Species key for individuals surveyed in studies conducted by M. Hixon, C. Benkwitt, and T. Kindinger in the Bahamas (Eleuthera), Bonaire, and the Cayman Islands between 2009 and 2015

Website: https://www.bco-dmo.org/dataset/655195
Data Type: experimental
Version: 2
Version Date: 2018-06-07

Project
» Mechanisms and Consequences of Fish Biodiversity Loss on Atlantic Coral Reefs Caused by Invasive Pacific Lionfish (BiodiversityLossEffects_lionfish)

Contributors	Affiliation	Role
Hixon, Mark	University of Hawai'i (UH)	Principal Investigator
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Abstract
This is a key of all species sampled in the project "Mechanisms and Consequences of Fish Biodiversity Loss on Atlantic Coral Reefs Caused by Invasive Pacific Lionfish." Species codes in each related dataset are represented as the first two letters of the genus and species. This key includes the scientific and common names for each of those codes.

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Coverage

Temporal Extent: 2009 - 2015

Dataset Description

Related datasets:

- Effect of lionfish density on native reef fishes - DOI: 10.1575/1912/bco-dmo.655301.1
- Effect of lionfish in main seagrass habitats - DOI: 10.1575/1912/bco-dmo.655342.1
- Effect of lionfish in seagrass satellite coral head habitats - DOI: 10.1575/1912/bco-dmo.655380.1
- Effect of lionfish in seagrass open area habitats - DOI: 10.1575/1912/bco-dmo.655420.1
- Effect of lionfish in standardized habitat units in seagrass - DOI: 10.1575/1912/bco-dmo.655455.1

Methods & Sampling

Species observed during M. Hixon, C. Benkwitt, and T. Kindinger reef surveys.

Data Processing Description

DMO Notes:

-reformatted column names to comply with BCO-DMO standards
-replaced all blank cells with "nd"
-data version 2 (2018-06-07) replaces data version 1 (2016-08-22). Species list updated to incorporate all species used in this project across all datasets.
--- Species names checked with the World Register of Marine Species (WORMS,marinespecies.org) taxa match tool. After review by C. Benkwitt, misspellings and non-accepted species names updated to the accepted species names as of 2018-06-07.
--- Note that Paradiplogrammus bairdi (species code: PABA) was changed to accepted name Callionymus baird. Species code remains PABA instead of changing the code to CABA as PABA is used in several datasets.
--- Contributer added some Family or Genus sp. taxonomic names where no species name was available (e.g. PIPE,Syngnathidae,Pipefish)

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Data Files

File
species_key.csv (Comma Separated Values (.csv), 5.24 KB) MD5:6915c6acc39f943618309fb1e7d51dce Primary data file for dataset ID 655195

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Parameters

Parameter	Description	Units
SPECIES_CODE	species code; first two letters of the genus and species	unitless
SCIENTIFIC_NAME	scientific name of the species surveyed. The family or Genus sp. is provided in some instances where species name is not known.	unitless
COMMON_NAME	common name of the species surveyed	unitless

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Deployments

Eleuthera_Reef_Surveys_2012

Website	https://www.bco-dmo.org/deployment/59028
Platform	Cape_Eleuthera_Reefs
Start Date	2012-07-03
End Date	2012-08-28
Description	Reefs were surveyed near the Cape Eleuthera Institute, Eleuthera Bahamas during the summer of 2012 as part of the project "Ecological Release and Resistance at Sea: Invasion of Atlantic Coral Reefs by Pacific Lionfish" and "Mechanisms and Consequences of Fish Biodiversity Loss on Atlantic Coral Reefs Caused by Invasive Pacific Lionfish" (NSF OCE-0851162 & OCE-1233027).

LSI_Reef_Surveys_09-12

Website	https://www.bco-dmo.org/deployment/59019
Platform	Tropical Marine Lab at Lee Stocking Island
Start Date	2009-05-30
End Date	2012-08-18
Description	Locations of coral reef survey dives and sightings, or collections of the invasive red lionfish, Pterois volitans, near Lee Stocking Island, Bahamas for the projects "Ecological Release and Resistance at Sea: Invasion of Atlantic Coral Reefs by Pacific Lionfish" and "Mechanisms and Consequences of Fish Biodiversity Loss on Atlantic Coral Reefs Caused by Invasive Pacific Lionfish" (NSF OCE-0851162 & OCE-1233027). All dives were made from various small vessels (17' to 24' l.o.a., 40 to 275 HP outboard motors, 1 to 7 GRT). Vessel names include, Sampson, Orca, Potcake, Lusca, Lucaya, Zardoz, Parker, and Nuwanda.

Cayman_Reef_Surveys_10-11

Website	https://www.bco-dmo.org/deployment/59048
Platform	Cayman_Islands
Start Date	2010-06-14
End Date	2011-08-29
Description	Coral reefs were surveyed/studied near the Cayman Islands during the summers of 2010 and 2011 as part of the projects "Ecological Release and Resistance at Sea: Invasion of Atlantic Coral Reefs by Pacific Lionfish" and "Mechanisms and Consequences of Fish Biodiversity Loss on Atlantic Coral Reefs Caused by Invasive Pacific Lionfish" (NSF OCE-0851162 & OCE-1233027).

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Project Information

Mechanisms and Consequences of Fish Biodiversity Loss on Atlantic Coral Reefs Caused by Invasive Pacific Lionfish (BiodiversityLossEffects_lionfish)

Website: http://hixon.science.oregonstate.edu/content/highlight-lionfish-invasion

Coverage: Three Bahamian sites: 24.8318, -076.3299; 23.8562, -076.2250; 23.7727, -076.1071; Caribbean Netherlands: 12.1599, -068.2820

The Pacific red lionfish (Pterois volitans), a popular aquarium fish, was introduced to the Atlantic Ocean in the

vicinity of Florida in the late 20th century. Voraciously consuming small native coral-reef fishes, including the juveniles of fisheries and ecologically important species, the invader has undergone a population explosion that now ranges from the U.S. southeastern seaboard to the Gulf of Mexico and across the greater Caribbean region. The PI's past research determined that invasive lionfish (1) have escaped their natural enemies in the Pacific (lionfish are much less abundant in their native range); (2) are not yet controlled by Atlantic predators, competitors, or parasites; (3) have strong negative effects on populations of native Atlantic fishes; and (4) locally reduce the diversity (number of species) of native fishes. The lionfish invasion has been recognized as one of the major conservation threats worldwide.

The Bahamas support the highest abundances of invasive lionfish globally. This system thus provides an unprecedented opportunity to understand the direct and indirect effects of a major invader on a diverse community, as well as the underlying causative mechanisms. The PI will focus on five related questions: (1) How does long-term predation by lionfish alter the structure of native reef-fish communities? (2) How does lionfish predation destabilize native prey population dynamics, possibly causing local extinctions? (3) Is there a lionfish-herbivore-seaweed trophic cascade on invaded reefs? (4) How do lionfish modify cleaning mutualisms on invaded reefs? (5) Are lionfish reaching densities where natural population limits are evident?

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1233027

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