

South Florida/Caribbean Network

National Park Service
Inventory and Monitoring Division



Standard Operating Procedure SET07

Mangrove Rod-Soil Surface Elevation Table (RSET) Database User Manual—Version 2.0

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Summary

The following standard operating procedure (SOP) outlines the procedures involved in entering rod-surface elevation table data that is collected by the South Florida/Caribbean Network (SFCN) into a web application hosted on the Integrated Resource Management Applications (IRMA) platform.

These procedures use the surface elevation table (SET) database that was developed in a cooperative effort between the Northeast Temperature Network (NETN), Northeast Coastal and Barrier Network (NCBN), National Capital Region Network (NCRN), Southeast Coastal Network (SECN), and the South Florida Caribbean Inventory and Monitoring Network (SFCN).

Database usage starts by creating the sites, stations/benchmarks, pins, and pin collections needed for data entry. Then event information, SET readings, and marker horizon measurements from the field data sheets can be entered. For SET readings, a double entry can be performed to validate the data. Both SET and marker horizon readings can also be validated manually by having a second person review the entries against the original field sheets

Revision Log

Revision Date	Author	Changes Made	Reason for Change	New Version #
July 2016	N. Cortez	Initial creation	Initial creation	1.0
July 2020	K. Montenegro, M. Prats, and J. Patterson	Rewrote SOP to apply to the new online database. Added steps for setting up users, sites, stations, pins, and pin collections. Added steps for data entry, review, and validation. Added section on database access, maintenance, and running reports.	The older Microsoft Access database has been replaced with a multinetwork online database, so all digital data procedures were updated.	2.0

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Background

The original SET database was developed cooperatively by several networks, including the Northeast Temperate Network (NETN), North Coast and Barrier Network (NCBN) and National Capital Region Network (NCRN). The South Florida/Caribbean Network began working with Geoffrey Sanders (NCRN) to adapt the database for the SFCN Coastal Geomorphology Vital Sign (Sanders 2015).

Currently, the database being used is a SQL Server backend database and a Microsoft .NET web interface running on a Microsoft IIS web server. The entire system resides within the Integrated Resource Management Applications (IRMA) portal. The URL for the production database is <https://irma.nps.gov/SET/> and a beta/development environment is also available at <https://irmadev.nps.gov/SET/> (Patterson 2017).

This newer surface elevation table (SET) database was facilitated by WASO IMD and contractors and developed cooperatively between the Northeast Coastal and Barrier Network (NCBN), National Capital Region Network (NCRN), Southeast Coastal Network (SECN), and the South Florida Caribbean Inventory and Monitoring Network (SFCN). Collected data are stored within the online NPS SET application website by logging sampling events and recording information from the field data sheets to the sampling event tables created.

Procedures

The following sections provide instructions for carrying out various functions within the database.

Accessing the Database

Users

To use the database a user must first have a Personal Identity Verification (PIV) card and corresponding account in NPS Active Directory. A SET Project Manager or Administrator can then add the new account as an internal user with an appropriate role. The available roles are:

- Administrator—An Administrator has access to update lookup table values and manages other administrator permissions. Administrators also have all permissions granted to Project Managers and Data Contributors.
- Project Manager—A Project Manager can add or modify Stations and Sites (including Marker Horizons), add or modify SET staff (users who may not be NPS personnel (i.e., partner users), assign or unassign partner users, add or modify pins and pin collections, and add or modify SET instrument lookup table values. Unused marker horizons, unused pin collections, and station visits can be deleted. Project Managers also have all permissions granted to Data Contributors.
- Data Contributor—A Data Contributor can add and edit field data (pin and marker horizon data).

Network Data Managers should hold the Project Manager or Administrator role and can assist in adding new users. Care is needed to provide the appropriate access level so that lists or records are not accidentally edited or deleted. For the purpose of adding or editing sampling event data, users only require Data Contributor status.

Production Database

To access the production version of the database, open the following link: <https://irma.nps.gov/SET/>. Login should be automatic for users with a Personal Identity Verification (PIV) card and who have been granted access to the application. Data entry, quality assurance (QA), quality control (QC), and data browsing of the final data are done through this website.

Development Database

A separate beta/development database can be accessed at: <https://irmadev.nps.gov/SET/>. This database is where testing occurs, both to train users as well as to check updated features before they are released to the production environment. Login should be automatic for users with a Personal Identity Verification (PIV) card and who have been granted access to the application. Note that the production and development environment have separate user lists, so it is possible to have access to only one. The data on the development database is only for testing purposes and is periodically replaced with the latest copy from the production database.

Network Selection

On the NPS SET application homepage, choose the South Florida/Caribbean Network (SFCN) from the drop-down list. The label above the drop-down list indicates the currently selected network. Be certain that “South Florida/Caribbean Network (SFCN)” is the network listed (Figure 1), as all Project Manager, Data Contributor, and Report functions will apply to this single network.

The screenshot shows the NPS SET application home screen. The header is dark green with white text: 'SET Integrated Resource Management Applications' and 'Part of IRMA (NPS_Set-1.2.0_17145_20190823:13:55:10)'. On the right, it says 'National Park Service U.S. Department of the Interior' and 'Natural Resource Stewardship and Science' with the NPS arrowhead logo. Below the header is a green navigation bar with white text: 'Home', 'Reports', 'Data Contributor', and 'Project Manager'. On the right of the navigation bar are 'Help' and 'Contact Us'. The main content area is white with a green border. It says 'Home' in the top left. In the center, it says 'Welcome to the NPS I&M Surface Elevation Table (SET) database. Choose a network to add or manage your data.' Below this, there is a dropdown menu labeled 'South Florida/Caribbean Network (SFCN)' and 'Network'. The dropdown text is 'Begin typing or Select...'. There are two buttons: 'Add Data' and 'Review/Edit Data'.

Figure 1. Application home screen displaying the Network drop-down menu.

Preparing for Data Entry

Adding a Site

On the NPS SET application homepage, hover over the green “Project Manager” drop down at the top of the site and click on “Manage Sites”. On the next page, select the “Add New Site” button on the right (Figure 2).

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Manage Sites mprats

South Florida/Caribbean Network (SFCN)

Filter by Park Name Select...

Park Name ^	Site Name ^
Biscayne National Park	BISC 1
Biscayne National Park	BISC 2
Salt River Bay National Historical Park and Ecological Preserve	SARI 1
Virgin Islands National Park	Mary's Creek
Virgin Islands National Park	Water Creek

Add New Site

Add new Site

Figure 2. “Manage Sites” page, under the Project Manager tab.

Fill out the site information dialogue box that opens. “Park Name” is the name of the park unit where the SET was established. “Site Name” identifies the SET site within the park. “Site Code” is a short hand for the Site Name. “Site Centroid/Reference Point” is the latitude and longitude (in decimal degrees) for the site’s geographic location. “Description” is for any details or notes about the site.

Once all sections are filled in, click the green “Submit” button on the bottom right (Figure 3). The newly created site will now appear on the site list, sorted by Park Name then Site Name.

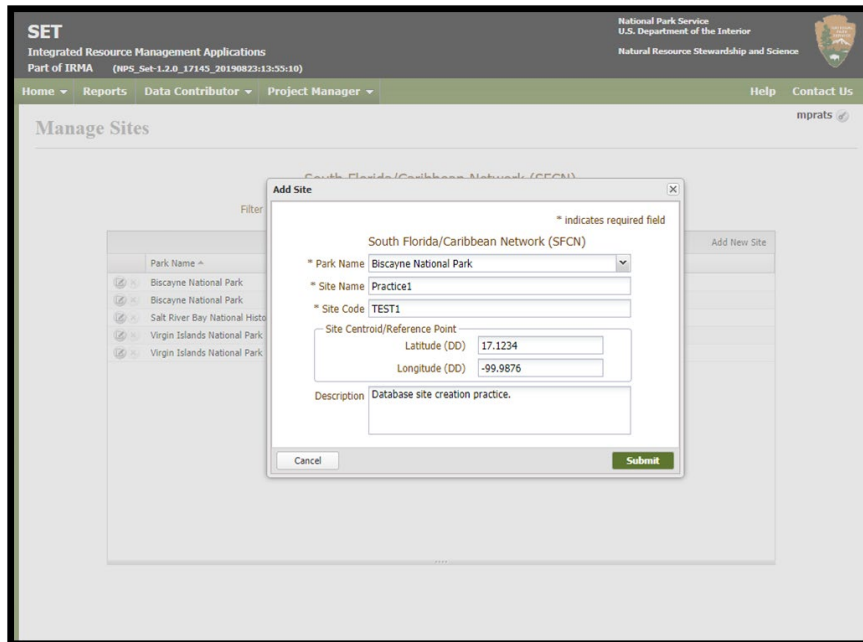


Figure 3. The “Add Site” dialogue box that appears after selecting “Add New Site”.

Adding a Station/Benchmark

On the NPS SET application homepage, hover over the green “Project Manager” drop down at the top of the site and click on “Manage Stations”. On the next page, there is a list of all stations in the database. At the top of the window there are two drop down boxes to narrow the list. First, select the correct Park from the “Filter by Park Name” drop down box and then select the correct site name from the “Filter by Site” drop down box (Figure 4). Next, select the “Add New Station” button in upper right corner of the list.

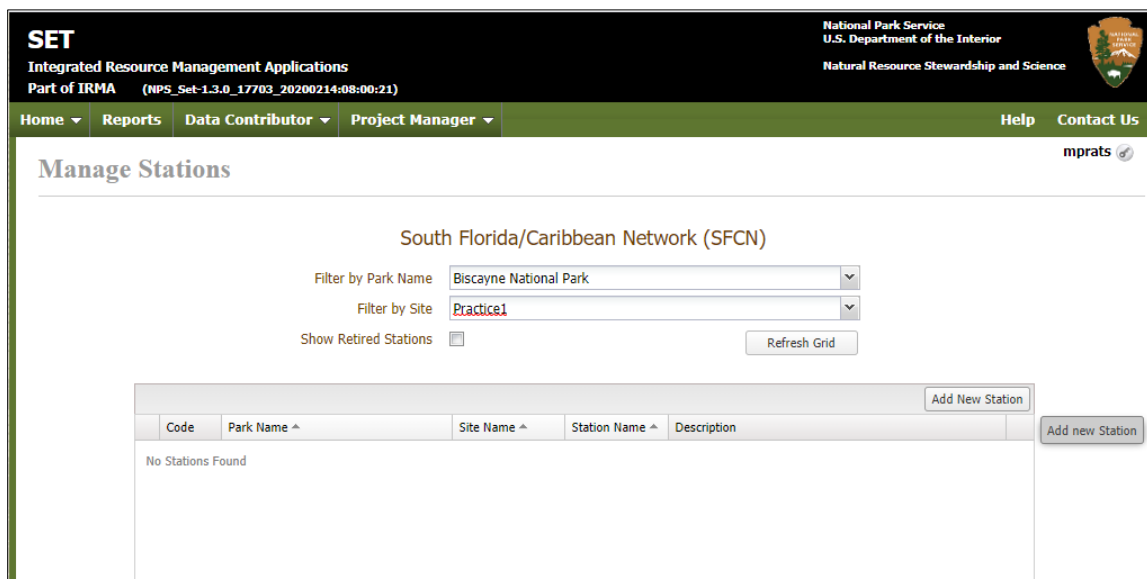


Figure 4. “Manage Stations” page with park name and site filters selected.

Fill in all available information about the site Station. Notice, there are three sections to fill out, Basic Information, Installation Information, and Data Processing Level (Figure 5).

Under Basic Information, select the correct “Park Name” and “Site.” The site stations are the SET benchmarks at the SET site. “Station Name” therefore, is Benchmark 1, 2, or 3. “Station Code” is the code used as the shorthand of the site location. “Latitude (DD)” and “Longitude (DD)” hold the coordinates for the specific station in decimal degrees. “Receiver Pipe Elevation” is the National Geodetic Survey measurement for the elevation of the benchmark. “Time Zone” is selected based on the location. “Default SET Instrument” and “Default Pin Collection” are chosen from the available options in the database. These equipment options will become the defaults for future station visits but can be overridden at the time of data entry. There is a “Description” text box to write out any important Station information. “Protected Status” indicates if the station location should be considered sensitive, protected information.

In the Installation Information section, fill out the “Date Established” with the date of installation. Fill in the manufacturer information for the Receiver and the Rod. “Rod Depth (m)” is the depth of rod installed below ground. For the “Method of Install” drop down the method by which the rod was installed below ground. Check the box indicating if the Rod Depth hit Refusal.

The Data Processing Level section indicates if the Station data has been reviewed. The default is Raw, but after confirmation of station details this can be changed to Accepted.

South Florida/Caribbean Network (SFCN)
Biscayne National Park
Practice1 -

Information Images Marker Horizons SET Direction

* indicates required field

Basic Information

- * Park Name: Biscayne National Park
- * Site: Practice1
- * Station Name: Benchmark 1
- * Station Code: TEST1_1
- * Latitude (DD): 17.2111
- * Longitude (DD): -99.9854
- Receiver Pipe Elevation (m): .2
- * Time Zone: Eastern
- * Default SET Instrument: SFCN SET
- * Default SET Pin Collection: Practice1
- Description:
- * Protected Status: Not Protected

Installation Information

- * Date Established: 05/07/2020
- Receiver Manufacturer: Receiver M
- Rod Manufacturer: Rod maker
- * Rod Depth (m): 40
- SET Receiver Height (mm): 21
- Is Rod Depth Refusal: ☒ (Check for "YES")
- * Method of Install: Demolition Hammer

Data Processing Level

- * Data Processing Level: Accepted
- Data Processing Level Note:

Cancel Save Save & Close

Figure 5. The “New Station” information window, with example information filled in.

When done entering the station information, click on the green “Save & Close” button on the bottom right. Complete this form for all three stations at the site.

Adding Pins and Pin Collections

Each SET instrument is measured with a set of nine pins that are lowered to the ground. A database update in August 2019 incorporated the ability to track both individual pins and their attributes as well as the collection of pins that are used for measurements. These need to be created and associated with each station visit.

Adding New Pins

On the NPS SET application homepage, hover over the green “Project Manager” drop down at the top of the site and click on “Manage Pins”. The next page is a list of all the pin information stored for the each individual pin. To add new pin information, select the “Add New Pin” button on the top right corner of the list (Figure 6).

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mprats

Manage Pins

Filter by Label:

Label	Pin Material	Position	Length (mm)	Diameter (in)	Foot	Foot Diameter (in)
☒ PL_1	Fiberglass	1	761	0.25	false	0
☒ PL_2	Fiberglass	2	761	0.25	false	0
☒ PL_3	Fiberglass	3	762	0.25	false	0
☒ PL_4	Fiberglass	4	761	0.25	false	0
☒ PL_5	Fiberglass	5	762	0.25	false	0
☒ PL_6	Fiberglass	6	761	0.25	false	0
☒ PL_7	Fiberglass	7	761	0.25	false	0
☒ PL_8	Fiberglass	8	761	0.25	false	0
☒ PL_9	Fiberglass	9	761	0.25	false	0
☒ New_SARI_1	Fiberglass	1	1141	0.25	false	0
☒ New_SARI_2	Fiberglass	2	1141	0.25	false	0
☒ New_SARI_3	Fiberglass	3	1140	0.25	false	0
☒ New_SARI_4	Fiberglass	4	1141	0.25	false	0
☒ New_SARI_5	Fiberglass	5	1141	0.25	false	0
☒ New_SARI_6	Fiberglass	6	1141	0.25	false	0
☒ New_SARI_7	Fiberglass	7	1141	0.25	false	0

Show Inactive Pin ☐

Figure 6. The “Manage Pins” page.

An “Add Pin” dialogue box will appear (Figure 7). Fill out the pertinent information. “Label” identifies where the pin is assigned to be used. “Pin material” described what material the pin is made out of: brass, fiberglass, or steel. “Pin position” identifies which number pin (1-9) you are entering. This position number is permanent. “Length (mm)” is the total length of the pin. “Pin Diameter (in)” is the diameter of the pin. “Foot present” is checked if there is a ‘foot’ at one end of the pin where it will rest on the surface of the ground. “Active” is checked if the pin being entered is going to be actively used. This box is unchecked in the event a pin is retired.

Click the green “Save” button on the bottom right of the box when done. This form needs to be filled out for each of the 9 pins.

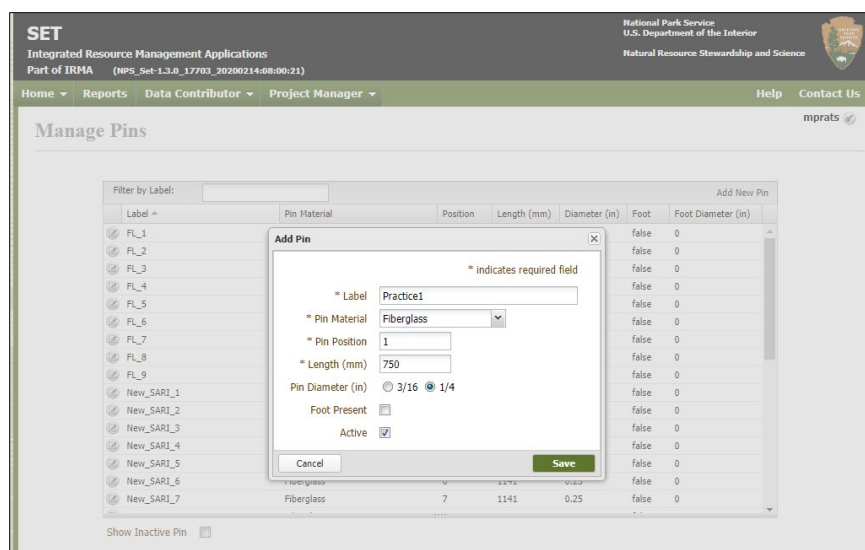


Figure 7. The “Add Pin” dialogue box that appears after selecting “Add New Pin”.

Adding a Pin Collection

In this step, individual pins are assigned to a collection. On the NPS SET application homepage, hover over the green “Project Manager” drop down at the top of the site and select “Manage Pin Collections”. The next page is a list of the pin collections in the database. Each pin collection contains 9 individual pins and their specifications. On the next page, select the “Add New Pin Collection” button from the top right corner of the list (Figure 8).

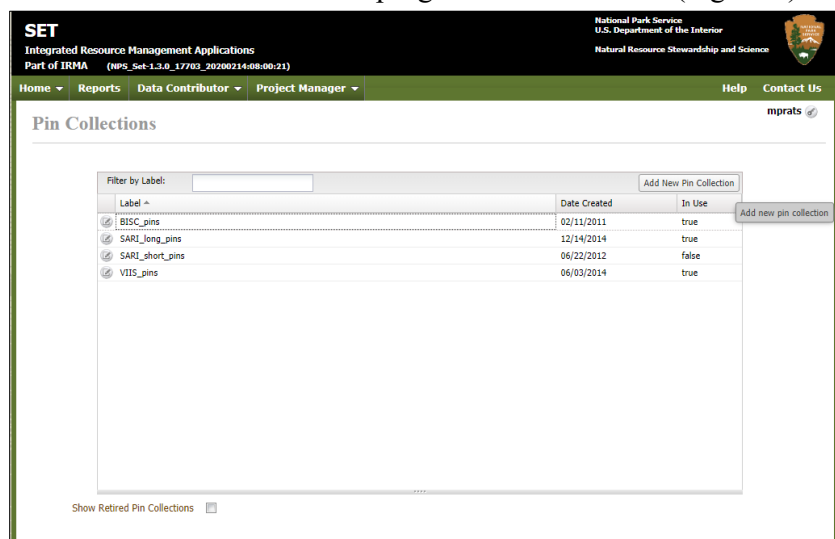


Figure 8. The “Manage Pin Collections” page.

At the top of the next page, fill out the new collection’s information. “Label” needs to be descriptive enough that it can be easily associated with sampling events. In many cases the pin collection is named based on the park where it is used for all sites (e.g. VIIS_pins). Next, check “Show/Hide Available Pins” to see a list of all available pins that can be added to a collection (Figure 9).

Edit Pin Collection mprats

* Label: * indicates required field

* Date Created:

Retire this Pin Collection: ☐

Show/Hide Available Pins: ☒

Assigned Pins						
Pin Label	Pin Material	Pin Position ^	Pin Length (mm)	Pin Diameter (in)	Foot	Foot Diameter (in)
☒ Practice1_1	Fiberglass	1	750	0.25	false	0

Available Pins						
Pin Label	Pin Material	Pin Position ^	Pin Length (mm)	Pin Diameter (in)	Foot	Foot Diameter (in)
☐ New_SARI_1	Fiberglass	1	1141	0.25	false	0
☐ Old_SARI_1	Fiberglass	1	759	0.25	false	0
☐ StJohn_1	Fiberglass	1	763	0.25	false	0
☐ FL_1	Fiberglass	1	761	0.25	false	0
☒ New_SARI_2	Fiberglass	2	1141	0.25	false	0
☐ Old_SARI_2	Fiberglass	2	759	0.25	false	0
☐ StJohn_2	Fiberglass	2	763	0.25	false	0
☐ FL_2	Fiberglass	2	761	0.25	false	0
☒ Practice1_2	Fiberglass	2	750	0.25	false	0
☐ Add pin to pin collection	Fiberglass	3	1140	0.25	false	0
☐ StJohn_3	Fiberglass	3	759	0.25	false	0
☐ FL_3	Fiberglass	3	762	0.25	false	0
☒ Practice1_3	Fiberglass	3	751	0.25	false	0
☐ New_SARI_4	Fiberglass	4	1141	0.25	false	0
☐ Old_SARI_4	Fiberglass	4	759	0.25	false	0
☐ StJohn_4	Fiberglass	4	763	0.25	false	0
☐ FL_4	Fiberglass	4	761	0.25	false	0

Figure 9. The “Edit Pin Collection” page where the new pin collection information is entered.

Next, go down the list and click the plus sign to the left of the “Pin Label” for each pin within that collection (e.g. Practice1_1, Practice1_2, Practice1_3, etc.) Note, that each pin has a “Pin Position” attribute and only one pin from each position can be assigned to a collection.

Once all nine pins have been added, click the green button “Save & Close” at the bottom right of the window. The new pin collection will now appear in the list of available pin collections (Figure 10).

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Pin Collections mprats

Filter by Label:	Add New Pin Collection	
Label ^	Date Created	In Use
☒ BISC_pins	02/11/2011	true
☒ Practice1	05/07/2020	false
☒ SARI_long_pins	12/14/2014	true
☒ SARI_short_pins	06/22/2012	false
☒ VIIS_pins	06/03/2014	true

Figure 10. List of available Pin Collections.

Adding a Station Visit Event

From the home page of the application click the “Add Data” button (alternatively, click the ‘Data Contributor’ menu item and choose ‘Add Data’).

In the “Stations” box, find the row containing “Park Name”, “Site Name”, and “Station Name” relevant to the sampling event you would like to add (Figure 11). The park and site drop-down filters can be very helpful in narrowing the choices. Keep in mind that in the field, three stations/benchmarks are sampled at a site. These data entry steps will need to be repeated three times (once per station) to complete the site visit.

Add Data

South Florida/Caribbean Network (SFCN)

Park Name:

Site:

Stations			
Park Name	Site Name	Station Name	Last Event Date
+ Biscayne National Park	BISC 1	Benchmark 1	09/06/2019
+ Biscayne National Park	BISC 1	Benchmark 2	09/05/2019
+ Biscayne National Park	BISC 1	Benchmark 3	09/05/2019
+ Biscayne National Park	BISC 2	Benchmark 1	09/06/2019
+ Biscayne National Park	BISC 2	Benchmark 2	09/06/2019
+ Biscayne National Park	BISC 2	Benchmark 3	09/06/2019
+ Salt River Bay National Historical Park and Ecological Preserve	SARI 1	Benchmark 1	12/13/2019
+ Salt River Bay National Historical Park and Ecological Preserve	SARI 1	Benchmark 2	12/13/2019
+ Salt River Bay National Historical Park and Ecological Preserve	SARI 1	Benchmark 3	12/13/2019
+ Virgin Islands National Park	Mary's Creek	Benchmark 1	12/18/2019
+ Virgin Islands National Park	Mary's Creek	Benchmark 2	12/18/2019
+ Virgin Islands National Park	Mary's Creek	Benchmark 3	12/18/2019
+ Virgin Islands National Park	Water Creek	Benchmark 1	12/19/2019
+ Virgin Islands National Park	Water Creek	Benchmark 2	12/19/2019
+ Virgin Islands National Park	Water Creek	Benchmark 3	05/30/2019

Figure 11. A screenshot of a webpage listing options for adding a sampling event.

After locating the appropriate station that matches the sampling event’s park, site, and benchmark number, click on the “+” button on the far-left side of the appropriate station’s row. This will create a new sampling event for the selected station which can be used for data entry (Figure 12).

Entering Sampling Data

In the “Event Date” box, select the date that the data were collected in the field. In the “Event Time” box, select the time closest to when the data were collected in the field. If the site was not dry during the sampling event, enter the depth of water on marsh surface in the “Inundation Level (cm)” entry. If there were any additional notes on the pin data field sheet pertaining to the site, time of event, or inundation level, type them into the “Notes” entry.

Add Data

kmontenegro

Station: Benchmark 1

Site: BISC 1

Park: Biscayne National Park

* Event Date

* Event Time
Eastern time zone

Inundation Level (cm)
Depth of water on marsh surface

Notes

No Marker Horizon Data
☐

Data Processing Level

Raw

Data Processing Level Note

* indicates required field

If Marker Horizons exist, but measurements were not attempted for this site, click the “No Marker Horizon Data” checkbox. If this is checked, a required “No Core Reason” box is shown. If Marker Horizons were attempted, then skip this checkbox. Note that the “No Marker Horizon Data” checkbox will remain hidden if there are no active marker horizons configured for the station. In the Data Processing Level box, leave the default value of “Raw” for new data entry.

By clicking on the “SET Data” tab, SET pin data for the sampling event can be entered (Figure 13). In the “SET Reader” box, select the name that matches the name of the SET Reader written on the field data sheet. In the “SET Recorder” box, select the name that matches the name of the SET Recorder written on the field data sheet. In the “SET Instrument” box, select the option “SFCN SET”

In the “Vegetation Notes” box, type any comments that were written about the seagrass/vegetation during the sampling event. In the “Notes” box, type any comments that were written in the “comments” box at the end of the field data sheet.

The screenshot shows the 'SET Data' tab in the 'Add Data' page. It features four dropdown menus: '* SET Reader' (placeholder: 'Begin typing a name...'), '* SET Recorder' (placeholder: 'Begin typing a name...'), '* SET Instrument' (selected: 'SFCN SET'), and '* Pin Collection' (placeholder: 'Select pin collection...'). Below these are two text input fields: 'Vegetation Notes' and 'Notes'.

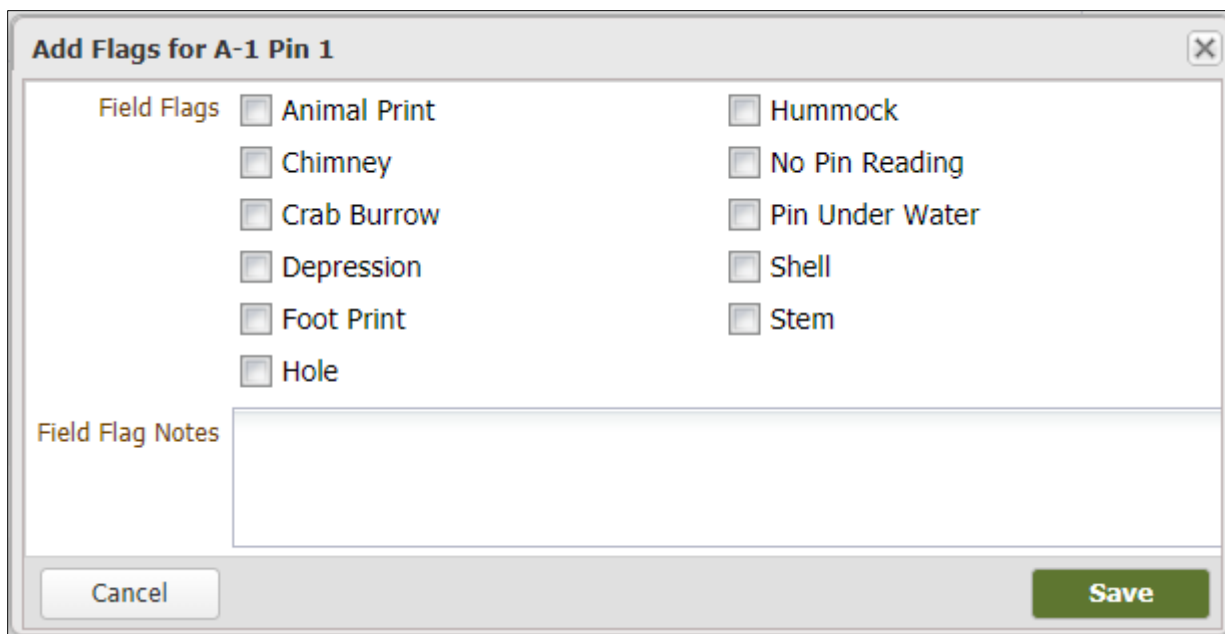
Figure 13. A screenshot of the center of the Add Data page which contains pin sampling information.

In the “SET Data” tab box, input data values into the Pin Reading boxes based on their pin number and direction (Figure 14). The direction at which the SET reading was taken is at the top of each column of Pin Reading boxes.

The screenshot shows the bottom of the 'Add Data' page. It features a table for pin readings with columns for 'Pin:', 'A-1 (mm)', 'B-92 (mm)', 'C-138 (mm)', and 'D-270 (mm)'. Each column has a 'Direction' label at the top. The table contains rows for pin numbers 1 through 9. Each row has input boxes for height and a '+' button. Below the table are 'Notes' input fields for each column. At the bottom, there is a 'SET Data Validation' section with buttons for 'Double Entry', 'Manual', and 'Save'. There is also a 'Manual Validation Note' text area and a 'Validated by:' field.

Figure 14. The bottom of the “Add Data” page which contains pin reading data and validation.

Click the “+” button next to each Pin Reading Box to add notes or flags for a specific Pin Reading. If notes were added for a specific Pin Reading, the “Add Flags for [Specific Pin Reading]” box will appear (Figure 15). Check any Flag boxes that apply to that specific Pin Reading. If there is no value for a specific pin reading, it is important that you check the “No Pin Reading” box. Every pin reading must either have a pin value or the “No Pin Reading” flag before the station visit can be saved. In the “Field Flag Notes” box, type any comments that were written in the “comments” box of the field data sheet for that specific Pin Reading.



Add Flags for A-1 Pin 1

Field Flags

☐ Animal Print	☐ Hummock
☐ Chimney	☐ No Pin Reading
☐ Crab Burrow	☐ Pin Under Water
☐ Depression	☐ Shell
☐ Foot Print	☐ Stem
☐ Hole	

Field Flag Notes

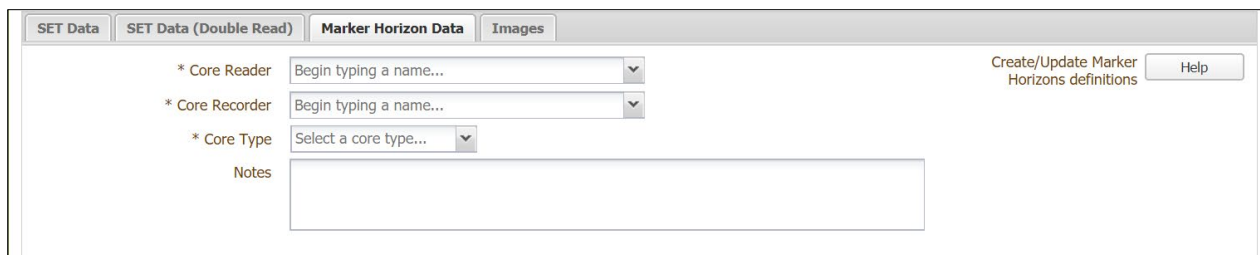
Cancel Save

Figure 15. The Add Flags window for a specific pin reading.

Back on the “SET Data” tab box, there are four “Notes” boxes below each Pin Reading column. Type any comments concerning a specific direction into the appropriate “Notes” box.

Entering Marker Horizon Data

By clicking on the “Marker Horizon Data” tab, Marker Horizon data information for the sampling event can be entered. In the “Core Reader” box, select the name of the person who collected and measured the core. In the “Core Recorder” box, select the name of the person who recorded the data on the field marker horizon data sheet. In the “Core Type” box, select the option that best describes the method used to extract the core from the ground. Any additional comments pertaining to the core can be written within the “Notes” box.



SET Data SET Data (Double Read) **Marker Horizon Data** Images

* Core Reader

* Core Recorder

* Core Type

Notes

Create/Update Marker Horizons definitions Help

Figure 16. The top of the “Marker Horizon Data” tab.

In the “Marker Horizon Data” tab, there are multiple columns designated for each active Marker Horizon plot at the site (Figure 17). At the top of each of column, select the “Condition” from the drop-down menu. The readings for each plot are entered in the appropriate column. Additional information regarding the core plots is recorded within the Notes below each core reading column.

Figure 17. The bottom of the “Marker Horizon Data” tab which contains core reading data and validation.

Review/Editing Existing Data

Data can be edited/updated after its initial entry. On the NPS SET application homepage, choose the South Florida/Caribbean Network (SFCN), from the drop-down list. The label above the drop-down list displays the currently selected network (Figure 18).

Figure 18. Online database home screen displaying Network drop-down menu.

Click the “Review/Edit Data” button (alternatively, click the ‘Data Contributor’ menu item and choose ‘Review/Edit Data’). In the “Stations” box, find the row containing “Park Name”, “Event Date”, “Site Name”, and “Station Name” relevant to the sampling event you would like to review. Park and Site filters can be used to narrow the choices.

After locating the station visit of interest, click on the “View/Edit Data” button on the far-left side of the appropriate row (highlighted in yellow on Figure 19). Be aware that Project Managers will also see a nearby “Remove Station Data” button which will permanently delete a sampling event. Be certain of which button you are choosing.

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Review/Edit Data kmontenegro

South Florida/Caribbean Network (SFCN)

Park Name:

Site:

Station:

Event Year:

Stations				
	Park Name	Site Name	Station Name	Event Date
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	09/05/2019
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	04/29/2019
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	03/13/2018
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	09/27/2017
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	03/08/2017
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	09/22/2016
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	03/16/2016
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	09/24/2015
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	02/13/2015
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	09/03/2014
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	02/13/2014
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	09/13/2013
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	02/20/2013
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	09/11/2012
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	01/05/2012
☒ ☐	Biscayne National Park	BISC 1	Benchmark 1	07/06/2011

Figure 19. The Review/Edit Data Station screen with the “Edit/Review Data” buttons highlighted in yellow on the far-left side of the “Stations” box.

Double Read Data

If “Double Read” pin data were recorded during a sampling event, the data are entered into the SET database. Currently this data entry can only occur after a station visit has been saved and is revisited in “Review/Edit Data”.

On the “Review/Edit Data” page of the saved sampling event, click on the “Add “Double Read” Pin Data” box (located below the “No Marker Horizon Data” box). An additional tab labeled “SET Data

(Double Read)” will appear and can be clicked on for data entry. “Double Read” pin data and relevant information pertaining to the sampling event are entered on this tab similar to adding data on the “SET Data” tab. A key difference in the “SET Data (Double Read)” tab to the “SET Data” tab is that a “Reason” drop-down menu will be added and required. The “Reason” drop-down menu is located beneath the “Pin Collection” drop-down menu in the “SET Data (Double Read)” tab (Figure 20).

Figure 20. The “Review/Edit Data” page with the “Add “Double Read” Pin Data” box selected. An additional tab labeled “SET Data (Double Read)” can be used to enter “Double Read” SET data.

Validation

After data entry, both the SET Data and Marker Horizon Data can be validated. When validation is recorded, both the name of the validator and the date of validation are recorded in the database.

Validating SET Data

At the bottom of the “SET Data” tab there is a “SET Data Validation” section. There are two options for validating SET data. The preferred method is “Double Entry” and involves retyping each pin reading until they match the original. To do this, look for the “SET Data Validation” at the bottom of the page. Click on the “Double Entry” button and a “Double Pin Entry” Box will appear.

Within the “Double Pin Entry” Box, type the Pin Reading values from the Pin Data Field Sheets beneath the directional columns like before (Figure 21). While entering Pin Reading values in the “Double Pin Entry” box, you do not have to enter any additional flags or comments for the values. Only the measured numerical values, or blanks as appropriate, are required.

Once all the pin readings have been entered, press the button “Validate”. If one or more values do not match the original data entry, a warning message will display and the mismatched values highlighted in red.

Pin:	A-1 (mm)	B-92 (mm)	C-138 (mm)	D-270 (mm)
1:				
2:				
3:				
4:				
5:				
6:				
7:				
8:				
9:				

Cancel Validate

Figure 21. The Double Pin Entry box which contains columns to input the pin measurements again.

After successfully validating the SET data, the name of the current user will appear in front of “Validated By:” along with the date of validation. Validation can also occur without double-entry but should be reserved for situations when the double entry was previously completed in the Access database or in excel files.

When validation is finished, click the “Save” button at the bottom of the “Add Station Data” box. A notification will appear explaining that after saving, in order to edit this data again, you will have to access it through “Review Station Data”. Click the “Confirm” button.

Validating Marker Horizon Data

At the bottom of the “Marker Horizon Data” tab there is a “Core Data Validation” section. Click on the “Manual” button and a “Validation Summary” box will open (Figure 22). Add a note and click “Save”.

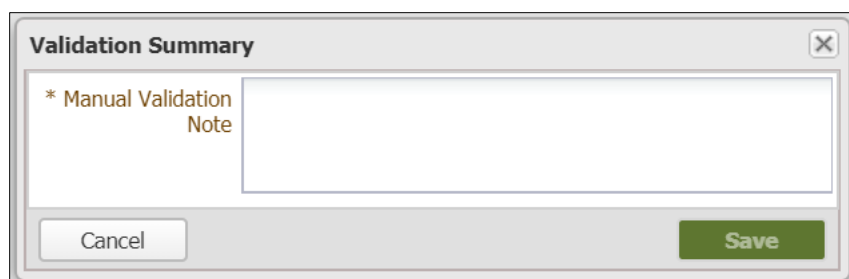


Figure 22. The “Validation Summary” pop-up box which contains a “Manual Validation Note” text box to confirm that the Marker Horizon data was validated.

Application Maintenance and Development

This SET application is frequently updated with bugs fixes and new features. While the actual changes are completed through IMD contractors in Fort Collins, the coordination of each update is made by the ‘NPS IMD SET’ team using the Microsoft Teams program. This team is comprised of the NPS staff who collect, manage, and analyze SET data, and can be joined with the following code: h0rdd0i.

Reports/Exports

The SET application has a Reports Dashboard (<https://irma.nps.gov/SET/Report>) to allow for summaries and exports to a variety of formats. These reports are run from SQL Server Reporting Services (SSRS) and can be modified by those with edit privileges on the SSRS server. There are currently three types of reports:

- Public Reports – These are available to all SET application users. Technically they are open to the general public, but the page for viewing them requires at least partner-level access.
- Internal Reports – These are available across all internal, NPS SET application users, and currently are exports of lookup tables such as “Pin Flags”, “Core Type”, etc.
- Network-specific Reports – These are available only to one network (e.g. SFCN). This is the level that currently holds the standard station, SET pin measurement, and marker horizon exports. Staff are limited to only seeing the pin and marker horizon data for their own network.

Clicking on an available report brings up a list of parameters. Adjust these as needed to filter the data and click the ‘View Report’ button on the right side of the screen. After the report is generated and shown, clicking the small disk icon will show the available export formats including XML, CSV, PDF, and Excel.

Literature Cited

- Patterson J., D. Kocol, and T. Brandle. 2017. NPS Inventory and Monitoring technical documentation: SET. National Park Service. Fort Collins, Colorado. Available at: <https://irma.nps.gov/DataStore/Reference/Profile/2277881> (last accessed March 2021).
- Sanders, G. 2015. SET database documentation v1.71. National Park Service. Available at: <https://irma.nps.gov/DataStore/Reference/Profile/2222862> (last accessed March 2021).