

CURRICULUM VITAE

Michael H. Kido

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EDUCATIONAL BACKGROUND

1970 - University of Hawaii at Manoa, Honolulu, Hawaii: major Zoology; B.A. (June)

1973 - University of Hawaii at Manoa, Honolulu, Hawaii: major Zoology; M.S. (December)

RESEARCH AND TEACHING EXPERIENCE

Sep 1982 to Sep 1990. Kauai Community College, University of Hawaii. Lecturer in Zoology, Biology, Oceanography, Chemistry, and General Science.

Aug 1990 to Aug 1995. Research Biologist, University of Hawaii (CTAHR) - Environmental Research Group (Kauai Fruit Fly Project). Research project: Evaluation of effects of pest tephritid eradication technologies on freshwater habitats in Hawaii.

August 1995 to September 2003. Research Associate, Center for Conservation Research and Training, University of Hawaii. Research Project: Studies on the ecological structure and function of Hawaiian streams on catchment-to-sea scales.

September 2003 to August 2008. Assistant Specialist. Research Project: Hawaiian socioecological systems (SESs) and the use of cyberinfrastructure to understand their interactions and links.

August 2008 to Retirement - November 2015. Associate Director, Institute of Integrated Earth Observing Systems: Development of the Research Cyberinfrastructure Core (RCC) at UHM for addressing climate change impacts on water resources in Hawaiian mountain-to-sea environments.

SIGNIFICANT RESEARCH PROGRAMS ESTABLISHED AT UHM

1996 - Initiated Hawaii's only stream-related, watershed-scale Long-term Ecological Research (LTER) site (Limahuli Stream, Haena, Kauai); Established the Hawaii Stream Research Center at UH Manoa's Center for Conservation Research and Training.

1998 - Successfully authored a proposal which led to the designation of Kauai's Hanalei River as one of twelve American Heritage Rivers in the U.S. and the establishment of the Hanalei Heritage River Office and Program.

2000 - Development of the Hawaii Stream Bioassessment Protocol (Vers. 3.01) which became adopted as a standard stream assessment methodology by the Hawaii Department of Health.

2002 - Co-Principal Investigator in establishing the Hawaii GAP Analysis Program developing GIS coverages for the protection and management of Hawaii's unique native biodiversity.

2003 - Principal Investigator in the development of Hawaii Aquatic GAP applying GIS to classify perennial streams in Hawaii and map their biological / physical condition.

2004 - *Ahupua'a*-scale environmental monitoring in Oahu, Kauai, and Maui test bed sites using wireless sensor-based technologies in collaboration with the Stanford University Biocomputation Center and UCLA Center for Embedded Networked Sensing.

2005 - UH-Stanford University-initiated establishment of *InteleSense Technologies, Inc.* as a "high-tech" innovation enterprise for global environmental monitoring based in Honolulu, Hawaii.

2007 - Involved in the establishment of the *Institute for Integrated Earth Observing Systems* at UH Manoa to further develop a state-of-the-art environmental cyberinfrastructure platform.

2011 - Established the Research Cyberinfrastructure Core (RCC) at UHM as an advanced platform for cyberGIS-based simulation and modeling applications.

RECENT RESEARCH GRANTS

Apr 1996 to June 2007. Long-Term Ecological Research Monitoring of Limahuli Stream, Haena, Kauai. The National Tropical Botanical Garden. \$80,000.

Mar 2002 to Mar 2005. Aquatic Biological Assessment Related to the Kuhio Highway Realignment Project, Wailua, Kauai. Kimura International, Inc. \$35,000

May 2004 to Sep 2006. A Biological Assessment of Nuuanu Stream, Phase 1&2. The City and County of Honolulu, Environmental Services Division. \$50,000.

Sep 2001 to Dec 2004. Restoration of algal biodiversity in a Hawaiian stream through alien riparian plant removal. U.S. Fish and Wildlife Service. \$27,000.

Dec 2005 to Jan 2007. Identifying patterns of aquatic community structure along elevational gradients of Hawaii island streams. U.S. EPA and the Hawaii Department of Health. \$56,000.

Apr 2006 to Mar 2009. Cyberinfrastructure for environmental research and education. NSF-EPSCoR. \$820,294.

Jun 2006 to May 2007. A Biological Assessment of Makiki Stream, Oahu. The City and County of Honolulu, Environmental Services Division. \$25,000.

Jun 2007 to May 2008. A Biological Assessment of Manoa Stream, Oahu. The City and County of Honolulu, Environmental Services Division. \$25,000.

Sep 2010 to Aug 2013. "PACMAN - Cyberinfrastructure for Discovering Climate Change Impacts on Water Resources Across Alaska and the Hawaiian Islands" – NSF EPSCoR Track 2 - \$ 3 million.

Sep 2012 to Dec 2013. Habitat improvement for native aquatic species: Channel restoration of 'Gulch 3', Pilaa Stream, Kauai. Pfleuger Properties. \$27,180.

Sep 2013 to Aug 2014. Development of Cybertechnologies for Environmental Monitoring and Habitat Management in the Kawainui Marsh Restoration Project. Year 1. Division of Forestry and Wildlife (Hawaii Department of Land and Natural Resources). \$40,586.

Sep 2014 to Aug 2015. Development of Cybertechnologies for Environmental Monitoring and Habitat Management in the Kawainui Marsh Restoration Project. Year 2. Division of Forestry and Wildlife (Hawaii Department of Land and Natural Resources). \$41,555.

Mar 2014 to Sep 2014. Evaluation of the Impacts of the Kekaha-Kokee Ditch Systems on the Biological Integrity of the Waimea River (Kauai) and Major Tributaries. \$6448.

Jun 2016 to May 2019. Bioassessment Monitoring in Waipa Stream (Kauai) to Evaluate the Effects of Watershed BMPs on the Health of the Waipa *Ahupua'a* Part 1 (July 2016) and Part 2 (May 2019). \$10,000.

MEMBERSHIP IN PROFESSIONAL SOCIETIES AND COMMISSIONS

Entomological Society of America

Sigma Xi Scientific Society

Hawaiian Academy of Science

Hawaiian Entomological Society

Pacific Science Congress

American Water Works Association

North American Benthological Society

Kauai County Historic Preservation Review Commission 1986 to 1989; Chairperson 1989.

Kauai County Board of Water 1991 to 1994; Chairperson 1994.

Hawaii Natural Area Reserves Commission, 1997 to 2003.

PUBLICATIONS

- Kido, M.H. 1986.** A preliminary survey of the Menehune Fishpond (Alekoko Fishpond) and Huleia estuary, Niualalu, Kauai. *Archaeology of Kauai*. 13(1):6-12.
- Timbol, A.S., Kido, M.H., Heacock, D.E. 1989.** A descriptive study of selected biological and physicochemical characteristics of Limahuli Stream, Haena, Kaua'i. National Tropical Botanical Garden, Masterplan for Limahuli Garden and Preserve.
- Heacock, D.E., M.H. Kido and R. Buckley. 1990.** Retention of visible implant tags by the amphidromous goby, *Awaous stamineus*, endemic to Hawaii. In *New Directions in Research, Management, and Conservation of Hawaiian Streams Ecosystems. Proceedings of the 1990 Symposium on Stream Biology and Fisheries Management. Honolulu, Hawaii. Feb.20-22, 1990.*
- Timbol, A.S., M.H. Kido, and D.E. Heacock. 1990.** Breeding biology of the endemic amphidromous goby, *Awaous stamineus* ('o'opu-nakea); larval rearing in the laboratory. *Project report for Division of Aquatic Resources (DLNR)- 6/4/90.*
- Timbol, A.S., M.H. Kido, and D.E. Heacock. 1990.** The physicochemical characteristics of Wainiha River, Kauai. In *New Directions in Research, Management, and Conservation of Hawaiian Streams Ecosystems. Proceedings of 1990 Symposium on Stream Biology and Fisheries Management. Honolulu, Hawaii. Feb.20-22, 1990.*
- Kido, M.H. and D.E. Heacock. 1990.** The spawning ecology of 'o'opu-nakea (*Awaous stamineus*) in Wainiha River and other selected north shore Kauai rivers. In *New Directions in Research, Management and Conservation of Hawaiian Streams Ecosystems. Proceedings of the 1990 Symposium on Stream Biology and Fisheries Management. Honolulu, Hawaii. Feb.20-22, 1990.*
- Kido, M.H. (ed.) 1990.** Symposium Proceedings: Eradicating Pest Fruit Flies in the Unique Hawaiian Environment, Dec 1990, Poipu, Kauai, Hawaii.
- Timbol, A.S., M.H. Kido, and D.E. Heacock. 1991.** A descriptive survey of Limahuli Stream, Haena, Kauai. *Final EA for National Tropical Botanical Gardens Master Plan for Limahuli Gardens and Preserve. October 1990.*
- Harrison, J.C., R.A. Kinzie, J.D. Parrish, M.H. Kido, D.E. Heacock, P.Y. Tamaru and G.S. Smith. 1991.** Baseline studies of the Hanalei River estuary and other north shore rivers, Kauai. Final Report prepared for Division of Aquatic Resources (DLNR) by agreement with UH Environmental Center, Contract No.25853.
- Kido, M.H. 1991a.** Reconnaissance survey for the Koloa Duck (*Anas wyvilliana*) in the Upper Makaleha Watershed, Kapaa, Kauai. Final EIS for Upper Makaleha Springs Water Resource Development-March 1990, prepared by Portugal & Associates.
- Kido, M.H. 1991b.** Report on a biological survey of Waikane Stream, Oahu. Prepared for the Waiahole Community Association, October 1991.
- Kido, M.H., P. Tamaru, R. Kinzie. 1993.** Insect introductions and diet changes in the endemic Hawaiian amphidromous goby, *Awaous stamineus* (Edouyx and Souleyet)(Pisces:Gobiidae). *Pac. Sci.*, 47(1):43-50.
- Asquith, A. and M.H. Kido. 1994.** Native Hawaiian insects attracted to the semiochemical methyleugenol, used for male annihilation of the oriental fruit fly (Diptera: Tephritidae). *Environ.Entomol.* 23(6):1397-1408.
- Kido, M.H., D.E. Heacock, and A.M. Brasher. 1994.** Comparison of visual estimation methods applied in Hawaiian streams. In: *Proceedings of the International Symposium on Hawaiian Stream Ecology, Preservation and Management, 1993 Hilo, Hawaii, C.M. Way (ed.).U.S.Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS.*
- Kido, M.H. 1994.** A biological assessment of lower Lumahai Stream and estuary, Haena, Kauai. Report for Kamehameha Schools / Bishop Estate, May 1994, Contract # 301783.

- Kido, M.H. 1995a.** Survey of benthic algae and invertebrates in Waiahole Stream, Oahu. Prepared for the Native Hawaiian Advisory Council, July 1995.
- Kido M.H. 1995b.** An aquatic faunal survey of lower Huleia, Hanalei, and Lumahai Streams and Papalihala Marsh, Island of Kauai; Studies Related to the Hawaii State Land Use District Review, State of Hawaii, Office of State Planning. Prepared for Wilson Okamoto & Associates, Contract # 3367-01, August 1995.
- Kido, M.H. and A. Asquith. 1995.** Attraction of Hawaiian aquatic insects to pest tephritid parakairomone lures. *Environ Entomol* 24(4):810-816.
- Kido, M.H. 1996a.** Diet and food selection in the endemic Hawaiian amphidromous goby, *Sicyopterus stimpsoni* (Pisces: Gobiidae). *Environ.Biol.Fish.* 45(2):199-209.
- Kido, M.H. 1996b.** Morphological variation in feeding traits of native Hawaiian stream fishes. *Pac.Sci.* 50(2):184-193.
- Kido, M.H. 1996c.** Recovery Processes in Hawaiian Streams. In: *Proceedings of the Hawaii Stream Restoration Symposium, 1994, Honolulu, Hawaii, Technical Report 96-01*, W.Devick (ed.), State Department of Land and Natural Resources, Aquatic Resources Division.
- Kido, M.H. 1996d.** A Biological Assessment of Streams in the Kealia-Anahola Forest Reserve (Kealia Agricultural Water Study). Report to the County of Kauai. February 1996.
- Kido, M.H., A. Asquith, and R.I.Vargas. 1996.** Nontarget insect attraction to methyl eugenol traps used in male annihilation of the Oriental fruit fly (Diptera:Tephritidae) in riparian Hawaiian stream habitat. *Environ.Entomol.* 25(6): 1279-1289.
- Kido, M.H. 1997a.** Food relations and coexistence between native Hawaiian stream fishes. *Env.Biol.Fish.* 49:481-494.
- Kido, M.H. 1997b.** Feeding strategies and web dynamics of coexisting native Hawaiian stream gobies (Gobiidae). *Micronesica* 30(1):71-82.
- Kido, M. H. 1998.** Field evaluation of the Hawaii Stream Bioassessment Protocol. Project Report to the Hawaii Department of Health. December 1998.
- Kido, M.H. and M.A. Khan. 1998.** GIS Adaptation of the Hawaii Stream Assessment. Report to the U.S. Fish and Wildlife Service, Pacific Islands Ecoregion, Honolulu, Hawaii. January 1998.
- Kido, M.H., A. Brasher, C.Chong, and J. Devrell. 1998.** Baseline and monitoring studies of Alakahi and Onomea Streams, Hamakua Coast, Hawaii Island. Report to the Hawaii Tropical Botanical Garden, Papaikou, Hawaii. February 1998.
- Kido, M.H. and G. C. Smith. 1998.** The Hawaii Stream Bioassessment Protocol: A Manual for Biological Monitoring and Assessment of Hawaiian Streams. Report to the Division of Aquatic Resources, Department of Land and Natural Resources and the Hawaii Department of Health, Environmental Planning Division, July 1998.
- Kido, M.H., D.E. Heacock and G. C. Smith. 1999.** The Hawaii Stream Bioassessment Protocol (Version 2.0): A Manual for Biological Monitoring and Assessment of Hawaiian Streams Report to the Hawaii Department of Health, Environmental Planning Division and the U.S. Environmental Protection Agency, Region 9, December 1999.
- Kido, M.H., D.H. Heacock, and A. Asquith. 1999.** Alien rainbow trout (*Oncorhynchus mykiss*) diet in Hawaiian streams. *Pac. Sci.* 53:242 – 251.
- Kido, M.H. 1999a.** Aquatic Faunal Survey and Biological Assessment of Lihue, Kauai Streams Intersected by Kaunualii Highway, Lihue to West of Maluhia Road (Koloa). Report to Park Engineering and the State Department of Transportation, January 1999.
- Kido, M. H. 1999b.** The River Continuum Concept and Watershed-scale Patterns in Community Structure, Ecological Function, and Hydrology of Limahuli Stream, Haena, Kauai. Report to the Hawaii Division of Aquatic Resources and Limahuli Garden / National Tropical Botanical Garden. November 1999.

- Carter, H. J. and M. H. Kido. 2000.** GIS Coverage for the Limahuli Stream LTER Project, Kauai, Hawaii. Technical Report to the Hawaii Division of Aquatic Resources, July 2000.
- Vargas, R. I., J. D. Stark, M. H. Kido, H. M. Ketter and L. C. Whitehand. 2000.** Methyl eugenol and cue-lure for suppression of male Oriental Fruit Flies and Melon Flies (Diptera: Tephritidae) in Hawaii: Effects of lure mixtures and weathering. *J. Econ. Entomol.* 93(1): 81-87.
- Kido, M. H. 2000a.** The Waipio Valley Restoration Project: Hydrological and biological assessment of Wailoa River and Hi'ilawe Stream. Project report to the Waipio Valley Community Association, March 2001.
- Kido, M. H. 2000b.** A Biological and Habitat Assessment of Halawa Stream, Oahu. Project Report to the City and County of Honolulu, July 2001.
- Kido, M.H. 2001.** The Hawaii Stream Bioassessment Protocol (Version 3.01): A Manual for Biological Monitoring and Assessment of Hawaiian Streams Report to the Hawaii Department of Health, Environmental Planning Division and the U.S. Environmental Protection Agency, Region 9, December 2001.
- Sherwood, A. R. and M. H. Kido. 2001.** Comparison of freshwater macroalgae from Limahuli and Hankapiai Streams: Initial studies on the biodiversity of freshwater algae in the Hawaiian Islands. Technical Report to the Hawaii Division of Aquatic Resources, June 2001.
- Sherwood, A. R. and M. H. Kido. 2002.** Watershed-scale comparisons of algal biodiversity in high-quality proximate Hawaiian stream ecosystems. *Pac. Sci.* 56(4):431-440.
- Sherwood, A. R., M. H. Kido, and C. W. Morden. 2002.** New records of freshwater macroalgae from the Hawaiian Islands. I. Chlorophyta. Bishop Museum Occasional Papers.
- Kido, M. H. 2002a.** The *Laupahoehoe Nui Ahupua'a* Community Management Plan, Hawaii Island. Technical Report to The River Network, January 2002.
- Kido, M. H. 2002b.** Quality Assurance and Quality Control Plan for the Hawaii Stream Bioassessment Protocol. Report to the Hawaii Department of Health, Environmental Planning Office, April 2002.
- Kido, M. H. 2002c.** Persistent patterns of community structure for native Hawaiian stream animals. Project Report to the Hawaii Division of Aquatic Resources. July 2002.
- Kido, M. H. 2002d.** Biological and Habitat Assessment of Moanalua Stream, Oahu. Technical Report, City and County of Honolulu, September 2002.
- Kido, M. H. 2002e.** The Nawiliwili Watershed Restoration Project, Kauai: Habitat and Biological Assessment of Nawiliwili Bay Streams. Technical Report to U.S. EPA, the Nawiliwili Watershed Association, and the Pacific Island Sustainable Community Ecosystems Project, December 2002.
- Kido, M. H. 2003.** A Biological and Habitat Assessment of Kalihi Stream, Oahu. Technical Report to the City and County of Honolulu, Department of Environmental Services (Storm Water Branch). September 2003.
- Kido, M. H. 2004.** A Biological and Habitat Assessment of Nuuanu Stream, Phase I. Technical Report to the City and County of Honolulu Department of Environmental Services (Storm Water Branch), October 2004.
- Kido, M. H. 2005.** A Biological and Habitat Assessment of Nuuanu Stream, Phase II. Technical Report to the City and County of Honolulu Department of Environmental Services (Storm Water Branch), August 2005.
- Gon, S.M.III, A.Allison, R.J. Cannarella, J.D. Jacobi, K.Y. Kaneshiro, M.H. Kido, M. Lane-Kanahele, and S.E. Miller. 2006.** The Hawaii GAP Analysis Project, Final Report. U.S. Department of Interior / U.S. Geological Survey, Cooperative Agreement 01HQAG0195, February 2006.
- Kido, M. H. 2006a.** A GIS-based Watershed Health Index for the State of Hawaii. Technical Report to the Hawaii Department of Health, Environmental Health Administration - Environmental Planning Office, July 2006.

- Kido, M. H. 2006b.** A Biological and Habitat Assessment of Makiki Stream, Oahu. Technical Report to the City and County of Honolulu Department of Environmental Services (Storm Water Branch), October 2006.
- Kido, M. H. 2007.** A Biological and Habitat Assessment of Manoa Stream, Oahu. Technical Report to the City and County of Honolulu Department of Environmental Services (Storm Water Branch), September 2007.
- Kido, M.H. and C.L. Yap. 2008.** A Biological and Habitat Assessment of Palolo Stream, Oahu. Technical Report to the City and County of Honolulu Department of Environmental Services (Storm Water Branch), September 2008.
- Kido, M. H. 2008.** A persistent species assemblage structure along a Hawaiian stream from catchment-to-sea. *Environmental Biology of Fishes*. 82:223-225.
- Kido, M. H., C. W. Mundt, K. M. Montgomery, A. Asquith, D. W. Goodale, and K. Y. Kaneshiro. 2008.** Integration of wireless sensor networks into cyberinfrastructure for monitoring Hawaiian “mountain-to-sea” environments. *Environmental Management* 42:658-666.
- Kido, M.H. and C.L. Yap. 2009.** Preliminary reconnaissance surveys of streams impacting Maunaloa Bay, Oahu. Technical Report to the City and County of Honolulu Department of Environmental Services (Storm Water Branch), September 2009.
- Kido, M. H., K. Y. Kaneshiro, and K. M. Montgomery. 2010.** Cyberinfrastructure for sustainability in coupled human-environment systems. *Proceedings of the International Conference on Sustainability Science for Waters and Landscapes*. ISEAS Publishing, Singapore, 346 pp.
- Kido, M.H. 2012.** A native-species based Index of Biological Integrity for Hawaiian stream environments. *Environmental Monitoring and Assessment* DOI 10.1007/s10661-012-2849-9.
- Rogers, K.S., M.H. Kido, P.L. Jokeil, T. Edmonds, E.K. Brown. 2012.** Use of integrated landscape indicators to evaluate the health of linked watersheds and coral reef environments in the Hawaiian Islands. *Environmental Management*. 50(1):21-30.
- Kido, M.H. 2013 .** A Preliminary Habitat and Biological Assessment of Lower Waimea River, Kauai. Technical Report prepared for Earthjustice Mid-Pacific Regional Office. November 2012.
- Kido, M.H., D.E. Heacock, and C.L. Yap. 2014.** Evaluation of the impacts of the Kekaha and Kokee Ditch Systems of the Waimea River System (Alakai Watershed, Kauai). Technical Report prepared for Earthjustice Mid-Pacific Regional Office. September 2014.
- Yap, C.L., M.H. Kido and J. Ho. 2014.** Development of cybertechnologies for environmental monitoring and Hawaiian waterbird habitat management in the Kawainui Marsh Restoration Project. Final Project Report to the Division of Forestry and Wildlife (Hawaii Department of Land and Natural Resources). August 2014.
- Kido, M.H., D.E. Heacock, and C.L. Yap. 2016.** Baseline Bioassessment Monitoring in Waipa Stream (Kauai) to Evaluate the Effects of Watershed BMPs on the Health of the Waipa *Ahupua'a*. Technical Report to The Waipa Foundationa, September 2016.
- Harmon, K., Yap, C.L., Price, M. and M.H. Kido. 2018.** Impacts of water depth and water quality on habitat use of Hawaiian waterbirds in Kawainui Marsh. Technical Report to The Hawaii Division of Forestry and Wildlife, Dept. of Land and Natural Resources, August 2018.
- Winter, K.B., K. Beamer, M. Vaughan, A.M. Friedlander, M.H. Kido, A.N. Whitehead, M.K.H. Akutagawa, N. Kurashima, M.P. Lucas and B. Nyberg. In Press.** The *Moku* System: Managing biocultural resources for abundance within social-ecological regions. In: *Sustainable Use of the Environment and Resources*, Special Issue “Biocultural Restoration in Hawaii”, *Sustainability*.
- Kido, M.H., C.L. Yap and D.E. Heacock. 2019.** Bioassessment Monitoring in Waipa Stream (Kauai) to Evaluate the Effects of Watershed BMPs on the Health of the Waipa *Ahupua'a* Part 1 (July 2016) and Part 2 (May 2019). Technical Report to The Waipa Foundationa, May 2019.