



**TWELFTH REGULAR SESSION
Bali, Indonesia
3-8 December 2015**

E-Reporting System-ISSF-2015

**WCPFC12-2015-OP18b
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0900**

The E-Reporting System Developed by Taiwan Fisheries Agency

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Why the trial was undertaken?

- In Taiwan, many small long-line vessels having length of less than 24 meter operate around coastal waters, the South Pacific, the Indian Ocean and etc.
- The tight space can only accommodate limited number of crews, any extra personnel, such as human observer, on board may result in a considerable burden.
- A proper E-Observing System having the similar functions might replace the on board observer's duties.



What the trail did ?

The E-Observing System consists of two sub-systems:

- The E-Monitoring System takes bait casting and hauling operation images by several cameras and saves it on a digital video recorder.
- The E-Reporting System is a software, which helps operator retrieve the valuable data from the recovered video.
- It had been tested on a 17 meter long long-line fishing vessels for more than one year.

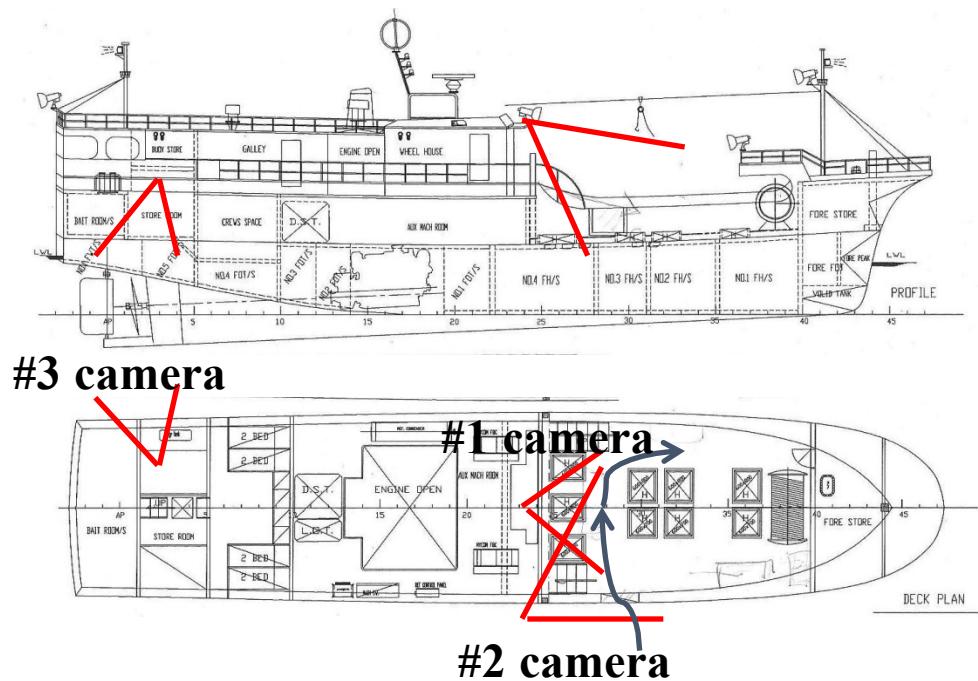
This presentation focuses on E-Reporting System:

1. How it works.
2. What information can be gotten from this system.



The E-Observing System includes two sub-systems

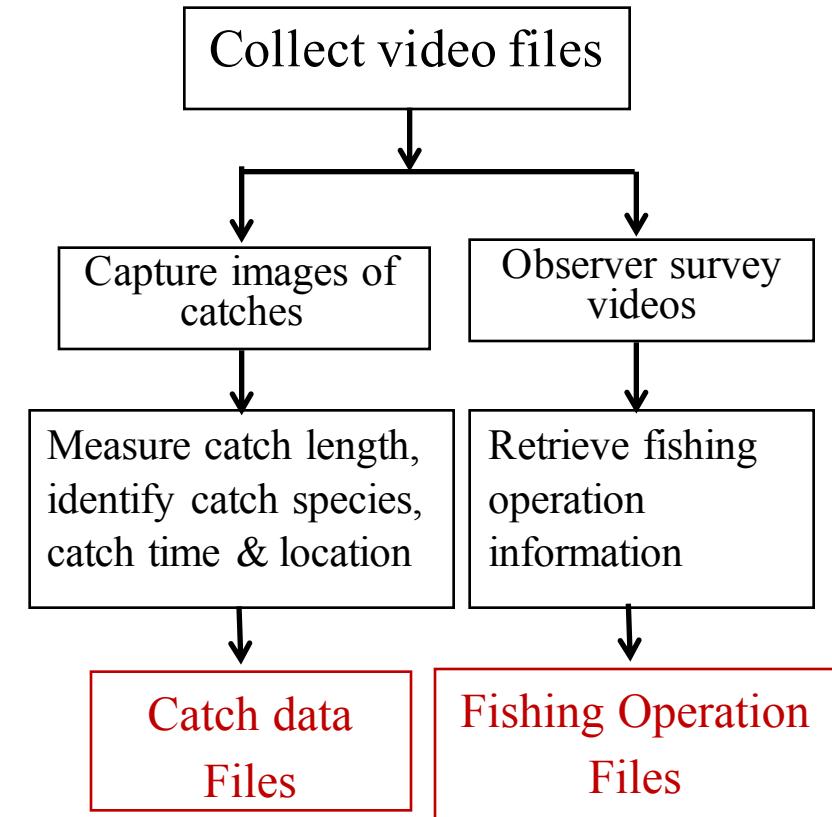
E-Monitoring System



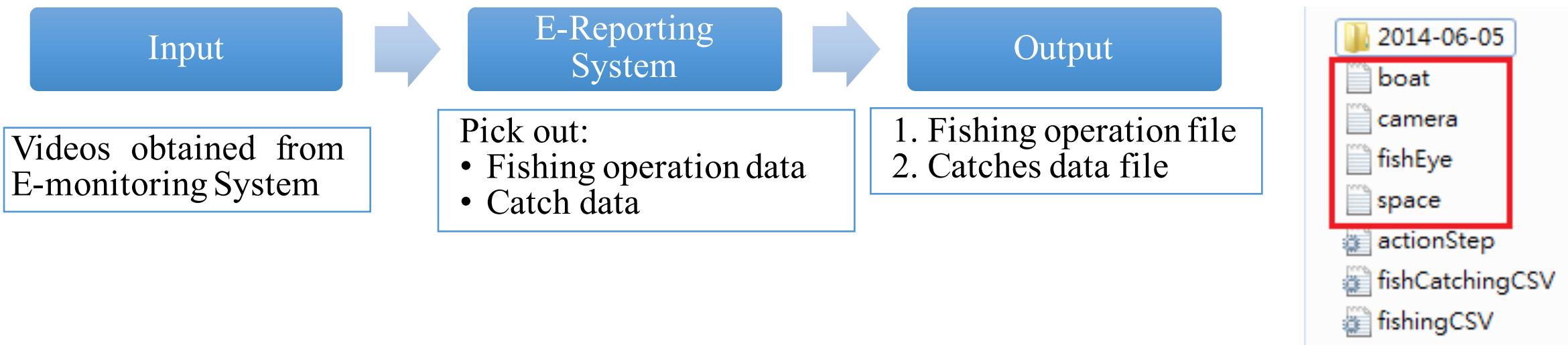
#1 、#2 cameras synchronize with hailing operation
#3 camera synchronizes with bait casting operation.

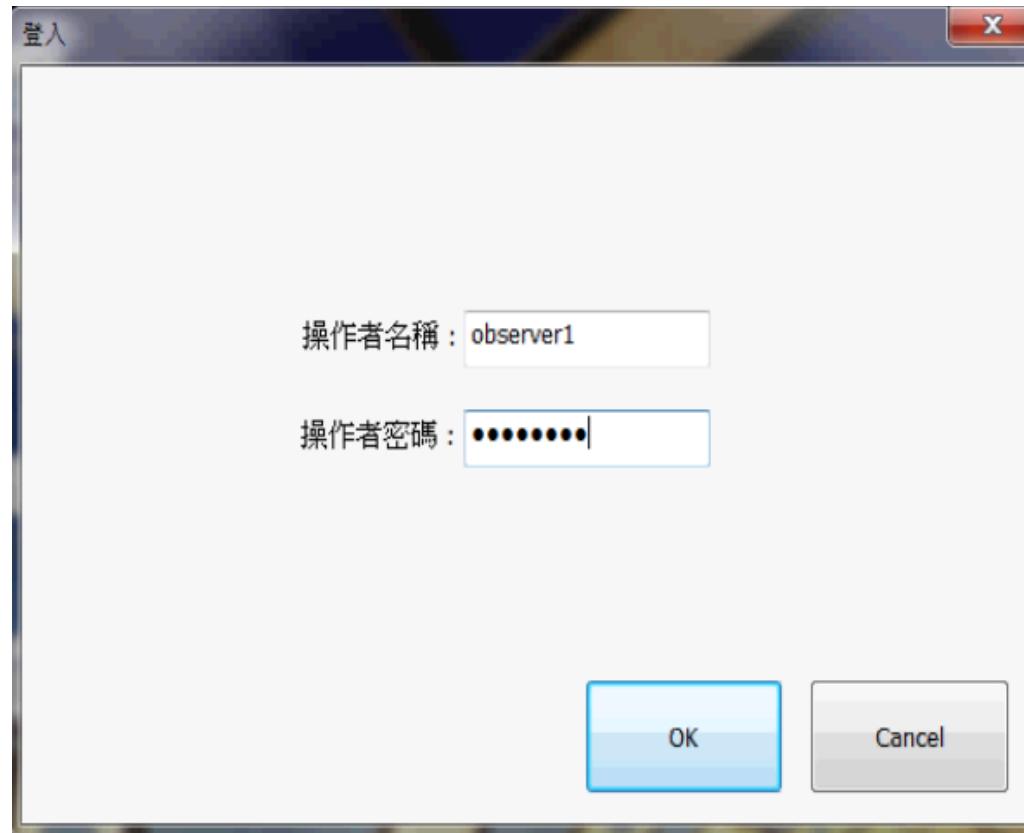
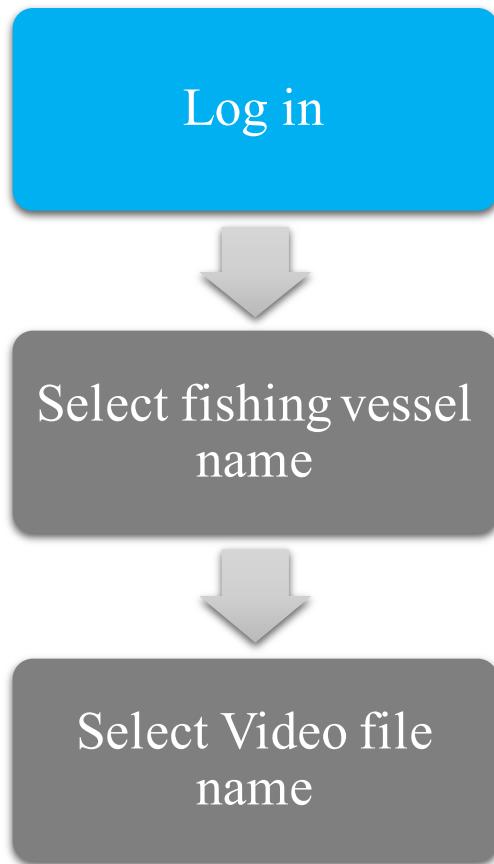
video recovery

E-Reporting System



- Input : Videos obtained from the E-monitoring System.
- By using the E-Reporting System, on shore observer surveys these videos, pick out fishing operation data and performs catch analysis.
- Output : fishing operation file and catches data file.
- To perform this system four files were created as E-Monitoring System was installed.





User Interface

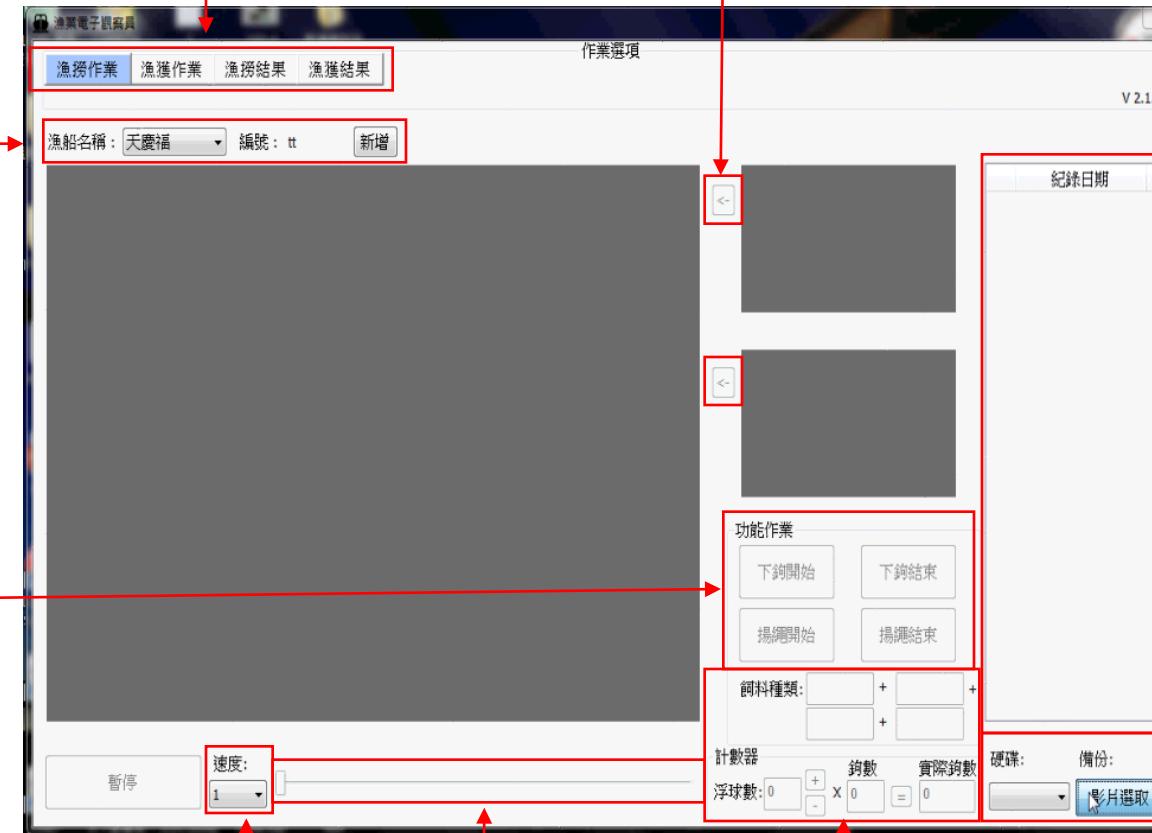
Vessels Selection Key

Main Function
Selection Key

Camera channels switch

Available Video
files list

Fishing Operation
type selection key



Video Speed
Control Bar

Time axis

Hook and Bait Input

Log in

Select vessels
name.

Select fishing vessel

Select Function key
and Video file name

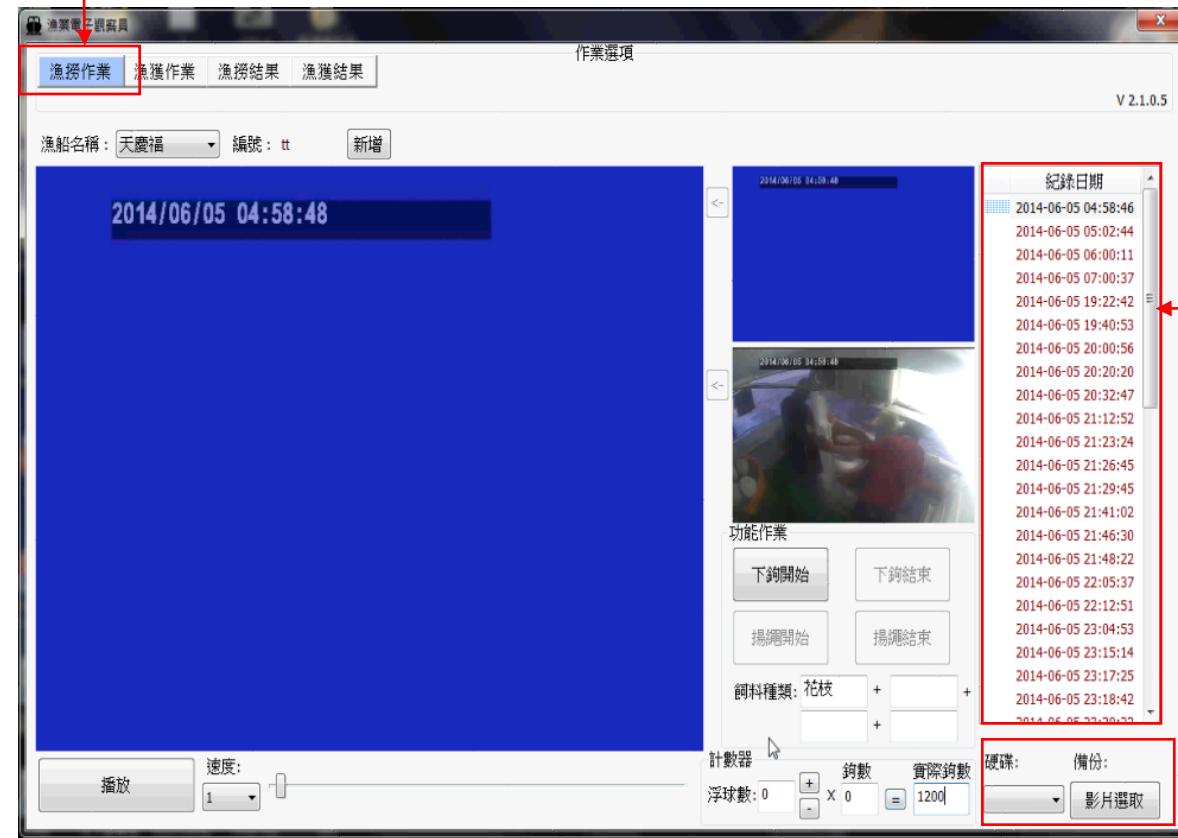


Fishing Operation Function Key

Log in

Select fishing vessel

Select Function key
and Video file name



Available video files list

Video selection key

Set Casting Start Time

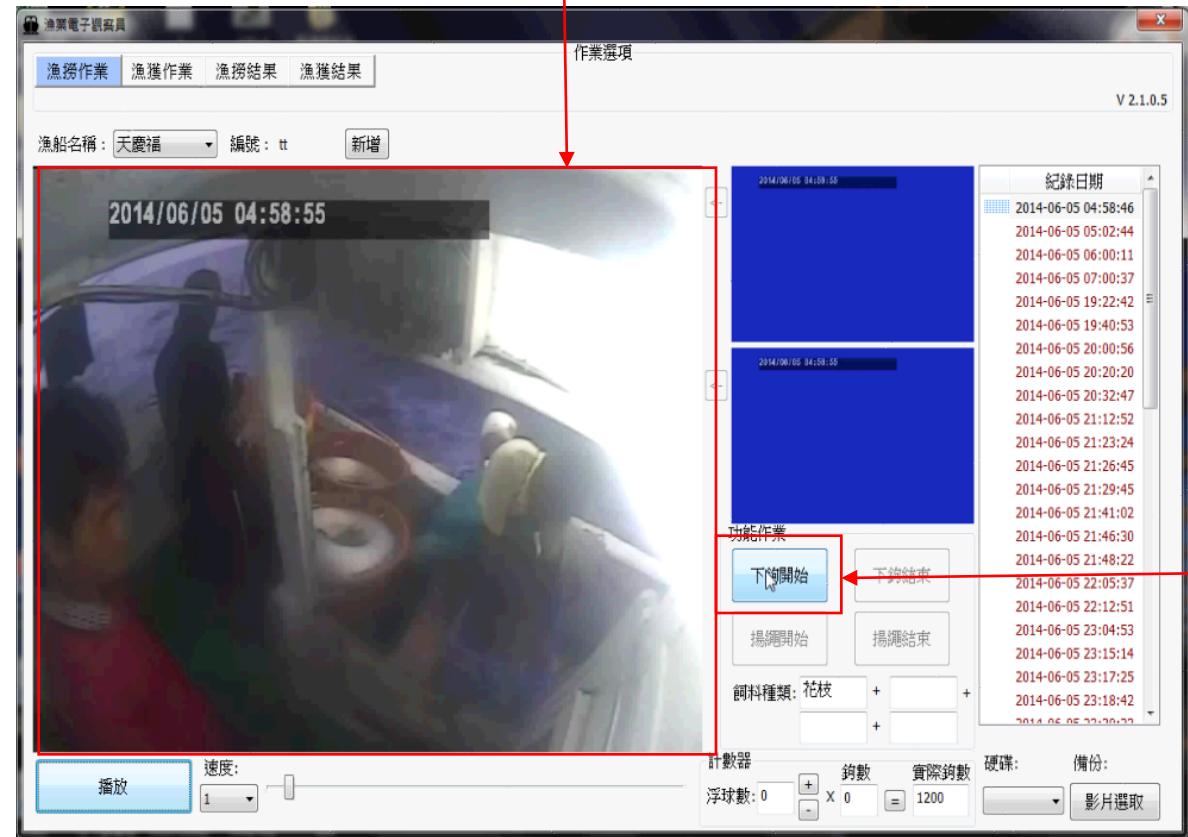
Input Casting Information

Set Casting End Time

Set Hauling Start/End Time

Display Fishing Operation Data

Casting Operation Video On



Click Casting Start Key

The longitude, latitude and time will be recorded automatically after clicking.

System Configuration

Fishing Operation

Catch Analysis

Outcomes

Set Casting Start Time

Input Casting Information

Set Casting End Time

Set Hauling Start/End Time

Display Fishing Operation Data



Fill in
1. hooks number
2. baits type(four type max)

System Configuration

Fishing Operation

Catch Analysis

Outcomes

Set Casting Start Time



Input Casting Information



Set Casting End Time



Set Hauling Start/End Time



Display Fishing Operation Data



The longitude, latitude and time will be recorded automatically after clicking.

Set Casting Start Time



Input Casting Information



Set Casting End Time



Set Hauling Start/End Time



Display Fishing Operation Data



The longitude, latitude and time will be recorded automatically after clicking.

- Click
1. Hauling Start Key
 2. Hauling End Key

System Configuration

Fishing Operation

Catch Analysis

Outcomes

Set Casting Start Time

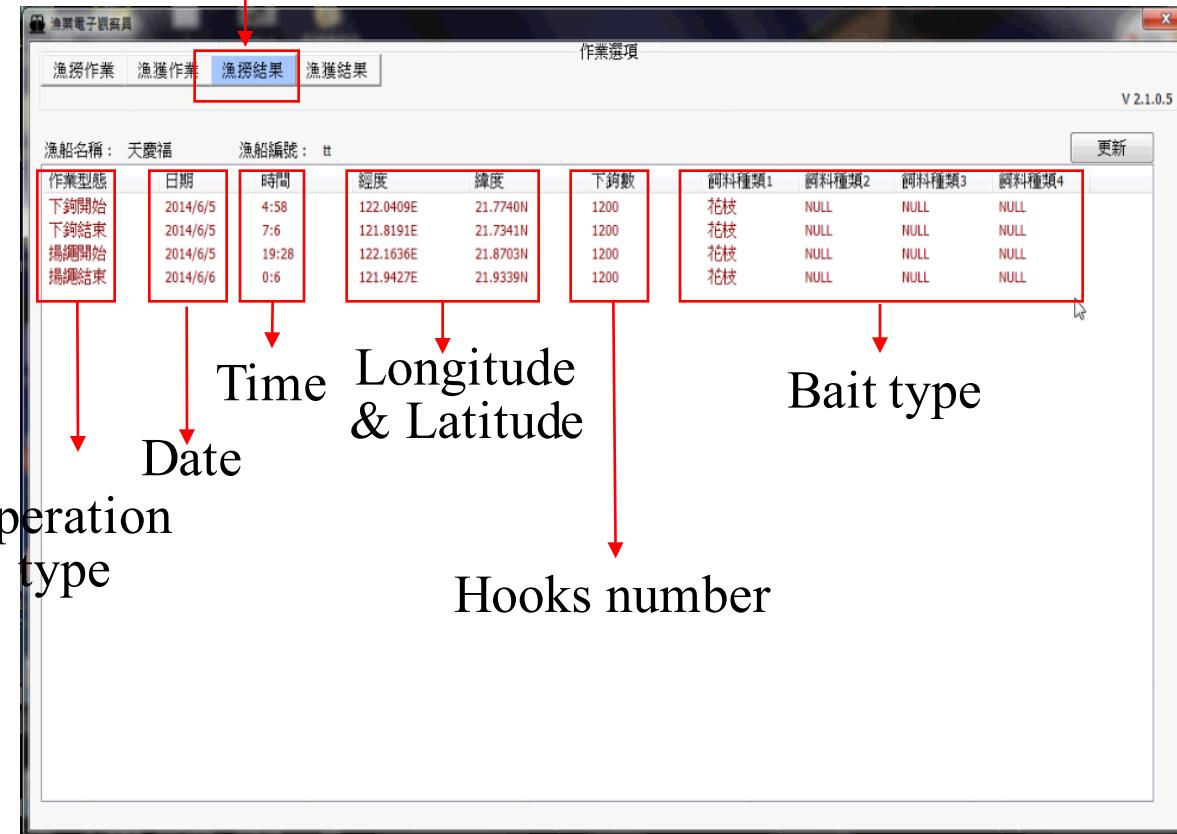
Input Casting Information

Set Casting End Time

Set Hauling Start/End Time

Display Fishing Operation Data

Fishing Operation Display Button



The screenshot shows a software window titled "漁業電子調查員" (Fishing Electronic Surveyor) version V 2.1.0.5. The window has tabs for "漁業作業" (Fishing Operation), "漁獲結果" (Fishing Results), and "漁獲分析" (Fishing Analysis). The "漁獲結果" tab is selected and highlighted with a red box. Below the tabs, there are fields for "漁船名稱" (Fishing Boat Name) and "漁船編號" (Fishing Boat Number). A "作業選項" (Operation Options) button is also present. The main data area displays fishing results in a table:

作業型態	日期	時間	經度	緯度	下鉤數	餌料種類1	餌料種類2	餌料種類3	餌料種類4
下鉤開始	2014/6/5	4:58	122.0409E	21.7740N	1200	花枝	NULL	NULL	NULL
下鉤結束	2014/6/5	7:6	121.8191E	21.7341N	1200	花枝	NULL	NULL	NULL
揚網開始	2014/6/5	19:28	122.1636E	21.8703N	1200	花枝	NULL	NULL	NULL
揚網結束	2014/6/6	0:6	121.9427E	21.9339N	1200	花枝	NULL	NULL	NULL

Annotations from left to right:

- Operation type: Points to the "作業型態" column.
- Date: Points to the "日期" column.
- Time: Points to the "時間" column.
- Longitude & Latitude: Points to the "經度" and "緯度" columns.
- Hooks number: Points to the "下鉤數" column.
- Bait type: Points to the "餌料種類1" through "餌料種類4" columns.



System Configuration

Fishing Operation

Catch Analysis

Outcomes

Select Catch Analysis

Video File Selection

Image Capture

Catch Species

Length Measurement

Display Catch Data

Select Catch Analysis Key



System Configuration

Fishing Operation

Catch Analysis

Outcomes

Select Catch Analysis

Video File Selection

Image Capture

Catch Species

Length Measurement

Display Catch Data

Catch Analysis On



Select the Video Files to be Analyzed

System Configuration

Fishing Operation

Catch Analysis

Outcomes

Select Catch Analysis

Video File Selection

Image Capture

Catch Species

Length Measurement

Display Catch Data



Click the **freeze** button to catch the fish picture.

The current video file

System Configuration

Fishing Operation

Catch Analysis

Outcomes

Select Catch Analysis

Video File Selection

Image Capture

Catch Species

Length Measurement

Display Catch Data



Following with the freeze click, a new interface having fish's picture will show out.

System Configuration

Fishing Operation

Catch Analysis

Outcomes

Select Catch Analysis

Video File Selection

Image Capture

Catch Species

Length Measurement

Display Catch Data



System Configuration

Fishing Operation

Catch Analysis

Outcomes

Select Catch Analysis

Video File Selection

Image Capture

Catch Species

Length Measurement

Display Catch Data



Click the **length measurement** button.



Select Catch Analysis

Video File Selection

Image Capture

Catch Species

Length Measurement

Display Catch Data



The longitude and latitude will be recorded automatically.

Click the **pout** and the **tail** to measure length.

Show the fish length.

Select Catch
Analysis

Video File
Selection

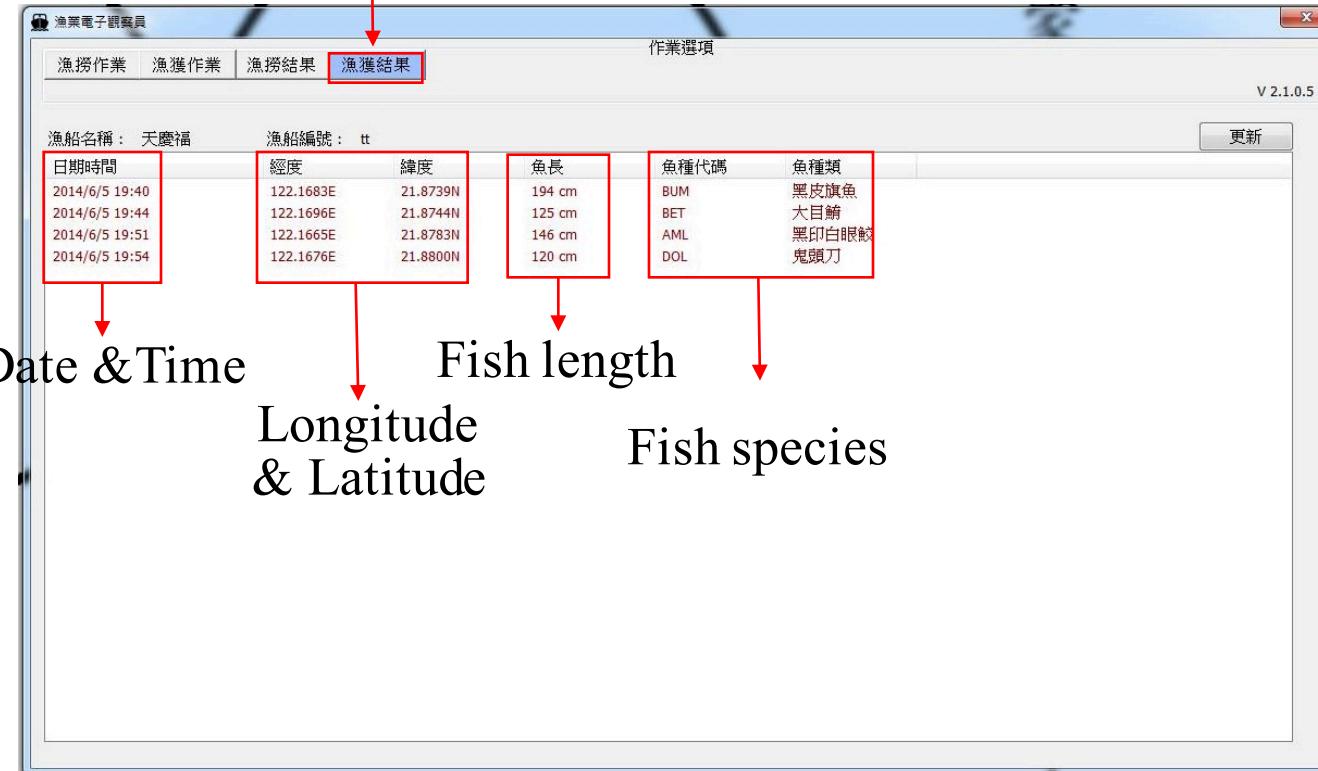
Image Capture

Catch Species

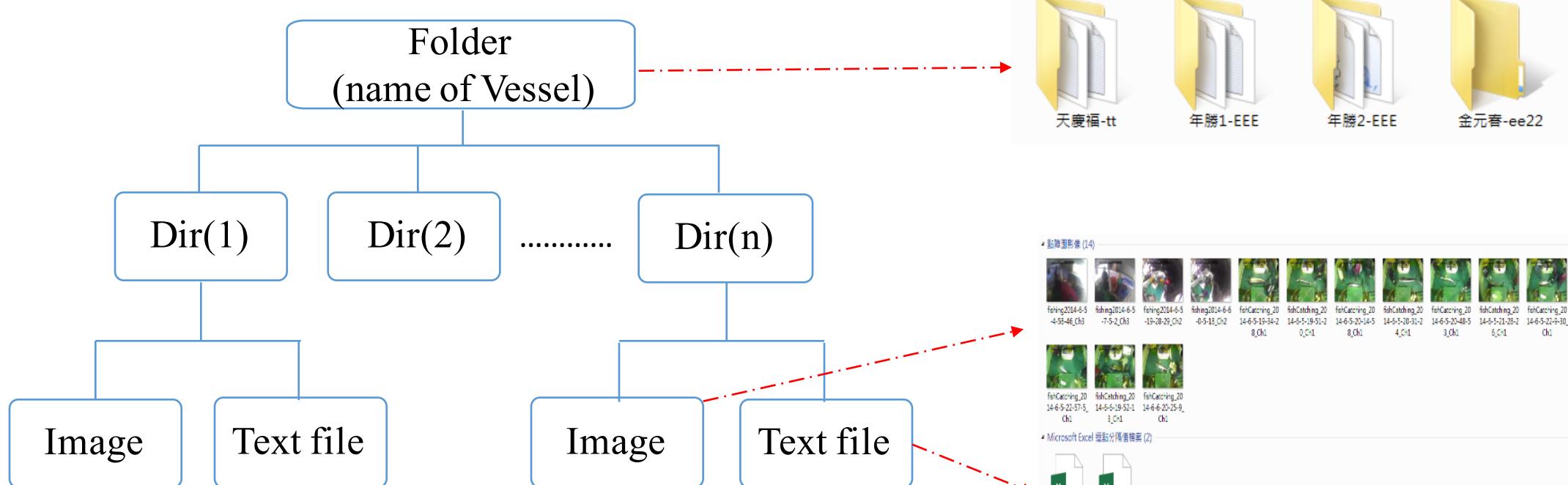
Length
Measurement

Display Catch Data

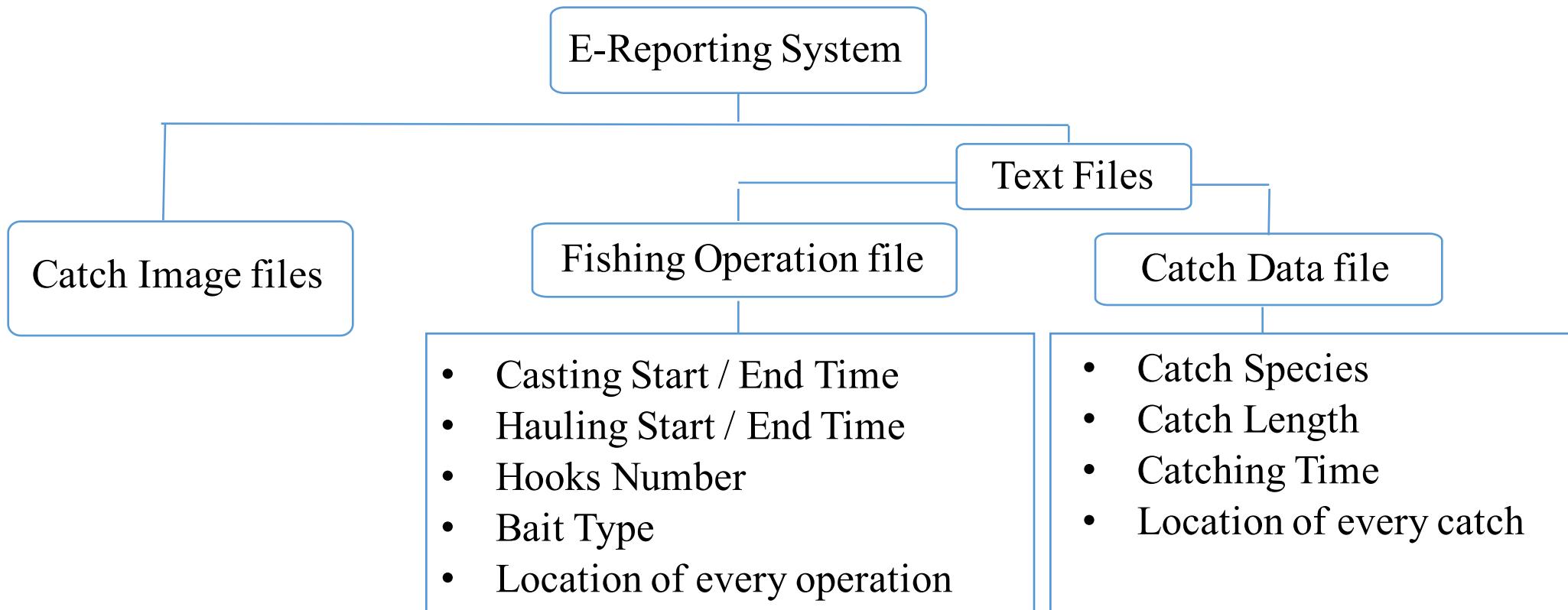
Catch Data Display Button.



- One day fishing operation (about 16 hours) need 2 hours to survey.
- Below: The obtained file structure of the E-Reporting System
- The outcomes: Catches Image files and Text files.
- The image and detail information of every catch are saved for further usage.



It is believed that the performance of this system would play meaningful value in seafood resource conservation works and its multiple function is possible to substitute the human observer.



The lessons learn from the tests

- Crews forget to turn on/off the power switch.
- The videos can not be recovered until the fishing vessels return to harbor.
- Before being able to handle the E-Reporting System long time training is needed.
- The precise location where fishing operations was performed and each catch was caught can be collected.

The next steps

- The fishery authority expects to receive the fishing operation file and catch data files real time.
- It means that an self-determination E-Reporting System on board is required.

Thank You For Your Attention