

Species, sample date, location individual size and sample disposition of adult fish surveyed near Carmel and Monterey Bays, CA, 2013-2016 (Larval Dispersal in Kelp Rockfish project)

Website: <https://www.bco-dmo.org/dataset/684426>

Data Type: Other Field Results

Version: 2

Version Date: 2017-08-15

Project

» [Integrative evaluation of larval dispersal and delivery in kelp rockfish using inter-generational genetic tagging, demography and oceanography](#) (Larval Dispersal in Kelp Rockfish)

Program

» [Partnership for Interdisciplinary Studies of Coastal Oceans](#) (PISCO)

Contributors	Affiliation	Role
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Abstract

This dataset contains sampling information for samples collected for genetic parentage analysis from adult rockfish – species, sample date, location, individual size, and sample disposition.

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Coverage

Spatial Extent: N:36.95 E:-121.891 S:36.46 W:-122.05

Temporal Extent: 2013-07-25 - 2016-09-26

Acquisition Description

Tissue is collected from adult fish for genetic samples. Tissue samples from fishes collected by fishing gear (rod and reel or set gear) are collected by clipping the third spine of the first dorsal fin on the vessel and released as quickly as possible to the ocean at the location of collection. Some rod and reel collections are made by SCUBA divers underwater; tissue is sampled by fin-clipping as at the surface and the fish is immediately released, or by spear-biopsy - the use of a pole spear with a biopsy needle. The total length of all sampled fish is estimated to the nearest whole centimeter. Additional data recorded include date and location of sampling (GPS lat and lon coordinates), species, fate (released or sacrificed), and release condition (poor, fair, good) of fish. Additional samples were collected from other research or recreational fishing programs.

Processing Description

Data are entered by hand and double checked for accuracy. Dataset is checked for valid entries and completeness.

BCO-DMO Processing Notes:

- added conventional header with dataset name, PI name, version date
- modified parameter names to conform with BCO-DMO naming conventions
- re-formatted date from m/d/yyyy to yyyy-mm-dd
- blank values replaced with no data value 'nd'
- changed lat/lon (0,0 - no location) to nd's
- sorted records by date

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Related Publications

Ammann, A. J. (2004). SMURFs: standard monitoring units for the recruitment of temperate reef fishes. *Journal of Experimental Marine Biology and Ecology*, 299(2), 135–154. doi:[10.1016/j.jembe.2003.08.014](https://doi.org/10.1016/j.jembe.2003.08.014)
General

Anderson, T. W., & Carr, M. H. (1998). *Environmental Biology of Fishes*, 51(1), 111–115.
doi:10.1023/a:1007355408723 <https://doi.org/10.1023/A:1007355408723>
General

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Related Datasets

IsSupplementedBy

Carr, M., Garza, J. C., Edwards, C. (2017) **Fish species code key for data collected along the shore of Monterey and Carmel from 1999-2015 (Larval Dispersal in Kelp Rockfish project)**. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2017-03-17 <http://lod.bco-dmo.org/id/dataset/684512> [[view at BCO-DMO](#)]

Carr, M., Tinker, T. (2017) **Site code key for kelp forest community data collected along the coast of Monterey and Carmel, CA from 1999-2015 (Kelp Forest Resilience project)**. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2017-08-16 <http://lod.bco-dmo.org/id/dataset/661175> [[view at BCO-DMO](#)]

IsRelatedTo

Carr, M., Edwards, C., Garza, J. C. (2017) **Species, sample date, location individual size and sample**

disposition of juvenile fish surveyed near Carmel and Monterey Bays, CA, 2013-2016 (Larval Dispersal in Kelp Rockfish project). Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2017-03-17 <http://lod.bco-dmo.org/id/dataset/684453> [[view at BCO-DMO](#)]

Carr, M., Edwards, C., Garza, J. C. (2017) **Survey of fish species, number and size from transects near Carmel and Monterey Bays, CA, 1999-2015 (Larval Dispersal in Kelp Rockfish project).** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2017-03-17 <http://lod.bco-dmo.org/id/dataset/684484> [[view at BCO-DMO](#)]

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Parameters

Parameter	Description	Units
date	date sample was collected formatted as yyyy-mm-dd	unitless
gear	gear type used for collection: SMURF=Standardized Monitoring Unit for the Recruitment of Fishes - deployed 2m below surface. (Ammann A.J. 2004); BINCKE=Benthic Ichthyofauna Net for Coral/Kelp Environments. (Anderson T.W. and M.H. Carr. 1998); BENTHIC SMURF=SMURF deployed on seafloor; unknown=sample with unknown collection method.	unitless
sample	Sample ID number. (NA if no sample taken)	unitless
species	Code for fish species identification abbreviated as first letter of genus and first three letters of species names. See "species codes" worksheet for values and definitions.	unitless
length_mm	total length of the fish (nd if no length measured)	millimeters (mm)
fate	whether the fish was released live or killed for sampling: released; sacrificed; unknown	unitless
condition	condition of fish released live: good; fair; poor; unknown	unitless
count_fish_captured	number of individuals represented in this sample	individual
count_samples	number of samples collected from this capture	sample
lat_gps	latitude at which sample was collected; obtained from GPS unit	decimal degrees in WGS84 coordinate system
lon_gps	longitude at which sample was collected; obtained from GPS unit	decimal degrees in WGS84 coordinate system
comment1	comment	unitless
comment2	further comment	unitless
year	sampling year	unitless
month	sampling month	unitless
day	sampling day	unitless
subregion	subregion of sampling area	unitless
date_delivered_to_NMFS	date sample was delivered to NMFS	unitless
NMFS_id	sample identifier at NMFS; formatted as yyyy-mm-dd	unitless

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Instruments

Dataset-specific Instrument Name	
Generic Instrument Name	Fishing Rod
Generic Instrument Description	Used to catch fish.

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Deployments

Carr_1999

Website	https://www.bco-dmo.org/deployment/661099
Platform	Long Marine Lab UCSC
Start Date	1999-09-22
End Date	2015-07-24
Description	Sites of Kelp Forest Resilience project. Nearshore waters of southern Monterey Bay and Carmel Bay, California. 36 N, 121 W.

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Project Information

Integrative evaluation of larval dispersal and delivery in kelp rockfish using inter-generational genetic tagging, demography and oceanography (Larval Dispersal in Kelp Rockfish)

Website: <http://research.pbsci.ucsc.edu/eeb/rclab/kelp-rockfish-pbt-project/>

Coverage: Monterey Bay and vicinity

Description from NSF award abstract:

The spatial structure and dynamics of coastal marine fish populations are strongly influenced by the transport and recruitment of larvae. However, the scale and patterns of larval dispersal are among the most difficult demographic parameters to quantify in marine systems, due to the inability to tag and track the movement of larvae. In particular, the extent of local retention of larvae versus regional dispersal to other locations and populations is currently a hotly debated topic in the field of marine ecology and has profound implications for the design and effectiveness of Marine Protected Areas (MPAs). The research will identify patterns of larval dispersal and use those patterns to test predictions of dispersal generated by state-of-the-art circulation models.

The PI team brings together ecologists, geneticists, statisticians, and oceanographers with expertise in population demography and field sampling, mark/recapture data from genetic tags, and empirical and model-based evaluation of oceanographic processes to answer the following questions:

1. Do observed patterns of dispersal and connectivity of larval kelp rockfish correspond to patterns predicted by high spatial resolution regional ocean circulation models? Model predictions will be tested empirically using larval settlement samples. Parentage analysis will be used to verify the occurrence of larvae derived from genetically tagged source populations.
2. Is there evidence for local retention of larval kelp rockfish within the study area? To test the hypothesis that local retention of juvenile kelp rockfish from source populations is greater than expected by existing larval transport models, the PIs will compare the proportion of recruits that are genetically identified to

have been produced from within three focal sites with the proportion of larval production that was tagged in those sites.

3. Is the relative recruitment of recently settled kelp rockfish to focal sites in the study region proportionate to the relative larval production of those focal sites? The PIs will compare the proportion of tagged recruits with the proportion of larval production generated from tagged adults at varying spatial scales. They will use goodness of fit models to compare expected and observed connectivity matrices under varying hypotheses of larval dispersal. Alternatively, if the relative contribution of focal sites to larval replenishment of themselves, one another, and more distant populations is disproportionate to their relative production, can this discrepancy be explained by oceanographic processes that could facilitate particular trajectories of larval dispersal?

To determine if differences in self recruitment and connectivity can be attributed to local oceanographic features, the PIs will examine spatial and temporal correlations between these features and the spatial distribution and timing of recruitment.

Related websites:

<http://piscoweb.org>

<http://research.pbsci.ucsc.edu/eeb/rclab/kelp-rockfish-pbt-project/> (broken link)

<http://rockfish.ucsc.edu/>

<http://oceanmodeling.ucsc.edu>

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Program Information

Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO)

Website: <http://www.piscoweb.org/>

Coverage: West coast of North America from Mexico to Alaska

The Partnership for Interdisciplinary Studies of Coastal Oceans is a long-term ecosystem research and monitoring program established with the goals of:

- understanding dynamics of the coastal ocean ecosystem along the U.S. west coast
- sharing that knowledge so ocean managers and policy makers can make science based decisions regarding coastal and marine stewardship
- producing a new generation of scientists trained in interdisciplinary collaborative approaches

Over the last 10 years, PISCO has successfully built a unique research program that combines complementary disciplines to answer critical environmental questions and inform management and policy. Activities are conducted at the latitudinal scale of the California Current Large Marine Ecosystem along the west coast of North America, but anchored around the dynamics of coastal, hardbottom habitats and the oceanography of the nearshore ocean – among the most productive and diverse components of this ecosystem. The program integrates studies of changes in the ocean environment through ecological monitoring and experiments. Scientists examine the causes and consequences of ecosystem changes over spatial scales that are the most relevant to marine species and management, but largely unstudied elsewhere.

Findings are linked to solutions through a growing portfolio of tools for policy and management decisions. The time from scientific discovery to policy change is greatly reduced by coordinated, efficient links between scientists and key decision makers.

Core elements of PISCO are:

- Interdisciplinary ecosystem science
- Data archiving and sharing
- Outreach to public and decision-making user groups
- Interdisciplinary training
- Coordination of distributed research team

Established in 1999 with funding from The David and Lucile Packard Foundation, PISCO is led by scientists from core campuses Oregon State University (OSU); Stanford University’s Hopkins Marine Station; University of California, Santa Cruz (UCSC); and University of California, Santa Barbara (UCSB). Collaborators from other institutions also contribute to leadership and development of PISCO programs. As of 2005, core PISCO activities are funded by collaborative grants from The David and Lucile Packard Foundation and the Gordon and Betty Moore Foundation. Core support, along with additional funding from diverse public and private sources, make this unique partnership possible.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1260693

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