

Workshop Report

March 19th-23rd, 2018

Location: Belize City and Half Moon Caye
Natural Monument, Belize



Belize Audubon Society

Submitted: April 27th, 2018



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INTRODUCTION

The Belize Audubon Society (BAS) is a non-governmental, membership organization dedicated to the sustainable management of our natural resources through leadership and strategic partnerships with stakeholders in order to create a balance between people and the environment. Through collaboration with Gulf and Caribbean Fisheries Institute (GCFI) and Organization of American States (OAS) ReefFix Programme, BAS seeks to address priority needs identified in the Strategic Plan 2014-2019. More specifically, Strategy II of the Biodiversity Research and Monitoring Program (BR&M) highlights the need for *Integrating science-based decision making for adaptive management*. Strategic Objective 1 below lists the actions to achieve the aforementioned strategy.

Strategic Objective 1 (excerpt from BAS Strategic Plan 2014-2019)

Use science-based information to reach the citizenry and support adaptive management

Prepare and promulgate policy briefs/white papers for policy makers and authorities

Integrate science-based information into the Environmental Education Programme

Integrate science-based information into the design of alternative livelihoods programmes

Prepare research summaries/briefs for BAS staff

Maintain collaboration and data sharing with national and international key partners and stakeholders

Similarly, in the recent 2017 MPA management capacity assessment undertaken by GCFI/NOAA, BAS pointed out need for more structure and capacity building to integrate science results into the management of Half Moon Caye (HMC) and Blue Hole Natural Monument (BHNM).

BAS recognizes that science data can be instrumental to inform management decisions and prescribe strategies for improved management effectiveness of Half Moon Caye and Blue Hole Natural Monuments. The project sets out to define the needs of the Science Communication team¹ to strengthen our existing data gathering efforts to collate and analyze findings. The results from the Biodiversity Research and Monitoring Programme will then be interpreted for various

¹ **Science Communication Team:** key staff of the Biodiversity Research & Monitoring Programme, Community Liaison Manager, Environmental Education Programme and Protected Areas Management Programme.

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audiences and disseminated in a timely manner. The ground work for Task 1 was completed in a one-week workshop March 19 to 23, 2018.

The project is designed to achieve the following goal and objective.

Goal: Collaborate on coral reef health monitoring and outreach.

Objective: To integrate their existing biophysical monitoring data on coral reef ecosystem health into targeted communications for fishers, rangers, and participants of the Reef Protector program and other educational efforts.

Tasks:

1. Hold a series of internal working sessions to determine information needs of the enforcement program, the community liaison program and Reef Protectors, and match those with available monitoring information or possible data to gather in future.
2. Formulate and implement a data gathering step to actually pull together numbers and analyze findings to generate information needed as may be possible (with other NGOs, academia and the Fisheries Department's MPA program). Design and complete in both print and on-line digital information in different communications formats that can be easily used for enforcement, community work and the education program.

WORKSHOP SUMMARY AND RESULTS

Workshop Objective:

The workshop was designed with two objectives:

1. To provide overview of the BAS BR&M (Marine) and to show alignment with both the University of Belize-Environmental Research Institute National Biodiversity Monitoring Program and BAS Strategic Plan.
2. To provide a forum for staff to better understand the BR&M program, give recommendations, ask questions, and identify science communication needs.

Workshop Method and Results:

Day 1: Workshop (co-facilitated by Emma Doyle of GCFI & Richard Huber, OAS-ReefFix Programme Manager).

Mr. Starret Greene, OAS representative in Belize gave the opening remarks and reiterated OAS' commitment to capacity building and support towards coral reef health in the Caribbean.

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Introductory presentations were delivered to provide background information and context. Key staff who attended, actively plays a role in the chain of outreach and communication with targeted stakeholders of Half Moon Caye (HMCNM) and Blue Hole Natural Monuments (BHNM). Other support staff such as the Membership Service Manager was invited to participate in day one of the workshop. (See **Annex 1 for agenda and list of workshop participants**)

1. Richard Huber presented on the ReefFix program in the Caribbean and shared some of the success stories.
2. Emma Doyle presented on the work of GCFI in the Caribbean and the results of the Management Capacity Assessment of various MPAs.
3. Amanda Acosta provided for context a presentation of how the project aligns with BAS strategic plan for improved science communication.
4. Ivanna Waight-Cho presented an overview of the National Biodiversity Monitoring Programme highlighting the marine monitoring indicators.
5. The Environmental Education and Community Outreach programs provided an overview of strategies currently being used to reach targeted groups of the northern fishing communities.
6. The Conservation Program Director delivered a presentation on the BR&M program

At the end of the presentation session the participants began to discuss some of the science communication needs by first looking at current strategies being used and what information is needed to improve the quality of information being shared.

Days 2-3:

On day two of the workshop, participants were invited to a presentation on the results of "*An assessment of changes in mangrove cover across the Belize Barrier Reef Reserve System World Heritage Site: 1996-2017*" held in Belize City by Drs. Emil Cherrington and Robert Griffin. The Report was a task commissioned under an existing project implemented by BAS to determine the extent of mangrove cover within the Belize Barrier Reef Reserve System, World Heritage Site prior and post designation.

Days 2-3 continued with the identification of the specific information needs for BAS' education and outreach activities targeting stakeholders of Lighthouse Reef Atoll. These include, the Boat to Boat (B2B), supplementary livelihoods program and the Reef Protector program along with other environmental education efforts.

Specific indicators from BAS BR&M program (sea grass monitoring, conch, lobster monitoring, beach profiling, finfish etc.) were captured for each of those outreach activities and put into different formats (graphs, charts, info-graphics etc. See Annex 3) for presentations to key stakeholders including fishermen, BAS' staff, buffer communities etc.

Days 4-5

Days four and five of the workshop was held at HMCNM and had the participation of all HMCNM staff. The field staff was briefed on the objectives of the workshop and given a similar introductory presentation about the BR&M program and some of the communication strategies that BAS uses to communicate with stakeholders of HMCNM and BHNM. When asked the question about what were their information needs and best channel for effective communication of BAS' science work, the staff provided valuable feedback and reiterated the need for easy summaries with more graphics highlighting key points. Furthermore, they noted that even though information is shared at biannual meetings on all the programmes, it's too much information for one day and they would prefer follow-up with flyers and summaries for them to refer to and study.

Results:

- 1.) Staff participation was excellent throughout the workshop. They provided feedback and asked questions to clarify any doubts and misinformation. As a result of the presentation delivered by the Community Liaison Manager (CLM) and the Education Director, a discussion followed on the topic of *Stakeholder groups and Outreach strategies* being used. The information needs for each stakeholder group was identified and summarized in [Graphic 1](#) below.



- 2.) Another important aspect of management that was discussed at the workshop were the challenges of enforcement and how can outreach activities based on the science data can be communicated to the targeted stakeholders (fishers).
- 3.) The workshop and informal setting allowed staff to openly share and highlight some of their site specific information needs. This included the need for more information on island ecology, birds, coral reef health (coral bleaching, ID) and fish health and ID.
- 4.) Sample posters and info graphics were designed by the Environmental Education Team. One flyer created was on the conch data over the past five years which was presented on the B2B outreach Friday March 23rd, at Lighthouse Reef Atoll.
- 5.) On the morning of March 23rd, workshop participants participated in a B2B outreach at Lighthouse Reef. This activity allowed the CLM who is the main speaker on the B2B outings to practice communicating science data that is useful for fishers. Other members of the BAS team were able to experience the B2B and provide recommendations for improvement.

LESSONS LEARNT

- Staff are more comfortable in asking questions and participating when approached in smaller group
- Staff is interested and motivated to learn more about the BR&M program so that they can be more informed and effective at meeting the needs of visitors.
- Additional site specific science communication needs were identified as a result of doing the workshop at HMC (unusual topics such as sharks, coral bleaching, etc)
- Staff prefer brief summaries of BR&M results (flyer, video, etc)
- Fishers use and prefer local names (used amongst themselves) to identify with the various zones of Lighthouse Reef Atoll. It may be useful for the CLM to incorporate the use of the local names in his B2B talks. This can result in fishers being more receptive to the conversations on the B2B outreach (see Annex 4)

SUSTAINABILITY BEYOND THE PROJECT

From data gathering to translation and dissemination:

Site specific science information is gathered annually from various monitoring activities. Given the monitoring indicators currently identified, the science and education team can develop a schedule to analyze and interpret results of key findings into simple formats such as info-graphics or flyers. All staff will continue to have the opportunity of learning about the BR&M at the biannual meetings; however, information will also be distributed to each site (HMC and others) by the Protected Areas Managers as it becomes available. Should staff need additional

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information and further clarification, the PA manager can answer those questions after consulting with the Science and Environmental Education staff.

It is assumed that once staff have access to simplified information, they will be better able to share information with visitors of HMC, tour operators, fishers and teenagers in the Reef Protectors Programme.

Recognizing there must be a structure to maintain science communication amongst the staff and for dissemination of results to other stakeholders, a simple matrix² was developed to be used as a guide in the future.

Table 1: Calendar of BR&M activities with proposed timeline for analysis, translation and dissemination of results.

Monitoring Period	Indicator	Key information needs	Projected time frame for analysis and interpretation	Suggested Method of sharing	Assumptions
January-March	SPAGS	# species and # of individuals	1 month after monitoring season	Flyer w/ infographic, video or other	Monitoring is conducted as planned.
February	Lobster survey (closed season)	#lobster inside PA vs outside— density trends	1 month after monitoring season	Flyer w/ infographic	Monitoring is conducted as planned.
March-April	Booby bird survey	Population estimate and other interesting findings	2 weeks after monitoring season	Flyer w/ infographic	HMC remains as a rookery for Booby birds. Monitoring is conducted as planned.
May-Dec	Turtle nesting monitoring	# species, success etc.	nests, rate with a full report in Sept of the following year	Flyer w/ infographic	Turtles continue to nest on beaches in LHRA
June	Conch Density (closed season)	Density inside and outside PA, other interesting findings	1 month after monitoring season	Flyer w/ infographic; graph w/ 5 year trend	Monitoring is conducted as planned.
June	Lobster (open season)	Open season density vs. close season,	1 month after monitoring season	Flyer w/ infographic; graph with 5	Monitoring is conducted as planned.

² This is a draft and is subject to change and the time-frame is subjected to delays due to unforeseen circumstances.

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		juveniles versus adults		year trend		
June	Sea grass density	Species, and % coverage in PA vs. outside	2 weeks after monitoring season	Flyer w/ infographic;	Monitoring is conducted as planned.	
July	Beach profile	Changes in beach compared to previous year	2 weeks after monitoring season	Flyer w/ infographic;	Seasonal changes will occur annually	
August	Coral Reef health	Species surveyed, indication of bleaching or other diseases, stresses etc.	1 month after monitoring season	Flyer w/ infographic	Monitoring is conducted as planned.	
September - Dec	Coral Bleaching monitoring	Extent of bleaching, species affected etc.	1 month after monitoring season	Flyer w/ infographic, video or other	Monitoring is conducted as planned.	
October	Temperature	Comparison of water temp between stations and mean temp, highest temp and lowest time	2 weeks after monitoring season	Flyer w/ infographic;	Temperature loggers are set and working to collect information	
October	Conch survey (closed season)	Begin vs end of season densities, juvenile vs adults inside and outside pa	1 month after monitoring season	Flyer w/ infographic;	Monitoring is conducted as planned.	
October-Dec	Neotropical & Sea bird survey	Species, # of individuals, 10 most common, location of sightings and other interesting findings on behavior and feeding	2 weeks after monitoring	Flyer w/ infographic;	Monitoring is conducted as planned.	

Research findings:

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Results from short term research conducted by independent researchers may yield important site specific information which can also be shared with field staff by the Marine Biologist and or Conservation Program Director at the biannual staff meetings. This is subjected to the time the researcher submits report to Belize Audubon Society. Accompanying summaries (flyer, infographics, charts etc) will be developed for field staff to use as reference.

Identifying science communication needs:

It is the continuous responsibility of all staff (community outreach, environmental education and the HMC protected areas manager) who regularly interact with stakeholders to identify their science communication needs and request the information from the BR&M staff so that they can effectively and efficiently relay the information. For example, if the Community Officer is the person on the ground conducting “community talks” and observes that the community members are interested in a certain topic; he/she should seek to find the information by consulting the science and education team or fishermen asking the Marine PA Manager on a B2B session about the prospects of an upcoming season (conch or lobster).

Similarly, the Marine PAM should ensure that staff has access to site specific information that will improve their knowledge base and periodically check for gaps in science based communication.

CONCLUSION

Belize Audubon Society has a well established and successful Biodiversity Research and Monitoring Programme and is one of the leading organizations in Belize and the Caribbean using science to inform management and sharing information with stakeholders. The matter of how and when the science information is shared however, is a challenge faced by many organizations like BAS. Understanding that sharing BR&M results in a palatable manner could mean increased receptiveness of information shared, better understanding and awareness of the resources and fostering appreciation for the conservation of said resources. Conducting the workshop allowed BAS staff to share information and ideas for dissemination of information to targeted groups/users of Lighthouse Reef Atoll regularly encountered by the Community, Education and Protected Areas Staff of Belize Audubon Society.

ANNEXES

1.) Workshop agenda and list of participants

a.) List of Participants:

The workshop was successfully carried out between the period March 19-23, 2018 with seventeen (17) participants made up of twelve staff, three invited guests (from local partner organizations), one GCFI and one OAS ReefFix representative.

NAME	POSITION	Day1	Day 2	Day 3	Day 4	Day 5
Emma Doyle	GCFI/NOAA					
Richard Huber	OAS-Reef Fix Program Manager					
Amanda Acosta	Executive Director					
Dareece Chuc	Environmental Education & Communications Director					
Dominique Lizama	Conservation Program Director					
Varsha Clarke	Environmental Education Officer					
Carolee Chanona	Membership Service Manager					
Shane Young	Marine Protected Areas Manager					
Lucito Ayuso	Community Liaison Manger					
Ramon Aguilar	HMC&BH Asst. Site Mgr.					
Dr. Leandra Ricketts	Science Director (Marine), UBERI					
Ivanna Waight-Cho	Monitoring Officer, UBERI					
Anthony Godoy	Park Ranger. HMC					
Reynaldo Caal	Research Assistant/Park Ranger					
Eugenio Villafranco	Captain, HMC					
Francisco Altamiriano	Dock master/Park Ranger, HMC					
Deseree Arzu	Communications Officer, WCS					

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b.) Agenda



Workshop Agenda BAS Integrating science data into communication materials.pdf

2.) Pictures

a.) Workshop participants Day 1 and FaceBook Post





Belize Audubon Society

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Celebrating the 1st day of a week-long workshop integrating BAS' biophysical monitoring data on Coral Reef Ecosystem Health into targeted communications (for fishers, MPA staff, and Env. Ed. Program).

We look forward to a productive week! #ManagementMonday #ReefFix

Thank you to all participants:

- Environmental Research Institute (University of Belize)
- Organization of American States (OAS)
- Gulf and Caribbean Fisheries Institute (GCFI)
- WCS Belize



👥 2,427 people reached

Boost Post

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b.) Emma Doyle presenting on Day 1



c.) Staff participating in workshop at HMC



d.) Showing staff example of a simple infographic of BAS' BR&M program



e.) CLM interacting with fishers on B2B outreach

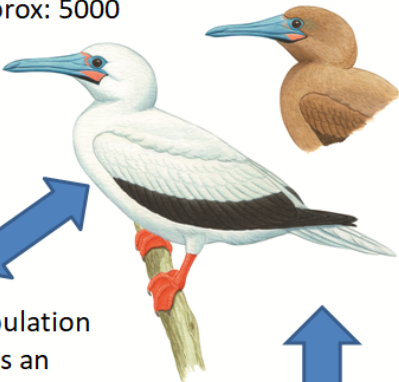


3.) Draft info-graphics

a.) *Birds of HMC Flyer*


Red-Footed Booby and other Birds on HMC 2017

Approx: 5000




Approx: 2500 Magnificent Frigate birds
For LHRA -54 spp./558 indiv. recorded


A health population of seabirds is an indicator of healthy fish stock.




Since the 2016 Eradication of the island, Booby population has shown an increase.




Other common winter migrants on the Island...(October through April)




American Redstart



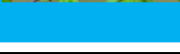
Hooded Warbler




Common Yellow Throat



Yellow Warbler



Ovenbird



Palm Warbler

b.) Turtle nesting season 2017 Flyer with Infographic



c.) Graph showing Conch Density over a 5 year period in LHRA

Note: Missing need to get from Emma Doyle.

4.) Rough sketch of Lighthouse and Zones used by fisher folks

