

GPS drifters monitoring flow direction set off the coast of the West coast of Leyte, the Philippines in the municipalities of Albuera and Bay Bay City, May - June 2017

Website: <https://www.bco-dmo.org/dataset/862360>

Data Type: Other Field Results

Version: 1

Version Date: 2022-11-08

Project

» [RAPID: Mega-typhoon impacts on the metapopulation resilience of coral reef fishes](#) (Reef Fish Resilience)

Contributors	Affiliation	Role
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Abstract

GPS drifters monitoring flow direction set off the coast of the West coast of Leyte, the Philippines in the municipalities of Albuera (10.91667, 124.69667) and Bay Bay City (11.07611, 124.87525), May - June 2017.

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Coverage

Spatial Extent: N:11.0164 E:124.811 S:10.2925 W:123.908

Temporal Extent: 2017-05-17 - 2017-06-21

Methods & Sampling

Five or six drifters were set at each location in a cross pattern. Each drifter was set and released 150 meters apart parallel to the coast and 40 meters apart perpendicular to the coast.

Shapefiles indicate the planned drop locations for the drifters for each deployment. The dates (and on one file, the local time) of the deployment are indicated in the file name as YYYY-MM-DD_HHMM. See Supplemental File "Drifter_release_shapefiles.zip."

Issue report:

Drifters were often retrieved by fishers and other ocean users. Beware of out-of-water time and unusually straight drifter tracks (e.g., when in a boat).

Data Processing Description

BCO-DMO Data Manager Processing notes:

* Imported data table from DrifterTracks2017.txt into the BCO-DMO data system.

* Table filtered so only latitudes < 30 decimal degrees are included. This eliminated locations from Rutgers, NJ from the data table.

* Column ISO_DateTime_UTC added to data table from local dates and times.

* supplemental shapefiles file attached.

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Data Files

File
driftertracks.csv (Comma Separated Values (.csv), 1.28 MB) MD5:43f19f74c9f0e831842052e3b3c92f38 Primary data file for dataset ID 862360

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Supplemental Files

File
Drifter Release shapefiles filename: Drifter_release_shapefiles.zip (Extensible Markup Language (.xml), 1.34 KB) MD5:bc6a45291bf6b95f292e4300cf193673 Drifter release shapefiles. These shapefiles indicate the planned drop locations for the drifters for each deployment. The dates (and on one file, the local time) of the deployment are indicated in the file name as YYYY-MM-DD_HHMM.

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Related Publications

QGIS User Guide version 3.22. Appendix C: QGIS File Formats - QGIS Documentation documentation. (2022, November 8). Retrieved November 8, 2022, from

https://docs.qgis.org/3.22/en/docs/user_manual/appendices/qgis_file_formats.html

Methods

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Parameters

Parameter	Description	Units
DeviceName	Device name ("ENRS-MS-000X"), where X varies	unitless
DeviceDate	date of measurement (local)	unitless
DeviceTime	time of measurement (local)	unitless
BatteryVoltage	Voltage of battery at time of measurement	numeric
CommlId	IMEI number is the serial number for the iridium modem	unitless
GpsQuality	Indication of GPS quality, 1: could not triangulate position, 2: 2D fix, 3: 3D fix, and 5: any augmented GPS positioning (e.g., 3D + SBAF)	unitless
Latitude	latitude of drifter location	decimal degrees
Longitude	longitude of drifter location	decimal degrees
SamplingRate	rate of measurement	minutes
SubmergedBoolean	Whether the device was submerged (True or False)	unitless
ISO_DateTime_UTC	Timestamp with timezone of measurement (UTC) in ISO 8601 format	unitless

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Instruments

Dataset-specific Instrument Name	Pacific Gyre Microstars
Generic Instrument Name	Drifter Buoy
Dataset-specific Description	Pacific Gyre Microstars with drogue centered at 1 meter below the surface. Corner-radar-reflector-type drogue with iridium SBD communication. Purchased in 2017
Generic Instrument Description	Drifting buoys are free drifting platforms with a float or buoy that keep the drifter at the surface and underwater sails or socks that catch the current. These instruments sit at the surface of the ocean and are transported via near-surface ocean currents. They are not fixed to the ocean bottom, therefore they "drift" with the currents. For this reason, these instruments are referred to as drifters, or drifting buoys. The surface float contains sensors that measure different parameters, such as sea surface temperature, barometric pressure, salinity, wave height, etc. Data collected from these sensors are transmitted to satellites passing overhead, which are then relayed to land-based data centers. definition sources: https://mmisw.org/ont/ioos/platform/drifting_buoy and https://www.aoml.noaa.gov/phod/gdp/faq.php#drifter1

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Project Information

RAPID: Mega-typhoon impacts on the metapopulation resilience of coral reef fishes (Reef Fish Resilience)

Coverage: West coast of Leyte Island, Visayas, Philippines

Description from NSF award abstract:

When Typhoon Haiyan hit the Philippines it had sustained winds of 305 to 315 kph and was the strongest storm ever to make landfall. Storms are one of the most important disturbances to coral reef ecosystems. Previous research has primarily emphasized that habitat recovery is important for the recovery of reef fish communities after disturbance. We understand little, however, about the role of larval dispersal in mediating species responses to disturbance. Reef fish function as metapopulations connected by larval dispersal among reefs, and larval connectivity is therefore a critical process for their dynamics. A field site directly in Typhoon Haiyan's path provides an ideal opportunity to address the role of larval dispersal during recovery. Over the course of four field seasons (2008 to 2013), nearly two thousand clownfish were surveyed along 20km of coastline. Clownfish possess the same basic life history as most reef fish (sedentary adults and pelagic larvae), but are sufficiently rare and visible that genetic parentage methods can be used to follow larval dispersal. This study site is therefore a unique location in which to understand the metapopulation impacts of a massive storm. This project will focus on three hypotheses: 1) Habitat destruction determines the short-term impacts of storms disturbance, 2) Metapopulation processes shape recolonization after disturbance, and 3) Disturbance allows rare competitors to increase in abundance. The project will address these questions with a combination of fixed and random transects to assess reef habitat and reef fish abundance and diversity, as well as detailed, spatially explicit surveys of anemones and clownfish. Genetic mark-recapture and parentage methods with yellowtail clownfish will pinpoint the origin of new recruits that recolonize the reef post-typhoon.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1430218

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