

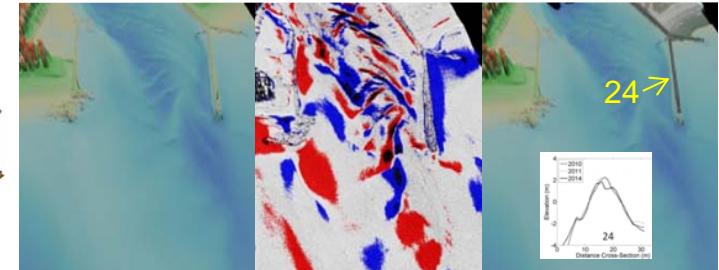
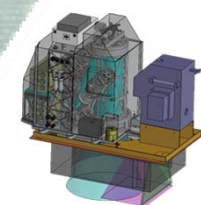
# Using Portal to Serve Feature Layers from SDE Views in a Map Service

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U.S. Army Corps of Engineers Mobile District

June 28<sup>th</sup>, 2016



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US Army Corps of Engineers  
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# Joint Airborne Lidar Bathymetry Technical Center of Expertise



Annual Technical Workshop, 19-21 July 2016



Logos included in the collage:

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- CCOM JMC
- NORTHROP GRUMMAN
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- itres
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# National Coastal Mapping Program Goals

- Develop regional, repetitive, high-resolution, high-accuracy elevation and imagery data
- Build an understanding of how the coastal zone is changing
- Facilitate management of sediment and projects at a regional, or watershed scale

Hydro (1,000 m)

(500 m) Topo

West Maui, HI, 2013



## Summary



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- This presentation details the workflow to support the dissemination of an SDSFIE-compliant feature class joined with a custom attribute schema for the planning and acquisition of USACE National Coastal Mapping Program survey areas. JALBTCX provides web services that show where surveys will occur as well as survey footprints of each area surveyed to-date. This data is related to a business table housing metadata and attribution as defined by the USIEI (U.S. Interagency Elevation Inventory), a primary consumer of this information.





## Summary



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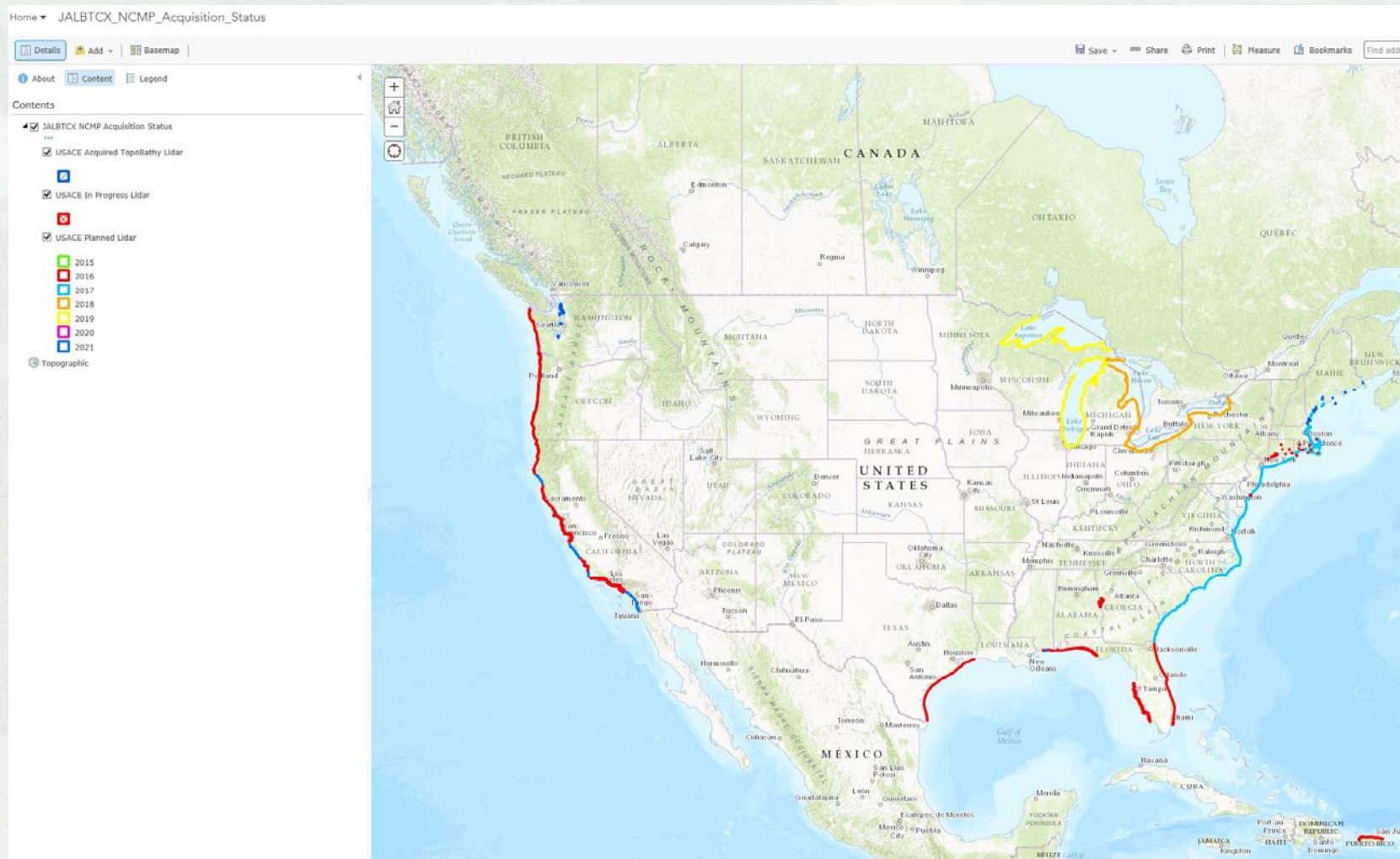
- Previously, JALBTCX would send USIEI a copy (shapefile or file geodatabase) of the feature class housing our acquired polygons. They would then have to extract the latest features and crosswalk the attributes between the two different schemas to populate their production database.
- Utilizing this feature layer from a map service allows us to publish the feature class with their schema as a joined business table to better facilitate sharing live data.



# Portal Map showing JALBTCX Acquisition Status



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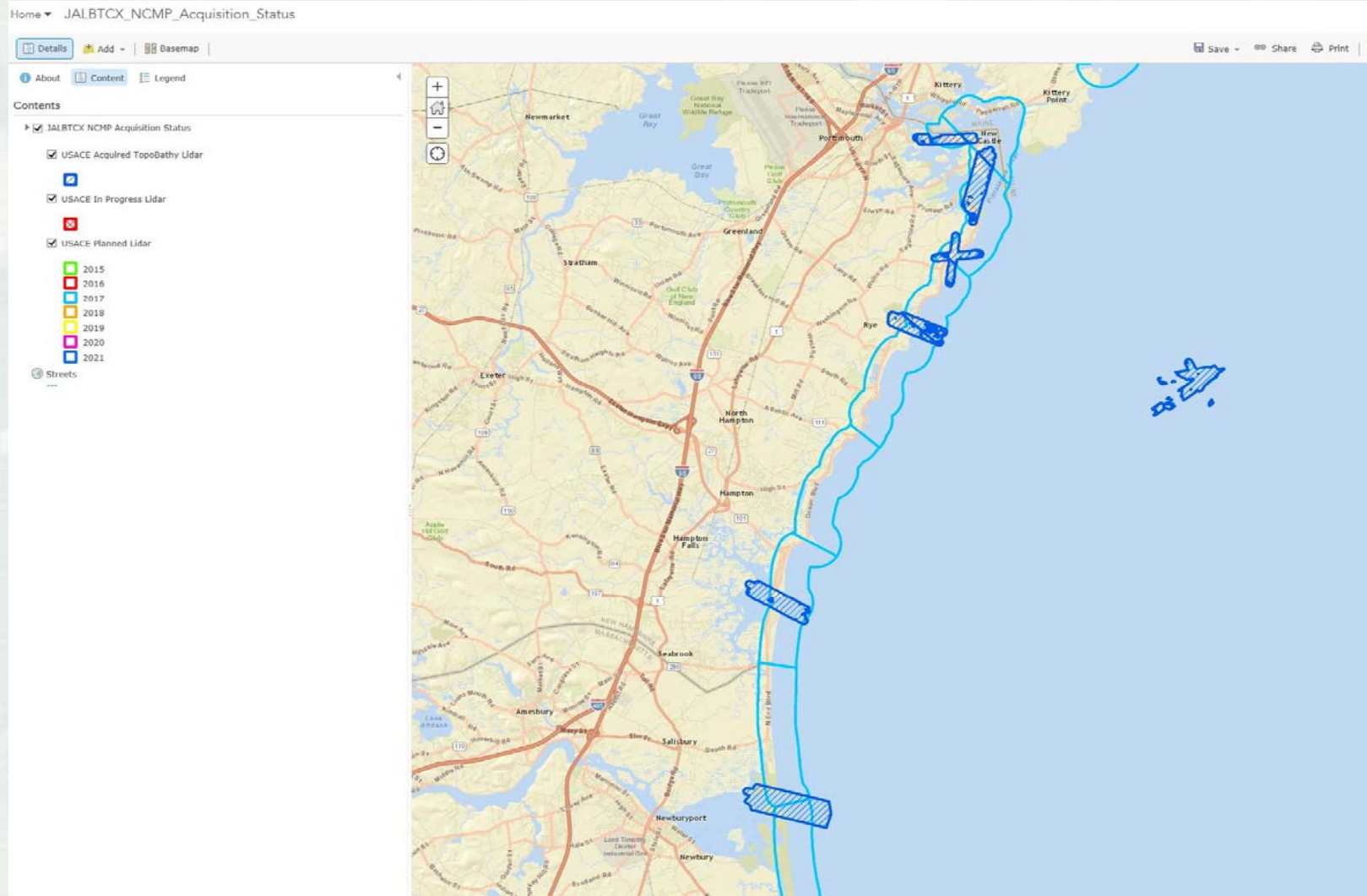
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# Portal Map showing JALBTCX Acquisition Status



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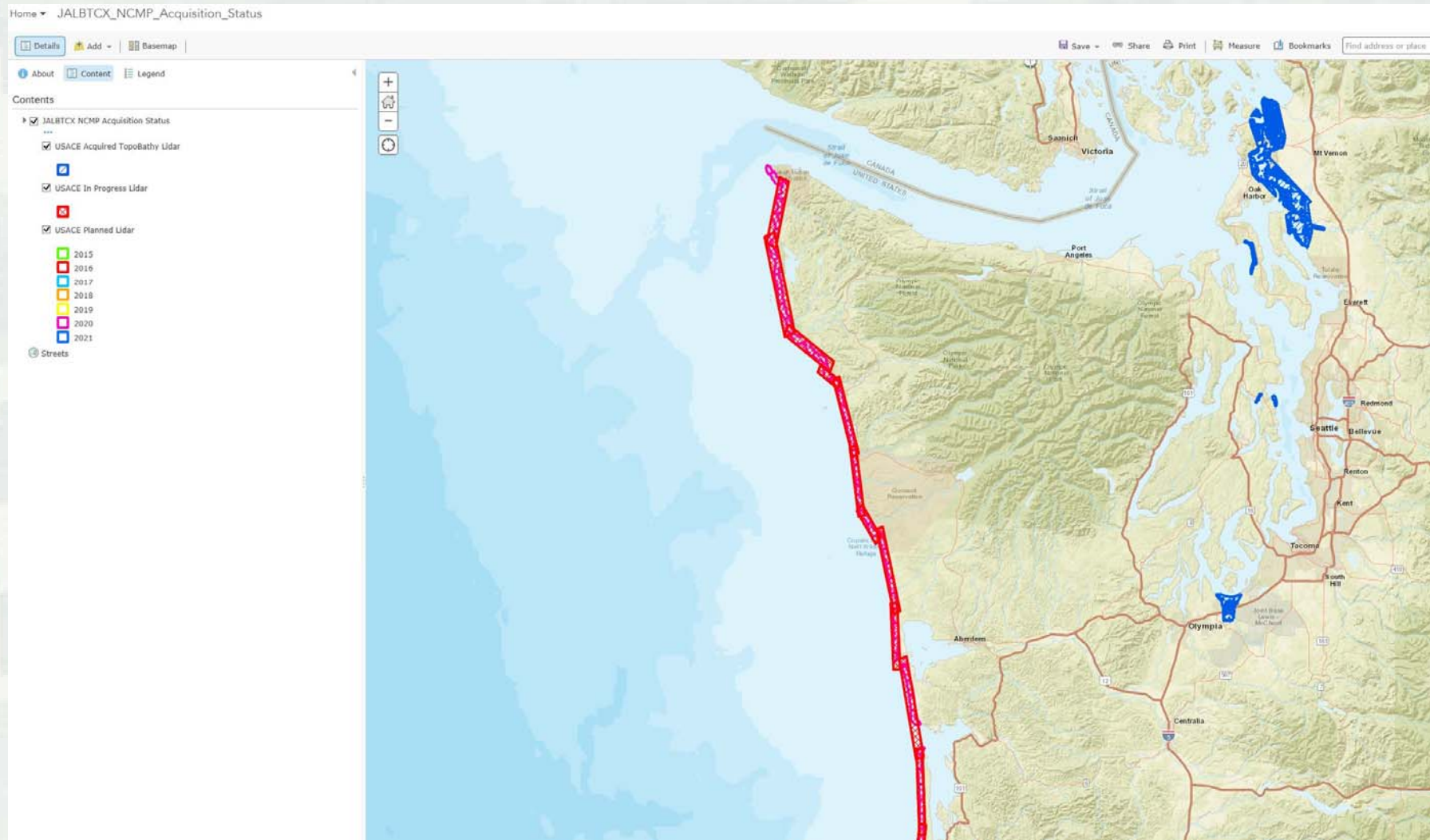


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# Portal Map showing JALBTCX Acquisition Status



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## SDE Views for Acquisition Project Status



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- Limitations during analyzing/publishing feature service in ArcMap
  - Query Layers/SDE Views not valid data types.
  - Joined tables not visible in published feature service.
- Workaround:
  - Publish .mxd with SDE View/Query Layer with map service capability only.
  - Register map service layer as feature layer in Portal
  - Save/Open Portal Item in ArcMap as feature service



# USIEI Attribute Schema



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Field Name	Data Type	Example
Project Name	String/Text	2012 USACE NCMP Topobathy Lidar: Florida
Data Type	String/Text	Lidar-Topobathy
Collection Year	Short Integer	2012
Project Status	String/Text	Complete
Restrictions	String/Text	Public
State	String/Text	FL
Mission ID	Short Integer	4926
Point Of Contact (PII)	String/Text	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil
Metadata Link	String/Text	Not Provided
Web Service Link	String/Text	<a href="https://gis.sam.usace.army.mil/server/rest/services/JALBTCX/JALBTCX_NCMP_Acquisition_Status/MapServer">https://gis.sam.usace.army.mil/server/rest/services/JALBTCX/JALBTCX_NCMP_Acquisition_Status/MapServer</a>
Data Access	String/Text	<a href="http://coast.noaa.gov/digitalcoast/dataregistry/4926/">http://coast.noaa.gov/digitalcoast/dataregistry/4926/</a>
Horizontal Datum	String/Text	NAD83 (NA2011)
Horizontal Accuracy	String/Text	Compiled to meet 1m horizontal RMSE at 95% confidence level
Vertical Accuracy	String/Text	CZMIL topographic data – Tested 9.5 cm vertical RMSE at 95% confidence level. CZMIL bathymetric shallow FOV data – Tested 12.5 cm vertical RMSE at 95% confidence level. CZMIL bathymetric deep FOV data – Tested 20 cm vertical RMSE at 95% confidence level.
Vertical Datum	String/Text	NAVD88 (Geoid 12a)
Notes	String/Text	The projects Egmont Key, Ft. Myers and Mayport were collected by JALBTCX on behalf of the USACE Jacksonville District and ERDC. The focus of these projects included beneficial re-use of dredged material, study of cross-shore swash zone placement, and applicability of topobathy lidar for shoaling analysis. Point clouds are available at Digital Coast. Please contact JALBTCX to request DEMs, contours and imagery mosaics.
Products Available	String/Text	Point clouds, DEMs, NAVD88 0-m contour, true-color and hyperspectral imagery mosaics.
Point Spacing (m, Actual)	String/Text	1 m
Collection Date	String/Text	20120608 - 20120609
Point Spacing Number	Double	1
Vertical RMSE	Double	9999
QL	Short Integer	9
InVID	String/Text	7153
Owner	String/Text	USACE JALBTCX
StartDate	Date/Time	41068
EndDate	Date/Time	41069
PointCloud	String/Text	Classified

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# SDSFIE 3.1 SurveyJob Feature Class Schema



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Browser window: <https://www.sdsfieonline.org/BrowseGenerate/index.html>

USACE HQ 3.1

### SurveyJob

Definition: Generic area in which a survey activity was conducted.

Description:

Note:

Justification:

Alternate Name:

Approval Status: Approved      Default Geometry: A      Permissible Geometry: A/P

#### Attributes

Symbols	Model Name	Definition	Data Type	Length
	mediaIDFK	Used to link the record to associated multimedia records that reference data such as imagery, video, audio, scanned documents, drawings, and other digital media....	String	20
	sdsFeatureDescription	A narrative describing the feature.	String(MAX)	
	sdsFeatureName	The common name of the feature.	String	80
	sdsID	A unique identifier for all features and objects in the SDSFIE.	GUID	
	sdsMetadataID	The foreign key to a metadata record.	String	80
	surveyJobIDPK	Primary Key. A unique, user defined identifier for each record or instance of an entity.	String	20
	surveyType	An enumeration indicating the type of survey.	String	26

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# Relationship Class properties



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Relationship Class Properties

General Rules

Name: gcwgs84\_vector\_dbs.GCWGS84.SurveyJob\_USIEI

Type: Simple

Cardinality: 1 - 1

Notification: None (no messages propagated)

Origin Table/Feature Class

Name: gcwgs84\_vector\_dbs.GCWGS84.SurveyJob

Primary Key: sdsID

Foreign Key: sdsIDFK

Destination Table/Feature Class

Name: gcwgs84\_vector\_dbs.GCWGS84.SurveyJob\_USIEI

Labels

Forward: SurveyJob\_USIEI

Backward: SurveyJob

OK Cancel Apply

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## Populate Staging File Geodatabase



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- Copy template staging file geodatabase to new working file geodatabase
- Load feature geometry to SurveyJob feature class
- Populate sdsID field with GUIDs
- Load records from SurveyJob feature class to USIEI attribute table, field map sdsID to sdsIDFK



## Populate Staging File Geodatabase



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- Open staging database in ArcMap, edit USIEI attributes using models/scripts to batch populate fields with predefined values.
- Use the select related records option to populate USIEI business table after selecting features on the map (State, MissionID, etc.)
- Optionally, use the Add Related Record from the editor attribute window to add individual records from the feature class to the business table.





## Load Data from Staging to Production



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- Using the Object Data Loader tool in ArcMap in an edit session, load records from the staging database to the production database for publication.



## Create SDE View



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- In ArcCatalog create an SDE View to query both the SurveyJob feature class and the USIEI business table, using an inner join on the key fields.

Create New View

View Name:  
USACE\_PLANNED\_LIDAR\_VIEW

View Definition:  
select GCWGS84.SurveyJob\_EVW.\*, ProjectName, DataType, CollectionYear, ProjectSt  
from gcwgs84\_vector\_dbs.GCWGS84.SurveyJob\_EVW inner join gcwgs84\_vector\_dbs.t

OK Cancel

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# SDE Views for Acquisition Project Status



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## **USACE Planned Lidar View**

```
CREATE VIEW USACE_PLANNED_LIDAR_VIEW AS select GCWGS84.SurveyJob_EVW.*, ProjectName, DataType, CollectionYear, ProjectStatus, Restrictions, State, MissionID, PointOfContact, WebServiceLink, HorizontalDatum, HorizontalAccuracy, VerticalAccuracy, VerticalDatum, Notes, ProductsAvailable, PointSpacingMAActual, CollectionDate, PointSpacingNumber, VerticalRMSE, QL, Owner, StartDate, EndDate, PointCloud, sdsIDFK, InvID, MetadataLink, DataAccess
```

```
from gcwgs84_vector_dbs.GCWGS84.SurveyJob_EVW inner join gcwgs84_vector_dbs.GCWGS84.SurveyJob_USIEI_EVW ON sdsID = sdsIDFK where gcwgs84_vector_dbs.gcwgs84.SurveyJob_USIEI_EVW.ProjectStatus = 'Planned Project' and gcwgs84_vector_dbs.gcwgs84.SurveyJob_USIEI_EVW.CollectionYear > 0
```

## **USACE In Progress Lidar View**

```
CREATE VIEW USACE_IN_PROGRESS_LIDAR_VIEW AS select GCWGS84.SurveyJob_EVW.*, ProjectName, DataType, CollectionYear, ProjectStatus, Restrictions, State, MissionID, PointOfContact, WebServiceLink, HorizontalDatum, HorizontalAccuracy, VerticalAccuracy, VerticalDatum, Notes, ProductsAvailable, PointSpacingMAActual, CollectionDate, PointSpacingNumber, VerticalRMSE, QL, Owner, StartDate, EndDate, PointCloud, sdsIDFK, InvID, MetadataLink, DataAccess
```

```
from gcwgs84_vector_dbs.GCWGS84.SurveyJob_EVW inner join gcwgs84_vector_dbs.GCWGS84.SurveyJob_USIEI_EVW ON sdsID = sdsIDFK where gcwgs84_vector_dbs.gcwgs84.SurveyJob_USIEI_EVW.ProjectStatus = 'In Progress'
```

## **USACE Acquired Topobathy Lidar View**

```
CREATE VIEW USACE_ACQUIRED_LIDAR_VIEW AS select GCWGS84.SurveyJob_EVW.*, ProjectName, DataType, CollectionYear, ProjectStatus, Restrictions, State, MissionID, PointOfContact, WebServiceLink, HorizontalDatum, HorizontalAccuracy, VerticalAccuracy, VerticalDatum, Notes, ProductsAvailable, PointSpacingMAActual, CollectionDate, PointSpacingNumber, VerticalRMSE, QL, Owner, StartDate, EndDate, PointCloud, sdsIDFK, InvID, MetadataLink, DataAccess
```

```
from gcwgs84_vector_dbs.GCWGS84.SurveyJob_EVW inner join gcwgs84_vector_dbs.GCWGS84.SurveyJob_USIEI_EVW ON sdsID = sdsIDFK where gcwgs84_vector_dbs.gcwgs84.SurveyJob_USIEI_EVW.ProjectStatus = 'Complete'
```

---

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# Build ArcMap .mxd for Publishing Map Service



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JALBTCX\_NCMP\_Acquisition\_Status.mxd - ArcMap

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

1:15,760,364

Table Of Contents

- Layers
  - USACE Acquired TopoBathy Lidar
  - USACE In Progress Lidar
  - USACE Planned Lidar
    - CollectionYear
      - 2015
      - 2016
      - 2017
      - 2018
      - 2019
      - 2020
      - 2021

Service Editor

Connection: server on gis.sam.usace.army.mil (admin) Service Name: JALBTCX\_... Import Analyze Preview Publish

General  
Parameters  
Capabilities  
Mapping  
KML  
Pooling  
Processes  
Caching  
Item Description  
Sharing

**Capabilities**

Choose the capabilities you would like enabled for this service:

- Mapping (always enabled)
- WCS
- WMS
- Feature Access
- Schematics
- Mobile Data Access
- Network Analysis
- KML
- WFS

-106.089 29.49 Decimal Degrees

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# REST Endpoint of Map Service



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[Home](#) > [services](#) > [JALBTCX](#) > [JALBTCX\\_NCMP\\_Acquisition\\_Status \(MapServer\)](#) [Help](#) | [API Reference](#)

[JSON](#) | [SOAP](#)

## JALBTCX/JALBTCX\_NCMP\_Acquisition\_Status (MapServer)

**View In:** [ArcGIS JavaScript](#) [ArcGIS Online map viewer](#) [Google Earth](#) [ArcMap](#) [ArcGIS Explorer](#)

**View Footprint In:** [ArcGIS Online map viewer](#)

**Service Description:** The USACE National Coastal Mapping Program (NCMP) acquires high-resolution topographic/bathymetric lidar elevation and imagery on a recurring basis along the sandy shorelines of the US. The typical survey footprint includes an approximately 1-mile wide swath of topography, bathymetry, and imagery 500 m onshore and 1000 m offshore. Planned survey areas and timelines provided in this service are based on the 5-year NCMP update cycle, which follows counter-clockwise along the US West Coast, Gulf Coast, East Coast and Great Lakes. Surveys to support USACE project-specific missions and external partners beyond the mile-wide NCMP footprint are included constituent to requests from project managers. This survey work is coordinated with Federal mapping partners through the Interagency Working Group on Ocean and Coastal Mapping and the 3D Elevation Program."

**Map Name:** Layers

[Legend](#)

[All Layers and Tables](#)

**Layers:**

- [USACE Acquired TopoBathy Lidar](#) (0)
- [USACE In Progress Lidar](#) (1)
- [USACE Planned Lidar](#) (2)

**Description:**

**Copyright Text:**

**Spatial Reference:** 4326 (4326)

**Single Fused Map Cache:** false

**Initial Extent:**

XMin: -124.65335432853036  
YMin: 47.75733438260063  
XMax: -124.37246578659958  
YMax: 47.88063012589019  
Spatial Reference: 4326 (4326)

**Full Extent:**

XMin: -124.75257999999997  
YMin: 18.27452982400007  
XMax: -65.59607403399997  
YMax: -48.58769789400003  
Spatial Reference: 4326 (4326)

**Units:** esriDecimalDegrees

**Supported Image Format Types:** PNG32,PNG24,PNG,JPG,DIB,TIFF,EMF,PS,PDF,GIF,SVG,SVGZ,BMP

**Document Info:**

Title:  
Author:  
Comments: The USACE National Coastal Mapping Program (NCMP) acquires high-resolution topographic/bathymetric lidar elevation and imagery on a recurring basis along the sandy shorelines of the US. The typical survey footprint includes an approximately 1-mile wide swath of topography, bathymetry, and imagery 500 m onshore and 1000 m offshore. Planned survey areas and timelines provided in this service are based on the 5-year NCMP update cycle, which follows counter-clockwise along the US West Coast, Gulf Coast, East Coast and Great Lakes. Surveys to support USACE project-specific missions and external partners beyond the mile-wide NCMP footprint are included constituent to requests from project managers. This survey work is coordinated with Federal mapping partners through the Interagency Working Group on Ocean and Coastal Mapping and the 3D Elevation Program."  
Subject: Planned Survey Polygons for the USACE NCMP  
Category:  
Keywords: USACE,NCMP,JALBTCX,planned survey areas,lidar,imagery,elevation,bathymetry,ocean,coastal  
AntialiasingMode: None  
TextAntialiasingMode: Force

**Supports Dynamic Layers:** false

**MaxRecordCount:** 100000

**MaxImageHeight:** 4096

**MaxImageWidth:** 4096

**Supported Query Formats:** JSON, AMF

**Min Scale:** 0

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# Register Feature Layers with Portal



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The screenshot shows the ArcGIS Portal 'My Content' interface. The 'Item from the web' dialog box is open, allowing the user to register a feature layer from a web service. The dialog includes the following fields and options:

- Type:** Radio buttons for ArcGIS Server web service (selected), KML, OGC (WMS), and Document.
- URL:**
- Title:**
- Tags:**  (with 'Add tag(s)' link)
- Buttons:** ADD ITEM, CANCEL

The background shows the 'My Content' page with a list of items. The visible items are:

Item Name	Type	Created	Shared With
JALBTCX_NCMP_Planning	Web Map	Oct 21, 2015	Everyone
JALBTCX_NCMP_Survey_AOI	Web Map	Mar 30, 2016	Everyone
JALBTCX_NCMP_Planning	Web Mapping Application	Mar 16, 2016	Everyone

1 - 12 of 12 results

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# Save Portal Item



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JALBTCX\_NCMP\_Acquisition\_S...

rsc-agisu.usace.army.mil/s1portal/home/item.html?id=2ca995d32be74745ac0bf2fa698e921d

Home Gallery Map Scene Groups My Content My Organization

## JALBTCX\_NCMP\_Acquisition\_Status\_Planned

Feature Layer by jalbtcx  
Source: Feature Service  
Last Modified: April 5, 2016  
0 ratings, 11 views

OPEN SHARE EDIT DELETE

- Add layer to map
- Add layer to new map
- Add layer to scene
- Open in ArcGIS for Desktop

Planned survey areas for the US Army Corps of Engineers Nation

### Layers

USACE Planned Lidar

### Properties

Shared with	Everyone (public), JALBTCX
Tags	USACE, NCMP, JALBTCX, planned survey areas,
Credits	
Size	1 KB
Delete Protection	Disabled
Extent	Left: -124.75 Right: -69.65 Top: 48.39 Bottom: 25.66

Comments (0)

Opening item.pitem

You have chosen to open:

item.pitem  
which is: ArcGIS Portal Item  
from: http://rsc-agisu.usace.army.mil

What should Firefox do with this file?

Open with ArcGIS File Handler (default)

Save File

Do this automatically for files like this from now on.

OK Cancel

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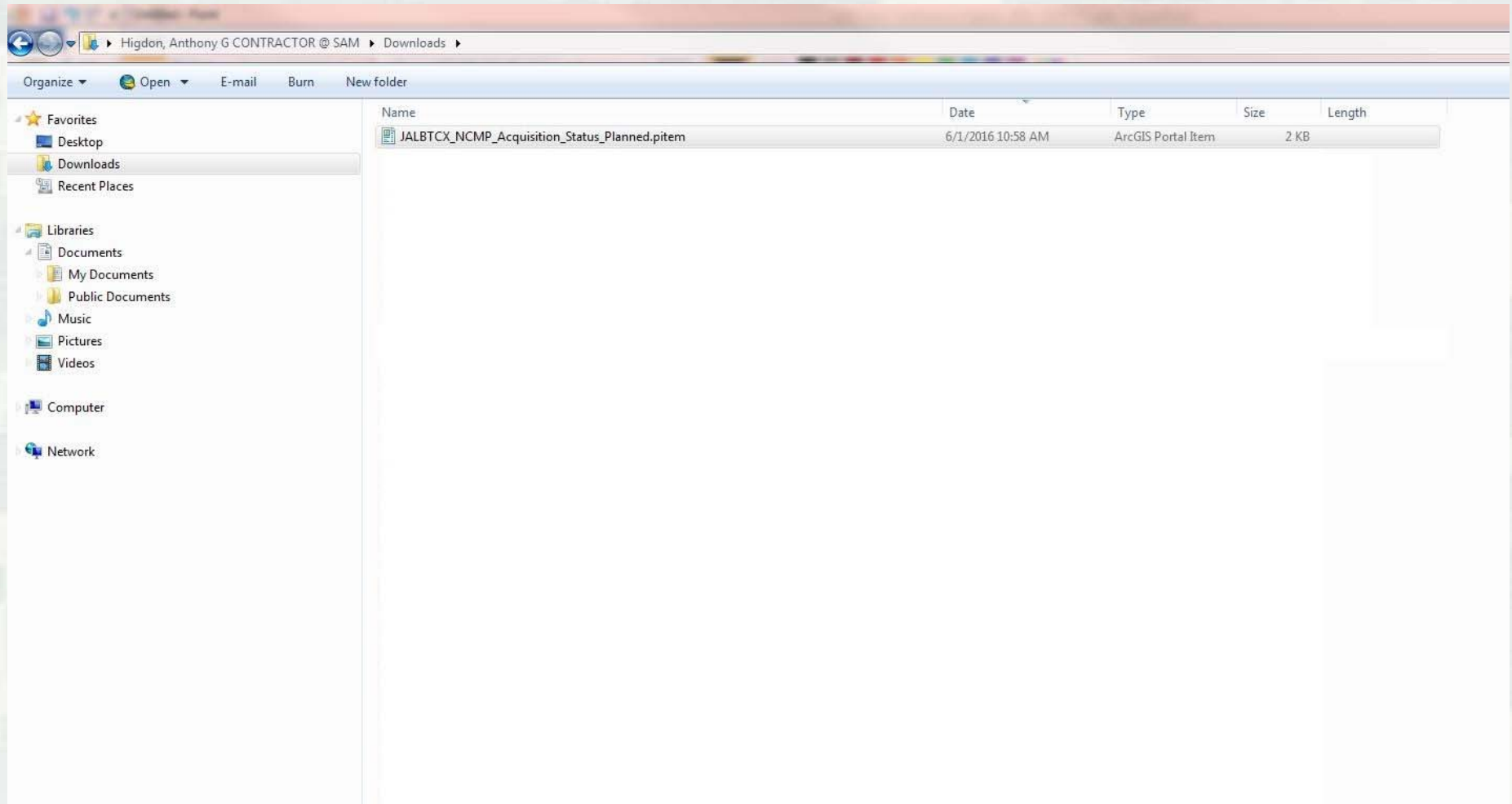


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# Name saved Portal Item Appropriately



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# Open Portal Item in ArcMap



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The screenshot shows the ArcMap interface with a map of a river area. A context menu is open over the map, listing options such as Copy, Remove, Open Attribute Table, Joins and Relates, Zoom To Layer, Zoom To Make Visible, Visible Scale Range, Use Symbol Levels, Selection, Label Features, and Edit Features. Below the map is a 'Table' window displaying a data table with columns for Project Name, Source Data Type, Collection Year, Project Status, Restrictions, State, MissionID, Point of Contact, Web Service Link, Horizontal Datum, and Horizontal Accuracy.

Project Name	Source Data Type	Collection Year	Project Status	Restrictions	State	MissionID	Point of Contact	Web Service Link	Horizontal Datum	Horizontal Accuracy
CA_165	Lidar-Topobathy	2021	Planned Project	Public	CA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
MI_08	Lidar-Topobathy	2018	Planned Project	Public	MI	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
TX_89	Lidar-Topobathy	2016	Planned Project	Public	TX	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
MA_52	Lidar-Topobathy	2017	Planned Project	Public	MA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
WA_24	Lidar-Topobathy	2020	Planned Project	Public	WA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
GA_11	Lidar-Topobathy	2017	Planned Project	Public	GA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
MI_11	Lidar-Topobathy	2019	Planned Project	Public	MI	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
VA_26	Lidar-Topobathy	2017	Planned Project	Public	VA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
CA_219	Lidar-Topobathy	2021	Planned Project	Public	CA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
IN_05	Lidar-Topobathy	2019	Planned Project	Public	IN	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
CA_296	Lidar-Topobathy	2021	Planned Project	Public	CA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
FL_78	Lidar-Topobathy	2016	Planned Project	Public	FL	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
CA_05	Lidar-Topobathy	2021	Planned Project	Public	CA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
NY_31	Lidar-Topobathy	2017	Planned Project	Public	NY	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
CA_39	Lidar-Topobathy	2021	Planned Project	Public	CA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
TX_86	Lidar-Topobathy	2016	Planned Project	Public	TX	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
CA_135	Lidar-Topobathy	2021	Planned Project	Public	CA	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
NY_07	Lidar-Topobathy	2018	Planned Project	Public	NY	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
FL_32	Lidar-Topobathy	2016	Planned Project	Public	FL	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'
OR_56	Lidar-Topobathy	2020	Planned Project	Public	OR	<Null>	Data Production Manager, JALBTCX, 228-252-1121, JALBTCX@usace.army.mil	<Null>	NAD83 (NA2011)	Data will be compiled to meet 1m horizontal RMSE at 9'

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# Export Data to File Geodatabase



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Export Data

Export: All features

Use the same coordinate system as:

- this layer's source data
- the data frame
- the feature dataset you export the data into (only applies if you export to a feature dataset in a geodatabase)

Output feature class:

C:\JALBTCX\Load\Extracted.gdb\Planned

OK Cancel

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# Federal Coordination



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U.S. Federal Mapping Coordination  
A Demonstration Site for Federal Mapping Data Acquisition Coordination

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Mapping Priorities: Needs, Requirements

- Topographic Lidar 3DEP Areas of Interest
- Topobathymetric Lidar Areas of Interest
- Acoustic/Sonar (bathy, etc.) Areas of Interest
- Digital Imagery (in conjunction with Topo/topobathy lidar?)

Planned and Ongoing Mapping Projects

- Topographic Lidar
- Topobathymetric Lidar
  - NOAA
  - USACE
    - Great Lakes
    - JALBTCX Planned and Ongoing Topobathymetric Lidar

The USACE National Coastal Mapping Program (NCMP) acquires high-resolution topographic/bathymetric lidar elevation and imagery on a recurring basis along the sandy shorelines of the US. The typical survey footprint includes an approximately 1-mile wide swath of topography, bathymetry, and imagery 500 m onshore and 1000 m offshore. Planned survey areas and timelines provided in this service are based on the 5-year NCMP update cycle, which follows coastal clockwise along the

Year	Color
2015	Green
2016	Red
2017	Blue
2018	Yellow
2019	Orange
2020	Pink
2021	Purple

USACE Planned Lidar (1 of 22)

Shape	Polygon
Project Name	2021 USACE Planned Topob
Data Type	Lidar-Topobathy
Collection Year	2021
Project Status	Planned Project
Restrictions	
State	CA
Point Of Contact (POC)	Data Production Manager, Jr
Metadata Link	Not Provided
Zoom to	





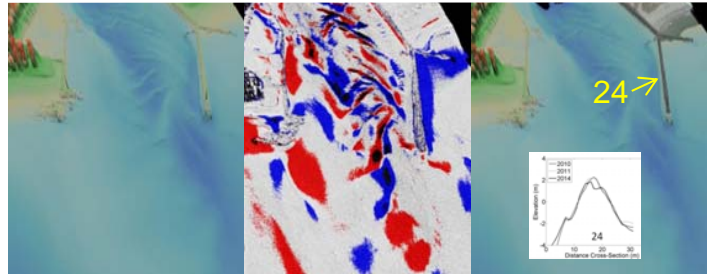
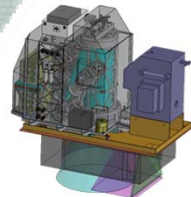
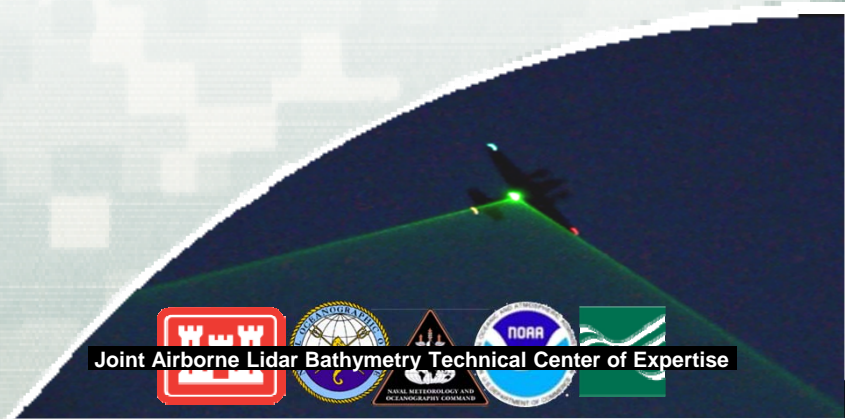
# Questions?

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GIS Specialist

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Technical Center of Expertise (JALBTCX)  
U.S. Army Corps of Engineers Mobile District

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