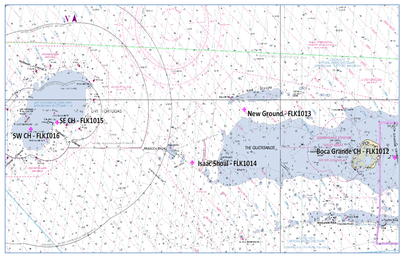
Current Meter Reconnaissance from the Dry Tortugas National Park to Florida's Long Key

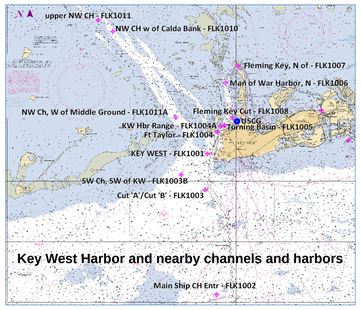
Karen L. Earwaker, Center for Operational Oceanographic Products and Services

Objective:

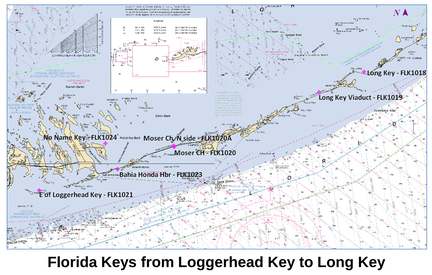
Conduct reconnaissance for placing bottom mounted platforms in the Florida Keys. CO-OPS identified 28 discrete sites from the Dry Tortugas east to Key West Harbor and east along the 126 mile chain of islands to Long Key, Florida where tidal current predictions need to be added or updated.



Dry Tortugas east to Boca Grande Channel



Key West Harbor and nearby channels and harbors



Florida Keys from Loggerhead Key to Long Key

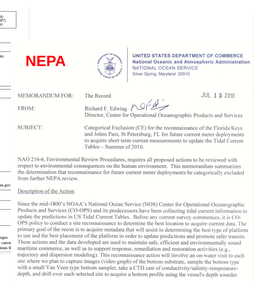
Desktop Recon:

CO-OPS obtained categorical exclusions to temporarily deploy instrumentation within marine protected and endangered species areas in concurrence with National Environmental Policy Act (NEPA), Endangered Species Act (ESA), National Parks Service (NPS), National Marine Sanctuaries (NMS), US Fish & Wildlife Service refuges, and State and Historical Preservation Societies. Desktop research of existing stations in the Tidal Current Tables highlights areas where predictions are missing or need to be updated.

APPLICATION FOR A SCIENTIFIC RESEARCH AND COLLECTING PERMIT

United States Department of the Interior
National Park Service

All or some of the information you provide may become available to the public.



NEPA

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

JUL 16 2010

MEMORANDUM FOR: The Record

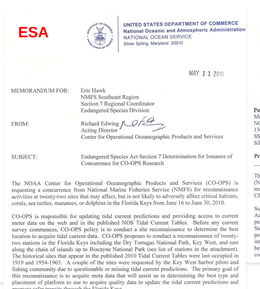
FROM: Richard F. Edwing
Director, Center for Operational Oceanographic Products and Services

SUBJECT: Categorical Exclusion (CE) for the reconnaissance of the Florida Keys and Johns Pass, St Petersburg, FL for future current meter deployments to acquire short term current measurements to update the Tidal Current Tables – Summer of 2010.

NAO 216-6, Environmental Review Procedures, requires all proposed actions to be reviewed with respect to environmental consequences on the human environment. This memorandum summarizes the determination that reconnaissance for future current meter deployments be categorically excluded from further NEPA review.

Description of the Action

Since the mid-1800's NOAA's National Ocean Service (NOS) Center for Operational Oceanographic Products and Services (CO-OPS) and its predecessors have been collecting tidal current information to update the predictions in US Tidal Current Tables. Before any current survey commences, it is CO-OPS policy to conduct a site reconnaissance to determine the best location to acquire current data. The primary goal of the recon is to acquire metadata that will assist in determining the best type of platform to use and the best placement of the platform in order to update predictions and promote safer transits. These actions and the data developed are used to maintain safe, efficient and environmentally sound maritime commerce, as well as to support response, remediation and restoration activities (e.g., trajectory and dispersion modelling). This reconnaissance action will involve an on-water visit to each site where we plan to capture images (video grabs) of the bottom substrate, sample the bottom type with a small Van Veen type bottom sampler, take a CTD cast of conductivity/salinity-temperature-depth, and drift over each selected site to acquire a bottom profile using the vessel's depth sounder.



ESA

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

MAY 11 2010

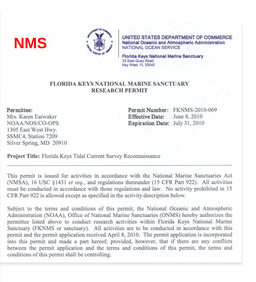
MEMORANDUM FOR: Eric Hawk
NMFS Southeast Region
Section 7 Regional Coordinator
Endangered Species Division

FROM: Richard Edwing
Acting Director
Center for Operational Oceanographic Products and Services

SUBJECT: Endangered Species Act Section 7 Determination for Issuance of Concurrence for CO-OPS Research

The NOAA Center for Operational Oceanographic Products and Services (CO-OPS) is requesting a concurrence from National Marine Fisheries Service (NMFS) for reconnaissance activities at twenty-two sites that may affect, but is not likely to adversely affect critical habitats, corals, sea turtles, manatees, or dolphins in the Florida Keys from June 16 to June 30, 2010.

CO-OPS is responsible for updating tidal current predictions and providing access to current meter data on the web and in the published NOS Tidal Current Tables. Before any current survey commences, CO-OPS policy is to conduct a site reconnaissance to determine the best location to acquire tidal current data. CO-OPS proposes to conduct a reconnaissance of twenty-two stations in the Florida Keys including the Dry Tortugas National Park, Key West, and east along the chain of islands up to Biscayne National Park (see list of stations in the attachment). The historical sites that appear in the published 2010 Tidal Current Tables were last occupied in 1919 and 1954-1965. A couple of the sites were requested by the Key West harbor pilots and fishing community due to questionable or missing tidal current predictions. The primary goal of this reconnaissance is to acquire meta data that will assist us in determining the best type and placement of platform to use to acquire quality data to update the tidal current predictions and promote safer transits through the Florida Keys.



NMS

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Florida Keys National Marine Sanctuary
33 East Quay Road
Key West, FL 33040

FLORIDA KEYS NATIONAL MARINE SANCTUARY
RESEARCH PERMIT

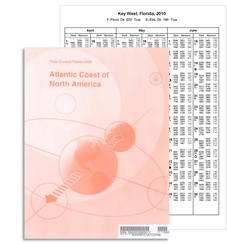
Permittee:
Mrs. Karen Earwaker
NOAA/NOS/CO-OPS
1305 East West Hwy.
SSMC4, Station 7209
Silver Spring, MD 20910

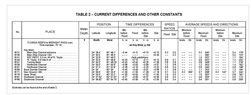
Permit Number: FKNMS-2010-069
Effective Date: June 8, 2010
Expiration Date: July 31, 2010

Project Title: Florida Keys Tidal Current Survey Reconnaissance

This permit is issued for activities in accordance with the National Marine Sanctuaries Act (NMSA), 16 USC §1431 *et seq.*, and regulations thereunder (15 CFR Part 922). All activities must be conducted in accordance with those regulations and law. No activity prohibited in 15 CFR Part 922 is allowed except as specified in the activity description below.

Subject to the terms and conditions of this permit, the National Oceanic and Atmospheric Administration (NOAA), Office of National Marine Sanctuaries (ONMS) hereby authorizes the permittee listed above to conduct research activities within Florida Keys National Marine Sanctuary (FKNMS or sanctuary). All activities are to be conducted in accordance with this permit and the permit application received April 8, 2010. The permit application is incorporated into this permit and made a part hereof; provided, however, that if there are any conflicts between the permit application and the terms and conditions of this permit, the terms and conditions of this permit shall be controlling.





Field Recon:

CO-OPS employed non-invasive strategies to minimize environmental impact to the benthic communities during the June 16-19, 2010 recon.

Field Objectives

- Avoid sea turtles and marine mammals
- Deploy the underwater video camera
- Set GPS waypoint
- Conduct a CTD cast
- Collect benthic samples, if necessary
- Take photos of nearby landmarks
- Complete the recon log

Results:

The ideal area for platform placement represents flow characteristics in the main channel, is relatively level, and free of endangered coral and obstructions. Examples of site selections are shown in the images below.

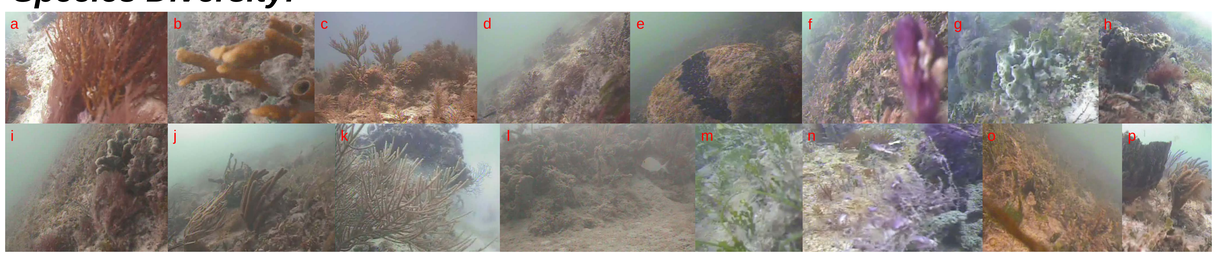
Site Characterization

Station ID	Station Name	Latitude N	Long W	Depth (m)	Site Characterization (grab or video)	Observed Current + Phase	Date + Time of GPS fix	Boundary Jurisdiction
FLK1001	KEY WEST, 0.3mi W of Ft Taylor	24.54834	81.81667	7	a	1 kt flooding	06/16/10 15:17 EDT	Key West NWR + FKNMS, REFERENCE STN
FLK1002	Main Ship Channel Entrance	24.47095	81.81111	8.2	b	< 1kt ebbing	06/16/10 13:53 EDT	Key West NWR + FKNMS
FLK1004	Ft Taylor, 0.7mi N of	24.56047	81.81070	12.9	c	1 kt ebbing	06/16/10 15:41 EDT	Key West NWR + FKNMS
FLK1008	Fleming Key Cut	24.56820	81.80191	10.4	j	2-3 kt ebbing	06/16/10 16:14 EDT	KWNWR + FKNMS
FLK1010	Northwest Channel, W of Calda Bank	24.61555	81.87167	9.3	k	~1 kt towards the W; cross current	06/18/10 09:02 EDT	Key West NWR + FKNMS
FLK1011	Upper Northwest Channel	24.62179	81.88008	5.9	k	0.5 kt ebbing	06/18/10 07:52 EDT	Key West NWR + FKNMS
FLK1011A	Northwest Channel, W of Middle Ground	24.56833	81.83492	8.1	k	1.8 kt to NW	06/18/10 09:19 EDT	Key West NWR + FKNMS
FLK1013	New Ground	24.65039	82.41641	12.9	d	< 1 kt	06/17/10 13:30 EDT	In Gulf of Mexico + FKNMS
FLK1014	Isaac Shoal	24.55783	82.53724	18.3	g	NW Long shore currents	06/17/10 09:31 EDT	FKNMS
FLK1015	Southeast Channel, Dry Tortugas NP	24.62754	82.85088	18.6	e	< 1 kt ebbing	06/17/10 12:08 EDT	Within DRTO in Gulf of Mexico
FLK1016	Southwest Channel, Dry Tortugas NP	24.61589	82.91213	21	fine sand, level seafloor	1.5 kt flooding	06/17/10 11:00 EDT	Within DRTO
FLK1018	Long Key, drawbridge E of	24.83999	80.76996	2.6	l	1.5 kt ebbing	06/19/10 09:32EDT	FKNMS
FLK1019	Long Key Viaduct	24.80160	80.86477	2.7	l	0.5 kt ebbing	06/19/10 11:16 EDT	FKNMS
FLK1022	Sawyer Key, gulf side, Cudjoe Channel	24.76305	81.56016	6.4	h	Slack 0.3 kt	06/18/10 13:00 EDT	FKNMS + near Great White Heron NWR
FLK1024	No Name Key, NE of	24.70520	81.31367	4.1	i	1.8 kt flooding	06/18/10 14:10 EDT	National Key Deer Refuge + FKNMS

Table 1. Station Summary

a = Key West, **b** = Main Ship Channel Entrance, **c** = Ft. Taylor, **d** = New Ground, **e** = Southeast Channel (Dry Tortugas NP), **f** = North of Fleming Key, **g** = Isaac Shoal, **h** = Sawyer Key (Cudjoe Ch), **i** = No Name Key, **j** = Fleming Key Cut, **k** = Upper Northwest Channel, and **l** = Long Key Viaduct.

Species Diversity:



a + b = Key West, **c** = Main Ship Channel Entrance, **d** = Key West Turning Basin, **e, f, + g** = Fleming Key, **h + i** = Northwest Channel, **j + p** = Boca Grande Channel, **k + l** = Southeast Channel (Dry Tortugas NP), **m** = Sawyer Key, **n** = Bahia Honda Harbor, and **o** = Moser Channel.

Conclusions:

The underwater video camera proved to be an ideal tool for viewing the bottom substrate while preserving the indigenous benthic community in the Florida Keys. As a result, we selected 28 discrete locations with suitable parameters for placement of bottom mounted current platforms in the 2013 current survey of the Florida Keys.