

Project Number: EVOS Project No. 050764

Project Title: ShoreZone Mapping for Kodiak Island

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Time period covered by report: May 9, 2005 – 30 September, 2006

Date of Report: November 5, 2006

Report prepared by: Susan Saupe

Project website address: www.coastalaska.net (aerial imagery available for all surveys in 2002 and 2005 are now posted on this web site. Mapped data from 2002 aerial surveys are also posted; all other data will be posted when mapping is completed in early 2007)

Work Performed:

The overall goal of this project is to provide high-resolution data on physical and biological resources throughout the Kodiak Island Archipelago as part of a larger multi-agency effort to provide this information for the Gulf of Alaska, including the EVOS area, and, in the future, to other coastlines in Alaska. It is expected that the ShoreZone dataset will contribute substantially by providing a spatial framework for more detailed monitoring studies, by augmenting trustee agencies resource management information for oil spill response and by raising public awareness to coastal resources

Specific objectives of the overall Kodiak ShoreZone project planned for 2005 and 2006 are:

1. Continue to collect high resolution, low-tide imagery of the remainder of the Kodiak archipelago coastline and make this imagery publicly accessible.
2. Map shoreline features using the Alaska ShoreZone Protocol and make this data publicly accessible through data repositories and ideally through web-accessible (e.g., ArcIMS) sites.
3. Collect intertidal and shallow subtidal species data at selected sites, as per the Alaska ShoreZone Protocol, to verify aerial videographic interpretation, and compile a regional species database.
4. Work with the EVOSTC and other organizations to build a multi-agency/organization database that incorporates the data collected to date.

Aerial surveys were conducted in 2005 to fulfill Objective 1 and the imagery has been posted to the www.coastalaska.net website. The digital imagery and audio information collected during the aerial surveys is currently being mapped as biophysical shoreline data which is fulfilling Objective 2. More detailed description of this work is provided below. Objective 3 was met in 2005 when ground-station surveys were conducted at 112 sites throughout study area. Discussions are currently taking place on how to best meet Objective 4.

Work covered during the previous annual report period (May 2005 – September 2005) included conducting aerial surveys for all coastlines of Kodiak, Afognak, Shuyak, Marmot, Raspberry, Tugidik, Sitkilidak, and many other smaller islands that had not been surveyed during the first aerial surveys conducted in 2002. These surveys were conducted in May and June 2005. Figure 1 shows the shorelines surveyed during these two tide windows as reported by DVD tape number. The digital aerial imagery has been provided by the subcontractor, Coastal and Ocean Resources,

Inc. (CORI), to the Cook Inlet RCAC on DVDs. All digital still photographs were provided on DVD, as well. These DVDs will be provided to the EVOS Trustee Council as a final deliverable. A field aerial survey report was produced titled “2005 Aerial Video Imaging Surveys, Kodiak Island, Alaska (22-29 May and 21-24, 27 June 2005).”

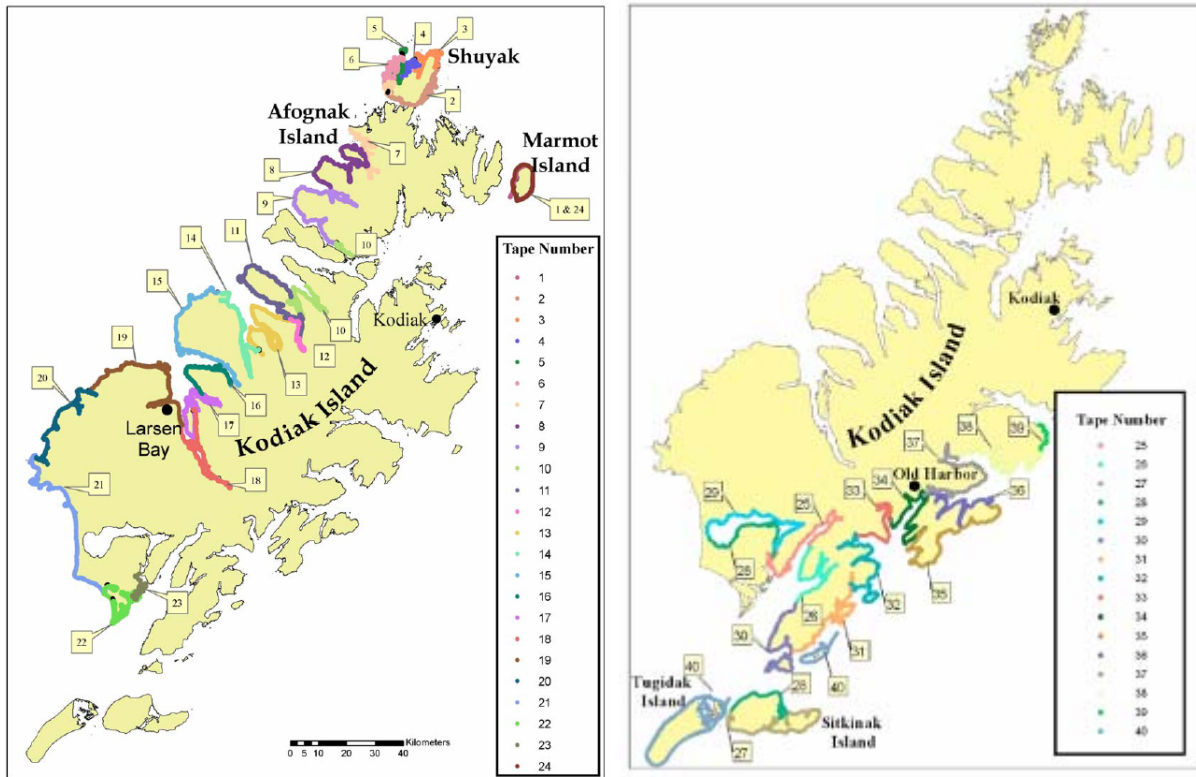


Figure 1. Location of tape coverage during May (left) and June (right) 2005 Kodiak Island Aerial Video Surveys.

In addition, ground-station surveys took place at 112 sites (Figure 2) where detailed species-level information was collected to provide information about invertebrate and algal species assemblages for a range of biophysical habitats. At each site, information was recorded to describe the observed patterns in the biota (the biobands) as well as relative abundance of intertidal species observed. These species observations and other information for each station were recorded in the database. The data from the physical across-shore profile measurements and other geomorphological observations were also compiled by station within the database. A field report summarizing the ground-station surveys and data was produced titled “2005 Kodiak National Wildlife Refuge, Kodiak Island, Afognak Island, Shuyak Island, and Trinity Island Ground Station Survey (May 20-29 and June 20-27 2005)” was provided to Cook Inlet RCAC subcontractors CORI and Archipelago Marine Research, Ltd.

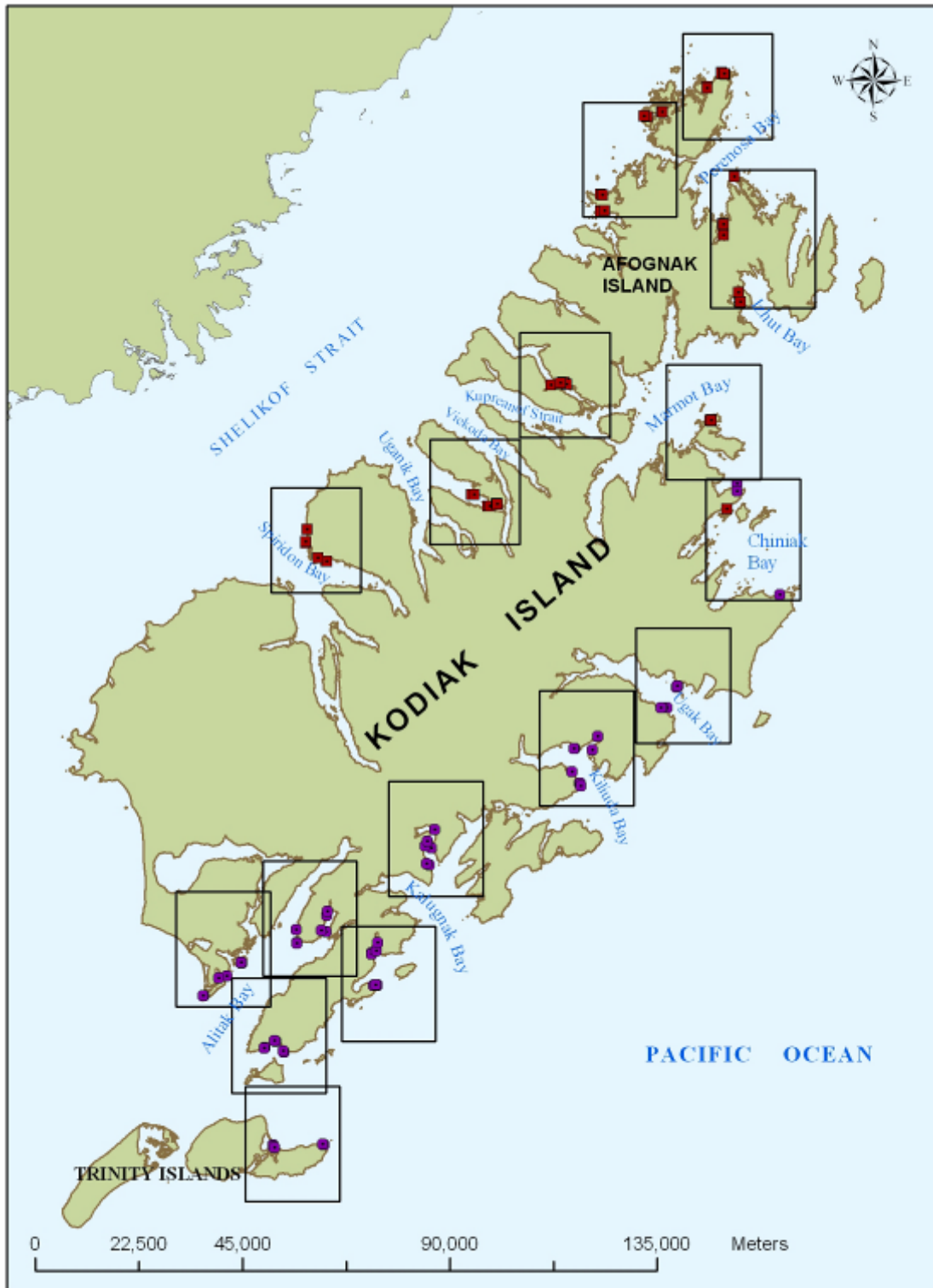


Figure 2. Map of the Kodiak Coast showing the general locations of the stations surveyed between May 20-29th and June 20-27th, 2005. Note that many of the symbols overlap so that 112 individual site locations do not show on a map of this scale.

During the annual reporting period from September 2005-September 2006, information (digital imagery and audio) collected during the 2005 aerial surveys and for a portion of the 2002 aerial surveys were used by geomorphologists and biologists to provide the biophysical habitat data that makes up the ShoreZone database. These data will be provided in a database and as georeferenced data for GIS mapping and for querying using ArcIMS web tools. Figure 3 summarizes how much of the Kodiak Island Archipelago has been mapped by September 30, 2006. This map shows shorelines that were surveyed and mapped in 2002, shorelines that were surveyed in 2002 and mapped in 2006, shorelines that were surveyed in 2005 and mapped in 2006, and shorelines that were surveyed in 2005 but have not yet been mapped. It is anticipated that all shorelines that have been surveyed will be mapped and provided electronically by spring 2007.

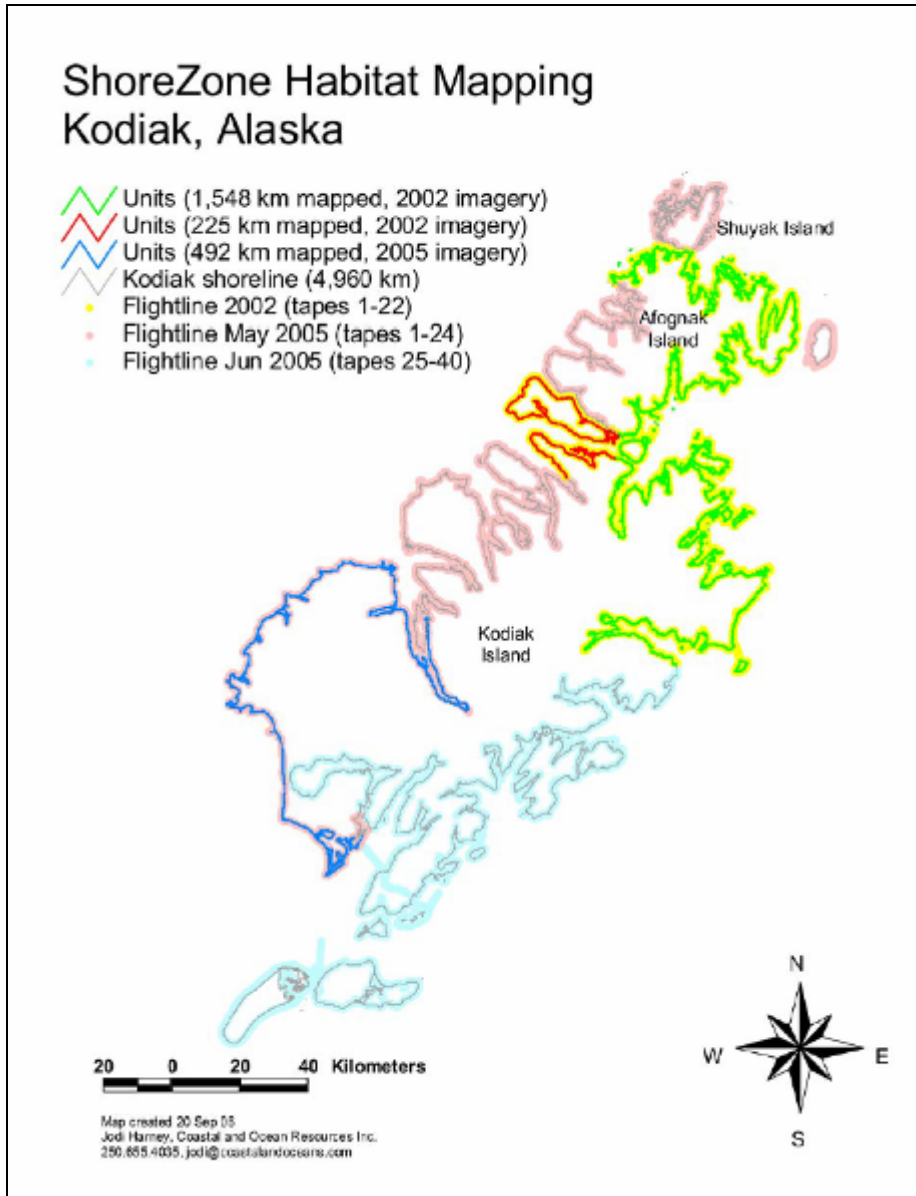


Figure 3. Map showing Kodiak shoreline where aerial surveys were conducted in 2002 and 2005 (all colored shorelines). Individual colors represent progress towards mapping the surveyed shorelines. Pink and light blue lines represent shorelines that were surveyed in May and June 2005, respectively, but have not yet been mapped.

Future Work:

Mapping will continue to take place until all shoreline segments surveyed in 2005 have been completed. This work is anticipated to be completed by spring 2007. It was originally anticipated that the mapping would be completed at this time, but the mapping portion of the work has taken longer than anticipated for several reasons. First, homogenous shoreline segments in Kodiak tend to be shorter on average than those previously mapped for other areas, which increases the time and data handling efforts of both the geomorphological and biological mappers. However, the benefit is that the data will be of higher resolution than anticipated. Secondly, intense interest in ShoreZone data for other parts of the Gulf of Alaska and the Bering Sea led to an intense field schedule by subcontractors at CORI and Archipelago Marine Research, Inc. This required that the trained surveyors and mappers spend more time in the field than originally anticipated. Although this took the biophysical mappers away from finishing the Kodiak mapping on the original schedule, their field work insures that ShoreZone data will be available for a larger portion of the spill area and a larger portion of shorelines upstream and downstream of the spill impacted area. The EVOS Trustee Council and others will benefit from this additional work because it will provide the larger Gulf of Alaska context in which data from individual surveys, such as for Kodiak Island, can be presented and interpreted.

Coordination/Collaboration:

Discussions are still taking place on how to best integrate the data collected by the many different organizations conducting ShoreZone projects in the Gulf of Alaska. Currently, there are two web sites posting ShoreZone data in Alaska: www.coastalaska.net, a site developed in part through funding by the EVOS Trustee Council in 2003 and a site sponsored by NOAA's Alaska Science Center's Habitat Division. Talks are underway to discuss how these two data sets can be incorporated into one web site that represents multi-agency and multi-organization data.

Community Involvement/TEK & Resource Management Applications: Continued meetings with state and federal agencies and other organizations to coordinate ShoreZone efforts for improved management applications.

Information Transfer:

Reports Completed (provided by sub-contractor to Cook Inlet RCAC; Final Versions will be provided to EVOS Trustee Council as part of final deliverables):

Coastal and Ocean Sciences, Inc. 2005. *Kodiak National Wildlife Refuge, Kodiak Island, Afognak Island, Shuyak Island, and Trinity Island Ground Station Survey (May 20-29 and June 20-27 2005)*. Field Report submitted to the Cook Inlet Regional Citizens Advisory Council, Kenai, AK.

Coastal and Ocean Sciences, Inc. 2005. *Aerial Video Imaging Surveys, Kodiak Island, Alaska (22-29 May and 21-24, 27 June 2005)*. Draft Report submitted to the Cook Inlet Regional Citizens Advisory Council, Kenai, AK.

List of Electronic Files (Provided by Cook Inlet RCAC)

Photo Archive Files (2 DVDs):

Kodiak Ground Stations May 2005 Disk 1 of 3
Station Images: KDK_05_001 to KDK_05_052
Kodiak Ground Stations June 2005 Disk 2 of 3
Station Images: KDK_05_053 to KDK_05_112
Mapping Files (1 CD):
Kodiak Field Data 2005 Disk 3 of 3
Database File (KodiakFieldStationDBJL15_05_DRFT)
GIS Shape Files (Map Figures)

Kodiak_ShoreZone_Database_Interim_31Aug06.mdb (This file contains the entire Access 97 database of physical and biological ShoreZone mapping data from 2002 and 2005 imagery. The database is cumulative and replaces earlier versions.)

Kodiak_ShoreZone_mapping_summary_083106.wmf (Illustrates the extend of mapped and unmapped shorelines in Kodiak from 2002 and 2005 imagery)

GIS Shapefiles that replace earlier versions (shoreline projections updated in the new 2006 versions)

Kodiak_2002_line_a.shp
Kodiak_2002_part2_mapped_a.shp
Kodiak_2002_point_a.shp
Kodiak_2005_line_a.shp
Kodiak_2005_point_a.shp
Kdk05_may_a_tapes18-21_a.shp
Kdk05_may_a.shp
Kdk05_may_photos_a.shp
Kdk05_jun_a.shp
Kdk_jun_photos_a.shp
Kodiak_flightline_2002_a.shp
Kodiak_2005_shoreline_a.shp

Presentations by Cook Inlet RCAC and Subcontractors

Marine Science Symposium – Anchorage – January 2006 (2 posters)
To NOAA Habitat Div. Staff and Regional Office Web-Design Staff, Juneau, Apr 2006

Budget: We expect to provide deliverables within the budget proposed after having received additional funds for 2005 field work. No future amendments are expected by Cook Inlet RCAC or subcontractors.