CARICOOS
CARIBBEAN COASTAL OCEAN OBSERVING SYSTEM

Facilitating CARICOOS Goals and Activities for Coastal Ocean Observing in the US Virgin Islands

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Performance Period: December 1, 2018 – May 31, 2019

LONG-TERM GOALS

Facilitating CARICOOS goals and activities for coastal ocean observing in the US Virgin Islands while promoting understanding and maximuam participation of USVI principals in all aspects of ocean, atmosphere and coastal observing and devising specialized approaches (both technological and managerial) to address local needs.

MILESTONES / OBJECTIVES

In accordance with the Scope of Work approved for inclusion under CARICOOS grant # NA16NOS0120026, the following categories of service cover the objectives intended for primary focus during this performance period: (1) Extending education and outreach to the community with emphasis on information about the 2017 hurricane experience and about the restoration of assets to service; (2) Restoration of observational assets; (3) General maintenance of buoys and observational assets; and (4) Introducing new technology to match stakeholders needs and IOOS mission. Implicitly OCOVI commits to assisting CARICOOS Headquarters in interacting with local, regional and federal interactions.

With the USVI CARICOOS and the IOOS itself all still experiencing some residual effects of the hurricanes of 2017, recovering assets and regaining mission momentum continued prominently among this quarter's efforts.

WORK COMPLETED

- Completed an Environmental Assessment Report for the mooring of the Spoondrift® wave buoy to cover Hull and Magens Bays;
- Secured and utilized third-party funding for three precipitation gauges to augment CARICOOS metreorological network (funding from the US Geological Survey through the UVI Water Resources Reseach Institute); two of these instruments have been put in service;

- Successful deployment of Weatherflow® meteorological station at Mountain Top, St. Thomas to replace Crown Mountain Station that was destrpoyed by the 2017 hurricanes;
- Assisted recovery and completed repairs on the malfunctioning "St. Thomas Buoy" (NDBC # 41052);
- Conducted unscheduled repairs on WeatherFlow® meteorological station on Buck & Capella Islands;
- Initiated planning for broadening outreach and education activities for continuing partners, such as the VI Children's Museum and new partners such as Coral World where education will be achieved through practical observation;
- Advanced the partnership with Rutgers University, NOAA-AOML, CARICOOS Headquarters, the US Navy and other US Government agencies to resume a Hurricane Glider project in 2019 while extending the methodology to more general observational purposes;
- Secured approval from The V.I. Department of Fish & Wildlife for establishing a CARICOOS High Frequency Radar station on Water Island;
- Began negotiating lease agreement with USVI Department of Property and Procurement for locating the High-frequency station on Government contyrolled property on Water Island
- Identified space and began lease prepatration for an AUV glider lab on the premises of the West Indian Company;
- Broadened the ranks of CARICOOS stakeholders by supporting mutially beneficial outreach and education activities, by inviting community consultation on OCOVI's future directions, and by involving an increased number in mainstream CARICOOS activities such as the Annual General Assembly;
- Extended awareness of ocean observing skills and appreciations by engaging more schools and clubs in OCOVI's Hands-on ROVprogram with focus on investigations for advanced youth and on assembly and piloting for pre-secondary youth;
- Conducted a field demomstration trial of WeatherFlow®'s portable *Sky/Air* meteorological station as a means of supporting the 2018 Carlos Aguilar Regatta;
- Facilitated active student participation in the 2018 ASLO meeting in San Juan;
- Recovery from sea trials of Spotter® wave buoy for repairs and preparation for long-term deployment.
- Provision of subject matter expertise for programs for coastal hazard awareness and responding to the USVI community's request for knowledge and data, through discussions and presentations and through the OCOV'sI web and Facebook pages and through publications and poster presentations at National and local conferences. (See OCOVI web page, *www.ocovi.org*, for listing).

MAJOR OUTCOMES

Again this year the importance of developing relations that could maximizing synergies obtainable by increasing communication with and offering collaboration on related goals

was demonstrated. In addition to long-term collaborators, such as the West Indian Company, Caribbean Fast Ferries, the Magens Bau Authority and the University of the Virgin Islands, OCOVI has identified and engaged new collaborators such as the USGS-funded Water Resource Research Institute, Coral World, Rutgers University and certain agencies in the British Virgin Islands.

At the same time, the burden of overwhelming bureaucracy has slowed progress in several projects requiring consideration of new approaches, especially when it comes to permitting. One consideration might be to more fully embrace Government agencies as partners as a means of increasing their sense of co-ownership and their awarenesss of the "general good" of assets of the CARICOOS observational network that might require government enablement or permission.

RELATED PROJECTS

- OCOVI is facilitating CARICOOS goals with respect to outreach to non-US neighboring countries, in particular by engaging the British Virgin Islands in upcoming AUV glider missions.
- OCOVI will align its local and regional goals of its AUV glider projects with the global *Challenger* initiative utilizing many approached to autonomous marine obser]vation.
- OCOVI continues to support UVI-CARICOOS in its completion of its mission projects such as the Crown Bay ocean and atmospherical observations station.
- OCOVI will assist Teledyne Marine in recovery of its currently on-going trans-Atlantic glider mission with the AUV named *Silbo* and with future deployments and/or recoveries in the Virgin Islands region.

WORK PLAN FOR UPCOMING PERFORMANCE PERIOD (June 1, 2019 – November 30, 2019)

- Final installation of HF Radar on Water Island – by September 1, 2019
- Deploy Spoondrift® Wave buoy – by October 1, 2019
- Deploy AUV gliders on hurricane prediction studies August 1, 2019, recovering will continue through to October 2019;
- Identify site for the last CARICOOS WeatherFlow® station that would re-establish pre-hurricane coverage in the USVI – by Novembver 30, 2019;
- New ROV stakeholders – starting July 1, 2019, culminating with summer-end activities and evaluation by August 31, 2019;
- Technical interns – First engaged in June, new personnel will be oriented in July and come to full engagement by the end of the summer's glider deployment/recovery activities (October 31, 2019);
- The CARICOOS-Coral World Exhibit – Facilities planning and formal agreements completed by August 1, 2019; Phase 1 assembly by October 31, 2019, first observation and display elements activated by November 30, 2019.

REFERENCES

- OCOVI web page: www.ocovi.org
- Camp Umoja's web page: http://climatechangevi.org/our-projects/
- Virgin Islands Children's Museum web page: *www.vichildrensmuseum.org*
- BTST web page: http://beentheresailedthat.com/ocovi/ocovi.html

PUBLICATIONS & PRODUCTS

Attidore-Meyers, K., *The Impact of Ragged Sea Hare Presence of Population Sizes of Fry and Sprat in a Mangrove Wetland Eco-System*. Poster presented at ASLO 2019 Aquatic Sciences Meeting, High School Poster Session, San Juan, February 2019.

Boumedine, M, A. Paul & A. Wallen, *Comparing Fish Preference for Natural vs. Artificial Coral Reef by Species and Adult/Juvenile Status.* Poster presented at ASLO 2019 Aquatic Sciences Meeting, High School Poster Session, San Juan, February 2019.

Hoffart, R., *et al*., *OCOVI supporting CARICOOS in the USVI: Milestones and Program Service 2018-2019*. Poster presented at the 2018 CARICOOS-General Assembly, San Juan, May 24, 2019.

Moses, K. & E. Hatchette, *Submersible Remotely Operated Vehicle (SROV) Construction & Adaptation for Varying Marine Eco-Systems*
Poster presented at ASLO 2019 Aquatic Sciences Meeting, H.S. Poster Session, San Juan, February 2019.

Wilson, W.D., R.A. Watlington, and S. Glenn, & T. Miles, *Glider Operations in the US Virgin Islands in 2018.* Oral presentation at the 8th EGO Meeting and International Glider Workshop, Rutgers University, New Jersey, May 21, 2019.

Wilson, W.D., R.A. Watlington, S. Glenn, T. Miles, M. Aristizabal, *Recent Variability in Upper Ocean Characteristics of the Northeastern Caribbean Sea.* Poster presented at 2018 American Geophysical Union, Washington, DC, December 10-16, 2018.