

Toby S. Daly-Engel

Hawaii Institute of Marine Biology
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EDUCATION

- 2002 – 2009 **Ph.D. Zoology. University of Hawai'i at Mānoa, Honolulu HI**
- Ecology, Evolution, and Conservation Biology specialization
 - Advisor: Dr. Kim Holland. Dissertation title: Genetic diversity reveals patterns in shark reproductive behavior. Anticipated graduation: Summer 2009
- 1996 – 2000 **B.A. Biology. Oberlin College, Oberlin OH**

PEER-REVIEWED PUBLICATIONS

- Daly-Engel, T.S.**, R.D. Grubbs, K. Feldheim, B.W. Bowen, and R.J. Toonen (In prep) Sexual selection drives low multiple paternity and genetic diversity in the shortspine spurdog shark, *Squalus mitsukurii*. *Marine Ecology Progress Series* xx: xxx-xxx
- Ebert, D.A., W.T. White, K.J. Goldman, L.J.V. Compagno, **T.S. Daly-Engel**, and R.D. Ward (In prep for February 2009 submission) Reevaluation and redescription of *Squalus suckleyi* (Girard, 1854) from the North Pacific, with comments on the *Squalus acanthias* subgroup (Squaliformes: Squalidae: *Squalus*). *Zootaxa* xx: xxx-xxx
- Espasandin, C., **T. Daly-Engel**, J. Philippoff, J. Nakaya, and C. Hunter (Submitted) External tagging protocol with zero mortality for the collector urchin, *Tripneustes gratilla*. *Journal of Experimental Marine Biology and Ecology* xx: xxx-xxx
- Nance, H.A., **T.S. Daly-Engel**, and P.B. Marko (In press) New microsatellite loci for the endangered scalloped hammerhead shark, *Sphyrna lewini*. *Molecular Ecology Resources* xx: xxx-xxx
- Bienfang, P., B. Oben, S. DeFelice, P. Moeller, K. Huncik, P. Oben, R. Toonen, **T. Daly-Engel**, and B. Bowen (2008) Ciguatera: Detection of neurotoxins in carnivorous reef fish from the coast of Cameroon, West Africa. *African Journal of Marine Science* 30: 533-540
- Daly-Engel, T.S.**, R.D. Grubbs, B.W. Bowen, and R.J. Toonen (2007) Frequency of multiple paternity in an unexploited tropical population of sandbar sharks, *Carcharhinus plumbeus*. *Canadian Journal of Fisheries and Aquatic Sciences* 64: 198-204
- Daly-Engel, T.S.**, R.D. Grubbs, K.N. Holland, R.J. Toonen, and B.W. Bowen (2006) Assessment of multiple paternity in single litters from three species of carcharhinid sharks in Hawaii. *Environmental Biology of Fishes* 76: 419-424
- Duncan, K.M. and **T.S. Daly-Engel** (2006) Using forensic science problems as teaching tools. *The Science Teacher* Nov. 06: 38-43
- Atochina O., **T. Daly-Engel**, D. Piskorska, E. McGuire, D. Harn (2001) A schistosome expressed immunomodulatory glycoconjugate expands peritoneal Gr1⁺ macrophages that suppress naïve CD4⁺ T cell proliferation via an interferon gamma and nitric oxide dependent mechanism. *Journal of Immunology* 167: 4293-4302

GRANTS AND FELLOWSHIPS

pending	\$2,000	University of Hawaii Graduate Division Dai Ho Chun Travel Award
2008	\$143,500	Postdoctoral Excellence in Research and Teaching (PERT) Fellowship
2008	\$5,300	PADI Foundation Grant
2008	\$20,000	American Association of University Women Dissertation Fellowship
2008	\$1,500	Arts and Sciences Advisory Council Award

2008	\$981	University of Hawaii Graduate Student Organization Travel Award
2007	\$1,000	Sigma Xi Grant-in-Aid of Research
2007	\$700	Evolution, Ecology and Conservation Biology Student Research Award
2007	\$500	UH Foundation Shark Education and Research Travel Grant
2007	\$506	University of Hawaii Graduate Student Organization Travel Award
2006	\$1,320	National Science Foundation GK-12 Project Continuation Grant
2006	\$1,800	University of Hawaii Graduate Division Dai Ho Chun Travel Award
2005	\$220	Sigma Xi Grant-in-Aid of Research
2005	\$900	Evolution, Ecology and Conservation Biology Student Travel Award
2004	\$64,000	National Science Foundation GK-12 Fellowship
2004	\$800	Evolution, Ecology and Conservation Biology Student Research Award
1999	\$1,200	The Laura J. Grierson Memorial Scholarship for Independent Study

RESEARCH EXPERIENCE

- 2006 – 2009 **RESEARCH ASSISTANT** – Hunter Lab, Hawaii Institute of Marine Biology, HI
- Project title: Aquaculturing native Hawaiian sea urchins, *Triploneustes gratilla*
 - Designed and implemented aquaculture protocols for urchin stock enhancement
- 2003 – 2008 **FIELD ASSISTANT** – Holland Lab, Hawaii Institute of Marine Biology, HI
- Project title: Hawaii Elasmobranch Longline Survey
 - Set longlines of 80-500m depth for tag-and-release survey of sharks in Hawaii
 - 100+ days at sea
- 2007, 2008 **RESEARCH DIVER** – NOAA Ship Hi'ialakai
- Hawaii Institute of Marine Biology Expedition to the Northwest Hawaiian Islands
 - Collected samples of reef fishes using three-prong spear and caught sharks for telemetry projects using hand lines
 - 51 days at sea
- 2000 – 2002 **RESEARCH ASSISTANT** – Harn Lab, Harvard School of Public Health, MA
- Project title: Molecular mechanisms of immunomodulatory oligosaccharides
- 1999 **RESEARCH INTERN** – Rittschof Lab, Duke University Marine Laboratory, NC
- Project title: Retention of summer and winter flounder and diel movement patterns of giant whelks in the Rachel Carson Estuarine Research Reserve
 - Conducted field and laboratory experiments to examine faunal use of marine reserve
- 1999 **INDEPENDENT STUDY** – Rittschof Lab, Duke University Marine Laboratory, NC
- Project title: Analysis of proteolytic enzymes in the egg masses of female fiddler crabs

TEACHING EXPERIENCE

- 2008 – 2009 **TEACHING AFFILIATE** – University of Hawaii Education Department, Honolulu HI
- Conducted seminars as part of yearly Teaching Assistant training workshops given through the Center for Teaching Excellence
 - Consulted on developing university teacher training programs for the Natural Sciences
- 2004 – 2006 **GRADUATE TEACHING FELLOW** – University of Hawaii, Honolulu HI
- Two-year fellowship through the National Science Foundation GK-12 Program
 - Used sharks as a model to teach evolution and ecology to high school students
- 2005 **TEACHING ASSISTANT** – Hawaii Institute of Marine Biology, Kaneohe HI
- Pauley Summer Research Program: Designing Risk Assessment Programs in the Pacific Rim
- 2003 – 2004 **TEACHING CONSULTANT** – University of Hawaii Education Department, Honolulu HI
- Provided assessments for TAs and faculty through the Center for Teaching Excellence
- 2002 – 2004 **TEACHING ASSISTANT** – University of Hawaii, Honolulu HI
- Introductory Biology Laboratory for Majors (BIOL 171), two semesters
 - Developmental Zoology (ZOOL 420), two semesters
 - Animal Evolution (ZOOL 480), one semester

- 2000 **INSTRUCTOR** – Ch’ooshgai Community School, Tohatchi NM
• Navajo Cooperative Teaching Project

ORAL PRESENTATIONS

- 2008 Global genetic survey reveals a cryptic, temporally unstable evolutionary lineage in *Sphyræna barracuda*. Joint Meeting of Ichthyologists and Herpetologists, Montreal CA
- 2008 Comparative study of multiple paternity rates in sharks. Albert L. Tester Memorial Symposium, University of Hawaii at Manoa, Honolulu HI
- 2007 Comparative study of multiple paternity rates in sharks. Evolution 2007, Christchurch, New Zealand
- 2006 Frequency of multiple paternity in an unfished tropical population of sandbar sharks. Joint meeting of Ichthyologists and Herpetologists, New Orleans LA
- 2006 Frequency of multiple paternity in an unfished tropical population of sandbar sharks, *Carcharhinus plumbeus*. Albert L. Tester Memorial Symposium, University of Hawaii at Manoa, Honolulu HI
- 2005 Assessment of multiple paternity for three species of congeneric sharks (Carcharhinus) in Hawaii. Joint meeting of Ichthyologists and Herpetologists, Tampa FL
- 2005 Multiple paternity assessments for three congeneric shark species (Carcharhinus) in Hawaii. Albert L. Tester Memorial Symposium, University of Hawaii at Manoa, Honolulu HI
- 2004 Population ecology of the sandbar shark (*Carcharhinus plumbeus*) in Hawaii. Albert L. Tester Memorial Symposium, University of Hawaii at Manoa, Honolulu HI
- 2002 A schistosome expressed immunomodulatory glycoconjugate expands peritoneal Gr1⁺ macrophages. Fancy Gap Annual Workshop on Immunoparasitology, Fancy Gap VA

INVITED TALKS

- 2006 “Demystifying Shark Attack: Using Sharks as a Model to Teach Ecology and Evolution” Maui Ocean Center, Wailuku HI
- 2006 “Reproduction and Conservation of Hawaiian Sharks”, Hanauma Bay Nature Preserve Education Program, Honolulu HI

SKILLS AND CERTIFICATIONS

- AAUS Scientific Diver, University of Hawaii (2004)
- Department of the Interior Licensed Boat Operator

PROFESSIONAL AFFILIATIONS

- 2007 Society for the Study of Evolution
- 2007 American Society of Naturalists
- 2007 American Association of Underwater Scientists
- 2006 American Fisheries Society
- 2005 Graduate Women in Science Alpha Lambda Chapter
- 2005 Sigma Xi
- 2002 American Society of Ichthyologists and Herpetologists
- 2002 American Elasmobranch Society

PROFESSIONAL SERVICE

- 2008 – 2009 American Elasmobranch Society Student Affairs Committee
- 2007 – 2009 Secretary, Graduate Women in Science Alpha Lambda Chapter
- 2006 – 2009 Reviewer, *Journal of Heredity*, *Journal of Fish Biology*, *Marine Ecology Progress Series*,
Curriculum vitae Toby S. Daly-Engel

2003 – 2004 *Marine and Freshwater Research, and Environmental Biology of Fishes*
Graduate Representative, University of Hawai'i Zoology Department

OUTREACH

2008 Guest lecturer, Bishop Museum seminar series and Family Sunday
2008 Hawaii State Science Fair Judge
2008 Guest lecturer, Marine Biology (ZOO 200) class at the University of Hawaii
2006 – 2008 Mentorship of six undergraduate interns in the Hunter Lab, Kaneohe, HI
2007 – 2008 Guest lecturer, UH Vertebrate Zoology (ZOO 320) and Marine Science (ZOO 420) classes
2007 Hawaii Association of Independent Schools (HAIS) Science Fair Judge, Honolulu HI
2006 Hawaii Regional Ocean Science Bowl Science Judge, Honolulu HI
2006 Mentorship of two undergraduate interns in the Toonen Lab, Kaneohe HI
2005 21st Century Learning “Science of Sharks” educational video host
2005 Presenter, Hawaii Science Teachers Association (HaSTA) Fall 2005 Meeting, Honolulu HI

AWARDS

2004 Outstanding Teaching Assistant Award, University of Hawaii Biology Department

REFERENCES

Kim N. Holland, Ph.D., Researcher, Hawai'i Institute of Marine Biology, Kaneohe, HI
Contact: 808-236-4710, kholland@hawaii.edu
Brian W. Bowen, Ph.D., Associate Professor, Hawai'i Institute of Marine Biology, Kaneohe, HI
Contact: 808-236-4726, bbowen@hawaii.edu
Robert J. Toonen, Ph.D., Assistant Researcher, Hawai'i Institute of Marine Biology, Kaneohe, HI
Contact: 808-236-4725, toonen@hawaii.edu
Sheila Conant, Ph.D., Professor, University of Hawaii Zoology Department, Honolulu HI
Contact: 808-956-8617, conant@hawaii.edu
R. Dean Grubbs, Ph.D., Assistant Scholar Scientist, Florida State University, St. Teresa, FL
Contact: 850-697-2067, dgrubbs@bio.fsu.edu