22 2018 09:46:47 GMT-0400 Updated:Thu Feb 22 2018 13:46:47 GMT-0400	   

Figure 4.70 Missing Persons Administrator report button

After the button is clicked, the system will generate a report formatted as a comma separated value (CSV) file. The report contains the set of records displayed. The downloaded CSV file can be opened in Microsoft Excel to view the operations within the file. An example of the report viewed in Excel is provided in Figure 4.71

A	B	C	D	E	F	
Name	Reported By	Contact	Status	Country	Location	Time Created/Updated
short man	mrgoodstufpaul360@gmail.com	1784 53266	Missing	St Vincent and the Grenadines		Created:Thu Mar 08 2018
short boy	garsonbynoe@gmail.com	4561126	Missing	St Vincent and the Grenadines		Created:Thu Mar 08 2018
Sean smith	michealbenjamin27@gmail.com	7654321	Missing	Grenada		Created:Thu Feb 22 2018
Peter Quill	drkages2000@gmail.com	4572345	Missing	St Vincent and the Grenadines	10.63,-61	Created:Mon Jan 08 2018
paul	winsberthazlewood@gmail.com	4587632	Missing	St Vincent and the Grenadines		Created:Thu Mar 08 2018
missing person	trevorepiphane@gmail.com	7163711	Missing	Saint Lucia		Created:Thu Mar 01 2018
Missing Captain Of the boat	drkages2000@gmail.com	1234567	Missing	Dominica		Created:Mon Nov 13 2017
Missing Captain	drkages2000@gmail.com	1234567	Missing	Trinidad		Created:Mon Nov 13 2017
Micheal Holdings	drkages2000@gmail.com	4574123	Missing	Saint Lucia	10.63,-61	Created:Mon Jan 08 2018
labstar	lindonmarrast1337@gmail.com	4183644	Missing	Grenada		Created:Thu Feb 22 2018

Figure 4.71 Example of an administrator report using Missing Persons records

## 4.7 Weather

### 4.7.1 How do I access the Weather module? (A.A, C.A, C.G, T.A, R.R)

After logging in, click the FEWER drop down in the main menu and select the Weather option from the list, as shown in Figure 4.72.

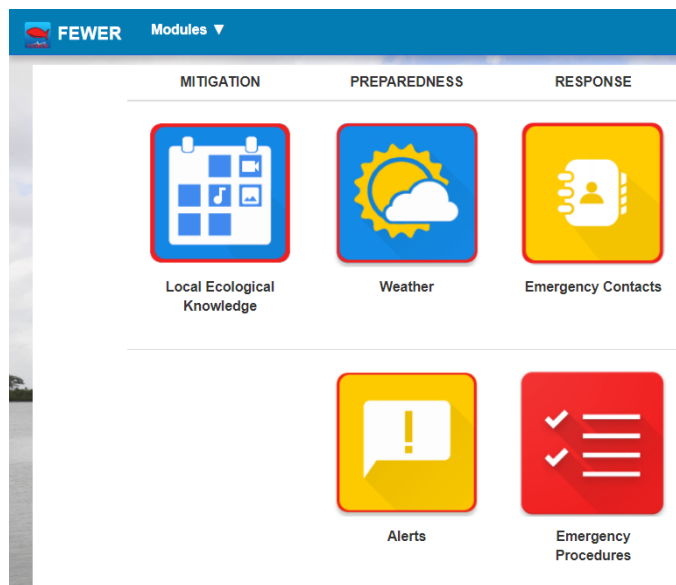


Figure 4.72 Accessing Weather Module from the menu

When the Weather module is selected, the Weather dashboard is displayed. The dashboard comprises a table of weather source entries as shown in Figure 4.73.

Weather Sources									
<div> <div> <div></div> <div>+</div> <div></div> </div> <div></div> </div> <div>Show 10 entries</div> <div>Search: <input type="text"/></div>									
Source	Country	Info Type	Source Type	Interval	Duration	Last Reading	Date Created	Operations	
<a href="#">Antigua and Barbuda - MET Offi</a>	Antigua and Barbuda	Weather	Website	Once a day	Single Day	2017-09-17 21:04:53	2017-09-15 14:47:21	<div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>	
<a href="#">Antigua and Barbuda Tide Forec</a>	Antigua and Barbuda	Oceanic	Website	Once a day	Forecast	2018-04-20 18:08:48	2018-04-06 18:13:28	<div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>	
<a href="#">Barbados - MET Office</a>	St Vincent and the Grenadines	Weather	Website	Every 6 Hours	Single Day	2018-04-20 18:08:53	2017-08-23 02:24:40	<div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>	

Figure 4.73 Weather Source listing

## 4.7.2 What are weather sources?

In FEWER a weather source refers to an official organisation from which hydro meteorological (hydro-met) data is retrieved. This includes the local MET services and third party organisations such as [OpenWeatherMap](#) and [Accuweather](#).

## 4.7.3 What are extractors?

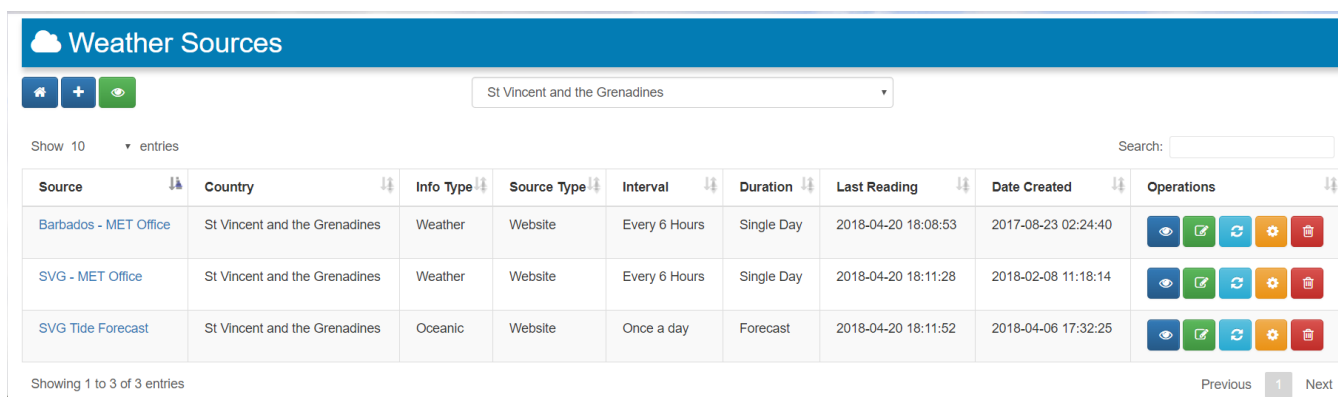
Extractors are files that are run within the FEWER system to retrieve hydro-met data from a specific weather source. These files can be set to run on a schedule or manually at any time by an administrator. For example, the extractor will parse the websites of the Met Office in Saint Lucia to retrieve the relevant daily weather readings. Further details on the extractors are provided in the Appendix.

#### 4.7.4 What are thresholds?

In the context of the FEWER Weather module, a threshold is a value set for a specific weather parameter that determines if the current value meets warning or emergency criteria. The threshold values are specified by the Met office in each FEWER country and configured by the country or agency administrators for that country.

#### 4.7.5 How do I view weather sources available for my country? (A.A, C.A, R.R)

The weather dashboard displays the list of sources as shown in Figure 4.74. Each entry indicates the country, type of information, format of data electronically accessed from the source, update periodicity (interval), temporal scope (duration), most recent reading and creation date. As for all FEWER administrator dashboards, icons for available management options are displayed.



Source	Country	Info Type	Source Type	Interval	Duration	Last Reading	Date Created	Operations
<a href="#">Barbados - MET Office</a>	St Vincent and the Grenadines	Weather	Website	Every 6 Hours	Single Day	2018-04-20 18:08:53	2017-08-23 02:24:40	
<a href="#">SVG - MET Office</a>	St Vincent and the Grenadines	Weather	Website	Every 6 Hours	Single Day	2018-04-20 18:11:28	2018-02-08 11:18:14	
<a href="#">SVG Tide Forecast</a>	St Vincent and the Grenadines	Oceanic	Website	Once a day	Forecast	2018-04-20 18:11:52	2018-04-06 17:32:25	

Showing 1 to 3 of 3 entries

Previous 1 Next

Figure 4.74 Weather Source listing

#### 4.7.6 How do I view the details of a weather source? (A.A, C.A, R.R)

To view the details of a weather source, go to the weather dashboard. Click on the weather source of choice to display details as shown in Figure 4.75 for Dominica Met office.



**Dominica Meteorological Service**  
Constantly Monitoring the Atmosphere  
WEATHER HOTLINE: (767) 447 5555

HOME CURRENT CONDITIONS FORECAST CLIMATE DATA ASTRONOMICAL DATA ABOUT US CONTACT US

**CANEFIELD AIRPORT**

**28°C (82°F)**  
Updated: 16:00 local time (20:00 UTC)  
[View detailed conditions >](#)

**DOUGLAS-CHARLES AIRPORT**

**28°C (82°F)**  
Updated: 16:00 local time (20:00 UTC)  
[View detailed conditions >](#)

**SATELLITE IMAGERY**

[Satellite Imagery \(Click for larger view\)](#)  
[Satellite Imagery \(Click for larger view\)](#)

[Animated Satellite Imagery](#)

**WEATHER OUTLOOK**

A high pressure system will linger across the area during today. Thereafter, by late afternoon into Monday, a surface to low level trough is exp...

[View complete weather outlook >](#)  
[View Extended Forecast >](#)  
[View Seasonal Outlook >](#)

**MOST RECENT ARTICLES**

**26 Jan** [A HIGH SURF ADVISORY AND SMALL CRAFT WARNING AR...](#)

**13 Jan** [FLOOD WARNING issued for Dominica](#)

**12 Jan** [INCREASED RAINFALL EXPECTED THROUGHOUT THE WEEKEND](#)

**BULLETINS**

[Agro-Met: July 2017](#)  
(PDF, 1,019 KB)

[Agro-Met: June 2017](#)  
(PDF, 841 KB)

[View all our bulletins >](#)

Figure 4.75 Example Weather Source details in listing

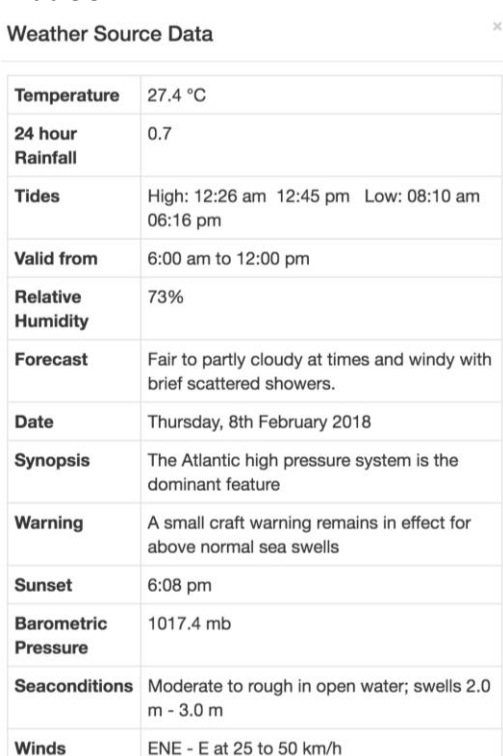


#### 4.7.7 How do I view the readings captured by a weather source? (A.A, C.A, R.R)

To view weather readings, click the green eye icon in the table on the weather dashboard. This will display readings captured by a weather source, as shown in Figure 4.76.

#### 4.7.8 How do I create a new weather source? (A.A, C.A)

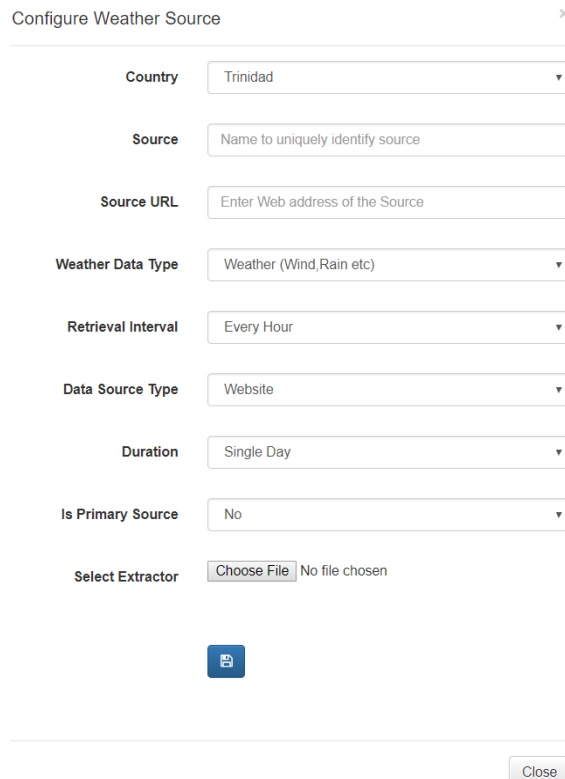
To create a new weather source, click on the blue plus icon on the weather sources page. This will display a form to configure the weather source details as shown in Figure 4.77. The fields are elaborated in Table 9.



The screenshot shows a window titled "Weather Source Data" with a close button (X) in the top right corner. It contains a table with the following data:

Temperature	27.4 °C
24 hour Rainfall	0.7
Tides	High: 12:26 am 12:45 pm Low: 08:10 am 06:16 pm
Valid from	6:00 am to 12:00 pm
Relative Humidity	73%
Forecast	Fair to partly cloudy at times and windy with brief scattered showers.
Date	Thursday, 8th February 2018
Synopsis	The Atlantic high pressure system is the dominant feature
Warning	A small craft warning remains in effect for above normal sea swells
Sunset	6:08 pm
Barometric Pressure	1017.4 mb
Seaconditions	Moderate to rough in open water; swells 2.0 m - 3.0 m
Winds	ENE - E at 25 to 50 km/h

Figure 4.76 Weather Source readings



The screenshot shows a window titled "Configure Weather Source" with a close button (X) in the top right corner. It contains the following fields:

- Country: Trinidad (dropdown menu)
- Source: Name to uniquely identify source (text input)
- Source URL: Enter Web address of the Source (text input)
- Weather Data Type: Weather (Wind,Rain etc) (dropdown menu)
- Retrieval Interval: Every Hour (dropdown menu)
- Data Source Type: Website (dropdown menu)
- Duration: Single Day (dropdown menu)
- Is Primary Source: No (dropdown menu)
- Select Extractor: Choose File (button) | No file chosen (text)

At the bottom right, there is a "Close" button.

Figure 4.77 Configure Weather Source window

Table 9 Configure Weather Source Options

Name	Description	Options
Source	Name to uniquely identify a local (Met office etc.) or external (NOAA, OpenWeather etc.) source of weather information	Open-ended text entry by administrator for FEWER in a particular country
Source URL	Web address through which the data is accessible from the named weather source	Open-ended text entry
Weather Data Type	Primary type of data provided by the source	1. Oceanic: tides etc. 2. Weather: wind, rain etc.
Retrieval Interval	Period over which data is updated	1. Every Hour 2. Every six Hours 3. Once per day
Data Source Type	Means through which FEWER accesses the weather data from the named source	1. Website 2. Application Programming Interface (API)

Name	Description	Options
Duration	Period over which the weather data is valid	1. Single Day 2. Forecast
Is Primary Source	Primary source of information to be used for weather alerts	1. No 2. Yes
Select Extractor	Extractor file to be used to programmatically extract data from source	Upload by selecting extractor through file explorer

#### 4.7.9 How do I edit an existing weather source? (A.A, C.A)

Clicking on the light blue edit icon on a weather source listing opens a window to edit the information of the current weather source shown in Figure 4.77.

#### 4.7.10 How do I upload an extractor? (A.A, C.A)

Extractors are used to retrieve weather information for each source as explained in section 4.7.3. To upload an extractor when adding or updating a weather source, click on the “Choose File” button as shown in Figure 4.77 This opens a file explorer window to select the extractor file from the administrator’s computer to upload and associate with the weather source.

#### 4.7.11 How do I specify thresholds? (A.A, C.A)

When an extractor file is uploaded, the form in a popup window shown in Figure 4.78 is displayed. The threshold values for the uploaded extractor must be set here.

This popup window can also be opened by clicking on the orange gear icon, shown in Figure 4.79, of an existing weather source. Each extractor has different values that can be configured, so the form displayed will differ for each extractor.

Configure Weather Source

Pressure -

Warning Threshold	Pressure Warning Value		hPa
Emergency Threshold	Pressure Emergency Value		hPa

Visibility -

Warning Threshold	Visibility Warning Value		km
Emergency Threshold	Visibility Emergency Value		km

Temperature -

Warning Threshold	Temperature Warning Value		F
Emergency Threshold	Temperature Emergency Value		F

Wind -

Warning Threshold	Wind Warning Value		km/h
Emergency Threshold	Wind Emergency Value		km/h

Rel. humidity -


Warning Threshold	Rel. humidity Warning Value		%
Emergency Threshold	Rel. humidity Emergency Value		%

Save

Close

Figure 4.78 Set thresholds window

#### 4.7.12 How do I manually update the weather information from the source? (A.A, C.A)

To manually update a weather source, click the dark blue refresh icon, , to update the weather information from the weather source. See Figure 4.79.







Source	Country	Info Type	Source Type	Interval	Duration	Last Reading	Date Created	Operations
Barbados - MET Office	St Vincent and the Grenadines	Weather	Website	Every 6 Hours	Single Day	2018-04-20 18:08:53	2017-08-23 02:24:40	    

Figure 4.79 Weather Source operations




The system will display a confirmation when the update operation is completed successfully.

#### 4.7.13 How do I view weather details from another country? (A.A, C.A, R.R)

To view weather details from another country, click on the green eye icon next to the blue plus icon in the upper left corner of the window. See Figure 4.80.



## Weather Sources

Show 10 entries

Source	Country	Info Type	Source Type
Barbados - MET Office	St Vincent and the Grenadines	Weather	Website
SVG - MET Office	St Vincent and the Grenadines	Weather	Website

Figure 4.80 Weather Source listing

This opens the Weather Report page. Select the country of interest to display the details as shown in Figure 4.81. On this page weather information from the Open Weather Map and MET-Office is displayed as shown in Figure 4.82. The page alternates between the two every twenty seconds.

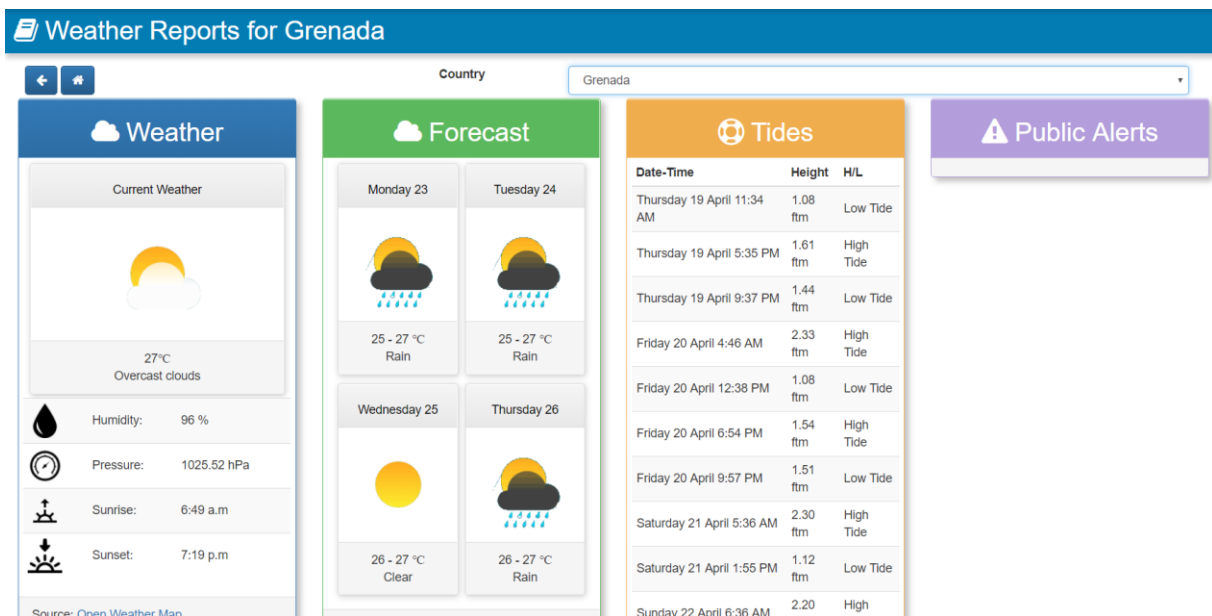


Figure 4.81 View Weather Report for a country

Weather Reports for Grenada	
Country: Grenada	
MET Office Report	
Date	Friday, April 20th, 2018
Weather warning	None!
Tides	Low: 1:30 pm High 7:45 pm
Pressure	1016 hPa
Marine warning	A marine advisory is in effect!
Validity	This afternoon and tonight
Current wind	East, 25.9 km/h
Rel. humidity	70 %
Weather	Partly cloudy and windy becoming cloudy at times during the night with possible scattered showers by early morning.
Sunset	18:20

Figure 4.82 Details for Weather Report for a country

#### 4.7.14 How do I create or modify extractors? (T.A)

Extractors require knowledge of the python programming language and compose of a set of variables and functions that determine where the information is retrieved from and how it is retrieved. To create an extractor, it must inherit from the “WeatherSourceExtractor” class.

An Extractor file contains a python class called “WeatherSourceExtractor” which provides the structure for the creation of extractors. Inheriting the WeatherSourceExtractor class ensures that the programmer adheres to the extractor file’s structure. The most important method is the **extract()** method. The new extractor must implement this in such a way that the extract returns the dictionary of extracted readings from the weather source’s URL. The **extract** method is the one that would be edited to modify an extractor. An example of an extractor file is shown in Figure 4.83. Further information about the representation of an extractor can be found in the extractor manual highlighted in the Appendix.

```

try:
    # We are attempting to run via cli within mFisheries application
    from mfisheries.modules.weather.parsers.WeatherSourceExtractor import WeatherSourceExtractor
except:
    # We are attempting to run via cli outside of application
    from WeatherSourceExtractor import WeatherSourceExtractor

class Extractor(WeatherSourceExtractor):
    def __init__(self):
        WeatherSourceExtractor.__init__(
            self,
            "http://meteo.gov.vc/meteo/",
        )

    def get_poster_url(self):
        return self.post_url

    def get_extractor_url(self):
        return self.extractor_url

    def get_reading_types(self):
        return {
            "wind": {
                "type": "text",
                "unit": "km/h"
            },
            "seas": {
                "type": "text",
                "unit": "m"
            }
        }

    def extract(self):
        headings = []
        self.readings = {}
        print("Extracting current info from Saint Vincent MET")
        r = requests.get(self.extractor_url)
        print("Retrieved home page")
        soup = BeautifulSoup(r.content, "html.parser")
        data = soup.find_all("ul")
        save = ""

```

Figure 4.83 Extractor File Example

## 4.8 mFisheries tasks

As FEWER is built on the mFisheries framework, certain services related to FEWER but not falling directly within FEWER may be accessible. These include tracking and SOS.

### 4.8.1 Tracking (C.A, T.A, C.G)

#### 4.8.1.1 How do I access the Tracks dashboard? (C.A, T.A, C.G)

After logging in you are taken directly to the Tracks dashboard. You can also click on the Tracks option in the menu bar to the top to be taken to the Tracks dashboard. The dashboard is shown in Figure 4.84 below.

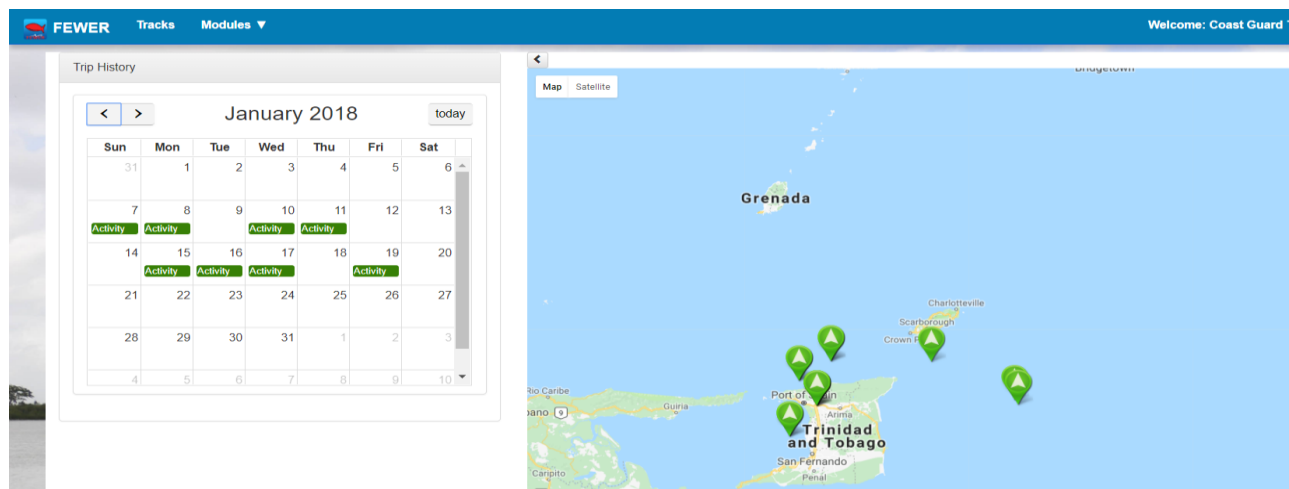


Figure 4.84 Coast Guard Dashboard

#### 4.8.1.2 How can I check tracking data for different days or months? (C.A, T.A, C.G)

To check the tracking data for a different day by clicking the date on the calendar in the top left corner of the dashboard. To change the month displayed, click the arrows next to the month to change it shown in Figure 4.85.

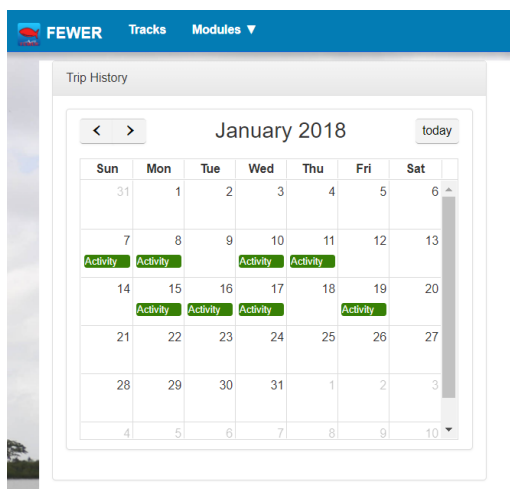


Figure 4.85 Date controls for tracks page

#### 4.8.1.3 How can I see more details about a tracking pin? (C.A, T.A, C.G)

To see more details about a tracking pin, click on the pin on the map this will open a small window displaying more information about the pin as shown in Figure 4.86. Clicking on the “All tracks” button will display all tracks related to that pin seen in Figure 4.87.

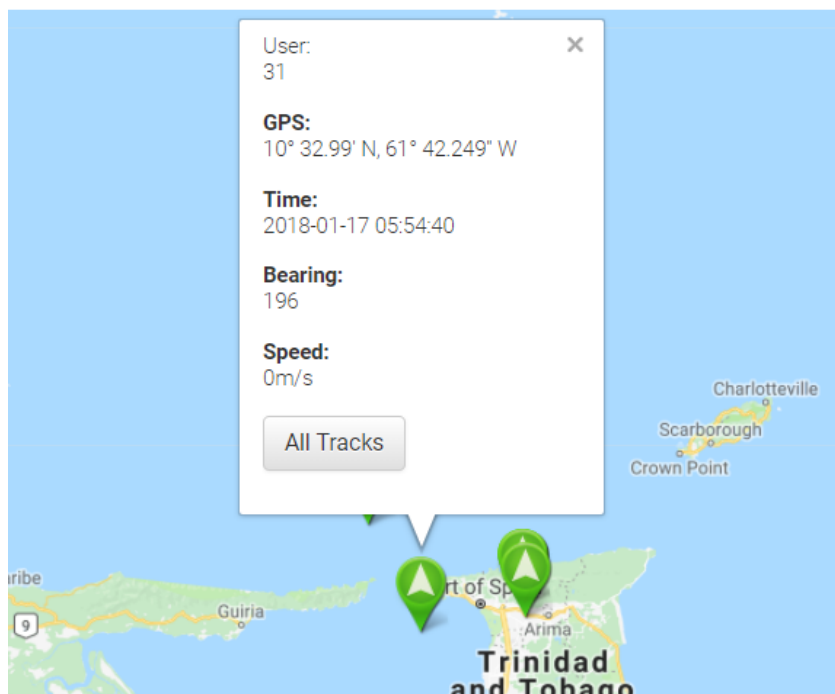


Figure 4.86 Displaying more information for a tracking pin

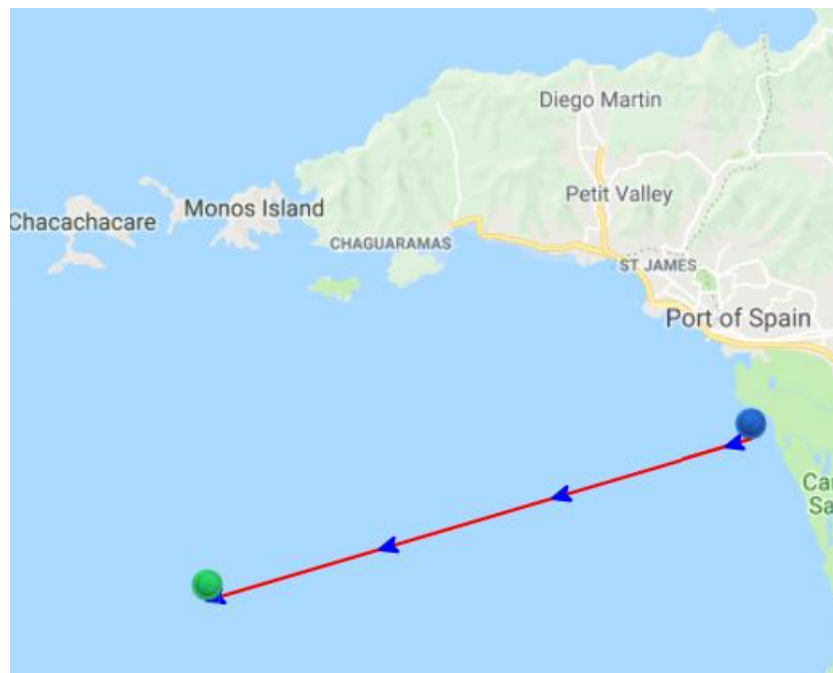


Figure 4.87 Displaying all tracks for a pin

#### 4.8.2 SOS (C.G)

SOS alerts are sent to the system from users who report that they are in distress while using the application. These alerts are displayed in the tracking screen of the Coast Guard interface as red pins with orange exclamation mark as show in Figure 4.88. The SOS pins are interactable the same way as regular tracking pins but have an additional option to resolve the SOS.



Figure 4.88 SOS tracking pin on map

##### 4.8.2.1 How do I resolve an SOS? (C.G)

To resolve an SOS, click on the red SOS tracking pin. This will open a menu with more information on the SOS pin as seen in Figure 4.89.

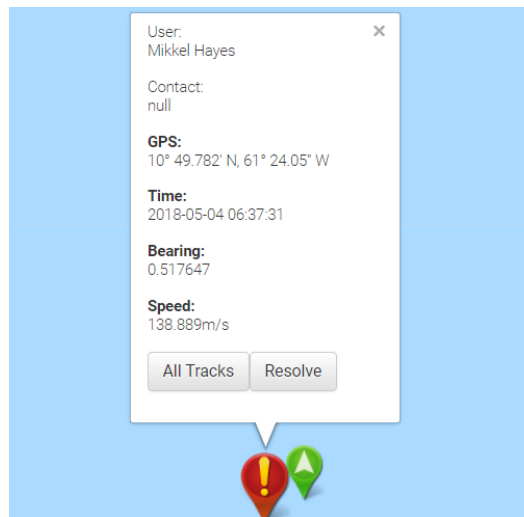


Figure 4.89 SOS pin contextual menu

Clicking the “Resolve” button will bring up a window to fill out the relevant information of the SOS this can be seen in Figure 4.90. When the save button is clicked a confirmation message will be displayed and the SOS will be resolved.

Figure 4.90 SOS resolution form



## 5. Country-specific FEWER Configuration

FEWER operation requires the configuration of several parameters that are not specific to any module. These configurations apply to the FEWER country-instance and its users.

### 5.1 Country Configuration

Country administrators configure FEWER installations for their home country. Configurations include the representative GPS locations of the countries as well as their country listing, area codes and ISO codes. They are also required for data, email and user management.

#### 5.1.1 Where do I set the country configurations? (C.A, T.A)

To set the country configurations, select the "Country" option in the top menu. From here the different configurations can be modified by selecting the green edit button next to the configuration.

#### 5.1.2 What can I configure in the country listing? (C.A, T.A)

In the Country Listing you can modify the name of your home country as well as the Area and ISO codes for your home country. To do this click on the green edit button next to the country listing which will bring up a form to change Country name, Area code and ISO code. When the changes are made, click the blue save button to complete the changes.

#### 5.1.3 What does configuring the country name in the country listing do? (C.A, T.A)

Configuring the name of your home country sets its appearance throughout the FEWER system on both the mobile and web applications. For example, if your home country is Saint Lucia, you may configure it to "Saint Lucia" or "St. Lucia" and it will appear this way to all FEWER users, within and outside of the country. Each country administrator configures his or her own country in the listing:

- Dominica
- Grenada
- Saint Lucia
- St. Vincent and the Grenadines

#### 5.1.4 How are Country ISO Codes used in FEWER? (C.A, T.A)

The Country ISO codes are used to create the folders for each country within the application:

- Dominica: dma
- Grenada: grd
- Saint Lucia: lca
- St. Vincent and the Grenadines: vct

#### 5.1.5 How are Country Locations used in FEWER? (C.A, T.A)

The country locations provide a rough estimate of location to determine weather conditions when a GPS signal is not available to the application:

- Dominica: (15.414999, -61.370976)
- Grenada: (12.262776, -61.604171)
- Saint Lucia: (13.909444, -60.978893)
- St. Vincent and the Grenadines: (12.984305, -61.287228)

### 5.1.6 Where are Country Area Codes used in FEWER? (C.A, T.A)

The country area codes are used in Emergency Contacts. They are automatically inserted as a prefix to the local phone number if not otherwise specified:

- Dominica: 767
- Grenada: 473
- Saint Lucia: 768
- St. Vincent and the Grenadines: 784

The system will automatically format the entered 3-digit area code to be used for calling contacts across different territories.

## 5.2 User Management

Country and technical administrators have access to the user management dashboard of the web system. Here users can be added, removed and modified. User passwords can also be changed.

### 5.2.1 Where can I access the controls to manage user information? (C.A, T.A)

This control can be accessed from the Users option in the main menu and displays as shown in Figure 5.1.

Username	First Name	Last Name	Primary Contact	Country
davidmafe55@gmail.com	David	Manzano		Dominica
domadminuser	adminuser	Dominica	123-4567	Dominica
domcoastguard	Dominica	Coast Guard	123-4567	Dominica

Figure 5.1 User Configuration Dashboard

### 5.2.2 How do I change a user's password? (C.A, T.A)

To change a user's password from the user management dashboard, we select the blue key icon in the controls column next to a user record as shown in Figure 5.2. The options highlighted are part of each record displayed in the list of users displayed in Figure 5.1.
















Registered	Controls
2017-08-22 11:51:05	    
2017-07-21 18:28:59	    
2017-10-24 00:30:42	    

Figure 5.2 User management controls

When the “change password” button (blue key button) is clicked, the popup window to update the password is displayed. This form is displayed in Figure 5.3. To change the password, the user enters the users’ new password twice and clicks the blue save button. The system will display a confirmation message when operation is completed.

Change Password

Username


Form Test

Password

Password

Confirm Password

Confirm Password



Close

Figure 5.3 Change Password Form

## 6. Appendices

### 6.1 Extractor Manual

The weather module of the FEWER system has the following specifications:

- The system allows country administrators to select and configure the hydro meteorological (hydro-met) information that is included in weather module.
- The system retrieves hydro-met information from the following sources:
  - MET Office websites
    - [Dominica](#)
    - [Grenada](#)
    - [St Lucia](#)
    - [St Vincent and the Grenadines](#)
  - Tide information: [Extracted from site tide-forecast.com](#)
- The Mobile app displays information based on information retrieved from the web service. It is presented in the form of readings. The available readings are configured via country administrator
- Information is sent between the web services and clients in a structured JSON format.
- Information will be cached (suggested time to live be configured on the back end) using databases for the web services and cached temporarily in the client persistence storage mechanisms.

#### 6.1.1 Add Weather Source

When adding a weather source, a form is displayed to the user as seen in Figure 6.1. The descriptions for each of these forms are shown in Table 10.

Configure Weather Source

Country: Trinidad

Source: Name to uniquely identify source

Source URL: Enter Web address of the Source

Weather Data Type: Weather (Wind,Rain etc)

Retrieval Interval: Every Hour

Data Source Type: Website

Duration: Single Day

Is Primary Source: No

Select Extractor: Choose File No file chosen

Close

Figure 6.1 Form to configure weather source

The system facilitates the uploading of an extractor procedure. For more details on the creation of an extractor see Section 6.1.6. This procedure will be a standard python class to facilitate a pluggable module.

*Table 10 Weather Source Form Field Descriptions*

Name	Description	Options
Source	Name to uniquely identify a local (Met office etc.) or external (NOAA, OpenWeather etc.) source of weather information	Open-ended text entry by administrator for FEWER in a particular country
Source URL	Web address through which the data is accessible from the named weather source	Open-ended text entry
Weather Data Type	Primary type of data provided by the source	1. Oceanic: tides etc. 2. Weather: wind, rain etc.
Retrieval Interval	Period over which data is updated	1. Every Hour 2. Every six Hours 3. Once per day
Data Source Type	Means through which FEWER accesses the weather data from the named source	1. Website 2. Application Programming Interface (API)
Duration	Period over which the weather data is valid	1. Single Day 2. Forecast
Is Primary Source	Primary source of information to be used for weather alerts	1. No 2. Yes
Select Extractor	Extractor file to be used to programmatically extract data from source	Upload by selecting extractor through file explorer

### 6.1.2 Configuring Weather Source Thresholds

After adding the source by completing the form and uploading the extractor, the system will load the extractor file and allow the user to configure the threshold values that the extractor supports. An example of the form for configuring the threshold of an extractor is illustrated in Figure 6.2.

The following are additional characteristics of this step:

1. The system reads the extractor file and displays the configurable thresholds specified in the extractor's class.
2. The system via the form, allows the administrator to set threshold values to determine if the system should provide highlighted information for the end-user based on the information provided.
3. If no threshold values are provided, the system interprets that the information in the source should not be interpreted as actionable weather notifications.

## Configure Weather Source

×

### Pressure -

Warning Threshold	Pressure Warning Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	hPa
Emergency Threshold	Pressure Emergency Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	hPa

### Visibility -

Warning Threshold	Visibility Warning Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	km
Emergency Threshold	Visibility Emergency Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	km

### Temperature -

Warning Threshold	Temperature Warning Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	F
Emergency Threshold	Temperature Emergency Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	F

### Wind -

Warning Threshold	Wind Warning Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	km/h
Emergency Threshold	Wind Emergency Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	km/h

### Rel. humidity -

Warning Threshold	Rel. humidity Warning Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	%
Emergency Threshold	Rel. humidity Emergency Value	<input type="button" value="↑"/> <input type="button" value="↓"/>	%

Save

Figure 6.2 Configure thresholds for added data sources

The system flow for retrieving information from different sources is highlighted in Figure 6.3. The following are further details explaining the process.

- The scheduling is facilitated using the OS CRON job. Cron jobs allow the operating system to run tasks at configurable time intervals. The system will run the update every 6 hours. Therefore, the time will scheduler will run at the following times:
  - o 6:30 am
  - o 12:30 am
  - o 6:30 pm
  - o 12:30 pm
- The triggering process will check with the database to determine what extractors will be executed at this interval.
- Each extractor has knowledge about its source details within the module definition.

- When the time condition is met, the extractor retrieves and stores the weather information to the database and notifies the system that the process was completed successfully.

### 6.1.3 Weather Data Acquisition Process

FEWER uses extractors to retrieve information from various sources configured. The extraction process is executed

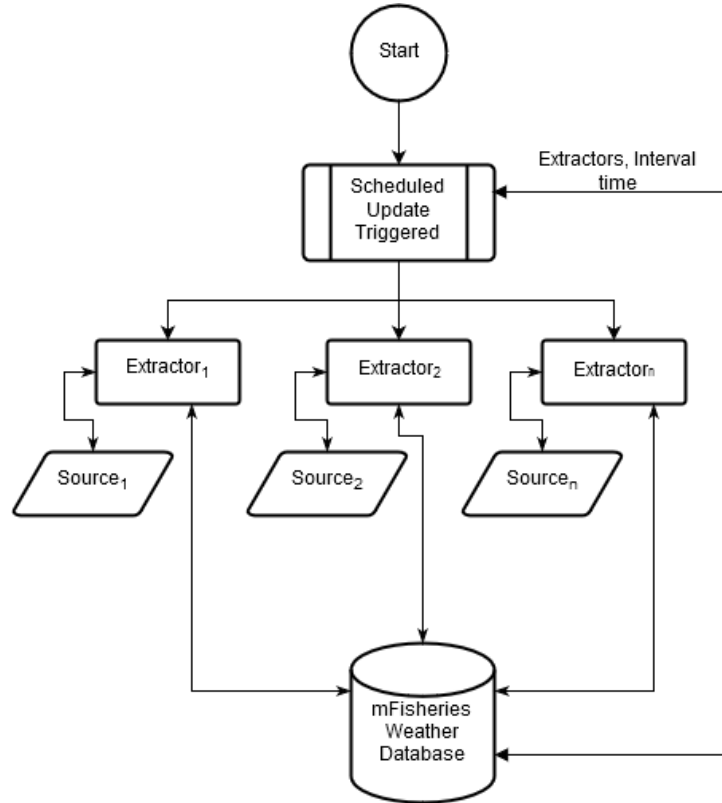


Figure 6.3 Flowchart for updating information from sources

### 6.1.4 Data Format/Schema for Weather Source

Each extractor generates information in the schema highlighted in Figure 6.4 based on its configured weather source. The schema influences the JSON (dictionary) schema generated to pass information from the extractor to the system and influences the design of the database tables that will store the retrieved information.

Each entry can have one reading, or multiple readings based on the nature of the source. For example, the MET office data will have multiple readings, one for each of the information provided. More specifically, the extractor can have a reading entry for wind, temperature, rainfall etc.

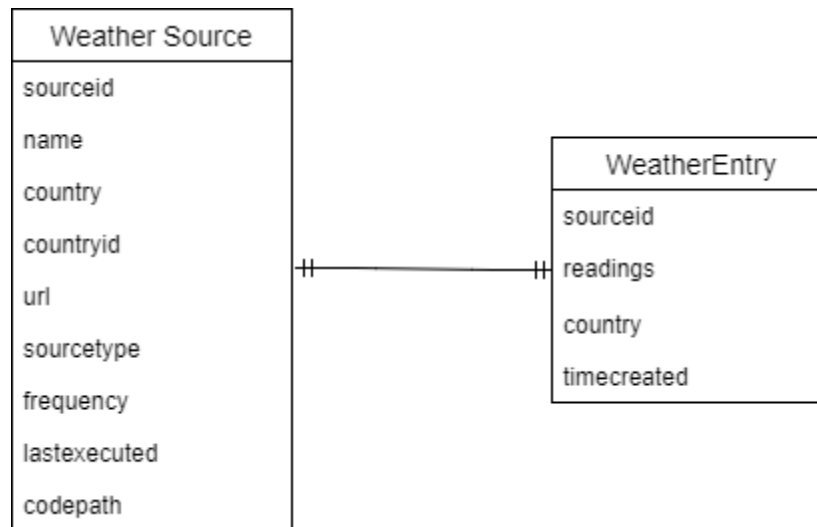


Figure 6.4 Data schema for weather source and reading

### 6.1.5 Weather Extractor Specification

The extractor module is implemented as a python class based on standard OOP behavioural design patterns. To access the source code for the extractors the following link to a git repository containing the source can be used to clone the repository. Once the repository has been cloned the instructions found in the ReadMe.md file is to be followed to install the remaining dependencies to run the extractors from the command line interface. The link for the repository is: [https://bitbucket.org/ewer\\_fish/fewerweatherextractors](https://bitbucket.org/ewer_fish/fewerweatherextractors).

### 6.1.6 Extractor File Structure

Within the repository there exists a file called WeatherSourceExtractor.py that serves as the base class for all weather extractors. Within this file some key methods can be found. The programmer must implement these abstract methods in their extractor's class as shown in Figure 6.5. A description of these methods can be found in Table 11.

Table 11 Extractor method descriptions

Method	Description
get_poster_url(self)	Retrieves the API link where the extracted readings will be sent.
get_extractor_url(self)	Retrieves the URL that the data will be extracted from.
get_reading_types(self)	This is used to allow the user to configure the threshold readings (JSON format).
extract(self)	This function extracts the weather readings from the URL and returns readings in dictionary format.



```

@abstractmethod
def get_poster_url(self):
    pass

@abstractmethod
def get_extractor_url(self):
    pass

@abstractmethod
def toJSON(self):
    pass

@abstractmethod
def get_reading_types(self):
    pass

@abstractmethod
def extract(self):
    pass

```

Figure 6.5 Extractor Core Methods

### 6.1.7 Extractor Class Creation

To create and extractor the following guidelines should be followed:

1. Located in fewer/modules/weather/parsers/extractors there exist a file named WeatherSourceExtractor.py.
2. The file is a python class, which provides the structure for the creation of extractor modules.
3. WeatherSourceExtractor.py is an abstract class and the programmer creating the new extractor module must inherit this class in their python extractor module. They must also import some other dependencies such as json, and beautiful soup.
4. Inheriting the WeatherSourceExtractor class ensures that the programmer adheres to the extractor file's structure.
5. The name of the class must be Extractor for it to be integrated into the system as it will be used by factory outlines.
6. The most important function is the **extract()**. The new extractor must implement this in such a way that the extract returns the dictionary of extracted readings from the weather source's URL.
7. The saving of data is covered by the WeatherSourceExtractor class.

An example of the creation of an extractor is shown in Figure 6.6.

```
import json
import re
import requests
from bs4 import BeautifulSoup

try:
    # We are attempting to run via cli within mFisheries application
    from mfisheries.modules.weather.parsers.WeatherSourceExtractor import WeatherSourceExtractor
except:
    # We are attempting to run via cli outside of application
    from WeatherSourceExtractor import WeatherSourceExtractor

class Extractor(WeatherSourceExtractor):
    def __init__(self):
        WeatherSourceExtractor.__init__(
            self,
            "http://meteo.gov.vc/meteo/"
        )

    def get_poster_url(self):
        return self.post_url

    def get_extractor_url(self):
        return self.extractor_url

    def get_reading_types(self):
        return {
            "wind": {
                "type": "text",
                "unit": "km/h"
            },
            "seas": {
                "type": "text",
                "unit": "m"
            }
        }

    def extract(self):
```

Figure 6.6 Extractor File Example

As shown in the above figure the programmer has a few dependencies to import into the extractor being created, namely the WeatherSourceExtractor class. When the Extractor class is declared there is also the `__init__(self)` method. This method comes from the `__init__()` method of the WeatherSourceExtractor class which is shown in Figure 6.7.

The `init` method of the WeatherSourceExtractor class takes in two arguments, `self` and a string called “extract” which represents the URL from which the data will be extracted from.

```
def __init__(self, extract=""):
    self.extractor_url = extract
    self.readings = {}
```

Figure 6.7 `__init__` Method of Extractor class

It is also important to note the implementation of the default methods of the WeatherSourceExtractor class. This is how they will be declared in all the weather extractors. Figure 6.8 shows the different methods of an extractor. The only extractor method not shown in Figure 6.8 is the `extract()` method. Further details of the `extract` method are highlighted in the next section.

```

def get_poster_url(self):
    return self.post_url

def get_extractor_url(self):
    return self.extractor_url

def get_reading_types(self):
    return {
        "wind": {
            "type": "text",
            "unit": "km/h"
        },
        "seas": {
            "type": "text",
            "unit": "m"
        }
    }

```

Figure 6.8 Extractor Methods

### 6.1.8 Configuring the Extract Method

The extract method will differ for each extractor as it will depend on the structure of the HTML of the website that the weather information is going to be extracted from. We will use the MET Office website for St Vincent as an example as shown in Figure 6.9.

**Meteorological Service**  
Saint Vincent and the Grenadines

HOME LATEST FORECAST EXTENDED FORECAST CLIMATE DATA PRODUCTS & SERVICES ABOUT US CONTACT US

**IR Satellite**

**EASTERN CARIBBEAN RADAR**  
Provided by The Barbados Meteorological Services

**CURRENT WEATHER**  
Reported at Argyle International Airport

Conditions: Partly Cloudy and hazy  
Temperature: 28.4°C  
Winds: East at 13 km/h  
Barometric Pressure: 1016.0 mb  
Relative Humidity: 75%  
24 hour Rainfall: 0.4 mm  
Sunrise: 5:43 am  
Sunset: 6:20 pm

Reported on:  
Wednesday, 2nd May 2018 - 2:00 pm

**72 HOURS OUTLOOK**  
A weak low level trough will dominate the weather pattern across Saint Vincent and the Grenadines over the next 24 hours, after which, the Atlantic Ridge of high pressure will be the dominant feature.

**Latest Weather Forecast - Wednesday, 2nd May 2018 (12pm)**  
Published: 02 May 2018

Date:	Wednesday, 2nd May 2018
Valid from:	12:00 pm to 6:00 pm
Synopsis:	A weak low level trough is affecting the islands
Forecast:	Fair to occasionally cloudy and hazy with few brief showers

**DATA REQUEST FORM**

Caribbean Institute for Meteorology and Hydrology

Figure 6.9 Saint Vincent and the Grenadines MET Office website

The information we want to extract is shown in the red shape. For us to be able to extract this information easily we need to know how it is structured in the web page first. To do this can right click on the area and select "Inspect Element" from the menu. This will bring up a window showing us the HTML structure of the element we selected as seen in Figure 6.10.

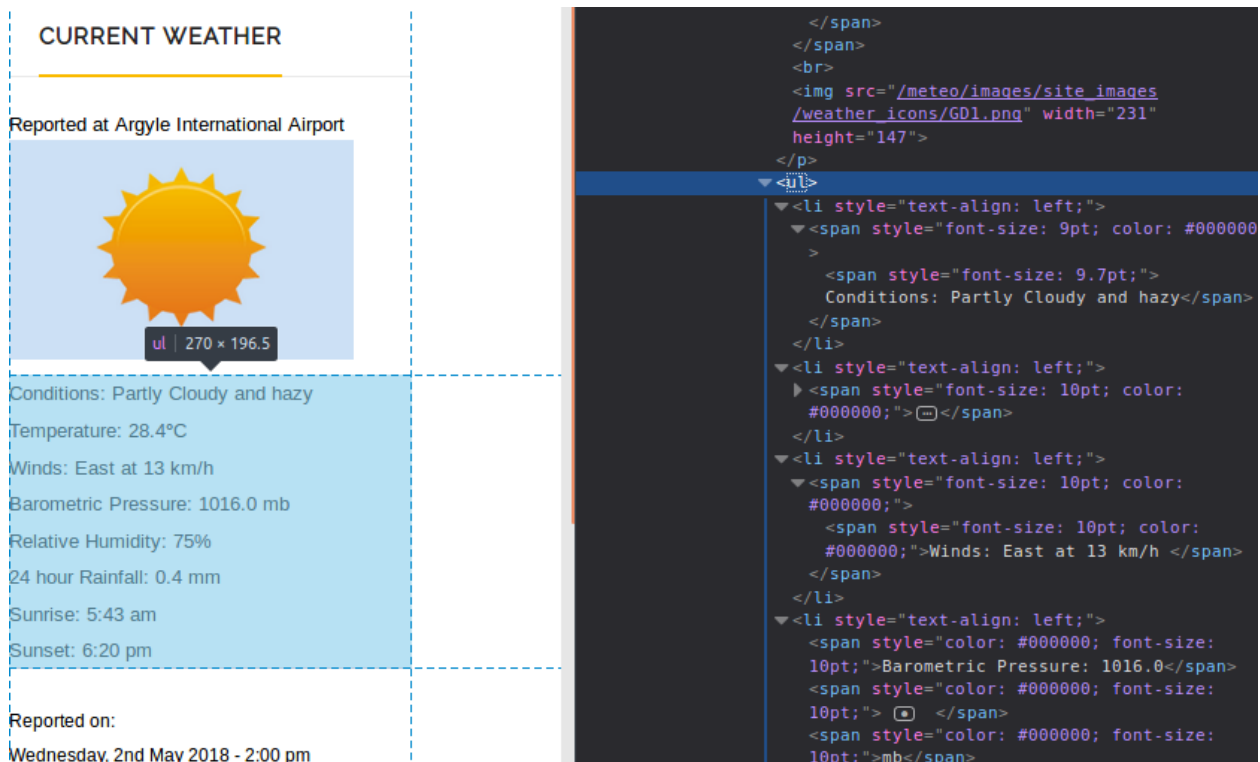


Figure 6.10 Inspecting the HTML for the section we want to extract

From this we can see that the information we want is within an unordered list tag “<ul>”. Now we can configure the extract method to find all <ul> tags and store the information within those tags as seen in Figure 6.11.

```
def extract(self):
    headings = []
    self.readings = {}
    print("Extracting current info from Saint Vincent MET")
    r = requests.get(self.extractor_url)
    print("Retrieved home page")
    soup = BeautifulSoup(r.content, "html.parser")
    data = soup.find_all("ul")
```

Figure 6.11 Storing all information between the ul tags

This does not specify the data between those tags but instead stores them all as a list. What we need to do now is go through that list and find the information we want. An example of looking for something specific is shown in Figure 6.12.

```
soup = BeautifulSoup(r.content, "html.parser")
data = soup.find_all("ul")
save = ""
for row in data:
    # takes the block of text with readings alone. the ul has other unrelated stuff we didn't need
    if "Temperature" in row.text:
        save = row.text
        break
```

Figure 6.12 Specifying what we are looking for.

Once we have what we want we store it into a variable containing all the readings. We save it as a json object meaning each reading is stored as a key and a value. Once we have this variable we convert it to

JSON using the **toJSON(self):** method and return the readings as shown in Figure 6.13. Once we have done this we declare the main of the file and call the extract method in it also seen in Figure 6.13.

```

53         for current in save.strip().split("\n"):
54             self.readings[current.replace(u'\xa0', u' ').split(": ")[0]] = current.replace(u'\xa0', u' ').split(": ")[1]
55
56         return self.readings
57
58     def toJSON(self):
59         return json.dumps(self.readings)
60
61
62 # Can be executed directly using the command python -m mfisheries.modules.weather.parsers.StVincent
63 if __name__ == "__main__":
64     country = Extractor()
65     country.extract()
66     print country.toJSON()

```

Figure 6.13 Finishing the Extractors extract method

### 6.1.9 How the system works

The python APScheduler together with the use of OOP data structure, factory, were used to make this module functional.

- **Python APScheduler** – This is responsible for checking the weather sources frequency time and running the scheduler if the time criteria are met. This runs when the server starts to schedule the extractor to be executed. scheduler.py. An example of the scheduler is shown in Figure 6.14.

```

def schedule():
    get_url = 'http://mfisheries.herokuapp.com/api/weathersources'
    try:
        r = requests.get(get_url)
        database = r.json()
        sched = BackgroundScheduler()
        for entry in database:
            if DEBUG:
                print entry
            filename = entry['codepath'].split('/').pop().split(".py")[0]
            loop = frequency[entry['frequency']]
            id = entry['id']
            my_class = factory.factory(filename)
            if DEBUG:
                print my_class.extract()
            job = sched.add_job(my_class.save, 'interval', hours = loop, kwargs={'sourceid': id})
            if DEBUG:
                print job
        sched.start()
        if DEBUG:
            print "Extractors Scheduled Successfully"
    except Exception, e:
        print e

```

Figure 6.14 Python Scheduler

- **Factory** – This is simply a python file used to detect all extractor classes for the use of the scheduler. The file name of the extractor e.g. DominicaExtractor.py excluding the python extension, is used by the factory to know which extractor should be scheduled. Once the new extractor files are placed in the extractor folder i.e. fewer/modules/weather/parsers/extractors the factory will automatically configure the scheduler to read them. The Extractor() function creates an instance of the object. An example is shown in Figure 6.15.

```
def factory(type):
    packages = packagenames()
    if type in packages:
        return eval(type + "." + "Extractor()")
    assert 0, "Bad object creation: " + type
```

*Figure 6.15 Python Factory*

#### **6.1.10 Weather Notification**

The weather notification is created based on threshold; the threshold values set by the administrator for the weather readings. A user is automatically subscribed to weather notifications once they install the weather module of the mFisheries mobile application on their device. These notifications are sent to users based on their country's weather. Notifications are sent once a day regardless of when the user registers on the mFisheries application.

What triggers a notification?

1. A notification is triggered when a new weather reading is greater than or equal to its corresponding threshold value.
2. One day has passed since the old notification was sent and the threshold condition is still met.
3. When the extractor file is executed via the scheduler or the manual run and the weather readings are greater than or equal to their corresponding threshold values.

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