Accession numbers of microsatellite DNA primers and links to GenBank from Amphiprion percula and Chaetodon vagabundus

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Project
» Larval Dispersal and Retention Among Sub-populations of Coral Reef Fishes: A Multi-Technique Approach (Pop connectivity of coral reef fishes)

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Dataset Description

Accession numbers of microsatellite DNA primers and links to GenBank.

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Data Files

File
dna_accessions.csv (Comma Separated Values (.csv), 3.87 KB) MD5:62dbff5f2a7af86d6df5eef41f23c76b Primary data file for dataset ID 516441

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Parameters

Parameter	Description	Units
taxon	Taxonomic name.	text
description	Description of the type of genetic sequence.	text
ID		alphanumeric
GenBank_accession_number	GenBank accession number.	alphanumeric
accession_number_link	Hyperlink to GenBank for the accession number.	alphanumeric

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Project Information

Larval Dispersal and Retention Among Sub-populations of Coral Reef Fishes: A Multi-Technique Approach (Pop connectivity of coral reef fishes)

Coverage: Kimbe Bay, Papua New Guinea

Description from NSF award abstract:

Population connectivity, the degree to which geographically-separated groups are linked by dispersal, is a critical parameter in the dynamics of marine populations. Connectivity rates determine colonization patterns of new habitats, the resiliency of populations to harvest, and the design of networks of No Take Marine Reserves (NTMRs). Quantifying exchange rates in marine organisms is extremely difficult because natal origins of adults are almost invariably unknown. This lack of knowledge is primarily due to the difficulty of conducting mark-recapture studies in species with large numbers of small pelagic offspring that suffer high initial mortality rates. This project will continue a multi-technique approach combining mass-marking of fish embryos using TRAnsgenerational Isotope Labeling (TRAIL) of otoliths and paternity analyses based on hypervariable microsatellite DNA markers to measure dispersal distances of coral reef fishes. Population connectivity will be estimated for two species (*Amphiprion percula* and *Chaetodon vagabundus*) in Kimbe Bay, Papua New Guinea.

Coral reef organisms are usually distributed across a mosaic of reefs that are sometimes separated by the ocean. It has been presumed that at small scales, reefs must be open populations, with significant exchange of larvae among neighboring reefs. At larger scales, populations must effectively be closed, with late-stage larvae returning to the same population as their parents. The scale over which this transition takes place is unknown. Recent evidence suggests that ecologically significant self-recruitment may occur at scales of individual reefs or islands. If accurate, these findings have important implications for management strategies for marine species, including the design of networks of NTMRs, because knowledge of dispersal distances determines the scale over which populations can be completely protected. It also determines the appropriate spacing of reserves to allow protected populations to replenish adjacent fished areas. This project will quantify population connectivity of coral reef fishes in Kimbe Bay, Papua New Guinea and broaden the spatial scale from examining the fate of larvae spawned at a single location (Kimbe Island) to examining connectivity among 5 designated NTMRs.

This award is funded under the American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

Publications Produced as a Result of this Project:

Saenz-Agudelo, P., G. P. Jones, S. R. Thorrold, and S. Planes. 2011. Detrimental effects of host anemone bleaching on anemonefish populations. *Coral Reefs*, v.30, p. 497. doi: 10.1007/s00338-010-0716-0

Saenz-Agudelo, P., G. P. Jones, S. R. Thorrold, and S. Planes. 2011. Connectivity dominates larval replenishment in a coastal reef fish metapopulation. *Proc. Royal Soc. B*, v.278, p. 2954. doi: 10.1098/rspb.2010.2780

Saenz-Agudelo, P., G. P. Jones, S. R. Thorrold, and S. Planes. 2012. Patterns and persistence of larval retention and connectivity in a marine fish metapopulation. *Molecular Ecology*, v.21, p. 4695. doi: 10.1111/j.1365-294X.2012.05726.x

Buston, P. M., G. P. Jones, S. Planes, and S. R. Thorrold. 2011. Probability of successful larval dispersal declines fivefold over 1 kilometre in a coral reef fish. *Proc. Royal Soc. B*, v.279. doi: 10.1098/rspb.2011.2041

Berumen, M. L., H. J. Walsh, N. Raventos, S. Planes, G. P. Jones, V. Starczak, and S. R. Thorrold. 2010. Otolith geochemistry does not reflect dispersal history of clownfish larvae. *Coral Reefs*, v.29, p. 883. doi: 10.1007/s00338-010-0652-z

Berumen, M. L., G. Almany, S. Planes, G. P. Jones, and S. R. Thorrold. 2012. Persistence of self-recruitment and patterns of larval connectivity in a marine protected area network. *Ecology and Evolution*, v.2. doi: 10.1002/ece3.208

Dixson, D. L., G. P. Jones, P. L. munday, M. S. Pratchett, M. Srinivasan, S. Planes, and S. R. Thorrold. 2011. Terrestrial chemical cues help coral reef fish larvae locate settlement habitat surrounding islands. *Ecology and Evolution*, v.1, p. 586. doi: 10.1002/ece3.53

Harrison, H. B., D. H. Williamson, R. D. Evans, G. R. Almany, S. R. Thorrold, G. R. Russ, K. A. Feldheim, L. van Herwerden, S. Planes, M. Srinivasan, M. L. Berumen, and G. P. Jones. 2012. Larval export from marine

reserves benefits fish and fisheries. *Current Biology*, v.22, p. 1023. doi: 10.1016/j.cub.2012.04.008

Roy, A. S., A. J. Frisch, C. Sims, S. R. Thorrold, and G. P. Jones. 2012. Retention of a transgenerational marker (137Ba) in tissues of adult female anemone fish and assessment of physiological stress. *Environmental Biology of Fishes*. doi: 10.1007/s10641-012-0029-y

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Funding

Funding Source	Award
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