

Enhanced_WQ_locations

Report Number : LOXA 06-001

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What does this data set describe?

Title: Enhanced_WQ_locations

Abstract:

Three existing monitoring networks (monthly compliance monitoring, monitoring at inflow and outflow structures, and 11 stations along two transects in the southwest) operated by the South Florida Water Management District (SFWMD) regularly monitor water quality within the Arthur R. Marshall Loxahatchee National Wildlife Refuge. The current marsh network is estimated to cover approximately 60% of the refuge, leaving 40% of the marsh uncharacterized. The uncharacterized areas of greatest concern are those between the canals and existing stations and in the immediate vicinity of existing or proposed structures (STA-1E and STA-1W for example).

The Enhanced Water Quality network focuses on these uncharacterized areas. Thirty of the new sample sites are located on six transects extending from the canal to 4 km into the interior. Nine additional new points are located in the northwest and southeast. Data collected at these stations include parameters consistent with the existing Everglades Protection Area (EVPA) sampling. Sampling began in June 2004.

Supplemental Information:

Locations of the Enhanced Water Quality sites were determined through analysis of past data from the existing marsh monitoring stations, topography, current conductivity sampling collected monthly by Refuge staff, and conductivity sampling conducted during February 2004 by SFWMD staff (Sue Newman), and other relevant studies (Childers et al. 2003; Richardson et al. 1990; Scheidt et al. 2000). Thirty of the new sample sites are located on six transects extending from the canal to 4 km into the interior. Nine additional new points are located in the northwest and southeast. The number and location of sample sites will be adaptively modified as data becomes available in order to reduce redundancy and maximize the value of the information collected.

PVC pipe markers have been placed at each new sampling station and each new station was assigned an identification number that is consistent with other samples taken in the refuge. Sampling is conducted via helicopter and follows procedures defined in the South Florida Water Management District's Water Quality Sampling protocol (SFWMD 2002).

Positions for each of the sampling points were taken at the northernmost PVC pipe with a Trimble GeoExplorer 3. A minimum of 5 positions were recorded at 5 second intervals for each station. The Trimble automatically averages these readings to produce a single data point. The data were then post-processed in the lab to achieve differential positions for each station. Pathfinder Office v2.8 was used to download, correct for differential using the CORS Miami 3 station information, and export to an ESRI ARCGIS shape file.

For more information about the Arthur R. Loxahatchee National Wildlife Refuge Work Plan, please refer to: Brandt, Laura A., Matt Harwell, Mike Waldon (March 29, 2004). "Work Plan: Water Quality Monitoring and Modeling for the A.R.M. Loxahatchee National Wildlife Refuge: 2004-2006, USFWS A copy of the Work Plan is posted on the USGS/SOFIA website for the enhanced monitoring information project at

http://sofia.usgs.gov/lox_monitor_model/

For more information on other Water Quality structure coordinate information for the Refuge, please check out DBHYDRO:

<http://www.sfwmd.gov/org/ema/dbhydro/index.html>

References

Childers, D. L., Doren, R. F., Jones, R., Noe, G. B., Ruge, M., and Scinto, L. J. (2003). "Decadal change in vegetation and soil phosphorus pattern across the Everglades landscape." *Journal of Environmental Quality*, 32(1), 344-362.

Richardson, J. R., Bryant, W. L., Kitchens, W. M., Mattson, J. E., and Pope, K. R. (1990). "An evaluation of refuge habitats and relationships to water quality, quantity, and hydroperiod: A synthesis report." Florida Cooperative Fish and Wildlife Research Unit, Univ. of Florida, Gainesville.

Scheidt, D., Stober, J., Jones, R., and Thornton, K. (2000). "South Florida Ecosystem Assessment: Everglades Water Management, Soil Loss, Eutrophication and Habitat." EPA 904-R-00-003, EPA.

SFWMD. (2002). "Field Sampling Quality Manual." Water Quality Monitoring Division and Water Quality Analysis Division, South Florida Water Management District, West Palm Beach, FL.

1. How should this data set be cited?

U.S. Fish and Wildlife Service, Arthur R. Marshall Loxahatchee National, Unpublished Material, Enhanced_WQ_locations: 1.

2. What geographic area does the data set cover?

West Bounding Coordinate: -80.445337

East Bounding Coordinate: -80.225852

North Bounding Coordinate: 26.667392

South Bounding Coordinate: 26.426753

3. What does it look like?

Point Layer (shape file) of the Enhanced Water Quality sampling stations

4. Does the data set describe conditions during a particular time period?

Beginning Date: August 10 2005

Beginning Time: 08:00 am

Ending Date: September 15, 2005

Ending Time: 4:30 PM

Currentness Reference: ground condition

5. What is the general form of this data set?

Geospatial Data Presentation Form: vector digital data

6. How does the data set represent geographic features?

a. How are geographic features stored in the data set?

This is a Vector data set. It contains the following vector data types (SDTS terminology):
Entity point (39)

b. What coordinate system is used to represent geographic features?

Horizontal positions are specified in geographic coordinates, that is, latitude and longitude. Latitudes are given to the nearest 0.000000. Longitudes are given to the nearest 0.000000. Latitude and longitude values are specified in Decimal degrees.

The horizontal datum used is D WGS 1984.
The ellipsoid used is WGS 1984.
The semi-major axis of the ellipsoid used is 6378137.000000.
The flattening of the ellipsoid used is 1/298.257224.

7. How does the data set describe geographic features?

Enhanced_WQ_locations

FID

Internal feature number. (Source: ESRI)

Frequency of measurement: As needed

Sequential unique whole numbers that are automatically generated.

Shape

Feature geometry. (Source: ESRI)

Name

Date

Time

Max_PDOP

Corr_Type

GPS_Date

GPS_Time

Feat_Name

Datafile

Unfilt_Pos

Filt_Pos

GPS_Height

Horz_Prec

Vert_Prec

Latitude

Longitude

Point_ID

Data_Dicti

X

Y

Who produced the data set?

1. Who are the originators of the data set? (may include formal authors, digital compilers, and editors)

U.S. Fish and Wildlife Service, Arthur R. Marshall Loxahatchee National Wildlife Refuge

2. Who also contributed to the data set?

Dr. Donatto Surratt, Ecologist; Leslie MacGregor, GIS Specialist; Robert V. Smith, Biologist; Kevin Maier, Fire Tech

3. To whom should users address questions about the data?

Donatto Surratt, Ph.D.
A.R.M. Loxahatchee National Wildlife Refuge
Ecologist
10216 Lee Rd.
Boynton Beach Rd., Florida 33437
USA

561-735-6003 (voice)
561-735-6008 (FAX)
Donatto_Surratt@fws.gov

Why was the data set created?

The primary purpose of these data is to collect water quality data. The information collected during these studies will help resource managers identify potential threats to Refuge resources, keep unimpacted areas from becoming impacted, maximize the potential for the recovery of impacted areas, and better understand the hydrology and ecology of the Refuge.

How was the data set created?

1. Where did the data come from?

Positions for each of the sampling points were taken at the most Northern PVC pipe with a Trimble GeoExplorer 3. A minimum of 5 positions were recorded at 5 second intervals for each station. The data were then post-processed in the lab to achieve differential positions for each station. Pathfinder Office v2.8 was used to download, correct for differential using the CORS Miami 3 station information, and export to an ESRI ARCGIS shape file.

2. What changes have been made?

No changes have been made as of 12 Dec 2005.

Person who carried out this activity:

Leslie MacGregor
Everglades National Park
GIS Specialist
10216 Lee Rd.
Boynton Beach, Florida 33437

USA

561-735-6002 (voice)

561-735-6002 (FAX)

Leslie_MacGregor@nps.gov

Hours of Service: 8:00am-4:30 pm

3. What similar or related data should the user be aware of?

South Florida Water Management District, DBHYDRO. A source for other Water Quality structure coordinate information for the Refuge:

<http://www.sfwmd.gov/org/ema/dbhydro/index.html>

For information on A.R.M. Loxahatchee National Wildlife Refuge Enhanced Water Quality Monitoring and Modeling, check out SOFIA at:

http://sofia.usgs.gov/lox_monitor_model/

How reliable are the data; what problems remain in the data

1. How well have the observations been checked?

Triple checked

2. How accurate are the geographic locations?

The points were differentially corrected using the CORS Miami 3 station. The CORS system enables positioning accuracies that approach a few centimeters relative to the National Spatial Reference System, both horizontally and vertically. For more information, please see

<http://www.ngs.noaa.gov/CORS/cors-data.html>

3. How accurate are the heights or depths?

Not applicable

4. Where are the gaps in the data? What is missing?

LOXA125 is not in the sequence of stations because this station does not exist.

5. How consistent are the relationships among the observations, including

Corrected positions are consistent with field observations and other GIS data.

How can someone get a copy of the data set?

Are there legal restrictions on access or use of the data?

Access Constraints

Anyone may use data at their own risk. However, the authority to modify the data belongs to the Arthur R. Marshall Loxahatchee National Wildlife Refuge.

Use constraints

GIS data disclaimer

The Data is provided to as is, without warranty or any representation of accuracy, timeliness or completeness. The burden for determining accuracy, completeness, timeliness, merchantability and fitness for or the appropriateness for use rests solely on the user. The Arthur R. Marshall Loxahatchee National Wildlife Refuge makes no warranties, express or implied, as to the use of the data. There are no implied warranties of merchantability or fitness for a particular purpose. The user acknowledges and accepts the limitations of the Data, including the fact that the Data is dynamic and is in a constant state of maintenance, correction and update.

1. Who distributes the data set?

Leslie MacGregor
Everglades National Park
GIS Specialist
10216 Lee Rd.
Boynton Beach, Florida 33437
USA

561-735-6002 (voice)
561-735-6008 (FAX)
Leslie_MacGregor@nps.gov

2. What's the catalog number I need to order this data set?

To order this data file, please reference Enhanced_WQ_locations. Please specify either Excel or Shapefile.

3. What legal disclaimers am I supposed to read?

GIS data disclaimer

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4. How can I download or order the data?

Availability in digital form:

Data format: (version ARCGIS 8.3)

Media you can order: CD-ROM

Cost to order the data: NA

Special instructions:

Email or regular mail a request to Leslie MacGregor. Please see contact information.

How long will it take to get the data?

approximately 1 week

5. Is there some other way to get the data?

Must submit a written request to either Leslie MacGregor via email or regular mail. (Please see contact information)

6. What hardware or software do I need in order to use the data set?

Must have ARCGIS 8.3 or later to open the shape files. Excel may be used to open the database file.

Who wrote the metadata?

Dates:

Last modified: 12-Dec-2005

Last Reviewed: 12-Dec-2005

To be reviewed: update as appropriate

Metadata author:

Leslie MacGregor
Everglades National Park
GIS Specialist
10216 Lee Rd.
Boynton Beach Road, Florida 33437
USA

561-735-6002 (voice)

561-735-6008 (FAX)

Leslie_MacGregor@nps.gov

Metadata standard:

FGDC Content Standards for
Digital Geospatial Metadata
(FGDC-STD-001-1998)

Metadata extensions used:

<http://www.esri.com/metadata/esriprof80.html>

Name	Date	Time	Latitude	Longitude	X_DMS*	Y_DMS*	X_DM**	Y_DM**
LOXA129	8/23/2005	11:52:39am	26.585007262	-80.266082555	80° 15' 57.90" W	26° 35' 6.03" N	80° 15.965' W	26° 35.1005' N
LOXA132	8/23/2005	12:18:45pm	26.609005614	-80.291899387	80° 17' 30.84" W	26° 36' 32.42" N	80° 17.514' W	26° 36.5403333333333' N
LOXA135	8/23/2005	12:25:30pm	26.623355381	-80.316122757	80° 18' 58.04" W	26° 37' 24.08" N	80° 18.967333' W	26° 37.4013333333333' N
LOXA104	8/23/2005	01:04:58pm	26.597981879	-80.440045081	80° 26' 24.16" W	26° 35' 52.73" N	80° 26.4026667' W	26° 35.8788333333333' N
LOXA115	8/23/2005	01:26:04pm	26.484225781	-80.445336745	80° 26' 43.21" W	26° 29' 3.21" N	80° 26.7201667' W	26° 29.0535' N
LOXA107	8/31/2005	11:40:28am	26.587390459	-80.421444676	80° 25' 17.20" W	26° 35' 14.61" N	80° 25.286667' W	26° 35.2435' N
LOXA106	8/31/2005	11:50:02am	26.592206216	-80.431280960	80° 25' 52.61" W	26° 35' 31.94" N	80° 25.876833' W	26° 35.5323333333333' N
LOXA105	8/31/2005	12:00:07pm	26.591899226	-80.436094071	80° 26' 9.94" W	26° 35' 30.84" N	80° 26.1656667' W	26° 35.514' N
LOXA102	8/31/2005	12:13:03pm	26.595988767	-80.425537688	80° 25' 31.94" W	26° 35' 45.56" N	80° 25.532333' W	26° 35.7593333333333' N
LOXA103	8/31/2005	12:28:13pm	26.612851423	-80.416436308	80° 24' 59.17" W	26° 36' 46.27" N	80° 24.98616667' W	26° 36.7711666666667' N
LOXA120	9/6/2005	12:00:29pm	26.493410539	-80.383079866	80° 22' 59.09" W	26° 29' 36.28" N	80° 22.9848333' W	26° 29.6046666666667' N
LOXA119	9/6/2005	12:19:58pm	26.486214619	-80.401808449	80° 24' 6.51" W	26° 29' 10.37" N	80° 24.1085' W	26° 29.1728333333333' N
LOXA118	9/6/2005	12:33:28pm	26.489289243	-80.426390912	80° 25' 35.01" W	26° 29' 21.44" N	80° 25.5835' W	26° 29.3573333333333' N
LOXA117	9/6/2005	12:56:58pm	26.485804269	-80.435685796	80° 26' 8.47" W	26° 29' 8.90" N	80° 26.14116667' W	26° 29.1483333333333' N
LOXA116	9/6/2005	01:03:09pm	26.483058602	-80.441097999	80° 26' 27.95" W	26° 28' 59.01" N	80° 26.4658333' W	26° 28.9835' N
LOXA121	9/6/2005	01:24:36pm	26.467676727	-80.441132313	80° 26' 28.08" W	26° 28' 3.64" N	80° 26.468' W	26° 28.0606666666667' N
LOXA123	9/6/2005	02:12:50pm	26.426753074	-80.400363722	80° 24' 1.31" W	26° 25' 36.31" N	80° 24.0218333' W	26° 25.6051666666667' N
LOXA101	9/13/2005	01:53:06pm	26.667392489	-80.366364752	80° 21' 58.91" W	26° 40' 2.61" N	80° 21.9818333' W	26° 40.0435' N
LOXA122	9/15/2005	02:33:52pm	26.464042966	-80.428433669	80° 25' 42.36" W	26° 27' 50.55" N	80° 25.706' W	26° 27.8425' N
LOXA126	8/10/2005	09:12:27am	26.506011481	-80.225851709	80° 13' 33.07" W	26° 30' 21.64" N	80° 13.55116667' W	26° 30.3606666666667' N
LOXA124	8/10/2005	09:41:59am	26.455353967	-80.238754550	80° 14' 19.52" W	26° 27' 19.27" N	80° 14.325333' W	26° 27.3211666666667' N
LOXA127	8/10/2005	10:08:20am	26.515134740	-80.255559757	80° 15' 20.02" W	26° 30' 54.49" N	80° 15.3336667' W	26° 30.9081666666667' N
LOXA128	8/10/2005	10:57:04am	26.525162864	-80.394012101	80° 23' 38.44" W	26° 31' 30.59" N	80° 23.6406667' W	26° 31.5098333333333' N
LOXA114	8/10/2005	11:05:35am	26.524392580	-80.400839654	80° 24' 3.02" W	26° 31' 27.81" N	80° 24.050333' W	26° 31.4635' N
LOXA113	8/10/2005	11:13:08am	26.524427841	-80.406998750	80° 24' 25.20" W	26° 31' 27.94" N	80° 24.42' W	26° 31.4656666666667' N
LOXA111	8/10/2005	11:21:10am	26.525335828	-80.413147047	80° 24' 47.33" W	26° 31' 31.21" N	80° 24.7888333' W	26° 31.5201666666667' N
LOXA112	8/10/2005	11:32:01am	26.527124725	-80.428373322	80° 25' 42.14" W	26° 31' 37.65" N	80° 25.702333' W	26° 31.6275' N
LOXA109	8/10/2005	11:52:04am	26.555288645	-80.432051570	80° 25' 55.39" W	26° 33' 19.04" N	80° 25.92316667' W	26° 33.3173333333333' N
LOXA110	8/10/2005	12:07:41pm	26.555239734	-80.417691537	80° 25' 3.69" W	26° 33' 18.86" N	80° 25.0615' W	26° 33.3143333333333' N
LOXA108	8/10/2005	12:26:58pm	26.577960101	-80.405853442	80° 24' 21.07" W	26° 34' 40.66" N	80° 24.35116667' W	26° 34.6776666666667' N
LOXA139	8/10/2005	01:13:16pm	26.593325251	-80.337153885	80° 20' 13.75" W	26° 35' 35.97" N	80° 20.22916667' W	26° 35.5995' N
LOXA131	8/11/2005	10:46:50am	26.574747906	-80.277646525	80° 16' 39.53" W	26° 34' 29.09" N	80° 16.6588333' W	26° 34.4848333333333' N
LOXA130	8/11/2005	11:33:03am	26.582118809	-80.270055306	80° 16' 12.20" W	26° 34' 55.63" N	80° 16.20333' W	26° 34.9271666666667' N
LOXA133	8/11/2005	11:58:43am	26.605089596	-80.295574907	80° 17' 44.07" W	26° 36' 18.32" N	80° 17.7345' W	26° 36.3053333333333' N
LOXA134	8/11/2005	01:03:01pm	26.609856637	-80.308603250	80° 18' 30.97" W	26° 36' 35.48" N	80° 18.51616667' W	26° 36.5913333333333' N
LOXA137	8/11/2005	01:25:21pm	26.615103372	-80.321703271	80° 19' 18.13" W	26° 36' 54.37" N	80° 19.30216667' W	26° 36.9061666666667' N
LOXA136	8/11/2005	01:57:35pm	26.618793017	-80.318666883	80° 19' 7.20" W	26° 37' 7.65" N	80° 19.12' W	26° 37.1275' N
LOXA138	8/11/2005	02:06:17pm	26.606816926	-80.326665374	80° 19' 36.00" W	26° 36' 24.54" N	80° 19.6' W	26° 36.409' N
LOXA140	9/12/2005	02:44:34PM	26.637603226	-80.349094316	80° 20' 56.74" W	26° 38' 15.37" N	80° 20.9456667' W	26° 38.2561666666667' N

* DMS = Degrees Minutes Seconds

** DM = Degrees Minutes Decimal Minutes