Tracking Sediment Dredging and Placement with Online Maps

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US Army Corps of Engineers
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RSM Online Project Databases

- RSM = Regional Sediment Management
  - ► Managing sediment to benefit a region potentially saves money, allows use of natural processes to solve engineering problem.
  - ► Web databases allows RSM teams to efficiently store, access, and share data between USACE Districts and non-Corps stakeholders.
- In 2006 USACE's North Atlantic Division was charged with the task to develop a technical review of coastal projects to present the current condition, estimated federal future costs, and opportunities for action.

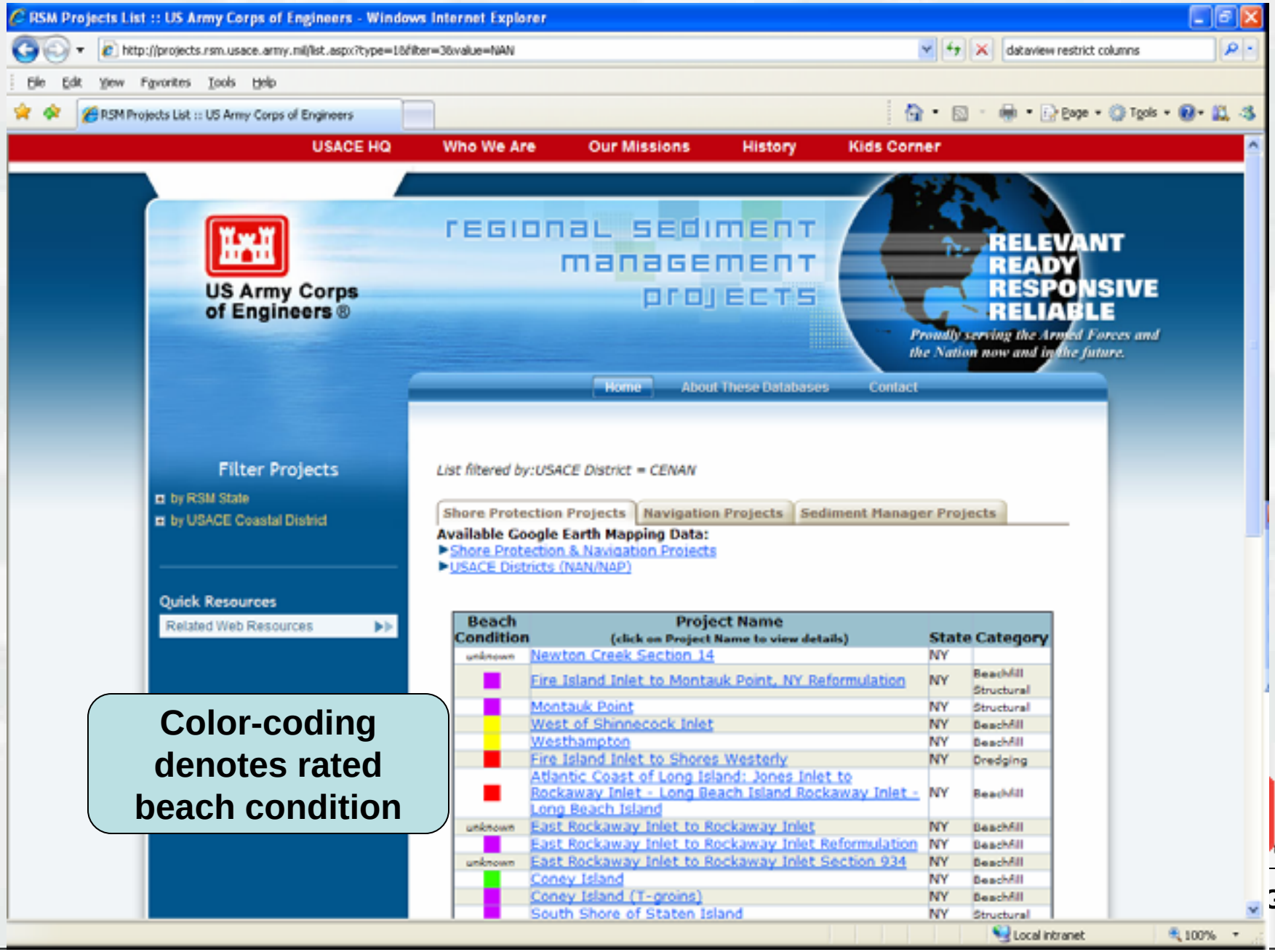
Data Access

- To present the digital data needed for the technical review, the RSM Project Database was created: http://projects.rsm.usace.army.mil
- The Regional Sediment Management (RSM) databases provide an archive for data to support many of the RSM initiatives.
- Currently the RSM Database website supports Shore Protection, Navigation, and Sediment Manager projects.
- Public Access (password required for non-USACE users)

Filter projects by location.

Shore Protection & Navigation Module

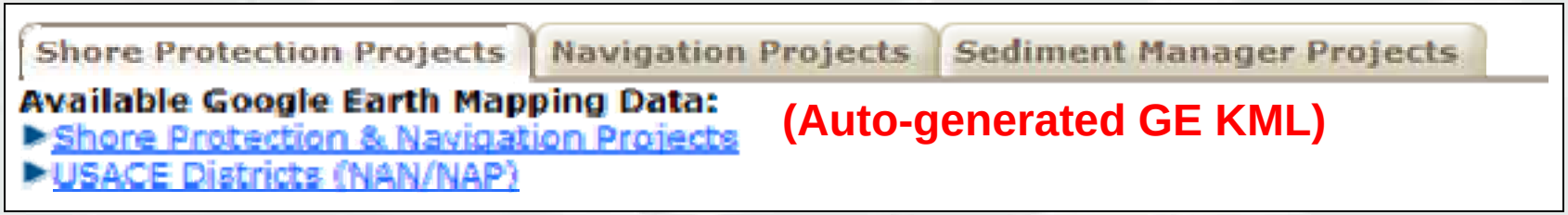
- Used by decision makers to gather an objective view on the condition of shore protection projects.
- Rated color coding allows stakeholders to quickly compare condition of projects in their area of interest.
- Users can view database details directly through the data access pages, or through “details” in Google Earth.



Color-coding denotes rated beach condition

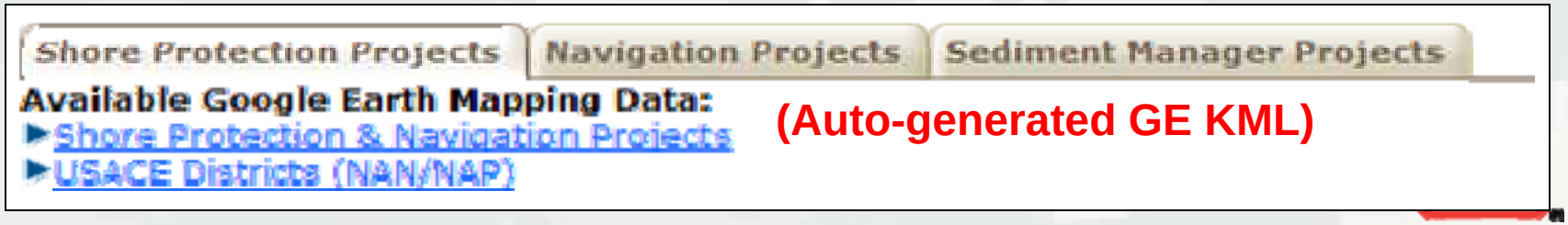
Project Locations: Spatial Data

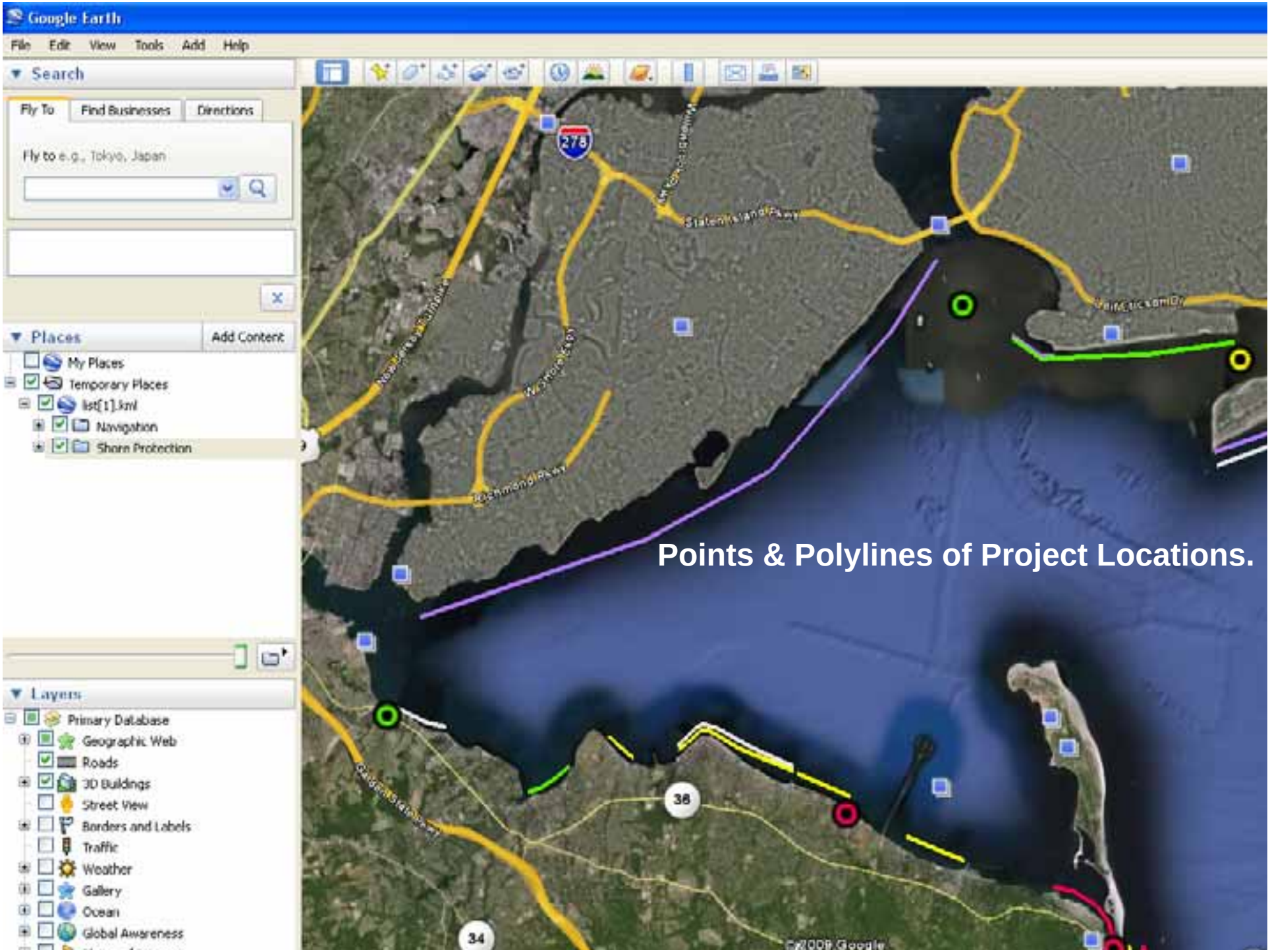
- Currently the database that fuels the application extracts coordinate entries for project locations
  - Series of coordinate pairs for Shore Protection projects (polyline) and a a single coordinate pair for Navigation project locations (point)
  - Initial data supplied by IWR and supplemented by RSM databases available in NAD and SAM.



Project Locations: Spatial Data

- Google Earth KMLs are generated on the fly and streamed to the user based on filtered content. E.g., All of New York District, or All projects in New Jersey.
- Phase II of the application will allow coordinates to be extracted directly from District's enterprise geodatabase (if available) and a public web mapping service will be hosted to be consumed by other enterprise mapping applications (e.g. CorpsMap, District eGIS, spatial data clearinghouses, etc.)




Google Earth
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Directions
Fly to e.g., Tokyo, Japan
Places
Add Content
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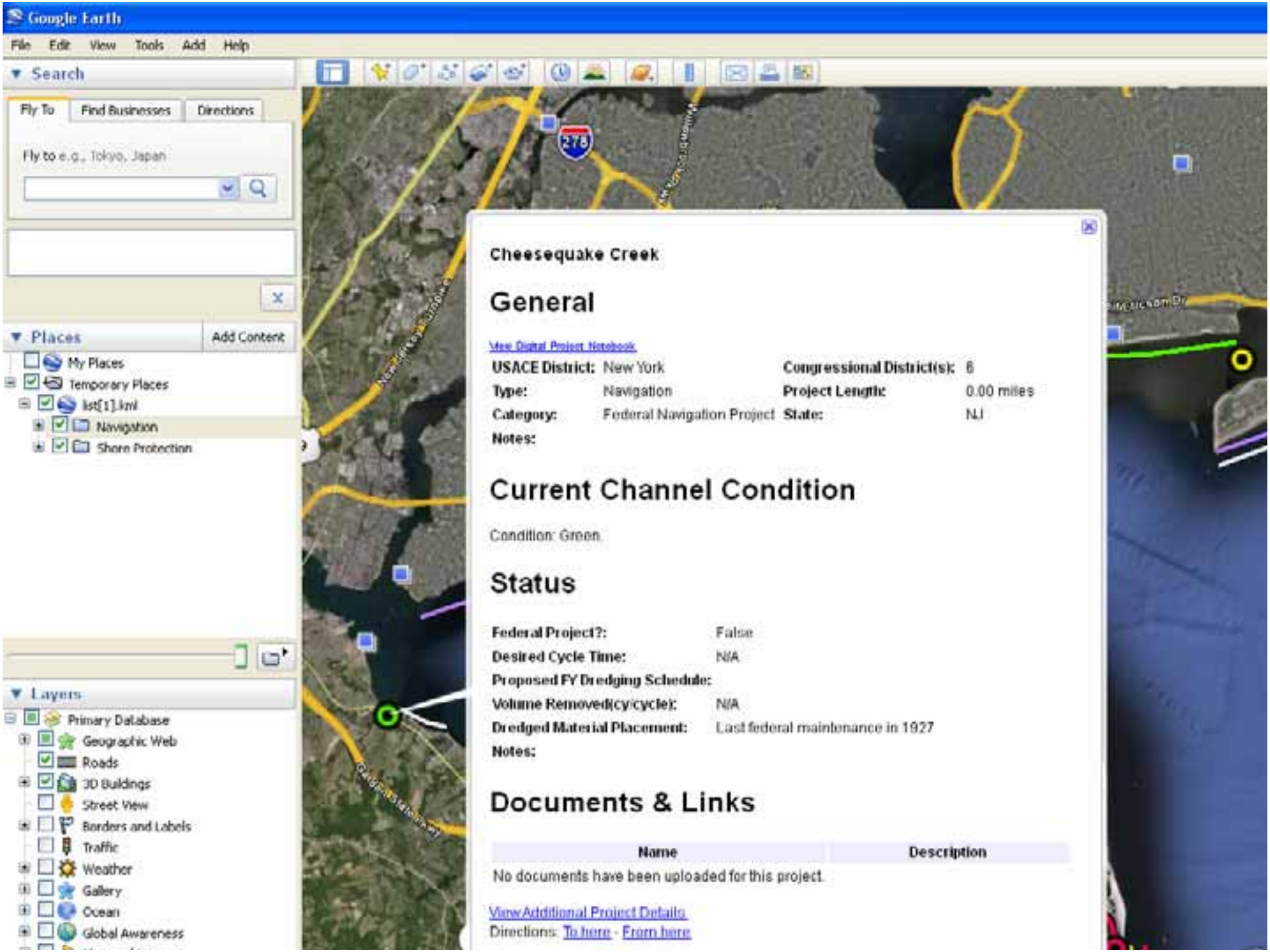
Temporary Places
list[1].kml
Navigation
Shoreline Protection
Layers
Primary Database
Geographic Web
Roads
3D Buildings
Street View
Borders and Labels
Traffic
Weather
Gallery
Ocean
Global Awareness
Points & Polylines of Project Locations.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list[1].kml
Navigation
Shore Protection
Layers
Primary Database
Geographic Web
Roads
3D Buildings
Street View
Borders and Labels
Traffic
Weather
Gallery
Ocean
Global Awareness
Cheesequake Creek
General
View Digital Project Notebook
USACE District: New York
Congressional District(s): 6
Type: Navigation
Project Length: 0.00 miles
Category: Federal Navigation Project
State: NJ
Notes:
Current Channel Condition
Condition: Green
Status
Federal Project?: False
Desired Cycle Time: N/A
Proposed FY Dredging Schedule:
Volume Removed(cy/cycle): N/A
Dredged Material Placement: Last federal maintenance in 1927
Notes:
Documents & Links
Name
Description
No documents have been uploaded for this project.
View Additional Project Details
Directions: To here - From here

Google Earth

File Edit View Tools Add Help

Search

Fly To | Find Businesses | Directions

Fly to e.g., Tokyo, Japan

Places | Add Content

- My Places
- Temporary Places
  - list[1].kml
    - Navigation
    - Shore Protection

Layers

- Primary Database
  - Geographic Web
  - Roads
  - 3D Buildings
  - Street View
  - Borders and Labels
  - Traffic
  - Weather
  - Gallery
  - Ocean
  - Global Awareness

Coney Island

General

View Digital Project Notebook

USACE District:	New York	**Congressional District(s):**	8
Type:	Shore Protection	**Project Length:**	3.0 miles
Category:	Beachfill	**State:**	NY

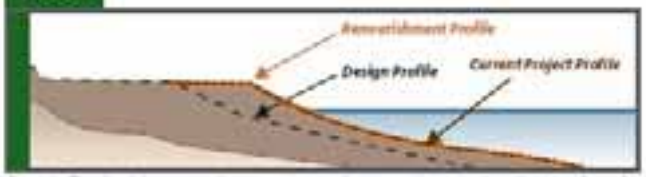
Description:

Project Extent Coordinates:

-74.01042956,40.57391195,0
-74.00714432,40.56772327,0
-73.96527973,40.56917943,0
-73.93215209,40.57281983,0

Current Beach Condition

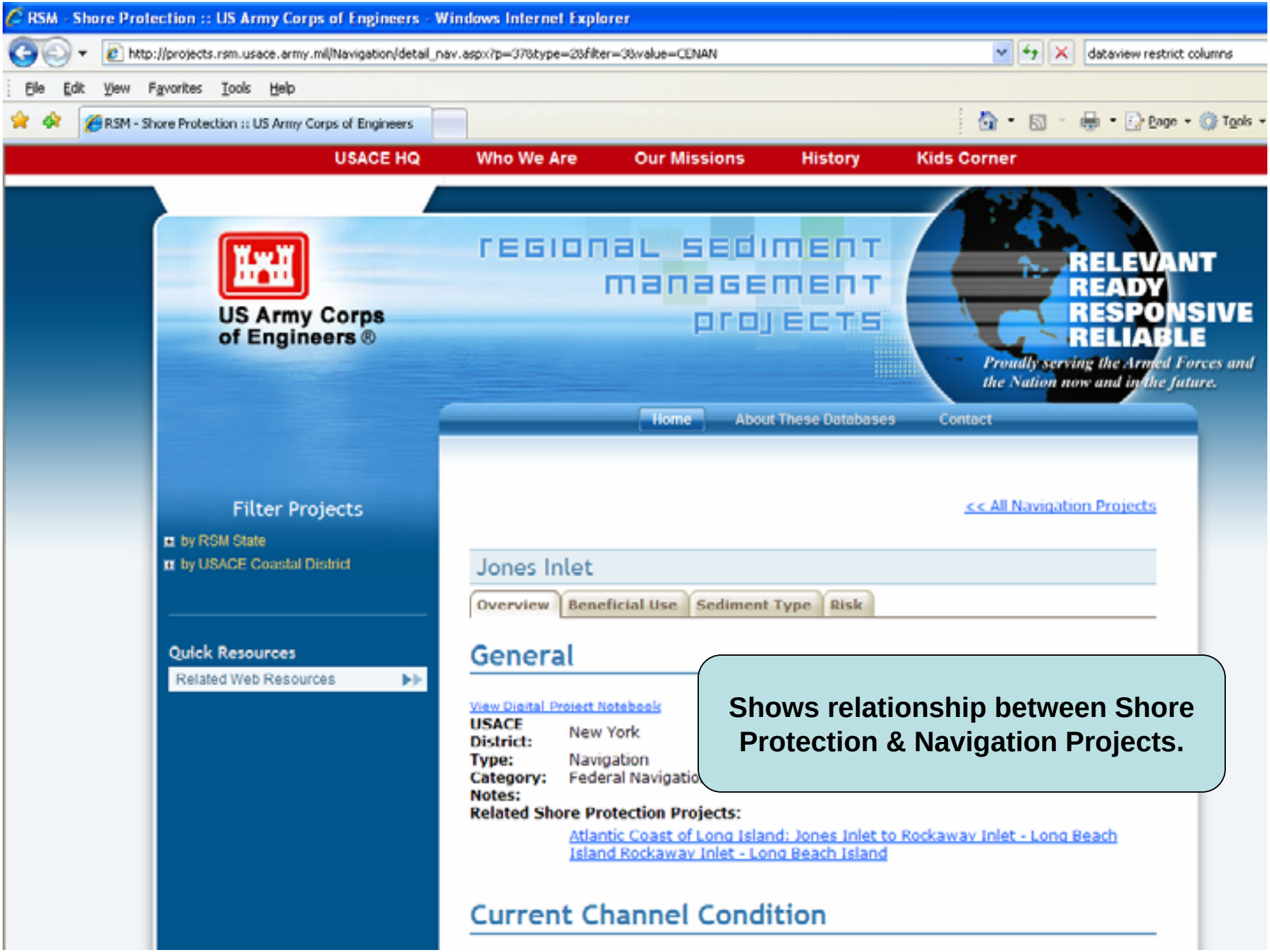
Green



Good. Project is early in the renourishment cycle, or the project is performing better than expected, or both.

Activities

Date of Next Renourishment:	2011
Date of Last Renourishment:	
Desired Renourishment Cycle (yrs):	10
# of Nourishment Operations:	0
Is Erosion Partially Induced by Navigation?	No
Project Phase:	Renourishment(s) initiated



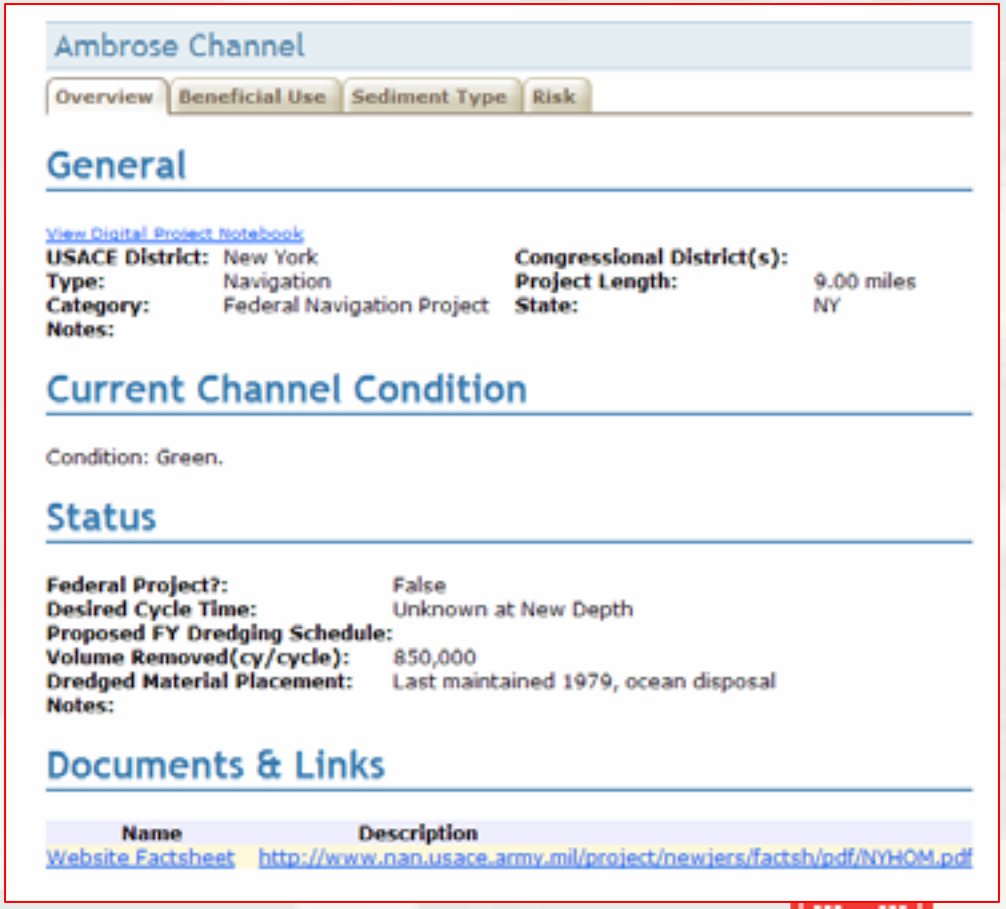
Shows relationship between Shore Protection & Navigation Projects.

Data Collections: Shore Protection

- Overview
- Current Beach Condition
- Renourishment Activities
- Related Documents/Links
- Initial Construction
- Reports
- Renourishment Details
- Cost Summary
- Risk (What is being protected)

Data Collections: Navigation

- Overview
- Current Assigned Channel Condition
- Status/Recent Activity
- Related Documents/Links
- Beneficial Use
- Sediment Type
- Risk



Ambrose Channel

Overview | Beneficial Use | Sediment Type | Risk

General

View Digital Project Notebook

USACE District: New York
Type: Navigation
Category: Federal Navigation Project
Notes:
Congressional District(s):
Project Length: 9.00 miles
State: NY

Current Channel Condition

Condition: Green.

Status

Federal Project?: False
Desired Cycle Time: Unknown at New Depth
Proposed FY Dredging Schedule:
Volume Removed(cy/cycle): 850,000
Dredged Material Placement: Last maintained 1979, ocean disposal
Notes:

Documents & Links

Name	Description
Website Factsheet	http://www.nan.usace.army.mil/project/newjers/factsh/pdf/NYHOM.pdf

Sediment Manager Module

- Visually tracks dredge to placement locations for sediment projects.
- View basic level contract data together (Project Name, Contract Number, Bid Open Date, Cost, Start Date, End Date, Quantity Dredged, Quantity Placed, Material Type, and Material Source) with locations of dredging activities to placement sites.
- Auto-generated Google Earth KMLs are used in conjunction with geodatabase coordinates to plot locations in a mapping environment.
- Interested stakeholders can log into the site and request sediment or dredging activity for a selected area (using ESRI's Javascript API).

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Filter Projects

- by RSM State
- by USACE Coastal District

Quick Resources

Related Web Resources

All Sediment Manager Projects >> Long Island Sediment Needs Assessment (LISNA) Contracts

All data displayed in this current project is for demonstration purposes only. Final version of project data will be released shortly.

Project Information | Submit a Needs Request | Review Requests

Available Google Earth Mapping Data:

- Borrow Areas
- Historic Area Remediation Site (HARS)
- Navigation Channels (LISNA Study Area)
- Vibracores
- *To view individual placement and dredge areas by Contract, browse to contract below.*

Search for Contracts:

- by Contract Number
- by Geographic Area
- by Year

Filter Projects

- by RSM State
- by USACE Coastal District

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Available Google Earth Mapping Data:

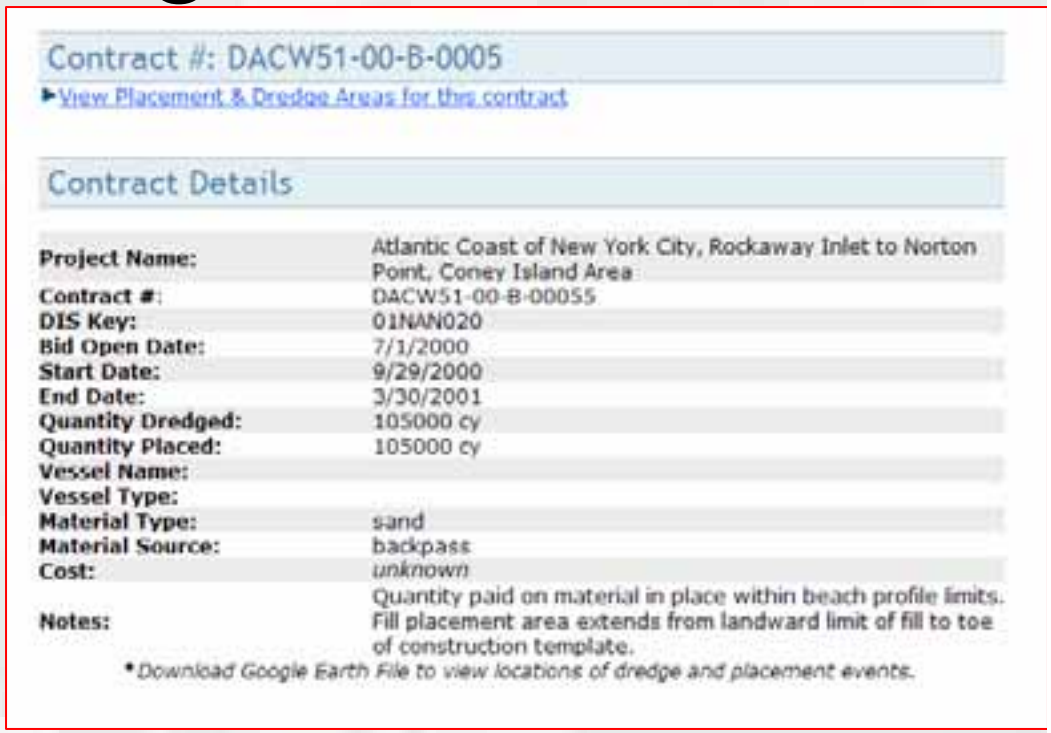
- Borrow Areas
- Historic Area Remediation Site (HARS)
- Navigation Channels (LISNA Study Area)
- Vibracores
- *To view individual placement and dredge areas by Contract, browse to contract below.*

Search for Contracts:

- by Contract Number
- by Geographic Area
  - Browns Creek
  - Coney Island
  - East Bank Shoal
  - Fire Island
  - Jamaica Bay
  - Jones Inlet
  - Monches Inlet
  - Rockaway Peninsula
    - All Placement & Dredge Areas for Rockaway Peninsula (Google Earth)
    - DACW51-00-B-0027 ()
    - DACW51-00-C-0025 (9/1/2000)
    - DACW51-02-C-0027 (9/9/2002)
    - DACW51-03-B-0017 (7/1/2003)
    - DACW51-99-C-0001 (9/1/1998)
    - W912DS-04-C-0020 (9/1/2004)
  - Shinnecock

Data Collections: Sediment Manager

- Contract Number
- Project Name
- DIS Key
- Bid Open Date
- Start Date
- End Date
- Quantity Dredged/Placed
- Vessel Name/Type
- Material Type
- Material Source
- Cost
- Notes



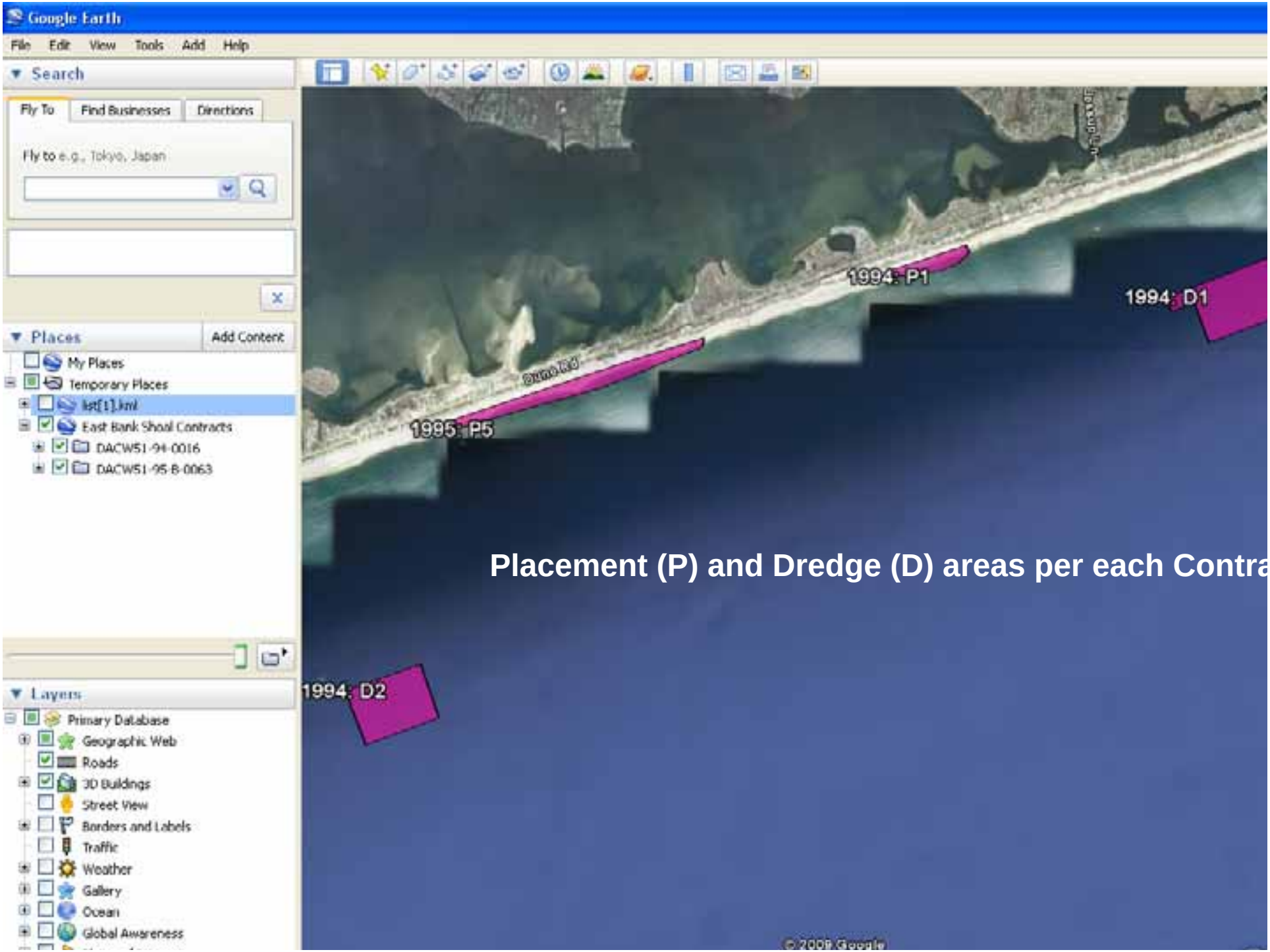
Contract #: DACW51-00-B-0005

▶View Placement & Dredge Areas for this contract

Contract Details

Project Name:	Atlantic Coast of New York City, Rockaway Inlet to Norton Point, Coney Island Area
Contract #:	DACW51-00-B-00055
DIS Key:	01NAN020
Bid Open Date:	7/1/2000
Start Date:	9/29/2000
End Date:	3/30/2001
Quantity Dredged:	105000 cy
Quantity Placed:	105000 cy
Vessel Name:	
Vessel Type:	
Material Type:	sand
Material Source:	backpass
Cost:	*unknown*
Notes:	Quantity paid on material in place within beach profile limits. Fill placement area extends from landward limit of fill to toe of construction template.

*Download Google Earth File to view locations of dredge and placement events.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list[1].kml
East Bank Shoal Contracts
DACW51-94-0016
DACW51-95-B-0063
Layers
Primary Database
Geographic Web
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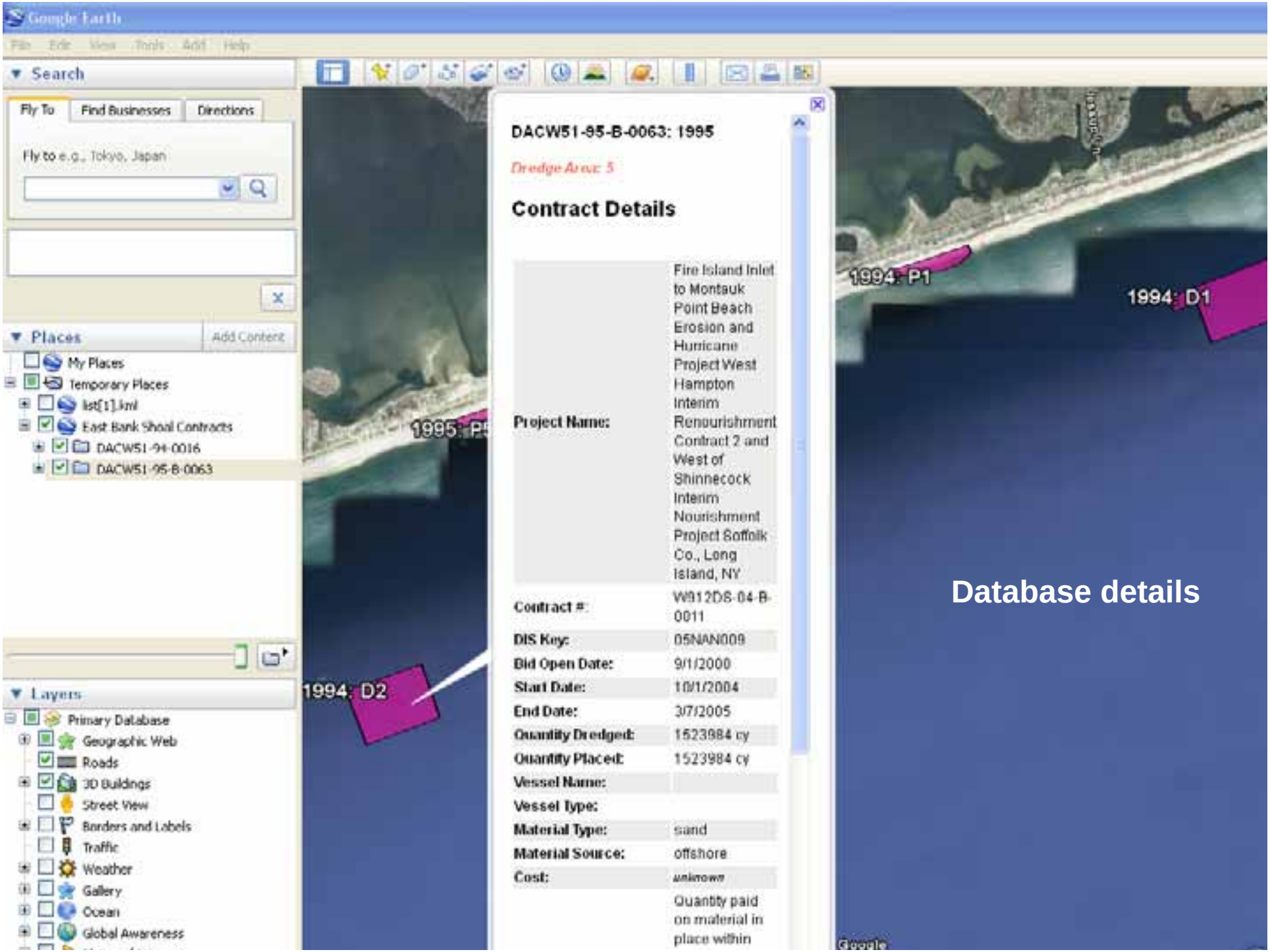
3D Buildings
Street View
Borders and Labels
Traffic
Weather
Gallery
Ocean
Global Awareness
1994: P1
1994: D1
1995: P5
1994: D2
Placement (P) and Dredge (D) areas per each Contra
© 2008 Google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Roads
3D Buildings
Street View
Borders and Labels
Traffic
Weather
Gallery
Ocean
Global Awareness
1995: P5
1994: D2
DACW51-95-B-0063: 1995
Dredge Area: 5
Contract Details
Project Name: Fire Island Inlet to Montauk Point Beach Erosion and Hurricane Project West Hampton Interim Renourishment Contract 2 and West of Shinnecock Interim Nourishment Project Suffolk Co., Long Island, NY
Contract #: W912DS-04-B-0011
DIS Key: 05NAN009
Bid Open Date: 9/1/2000
Start Date: 10/1/2004
End Date: 3/7/2005
Quantity Dredged: 1523984 cy
Quantity Placed: 1523984 cy
Vessel Name:
Vessel Type:
Material Type: sand
Material Source: offshore
Cost: unknown
Quantity paid on material in place within
1994: P1
1994: D1
Google
Database details

Sediment Manager Mapping

- If stakeholders are interested in having a designated area dredged or is in need of sediment, a request can be made from the Sediment Manager module.
  - Site is CAC-enabled.
  - If user does not have a CAC, username/password is required for request submissions.
- Using ESRI's Javascript API, the user can outline the boundary of their area of interest and supply supplemental information for the activity request.
- USACE Project Manager can review the request, view the boundary (auto-generated KML is created), and make comments back to the requestor.

- by RSM State
- by USACE Coastal District

Quick Resources

Related Web Resources

Project Information | Submit a Needs Request | Review Requests

Fill out the form below to submit your sediment needs request. Use the map to the left to define the boundaries of your area of interest.

Type of Request:
(•) Dredge ( ) Fill

Fill Purpose:
building construction

Sediment Type Needed:
gravel

Location Name:
Pilot Project

Location Coordinates (e.g. [x1,y1], [x2,y2],..)
[-72.84673723217773,40.736125625805664],[-72.84158739086913,40.724452284423826],[-

Quantity (volume) Needed:
100000

Grain size and/or gradation of sediment needed:
small

Desired Color of sediment:

Desired Time Frame:
within 6-9 months

Draw Boundary | Activate Map Pan | Clear

Zoom Slider : Hide | Show

Comments/Detail:

Attachment:
Browse...

Submit Request

Embedded Map Code - 1

```
<div id="layout" style="float: left; width:300px; height:400px; margin-top:15px;" >

    <button onclick="tb.activate(esri.toolbars.Draw.POLYGON);" style="width: 104px">Draw
      Boundary</button>
    <button onclick="tb.deactivate()" style="width: 122px">Activate Map Pan</button>
    <button onclick="StartOver()" style="width: 70px" title="Clear">Clear</button>

    <div id="map" style="width:350px; height:400px; border:2px solid #000;" class="tundra">
    </div>

Zoom Slider :
    <input type="button" value="Hide" onclick="map.hideZoomSlider()" />
    <input type="button" value="Show" onclick="map.showZoomSlider()" />

</div>
```

Embedded Map Code - 2

```
<link rel="stylesheet" type="text/css"
    href="http://serverapi.arcgisonline.com/jsapi/arcgis/1.5/js/dojo/dijit/themes/tundra/tundra.css" />

 <script type="text/javascript" src="http://serverapi.arcgisonline.com/jsapi/arcgis/?v=1.5">
</script>

 <script type="text/javascript">
       dojo.require("esri.map");
       dojo.require("esri.layers.agstiled");
       dojo.require("esri.toolbars.draw");
       var map, tb;
        function init() {
          map = new esri.Map("map");
          var spatialRef = new esri.SpatialReference({ wkid: 4326 });
          var startExtent = new esri.geometry.Extent();
          startExtent.xmin = -74.047852;
          startExtent.ymin = 40.538852;
          startExtent.xmax = -71.812134;
          startExtent.ymax = 41.253032;
          startExtent.spatialReference = spatialRef;
          map.setExtent(startExtent);
```

Embedded Map Code - 3

```
        dojo.connect(map, "onLoad", initToolbar);
        map.addLayer(new
esri.layers.ArcGISTiledMapServiceLayer("http://server.arcgisonline.com/ArcGIS/rest/services/ESRI_StreetMap_World_2D/MapServer"));
      }
      function initToolbar(map) {
        tb = new esri.toolbars.Draw(map);
        dojo.connect(tb, "onDrawEnd", addGraphic);
      }
function addGraphic(geometry) {
        var symbol = tb.fillSymbol;
        var graphics = map.graphics.add(new esri.Graphic(geometry, symbol));
        var coords = dojo.toJson(graphics.geometry.toJson());
        var tbox = document.getElementById('tbCoords');
        var text = coords;
        var find1 = "],";
        var find2 ="[";
        text = text.slice(11, coords.length);
        text = text.slice(0, (text.length - 36));
        tbox.value = text;
    }
```

Embedded Map Code - 4

```
function StartOver(){
        map.graphics.clear();
        var tbox = document.getElementById('tbCoords');
        tbox.value = "";
    }

    dojo.addOnLoad(init);
</script>
```

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Filter Projects

- by RSM State
- by USACE Coastal District

Quick Resources

Related Web Resources

Thank you for your submission. You will receive an email when the USACE project manager reviews and makes a comment on your request.

Filter Projects

- by RSM State
- by USACE Coastal District

Quick Resources

Related Web Resources

Request Submissions

Below is a list of all submitted sediment requests. To view full detail of request, click the record number.

	USACE Reviewed	Date Submitted	User	Type	Purpose
1.	11/18/2009	11/18/2009	1	dredge	erosion control
2.	*pending*	11/18/2009	1	fill	erosion control
3.	*pending*	11/18/2009	1	dredge	other
4.	*pending*	12/8/2009	Rose.Dopsovic	dredge	beach nourishment
5.	*pending*	12/10/2009	Rose.Dopsovic	dredge	
6.	*pending*	2/14/2010	Rose.Dopsovic	dredge	building construction

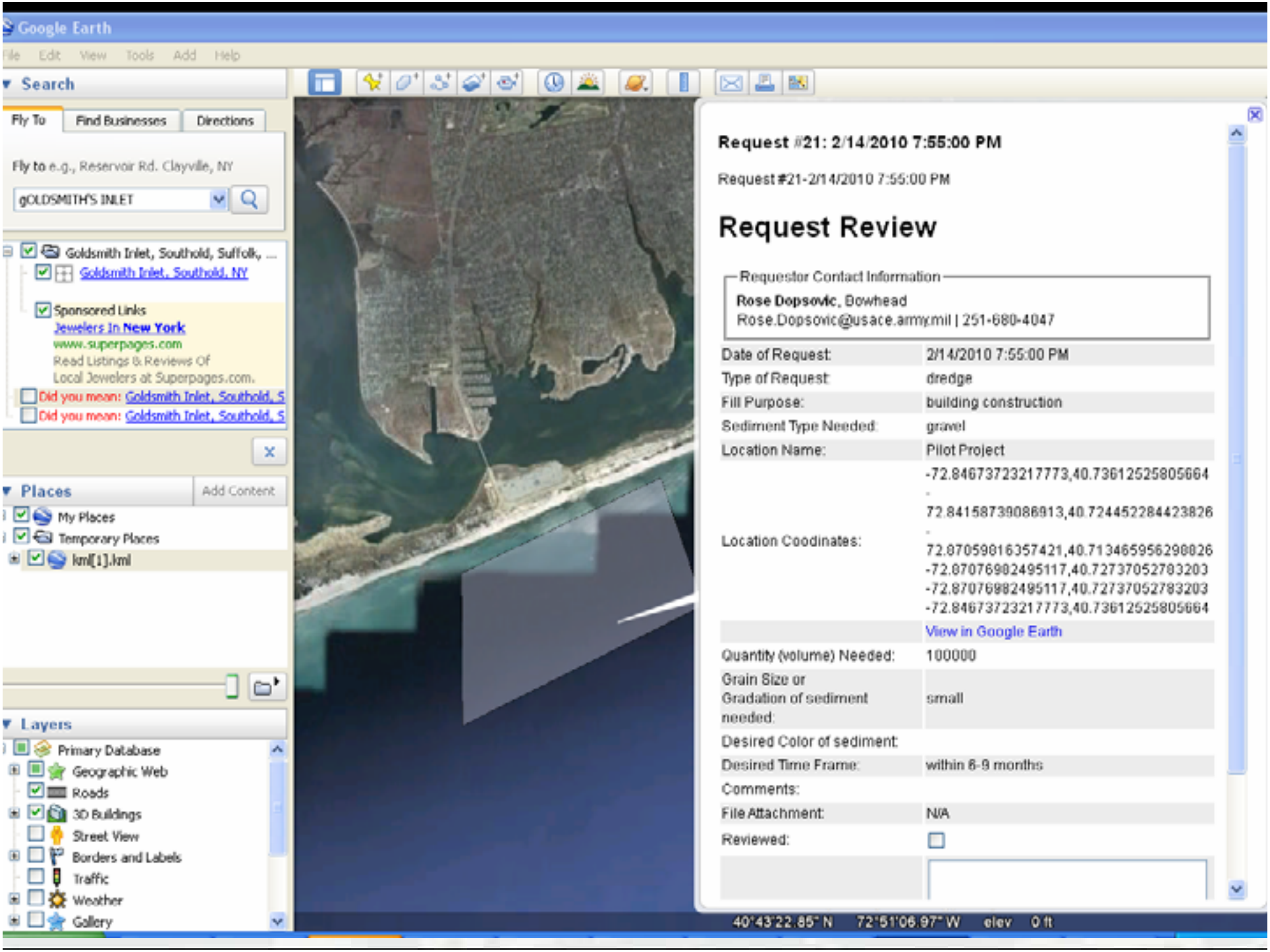
Filter Projects
- by RSM State
- by USACE Coastal District

Quick Resources
Related Web Resources

Request Review

Requestor Contact Information
Rose Dopsovic, Bowhead
Rose.Dopsovic@usace.army.mil | 251-680-4047

Date of Request:	2/14/2010 7:55:00 PM
Type of Request:	dredge
Fill Purpose:	building construction
Sediment Type Needed:	gravel
Location Name:	Pilot Project
Location Coodinates:	-72.84673723217773,40.73612525805664 -72.84158739086913,40.7244522844238 26 -72.87059816357421,40.713465956298826 -72.87076982495117,40.72737052783203 -72.87076982495117,40.72737052783203 -72.84673723217773,40.73612525805664 View in Google Earth
Quantity (volume) Needed:	100000
Grain Size or Gradation of sediment needed:	small
Desired Color of sediment:	
Desired Time Frame:	within 6-9 months
Comments:	
File Attachment:	N/A
Reviewed:	☐
USACE Response:	


Google Earth
File Edit View Tools Add Help
Search
Fly To
Find Businesses
Directions
Fly to e.g., Reservoir Rd. Clayville, NY
GOLDSMITH'S INLET
Goldsmith Inlet, Southold, Suffolk, ...
Goldsmith Inlet, Southold, NY
Sponsored Links
Jewelers In New York
www.superpages.com
Read Listings & Reviews Of
Local Jewelers at Superpages.com.
Did you mean: Goldsmith Inlet, Southold, S
Did you mean: Goldsmith Inlet, Southold, S
Places
Add Content
My Places
Temporary Places
kml[1].kml
Layers
Primary Database
Geographic Web
Roads
3D Buildings
Street View
Borders and Labels
Traffic
Weather
Gallery
Request #21: 2/14/2010 7:55:00 PM
Request #21-2/14/2010 7:55:00 PM
Request Review
Requestor Contact Information
Rose Dopsovic, Bowhead
Rose.Dopsovic@usace.army.mil | 251-680-4047
Date of Request: 2/14/2010 7:55:00 PM
Type of Request: dredge
Fill Purpose: building construction
Sediment Type Needed: gravel
Location Name: Pilot Project
Location Coodinates: -72.84673723217773,40.73612525805664 -72.84158739086913,40.724452284423826 -72.87059016357421,40.713465956290026 -72.87076982495117,40.72737052783203 -72.87076982495117,40.72737052783203 -72.84673723217773,40.73612525805664
View in Google Earth
Quantity (volume) Needed: 100000
Grain Size or Gradation of sediment needed: small
Desired Color of sediment:
Desired Time Frame: within 6-9 months
Comments:
File Attachment: N/A
Reviewed:
40°43'22.85" N 72°51'06.97" W elev 0 ft

Future of RSM Project Maps

- In addition to Google Earth, all location data for placement, dredge, and sediment request areas will be available through a WMS.
  - An inventory of available web services will be available on the RSM Project Database website.
  - The web services will connect to a District's geodatabase to retrieve the authoritative boundaries of disposal and placement areas.
- The RSM Project Database will consume data currently stored in existing USACE enterprise sources related to coastal engineering.

Rose Dopsovic

eCoastal Program Manager

Bowhead Science & Technology, LLC

Mobile District / SAD

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