Fisheries Independent Surveys System (FINSS)

Public User's Manual (v.4.0)

**National Marine Fisheries Service
Office of Science and Technology**

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1. Introduction

A fishery-independent survey is a systematic sampling project carried out by research vessels or contracted commercial fishing vessels for gathering biological or environmental information, primarily focused on commercial fish or protected species for stock assessments. The purpose of the Fishery-Independent Surveys System (FINSS) is to: 1) document and present National Marine Fisheries Service (NMFS) fish-independent survey information to users via web-based applications; 2) support the mission of NMFS and the Office of Science and Technology (ST); and 3) empower effective discovery, access and use of NMFS survey information. The system is updated at least once a year to keep the data up to date.

The goals of this system are:

- Develop complete characterization of NMFS survey capabilities and capacity;
- Enable gap analysis of surveys and stock assessments;
- Enable quick and accurate response to survey-related planning/budget scenarios and data calls;
- Engage and foster collaboration across regions in documenting and analyzing surveys through web services;
- Promote integration with other web interfaces, such as Data.gov, to share NMFS survey information with the public in a more cost-effective way.

The FINSS product includes user interface and reporting capability for users to view and query the database. FINSS is sponsored by ST Assessment and Monitoring Division, developed by the ST Science Information Division, and supported/contributed to by the six NMFS science centers.

1.1   Scope for This User's Manual

This manual is primarily focused on serving the public user on how to use FINSS capabilities. Since the software interface is very intuitive, a fairly high level approach is used for illustrating its operation.

1.2   Scope for This User's Manual

The system is structured in a hierarchical fashion. Proceeding from the top level down, the levels and some of the key parameters found under each is summarized as follows:

- Survey Level:
    - o Survey Name
    - o Science Center
    - o Lab/Division
    - o Survey Year
    - o Survey Purpose
    - o Funding Source
    - o Targeted Species
- Cruise Level
    - o Cruise Number
    - o Cruise Start Date
    - o Cruise End Date
    - o Platform Type
    - o Regional Ecosystem
    - o Gear
    - o Observation Parameters
- Station Level
    - o Location Type (Point Station or Track-line)
    - o Station ID
    - o Lat/Lon

Some of the basic terminology used in the system is defined below:

<u>At the survey level</u>

Survey: A descriptor of a series of similar cruises (same region, vessel type, target species, principal gear deployed, etc.).

Science Center: One of the NMFS science centers (AFSC, NWFSC, SWFSC, PIFSC, NEFSC, or SEFSC)

Lab/Division: Laboratory/division or facility which conducted the survey

Survey Year: Calendar year when the survey was conducted

Survey Name: Name defined by each science center

Survey Purpose: Description of what the survey accomplished (e.g., stock assessment, seafloor mapping)

Survey Frequency: How often the survey was conducted (e.g., annually, bi-annually, quarterly, by season)

Funding Source: Source of funds (e.g., NOAA corporate fund, NMFS program fund, NMFS cooperative research fund)

Targeted Species: Names of the species that were targeted from the Endangered Species Act (ESA) list, Marine Mammal Protection Act (MMPA) list, or Fish Stock Sustainability Index (FSSI) list

At the Cruise Level

Cruise: A trip composed of one or more legs on a single vessel

Cruise Number: Cruise ID/code used to support each particular survey

Cruise Start Date: Date the ship left port for a particular survey

Cruise End Date: Date the ship returned to port after a particular survey

Days-at-Sea: Any calendar day where the ship is at sea, including science days, transit days, and days lost due to weather or mechanical breakdown. staging and de-staging days are not counted if the ship is not underway for a portion of those days.

Platform Type: Type of platform (e.g., NOAA research vessel, charter vessel)

Platform Name: Name of vessel

Gear: Sampling method/device used during a cruise

At the Station Level

Location Type: Category (point station or track-line) that best describes the location at which observations were made for the given survey and cruise

Station ID: Station ID/code assigned by the Science Center to identify the stations

Begin Lat/Lon: The Latitude/Longitude where a particular survey sampling activity started. For a "point station" location type, this is the only location value entered.

End Lat/Lon: The end Latitude/Longitude that is filled in for a "track-line" location type

2. User Interface

The user interface for the public user is straight-forward and is limited to viewing the survey data information. The user needs to select search parameters, initiate the search, and observe the survey related parameters.

There is also the capability to create tabular reports and map reports. In addition, new interactive reports functionality has been added allowing the user to filter or sort tabular reports from report data.

The application allows the user to:

- Perform survey search by supplying search parameters
  - Science Center
  - Survey Name
  - Survey Year
  - Funding Source
  - Survey Purpose
- View information for a selected survey at
  - Survey Level
  - Cruise Level
  - Station Level
- Generate a survey report
  - Map Reports
  - Tabular Reports
  - Interactive Reports

Additional details regarding the application capabilities and usage are covered in the following screens.

2.1 Access Application

For the public user operation, the user does not need a login or password. To access the application, simply perform the following:

1. Enter and click [FINSS Access link](#) in a web browser. This will produce the login screen shown in Figure 1.

2. Select the 'Visit as a Guest' button. No username or password is required.

Figure 1 – Login Screen for FINSS – Survey Inventory

After starting up the application (with 'Visit as a Guest' operation), the initial screen shown in Figure 2 will be displayed.
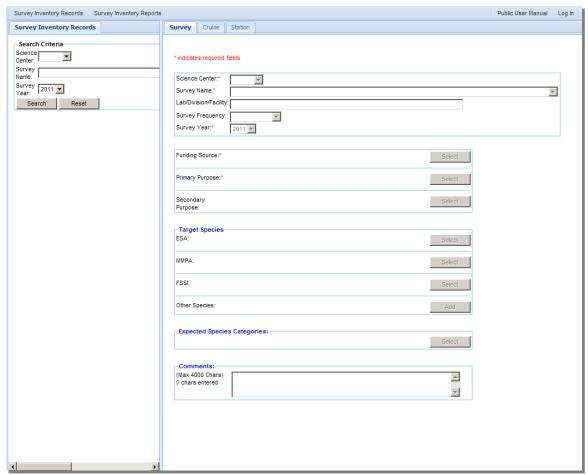

Figure 2 – Initial Screen for Survey Inventory

2.2   Survey Search

This survey search operation is based on the assumption that you are currently working under the 'Survey Inventory Records' tab (see Figure 3). If you are starting elsewhere, first select the 'Survey Inventory Records' button at the top of the screen.

Survey data in the application is setup in a hierarchical structure consisting of Survey, Cruise, and Station.   Initially, the user must supply a Search Criteria in the left panel of the screen. There are drop-down menus like the one illustrated in Figure 3 to assist the user.
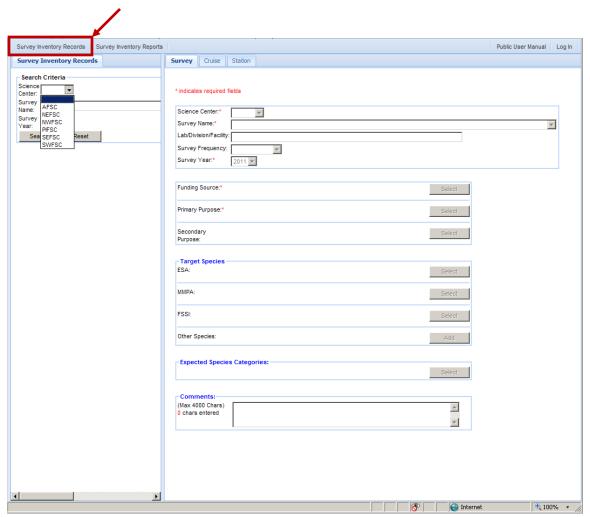

Figure 3 – Drop-Down Menu for Search Criteria

To perform a search for a survey, execute the steps covered in the next few pages:

1. **Supply/select the search criteria for performing the search:**

   - Science Center
   - Survey Name
   - Survey Year

A sample search setup screen is shown in Figure 4. For this example a search will be performed for all surveys conducted by NEFSC for the 2007 survey year.
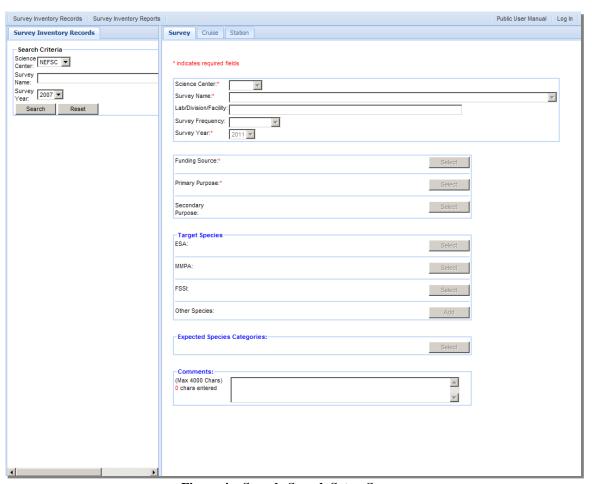

Figure 4 – Sample Search Setup Screen

2. Select the Search button in the left panel to initiate the search.

The results for this search are displayed in the left panel. An example showing the results from the survey search is illustrated in Figure 5.
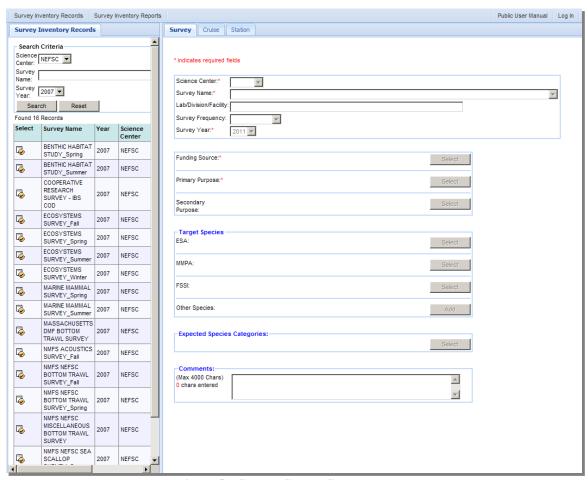

Figure 5 – Sample Survey Search Results

2.3   View Survey Screen Data

To view survey screen data, select the survey from the set of records in the left panel following the search operation.

Simply select the icon in the far left column that is next to the Survey Name of interest. The Survey parameters are then filled out in the right panel (under the 'Survey' tab). Figure 6 shows the filled out form resulting from this selection. Note that for the Public login, the user may only view survey parameters.
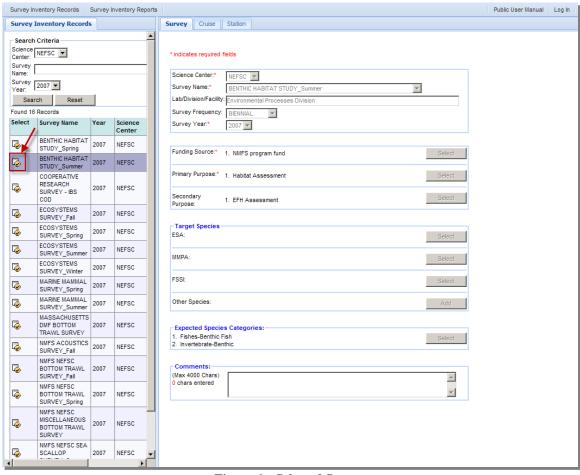

Figure 6 – Selected Survey

2.4   View Cruise Screen Data

Select the Cruise tab to observe the cruise related parameters for the selected survey.

The data for this particular case are shown in Figure 7. Note that there is only the one entry under Cruise List. For cases where there are two or more entries, the user may select a cruise from the Cruise List.
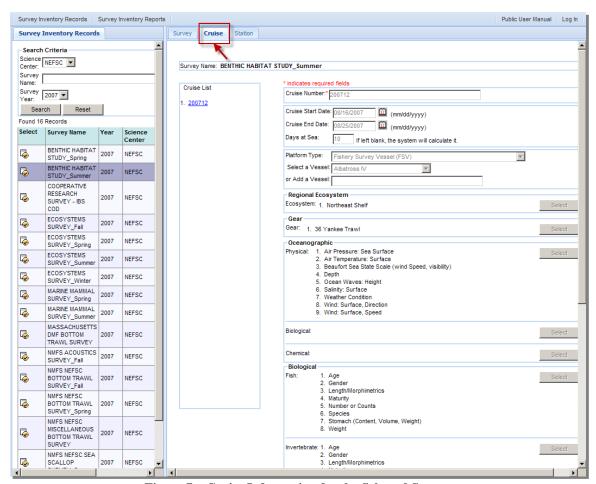

Figure 7 – Cruise Information for the Selected Survey

2.5 View Station Screen Data

Select the Station tab to observe the Station data for the selected survey.

The station information for this selected survey is illustrated in Figure 8. In this case the Location Type is Track-Line where both Begin Lat/Lon and End Lat/Lon values are listed out for the stations.
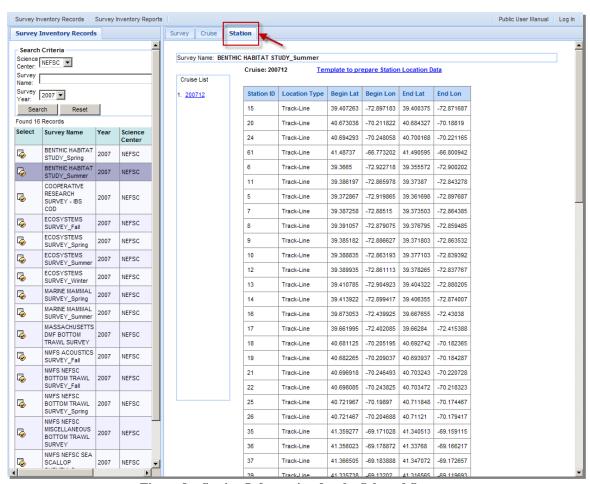

Figure 8 – Station Information for the Selected Survey

Another example for Station information for a selected survey is shown in Figure 9. In this particular case the Location Type is Point where only Begin Lat/Lon values are listed for the stations.
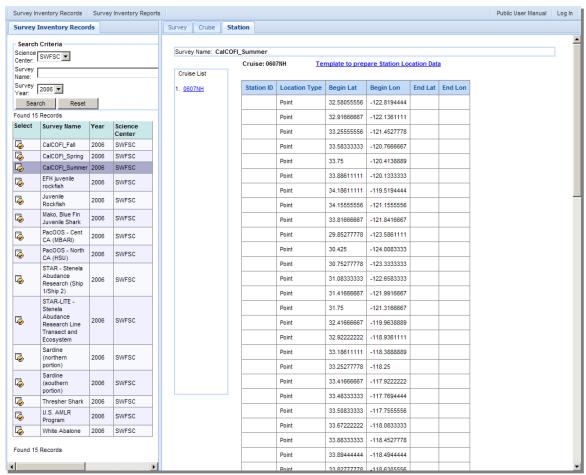

Figure 9 – Station Information for another Selected Survey Example

3. Survey Reports

Survey reports include table report, interactive report and map report. For direct public accesses for tabular reporting and map reporting functionalities, see FINSS Tabular Reporting Quick Start Guide and FINSS Tabular Reporting Quick Start Guide, located at FINSS Homepage.

If access from the Survey Record Interface, select the 'Survey Inventory Records' button at the top of the screen as shown in Figure 10.
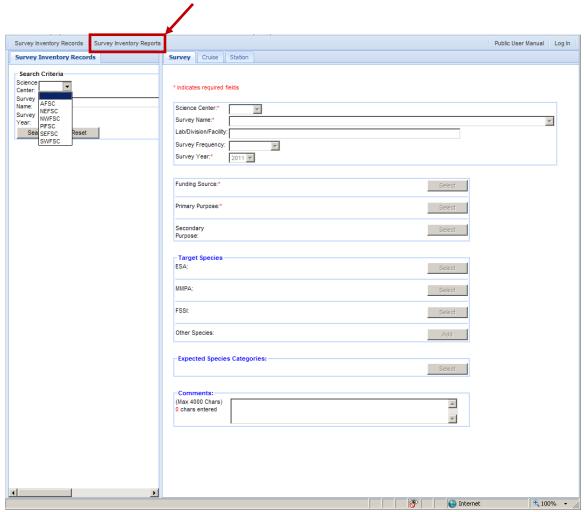

Figure 10 – Survey Record Interface

3.1 Select Parameters

To generate reports, first set up the Report Criteria by selecting parameters for:

- Survey Year
- Science Center
- Survey Name
- Funding Source
- Purpose

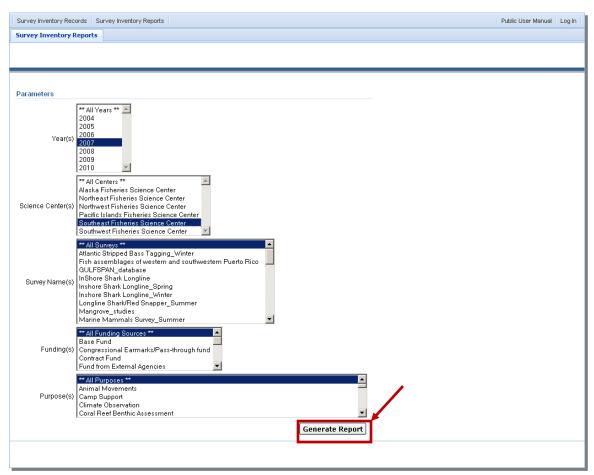A sample setup (SEFSC 2007) is shown in Figure 11.

Figure 11 – Setup for Survey Report

3.2   Map Report

To produce a map, select the 'Generate Report' button at the bottom of the parameter page (See Figure 11). After you zoom in closer, you should observe the sample Map Report from the supplied survey criteria (SEFSC 2007 in this example) shown in Figure 12.

There are multiple component overlays for this map. One is the Exclusive Economic Zone (EEZ) with an outline indicated for the region. Another component is the "heat map" display, which shows the observation density for the currently selected stations, calculated for a grid with a cell size of ¼ degree. These cells are color-coded using a range of colors indicated by the scale in the right panel, where the "temperature" is proportional to station density.

The EEZ may be toggled on/off by checking or unchecking the box next to 'US EEZ'. Similarly, the heat map may be toggled by checking or unchecking the box for 'Survey stations within selected area'.
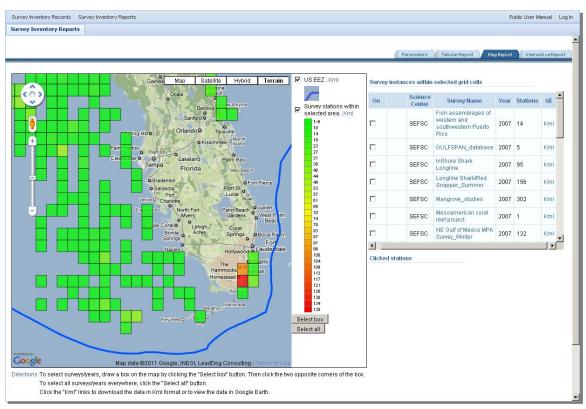

Figure 12 - Sample Map Report

To drill down for additional detailed station information, you may define an area of interest by drawing a box on the map. Only those surveys/stations within the box will be available as layers. If you want to return all survey instances that match your parameters, click the 'Select All' button.

The steps for creating a Select Box are:

- Click the 'Select box' button
- Click one corner of the box
- Click on the opposite corner of the desired box

An example is shown in Figure 13 where the first corner has been selected and a marker has been displayed on the map.
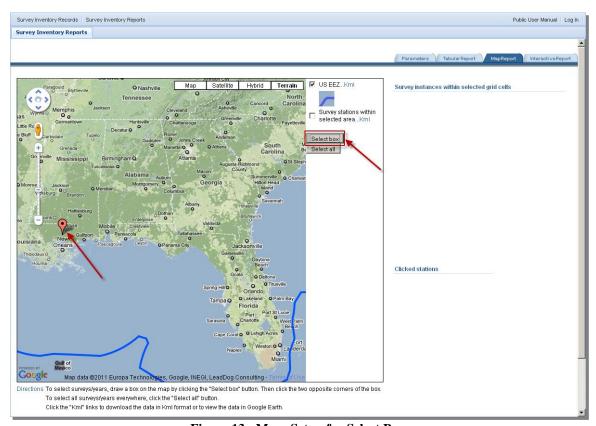

Figure 13 - Map: Setup for Select Box

After the second corner has been selected, the Select Box will be created as illustrated in the example shown in Figure 14. A table for the 'Survey instances within selected grid cells' is also displayed in the right panel.
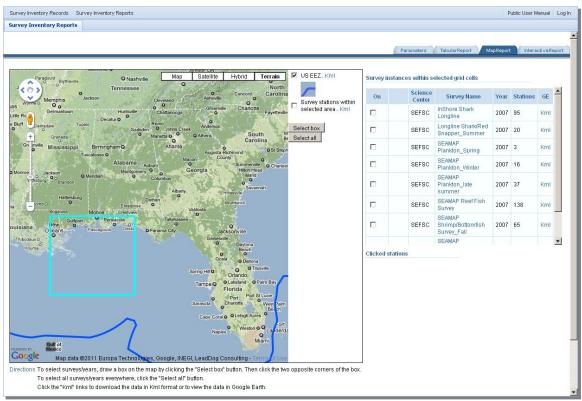

Figure 14 - Map: Select Box Defined

To turn on the stations for individual surveys/years, click on each check-box of interest under the 'On' column. Each survey instance that you turn on gets a different color as shown on the map and the corresponding table entry. You may display up to eight survey instances at one time. An example with four survey instances is shown in Figure 15.

To download the geospatial data for a survey instance in Kml format or to view the data in Google Earth, click on the 'Kml' link for the survey instance.
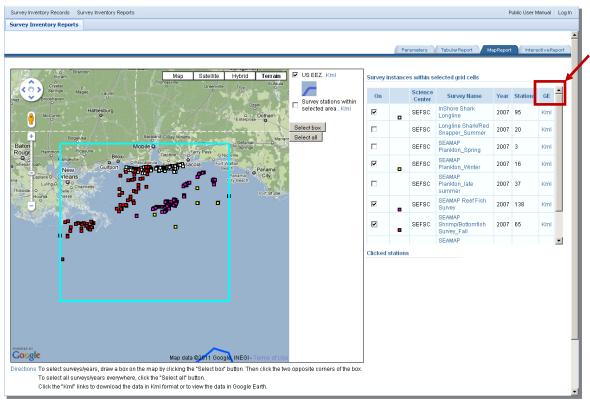

Figure 15 - Map: Survey Instances inside a Select Box

To show the attributes of an individual station or stations, click on the station (or stations) on the map. The attributes of those stations will show up in the window on the right side of the screen and the selected stations will be highlighted on the map. If the station has a beginning and ending point (as in trawl), a black line will also be displayed connecting these two points. This feature helps users find out information about overlapping stations. An example for 'SEAMAP Reef Fish Survey' is illustrated in Figure 16.
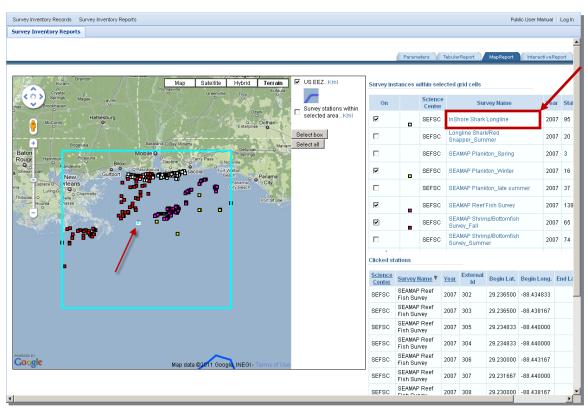

Figure 16 - Map: Display Attributes for Stations

In the list of survey instances that meet the filter parameters, click on the survey name (see Figure 16), and a summary of the survey's attributes will be displayed in a new window as shown in Figure 17.
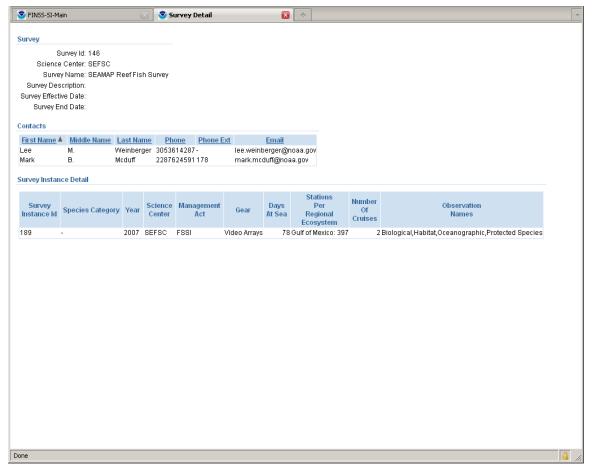

Figure 17 - Map: Summary Information for Survey

In the above example, a Select Box was created to define an area of interest. Alternately, the Select All button could be used to return all survey instances that match the chosen parameters. Follow the same steps as above: 1) Turn on the stations for individual survey instances and 2) Click on stations to show attributes. The resulting sample display is shown in Figure 18.
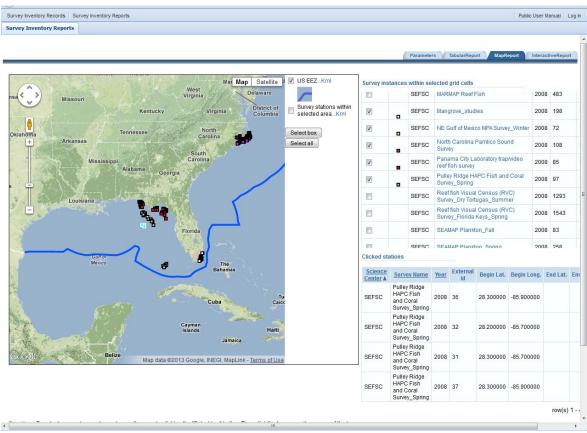

Figure 18 - Map: Show Station Attributes

3.3   Table Report

To produce a table report, select the "Generate Report" button as shown in Figure 11. This will create the sample report shown in Figure 19.
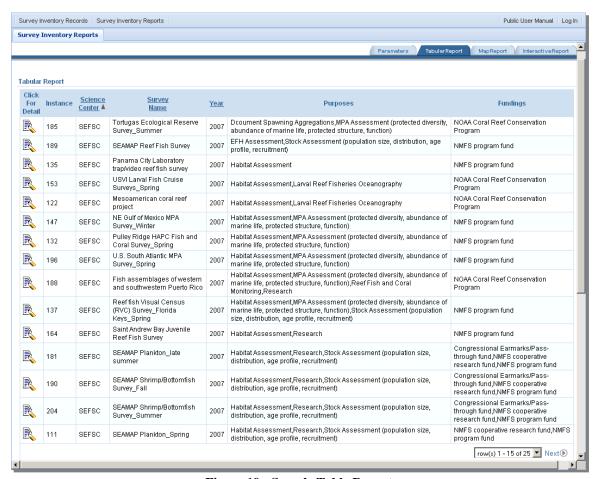

Figure 19 - Sample Table Report

To produce more information on a particular survey, click the icon in the left column next to the instance number. An example for Instance 204 is shown in Figure 20.
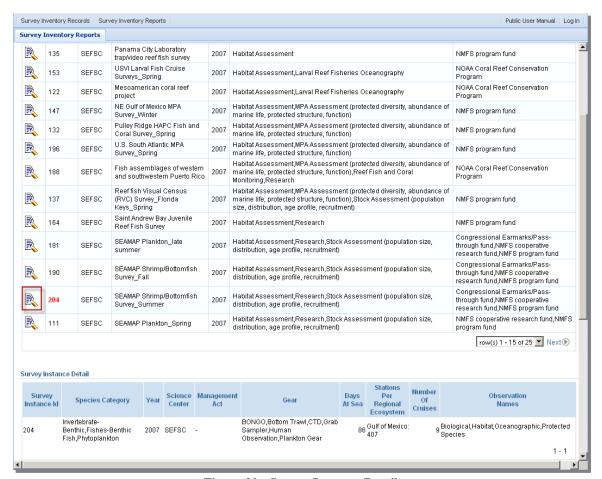

Figure 20 - Survey Instance Detail

3.4. Interactive Report

Another type of tabular report that FINSS produces is the interactive report. Select the 'Interactive Report' tab to bring up this feature as shown in Figure 21.
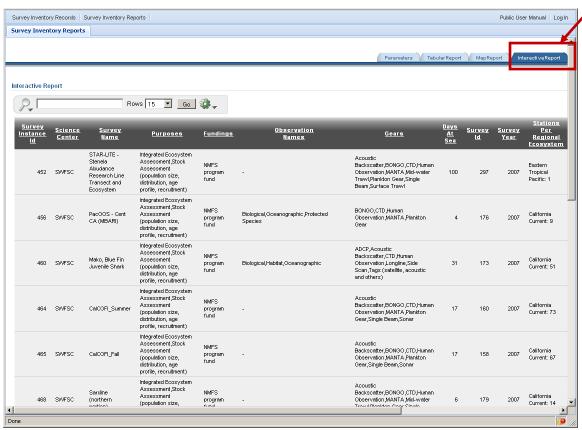

Figure 21 - Interactive Report Screen

The Interactive Report feature allows the user to sort, filter, highlight, or download results. The number of rows can be changed to alter the number of records displayed at a given time. Also, there is an option to select columns for the report.

To display a menu of interactive options, select the icon (cogwheel with down-arrow) at the top of the screen. The resulting drop-down menu of user options is illustrated in Figure 22.
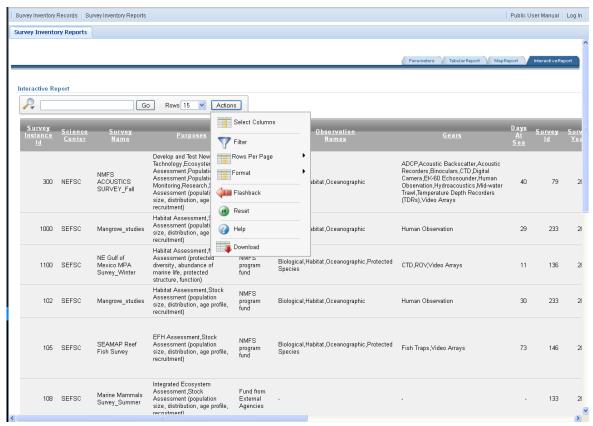

Figure 22 - Interactive Report Menu Options

As an illustration of one of the possible operations, a simple example is presented here showing the Filter option. In this case the list of survey instances is filtered for Survey Names containing 'rockfish'. The setup for this is illustrated in Figure 23. After the 'Apply' button is selected, the results shown in Figure 24 will be displayed.
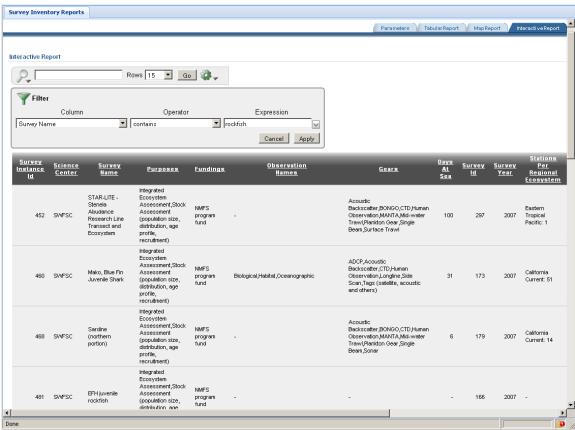

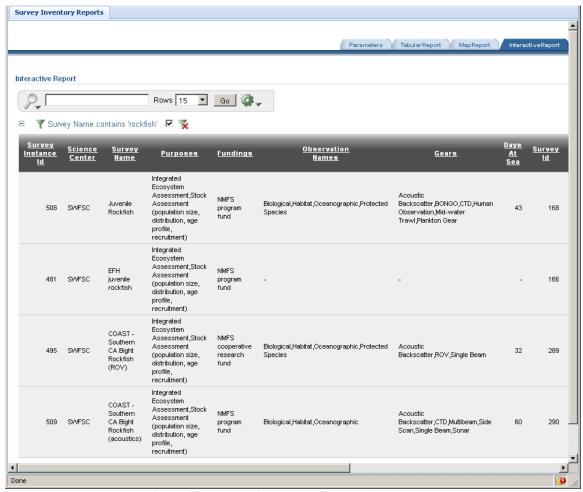**Figure 23 - Interactive Report Setup for Filter Operation**

Figure 24 - Interactive Report Sample Filter Results