

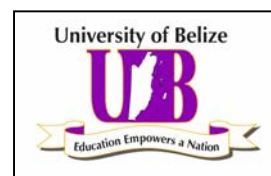
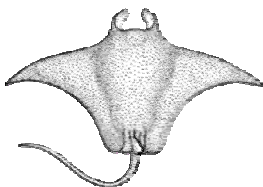
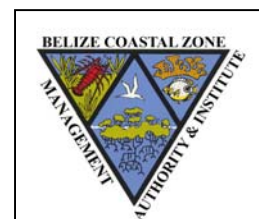
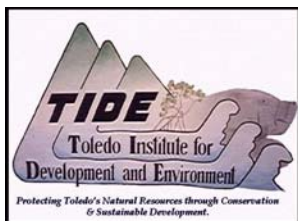
Belize Reef Fish Spawning Aggregation Monitoring Training



Dates: Session 1: 25-30 March 2002; Session 2: 2-7 April 2002

Location: Half Moon Caye, Lighthouse Reef Atoll, Belize

Sponsors: The Nature Conservancy
Belize Fisheries Department
Belize Audubon Society
Friends of Nature
Toledo Institute for Development and Environment
Green Reef
University of Belize
Coastal Zone Management Authority & Institute



Course Particulars

- Objectives:** The main objective is to share new understanding of the biological, physical, and ecological aspects of multi-species reef fish spawning aggregations and ensure that those people collecting data on these sites are doing so using identical techniques and standardized data collection and analytical methods. In the future, these sites can be effectively added into marine reserves and monitored, consistently over time.
- Audience:** The course is designed for those individuals who have been and will be involved in the monitoring of spawning aggregations and will be useful for fishermen, dive guides, reserve biologists, reserve rangers, students, fisheries managers, government and non-government personnel, Spanish and English speakers, research scientists, and conservationists. The participants in this course will serve both as students and instructors as each individual can contribute to collaborative learning.
- Logistics:** The Belize Audubon Society will host the course at the Reserve Headquarters for Lighthouse Reef at Half Moon Caye. Participants will be expected to provide their own tents, sleeping pads and sheets, toiletries, clothes, and (if participant will SCUBA) diving gear (except tanks). Some special arrangements can be made for those without access to tents or dive gear, but please indicate your individual or group needs on the registration form provided.
- Transportation:** Transportation to Halfmoon Caye, Lighthouse Reef will be provided daily from the Radisson, Fort George dock **daily at 10:00 a.m.** Special arrangements to fly to nearby Lighthouse Reef Resort (02-31205) are possible by charter on Maya Island Airlines, but these reservations must be made in advance with a minimum of three passengers. Air costs to Halfmoon Caye will not be covered by the sponsors but can be arranged by The Nature Conservancy (Dave Duncan: 07-22505; tnc@btl.net).
- Costs:** The Nature Conservancy (07-22503, 0145779, 0141096) and Lighthouse Reef Resort (02-31205-phone and fax) will help in the coordination for transfers to and from Half Moon Caye. Each participant will be expected to pay \$100 for his/her course registration, which will include round trip transfer, food, instruction, course materials, and air fills for SCUBA tanks. Please fax your reservation form in advance to Dave Duncan (07-20096) or Lighthouse Reef Resort to reserve transportation.
- Instructors:** Dwight Neal, Belize Fisheries Department
Mito Paz, Green Reef
Eloy Cuevas, Toledo Institute for Development and Environment
Nicanor Requena, University of Belize
Dr. Ed Boles, University of Belize
Dr. Kevin Rhodes, University of Hong Kong
Dr. Brian Luckhurst, Bermuda Ministry of Natural Resources
Dr. Will Heyman, The Nature Conservancy

Belize Spawning Aggregation Monitoring Training schedule* for Halfmoon Caye, Lighthouse Reef

Day 1- March 25/ April 2: Camp set-up, registration and orientation

Day 2- March 26/ April 3: Introduction: Overview and dive safety

- 9:00 a.m. The purpose and importance of SPAGs monitoring: Belize
- 10:00 a.m. SPAG fishing: biological and fisheries implications
- 11:00 a.m. UVC protocol: Materials & methods, concepts
- 12:00 p.m. Lunch
- 1:00 p.m. Dive safety
- 2:00 p.m. Dive equipment maintenance and care
- 3:00 a.m. Following divers from the surface and emergency procedures
- 4:00 p.m. Initiate training using dry testing and self-evaluation
- 5:00 p.m. Species IDs and length assessment
- 6:00 p.m. Dinner
- 7:00 p.m. Fireside session: Introduction and welcome; The Hong Kong live reef fish trade; *The Perils of Plectropomus* (video)

Day 3-March 27 and April 4: Safety on the Sea: Weather and Navigation

- 9:00 a.m. The history of navigation
- 10:00 a.m. Using and reading nautical charts
- 11:00 a.m. Navigation using GPS: Theory and practice
- 12:00 p.m. Lunch
- 1:00 p.m. Boat handling, safety and reading weather
- 2:00 p.m. Field practical
- 4:00 p.m. Dive 1: Wooden models and species IDs (all groups)
- 6:00 p.m. Dinner
- 7:00 p.m. Fireside session: Celestial navigation; *At the Confluence of Currents* (video)

Day 4-March 28 and April 5: State of the Marine Environment

- 9:00 a.m. The state of marine environments-global, regional, local
- 10:00 a.m. Reef fishes: biology, ecology and life history
- 11:00 a.m. Habitat relationships: Reefs, mangroves and seagrass beds
- 12:00 p.m. Lunch
- 1:00 p.m. Species IDs with models
- 2:00 p.m. Dive 2: Wooden models (Groups 3-?); Halfmoon site (Group 1,2)
- 4:00 p.m. Species IDs and length assessment
- 5:00 p.m. The use of biological data to evaluate the health of fish stocks
- 6:00 p.m. Dinner
- 7:00 p.m. Fireside session: Degradation of the marine environment; National Geographic (video)

Day 5-March 29 and April 6: Physical Oceanography and GIS remote sensing

- 9:00 a.m. The Use of GIS and remote sensing for identification of spawning sites
- 10:00 a.m. Physical monitoring: temperature, salinity, winds, sea state and currents
- 11:00 a.m. Dive 3: Wooden models (Groups 1,2, 5-?); Halfmoon site (Groups 3,4)
- Noon Lunch
- 2:00 p.m. Caribbean currents, larval dispersal and their implications for Belizean reef fish stocks
- 3:00 p.m. Tools and techniques for the evaluation of marine currents
- 4:00 p.m. Relationship of physical oceanography to reef fish biology
- 5:00 p.m. Species IDs and length assessment
- 6:00 p.m. Dinner
- 7:00 p.m. Video: Tim Boucher

Day 6-March 30 and April 7: Conservation and Management of Marine Waters

- 9:00 a.m. Conservation tools for protecting the marine fish stocks
- 10:00 a.m. Coastal zone management
- 11:00 a.m. Dive 4: Wooden models (Groups 1-4, 7-?); Halfmoon site dive (Groups 5,6)
- Noon Lunch
- 2:00 p.m. Marine protected areas (MPAs) in the Caribbean
- 3:00 p.m. Technical tools for and the design of MPAs: tag and recapture
- 4:00 p.m. Species IDs and length assessment
- 5:00 p.m. Age and growth in reef fishes
- 6:00 p.m. Dinner
- 7:00 p.m. Fireside session: Course evaluation and ideas on how to better preserve fish stocks in Belize waters

*** tentative and subject to change; final schedules will be provided at the workshop**

Registration for the Belize Spawning Aggregation Monitoring Training Course

Particulars:

Last name: _____ First name: _____

Organization: _____

Mailing address:

City: _____ State/District: _____

Country: _____ Zip or postal code: _____

Phone: _____ Fax: _____

E-mail: _____

Payment method* (please check):

Cash or money order: ___ Check: ___ Bank transfer ___

(Account no. 5006867; Belize Bank, Punta Gorda)

Flight information (international):

Carrier: _____ Flight number: _____

Date of arrival: _____ Date of departure: _____

Anticipated date(s) of participation:

From _____ until- _____

Participation/anticipated activity:

Student: _____ Diver: _____ Presenter: _____ Boat driver: _____

Fisherman: _____

I will bring (Y/N) (please check):

All participants:

Tent:_____ If yes, number of people the tent will occupy:_____ Are you willing to share:_____ If yes, do you have preferences with whom you will share:_____

Divers:

Regulator:_____ BC:_____ Wetsuit:_____ Mask:_____ Fins:_____ Snorkel:_____

Dive certification: PADI:_____ NAUI:_____ Other:_____

Certification number:_____

Certification level (e.g. novice, sport, instructor):_____

First Aid/CPR training?_____ Last training session date:_____

If you are an instructor or dive master, would you be willing to lead a dive group, if needed?_____ Do you have prior underwater visual census experience?_____

Presenters equipment requirements:**

PowerPoint projector:_____ Overhead projector:_____

Other:_____

* Local resident fees are BZ\$100; International residents/attendees fees are US\$1000 payable at or before registration

** PowerPoint presentations of VHS/mini-DV videos are preferred. Video monitors and PowerPoint projectors will be provided.

Please return registration forms to Dave Duncan, c/o The Nature Conservancy (tnc@btl.net) on or before 20 March 2002. Payments can be made at Halfmoon Caye at the time of arrival.