ROE 1

Kaho'olawe Island Reserve Commission

811 Kolu St., Suite 201, Wailuku, HI 96793 • ph. 808-243-5020 • fx. 808-243-5885

RECEIVED
SEP 14 2012
KAHO'OLAWE ISLAND RESERVE COMMISSION

Right of Entry Permit Request

REQUESTOR'S NAME	TITLE
Ann Gibbs	Geologist

MAILING ADDRESS
400 Natural Bridges Drive

CITY	STATE	ZIP CODE	EMAIL
Santa Cruz	CA	95060	agibbs@usgs.gov

PRIMARY TELEPHONE	SECONDARY TELEPHONE
831-460-7540	831-251-7544

ORGANIZATION NAME
U.S. Geological Survey

MAILING ADDRESS	CITY
same as above	Santa Cruz

STATE	ZIP CODE	PRIMARY TELEPHONE	SECONDARY TELEPHONE
CA	95060	831-460-7435	

GROUP LEADER NAME	TITLE
Ann Gibbs	Geologist

GROUP SIZE: TOTAL	ADULTS	MINORS	FUNDING SOURCE
4	4	0	USGS

ACCESS DATES	ACCESS LOCATION (attach map)
Feb. 12-15, 2013 (or range: Feb 3-15)	North and NW Kaho`olawe, between 5 and 50 m water depth

PURPOSE OF ENTRY
Collection of nearshore, high-resolution swath bathymetry and underwater video for the development and groundtruthing of benthic habitat maps

DESCRIPTION OF ACTIVITIES (attach additional pages if necessary)
Two days of collection of swath bathymetry using a vessel-mounted, SWATHPlus interferrometric system and 1-2 days of collection of underwater video in shallow water (5 - 50 m water depth). Both operations will be conducted from the boat moving slowly along pre-determined tracklines or drifting past a fixed location.

CAN ACTIVITIES BE CONDUCTED ELSEWHERE? (explain)
No, objective is to create and groundtruth benthic habitat maps in KIR

PLEASE ATTACH THE FOLLOWING DOCUMENTS:

- ▣ Additional page(s) listing Names, contact information, and ages of people requesting entrance.
- ▣ Signed Release of Liability Forms for all persons requesting entry.
- ▣ Safety and Logistics Plan addressing transportation to/from and protocols within the Reserve.

Kaho'olawe Island Reserve Commission

ROE 2a

811 Kolu St., Suite 201, Wailuku, HI 96793 • ph. 808-243-5020 • fx. 808-243-5885

RECEIVED
SEP 14 2012
KAHO'OLAWE ISLAND RESERVE COMMISSION

Right of Entry Permit Request

Request Type (non-Research)

SELECT ACCESS TYPE:

☐ **NATIVE HAWAIIAN TRADITIONAL AND CUSTOMARY CULTURAL ACCESS**

HISTORY/ORIGIN OF TRADITIONAL OR CUSTOMARY NATIVE HAWAIIAN RIGHT OR PRACTICE

CULTURAL PRACTITIONER'S NAME	**PHONE**

☐ **ARCHAEOLOGICAL, HISTORICAL, AND ENVIRONMENTAL RESOURCE ACCESS**

Please attach the following documents:

- ☐ State Historic Preservation Division approval if activities involve historic sites.
- ☐ Appropriate State and Federal permits if activities involve native wildlife or plants.
- ☐ Appropriate State and Federal permits if activities involve threatened or endangered species.
- ☐ Appropriate State and Federal permits if activities involve migratory birds.

☐ **EDUCATIONAL ACCESS**

Please attach the following documents:

- ☐ Copies of curriculum to be used in Reserve.
- ☐ Outline of curriculum intended to be drafted as a result of entry.

☐ **PROFESSIONAL PHOTOGRAPHY OR VIDEOGRAPHY ACCESS**

INTENDED AUDIENCE (i.e. age group, geographic location, etc.)

Please attach the following documents:

- ☐ Film Permit Application from the Hawai'i Film Office.

☑ I have reviewed and understood the KIRC Guidelines for Right of Entry Permit Requests.

☑ I have reviewed, understood, signed, and attached the appropriate KIRC Release of Liability Forms.

Ann □. Gibbs	Ann Gibbs	□08-20-12
PRINT NAME	**SIGNATURE**	**DATE**

ROE 2b

Kaho'olawe Island Reserve Commission

811 Kolu St., Suite 201, Wailuku, HI 96793 • ph. 808-243-5020 • fx. 808-243-5885

RECEIVED
SEP 14 2012
KAHO'OLAWE ISLAND
RESERVE COMMISSION

Right of Entry Permit Request

Request Type (Research only)

☒ **RESEARCH ACCESS**

STUDY PROGRAM AND INSTITUTION	NAME/AFFILIATION OF MAJOR PROFESSOR
U.S. Geological Survey	Ann E. Gibbs

STATEMENT OF PROPOSED RESEARCH ACTIVITIES (attach research plans and necessary materials):

1. How will research results benefit management/conservation of the species?
2. Will the proposed research benefit the Reserve?
3. Is the proposed research important?
4. Explain your research objectives and methods.
5. How is the research to be accomplished? (List research/survey techniques).
6. Can the proposed research be conducted elsewhere?
7. Will specimens be collected/removed? List kind, quantities, storage methods, and disposition?
8. What will be done with the specimens after project completion?
9. Will the proposed research damage or threaten to damage the resources in the Reserve?
10. List steps that will be taken to minimize effects on the species and the surrounding habitat.
11. Has any research been conducted that is similar to the one proposed? If yes, please cite.
12. Who will actively participate (i.e., collect, possess, propagate) on the permit for this research?
13. Will your research require camping or night work?
14. Will your research involve the use of aircraft in any way?
15. Will your research involve the use of a vessel in any way?
16. Will the research require structures/equipment to be left in the field? When will they be removed?
17. Are permits from other agencies required for your research? If yes, list agencies.
18. What is the expected report date for your findings?
19. Are there plans for publication of data or findings gathered from the proposed research?
20. How will research results be disseminated?
21. List funding sources. If this research is supported by grant(s), list grant(s).

Please attach the following documents, as applicable:

- [x] CV/Resume with related educational background and work experience for research participants.
- [x] Signed KIRC Independent Vessel Release of Liability Form, if applicable.
- [ ] Copies of Wreck Removal and Pollution Insurance, if applicable.
- [ ] State Historic Preservation Division approval if activities involve historic sites.
- [ ] All appropriate State and Federal permits.
- [ ] List of Hawaii references/cooperators/collaborators (with contact information).
- [x] Attach a **$50 check for processing fees**, payable to "Kaho'olawe Island Reserve Commission."

☒ I have reviewed and understood the KIRC Guidelines for Right of Entry Permit Requests.

☒ I have reviewed, understood, signed, and attached the appropriate KIRC Release of Liability Forms.

PRINT REQUESTOR'S NAME	REQUESTOR'S SIGNATURE	DATE
Ann Gibbs	Ann E. Gibbs	08-20-12

PRINT ADVISOR'S NAME	ADVISOR'S SIGNATURE	DATE
		08-20-12

RECEIVED
SEP 14 2012
KAHOOLAWE ISLAND
RESERVE COMMISSION

Statement of Proposed Research Activities

This project is a 2-4 day cruise aboard the AlyceC a private fishing and coastal research vessel (Figure 1), for the purpose of collecting high-resolution swath bathymetry and backscatter imagery, and underwater video and photography of the nearshore marine habitat within Kahoolawe Island Reserve (KIR). Swath bathymetry and backscatter will be acquired using a pole-mounted, high-frequency (234 kHz), SWATHplus interferrometric system (Figure 2). Underwater video will be obtained by either towing a video camera behind the vessel while underway or dropping it over the side while remaining on a fixed station or drifting slowly (Figure 3). Data will be collected in three survey areas (Figure 4) in water depths of approximately 5 to 50 meters, along tracklines oriented both parallel and perpendicular to the coast. Neither the vessel nor any instrumentation will approach closer than approximately 3-5 meters of the seafloor. Limited snorkel surveys in water depths less than 5 meters may also be conducted. No contact with the land or seafloor will take place at any time during the cruise nor will any specimens be taken. The frequency of the SWATHPlus is above the hearing range of marine mammals, including the humpback whale. No garbage, sewage, or any other items will be discharged or left in the reserve. The proposed research will not damage any of KIR's resources. No other permits are required for this project.

The data will be used to groundtruth and improve upon the NOAA Benthic Habitat Maps (Battista 2007) and provide complementary information on the bathymetry, morphology and general physical condition of the reef, including qualitative assessments of gross coral species distribution, geomorphic and geologic controls on the ecosystem, and the influence of sedimentation on benthic habitats in the nearshore waters of KIR. Examples of the types of data that will be collected and detailed benthic habitat map developed are shown in Figures 5 and 6. The new data will provide KIRC with a greatly improved basemap of the offshore resources in portions of the reserve. This new information will be useful for monitoring and evaluating future change to coral habitat in the reserve. All data obtained will be made available to KIRC upon request and to the general public upon completion of analysis and publication. The data will likely be published by the USGS as a Digital Data Release within one year of the proposed field work and will include GIS layers and georeferenced imagery. In the event no formal publication is produced, all GIS and image data will be provided to KIRC on a DVD.

The PI of this project, the crew, and the captain of the vessel have conducted similar research projects off other Hawaiian islands (see references to previous studies, below) and are therefore very experienced with this kind of work. Prior to the cruise, the PI will create tracklines using GIS software that will be imported into the vessels navigation system. During the cruise, the crew will deploy the video camera frame using a small electric winch and will observe and record the video imagery as the captain steers the vessel along the lines at a speed of 4 nm/sec or less and

Safety and Logistics Plan

The logistics plan is to transit from Lahaina or Kihei Maui on the Alyce C, arriving at KIR in the early morning. Surveying will begin off the west coast of the island and continue northeastward for up to 10 hours/day; actual time will be dependent on sea-state conditions. Once sea-state conditions exceed the

threshold where the crew can safely and comfortably operate, and good imagery can be acquired, we will transit back to Maui. We will likely spend 3 days in KIR.

Funding:

The funding for this project is provided entirely by the U.S. Geological Survey, Coastal and Marine Geology Program.

Paricipants:

Ann E. Gibbs (age 48), USGS, 400 Natural Bridges Drive, Santa Cruz CA 95060; 831-427-4740; agibbs@usgs.gov

David Finlayson(age 40), USGS, 400 Natural Bridges Drive, Santa Cruz CA 95060; 831-460-7557; dfinlayson@usgs.gov

Gerry Hatcher (age 47), USGS, 400 Natural Bridges Drive, Santa Cruz CA 95060; 831-460-7524; ghatcher@usgs.gov

Joe Reich, (age 68) Captain, P.O. Box 825, Kaunakakai, HI; 808-658-0116; alycecsportfishing.com

Citation for this document:

Battista, T.A., Costa, B.M., and S.M. Anderson, S.M. 2007. Shallow-Water Benthic Habitats of the Main Eight Hawaiian Islands (DVD). NOAA Technical Memorandum NOS NCCOS 61, Biogeography Branch. Silver Spring, MD.

Similar research projects accomplished off the islands of Oahu, Maui, Molokai, and Hawaii:

Swarzenski, P.W., Storlazzi, C.D., Presto, M.K., Gibbs, A.E., Smith, C.G., Dimova, N.T., Dailer, M.L., and Logan, J.B., 2012. Nearshore morphology, benthic structure, hydrodynamics, and coastal groundwater discharge near Kahekili Beach Park, Maui, Hawaii. U.S. Geological Survey Open-File Report 2012-1166, 34 p. [http://pubs.usgs.gov/of/2012/1166/]

Gibbs, A.E., Grossman, E.E., and Richmond, B.M., 2005. Summary and Preliminary Interpretations of USGS Cruise A202HW: Underwater Video Surveys Collected off of Oahu, Molokai, and Maui, Hawaii – June-July 2002. *U.S. Geological Survey Open File Report* 2005-1244. 57p. [http://pubs.usgs.gov/of/2005/1244/]

Cochran, S. A., Gibbs, A. E., and Logan, J.B., 2006, Geologic Resource Evaluation - Pu'uhonua O Honaunau National Historical Park, Part II: Benthic habitat mapping: U.S. Geological Survey Scientific Investigations Report 2006-5258. [http://pubs.usgs.gov/sir/2006/5258/]

Cochran, S.A., Gibbs, A.E., and Logan, J.B., 2007, Geologic Resource Evaluation of Pu`ukohola Heiau National Historic Site, Hawai`i; Part II: Benthic habitat mapping: U.S. Geological Survey Scientific Investigations Report 2006-5254. [http://pubs.usgs.gov/sir/2006/5254/]

Gibbs, A.E., Cochran, S.A., Logan, J.B., and Grossman, E.E., 2007, Benthic habitats and offshore geological resources of Kaloko-Honokohau National Historical Park: U.S. Geological Survey Scientific Investigations Report 2006-5256. [http://pubs.usgs.gov/sir/2006/5256/]

Figure 1. Proposed research vessel, the AlyceC from Molokai.

Figure 2. Photographof the SWATHPlus transducer (yellow) mounted on a pole and stored for towing. During deployment, the pole will be rotated 90 degrees and the transducer head will be just below the water surface.

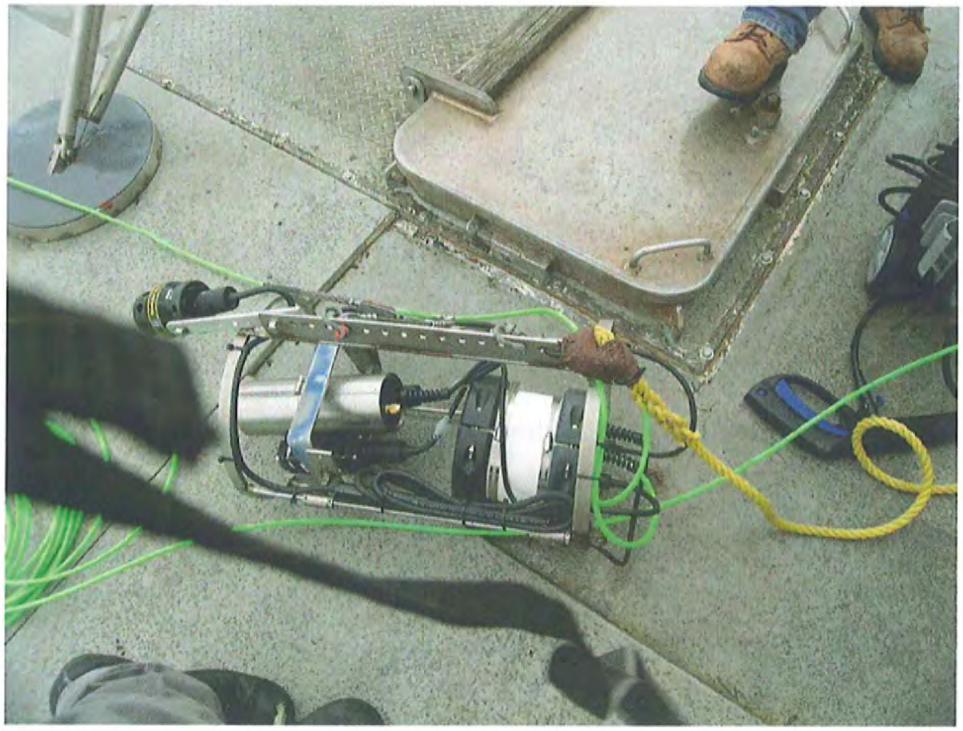

Figure 3. A camera system similar to the one shown here will be used.

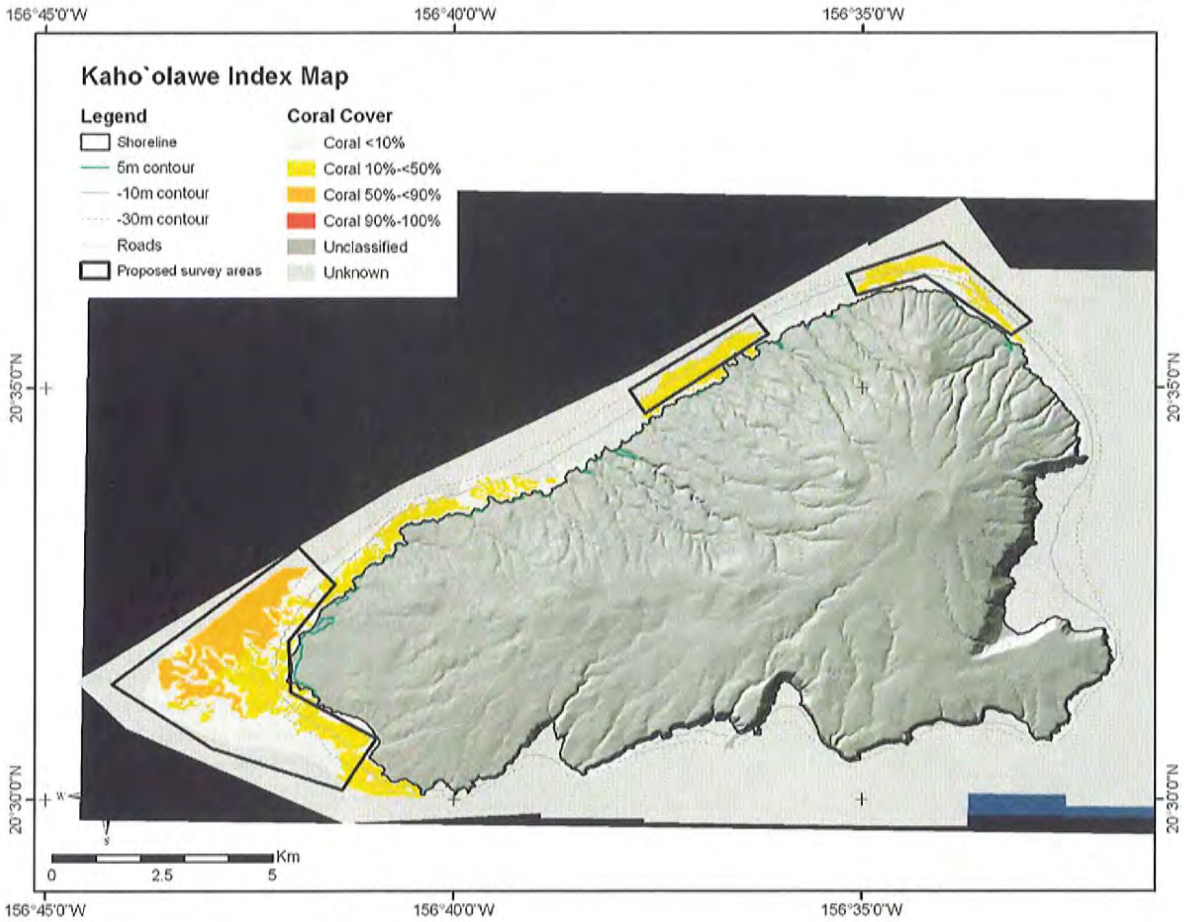

Figure 4. Map showing the 3 proposed survey areas. Coral cover is as mapped by NOAA (Battista and others, 2007) using IKONOS satellite imagery.

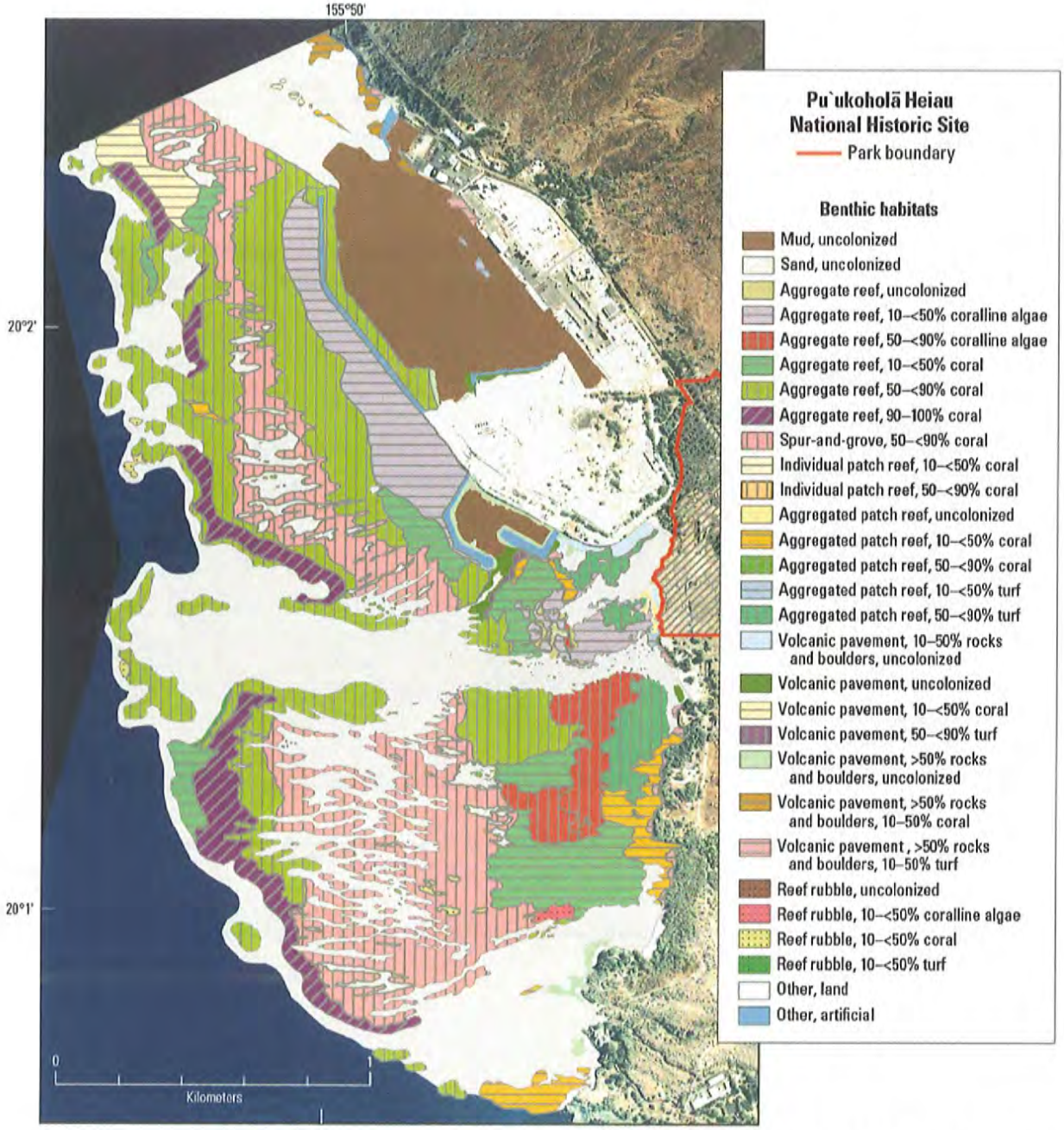

Figure 5. Example of a benthic habitat map produced by USGS for Pu'ukoholā Heiau National Historic Site using methods similar to those proposed for this study. A similar map could be produced for the nearshore areas of Kaho`olawe.

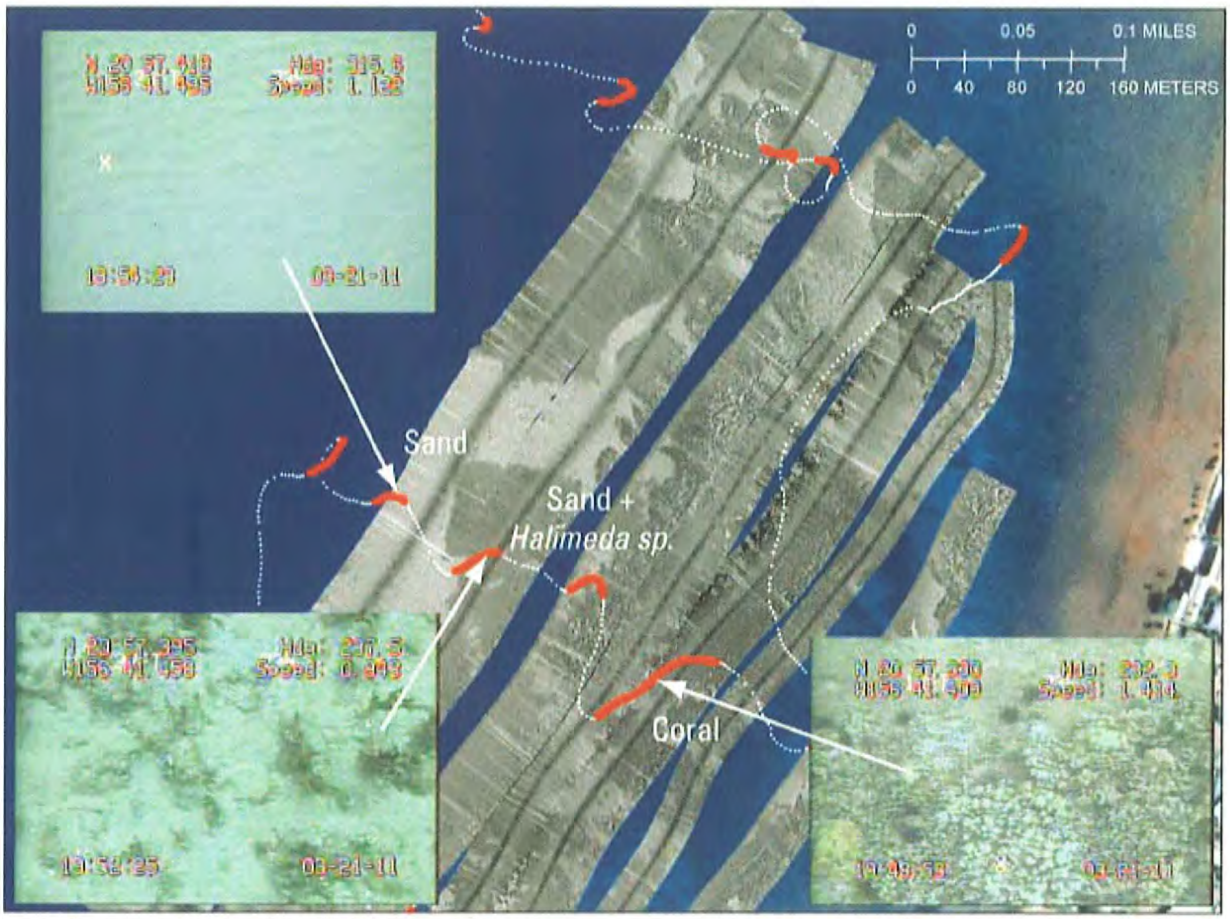

Figure 6. Example of acoustic backscatter imagery collected during a reconnaissance survey off West Maui in 2011. Acoustically "soft" areas, such as sand and mud, appear bright in color, while "hard" areas, such as coral and volcanic rock, are dark. The backscatter image is overlain with the ship's track (white) showing where underwater video was collected (red) and examples of seafloor images acquired from the video. Collection of similar data, utilizing enhanced equipment and more complete survey coverage, are proposed for the KIR study.

RECEIVED
SEP 14 2012
KAHO'OLAWE ISLAND
RESERVE COMMISSION

Ann E. Gibbs
U.S. Geological Survey
Pacific Coastal and Marine Science Center
400 Natural Bridges Drive
Santa Cruz, CA 95060
(831) 460-7540
agibbs@usgs.gov

Academic Background

B.S. Earth Sciences: Univ. Calif. Santa Cruz
M.S. Geology: University of South Florida, Tampa

Employment History

1994 – present Geologist, USGS; Focus-Coastal geology, habitat mapping in coral reef environments, GIS
1991 – 1994 Geologist, USGS; Focus-Deep sea marine mineral geochemistry.
1989 – 1991 Graduate Research Assistant, University of South Florida, Focus-Coastal geology
1986 – 1989 Data Base Manager, R.P.I. International, Boulder, CO; Focus-Petroleum geology/basin analysis

Relevant Experience

Over 20 years experience as a coastal geologist with a focus in coastal and nearshore mapping and change analysis utilizing a variety of data types including photography, videography, lidar, total station, and historical hydrographic and topographic data.

Refereed Journal and Book Publications

Gibbs, A. E., and Cochran, S.A.,2011, Coral Seafloor morphology and coral habitat variability in a volcanic environment: Kaloko-Honokohau National Park, Hawaii, USA, in Harris, Peter T., and Baker, Elaine K., eds., Seafloor geomorphology as benthic habitat; GeoHab atlas of seafloor geomorphic features and benthic habitat: Elsevier [in the "Elsevier Insights" e-book series.] p. 409-423.

Gibbs, A.E. and Cochran, S.A., 2009, An integrated approach to benthic habitat mapping and GIS: An example from the Hawaiian Islands. In: *Remote Sensing and Spatial Information Technologies for Coastal Ecosystem Assessment and Management: Principles and Applications.* Xiaojun Yang (Ed.). Springer-Verlag Press. p. 211-231

Fletcher, C. H. III, Grossman, E.E., Richmond, B.M., and Gibbs, A.E., 2002, Atlas of Natural Hazards in the Hawaiian Coastal Zone. USGS Geologic Investigations Series I-2761. U.S. Government Printing Office. 182 pp.

Hapke, C., Gibbs, A., Richmond. B., Hampton, M., Jaffe, B., Dingler, J., Sallenger, A., Benumof, B., Brown, K., Griggs, G., Moore, L., Scholar, D., Storlazzi, C., Krabill, W., Swift, R., Brock, J., 1998, A Collaborative program to investigate the impacts of the 1997-98 El Niño winter along the California coast. *Shore and Beach*, v. 66, no. 3, p. 24-32.

Hein, J.R., Gibbs, A.E., Clague, D.A., and Torresan, M., 1996, Hydrothermal mineralization along submarine rift zones, Hawaii. Marine Georesources and Geotechnology, 14:177-203

Hein, J.R., Yeh, H.-W., Gunn, S.H., and Gibbs, A.E., 1994, Composition and origin of hydrothermal ironstones from central Pacific seamounts. Geochimica et Cosmochimica Acta, v.58, p.179-189.

Gibbs, A.E., Hein, J.R., Lewis, S., and McCulloch, D.S., 1993, Hydrothermal mineralization associated with a central California margin fracture zone: Marine Geology, v.115, p. 47-65.

Refereed Conference Proceedings

Gibbs, A.E. Harden, E.L, Richmond, B.M., Erikson L. H., (in prep) Regional Shoreline Change and Coastal Erosion Hazards in Arctic Alaska , *Proceedings of Solutions to Coastal Disasters Conference,* ASCE.

Erikson, L.H., Hanes. D.M., Barnard, P.M., Gibbs, A.E. 2006, Swash zone characteristics at Ocean Beach, San Francisco, CA. *Proc. 30th Int. Conf. on Coastal Engineering,* San Diego, CA.

Gibbs, A.E., Richmond, B.M., and Fletcher, C.H., 2002, Profile variation on Hawaiian carbonate beaches. In: Carbonate Beaches 2000, O.T. Magoon, L.L. Robbins, and L. Ewing, Eds. *First International Symposium on Carbonate Sand Beaches.* Dec. 5-8, 2002. Conference Proceedings, ASCE p. 99-110.

Gibbs, A. E. and Gelfenbaum, G., 1999, Bathymetric change off the Washington-Oregon coast,.*Proceedings of Coastal Sediments '99.* Long Island, NY. pp. 1627-1641.

Gibbs, A.E. and Davis, R.A., Jr., 1991, Stratigraphy and development of Three Rooker Bar: A recently emergent barrier island, Pinellas County Florida, *Transactions of the Gulf Coast SEPM, 12th Annual Research Conference*, p.84-90.

Cuffe, C.K., Gibbs, A.E. and Allmon, W.D., 1991, Taphonomic signature of shell accumulations in cores: Indicator of depositional environments in Holocene nearshore sediments, west central Florida: *Gulf Coast Association of Geological Societies, Transactions,* v. 61 123-131.

USGS Publications

Gibbs, A.E., Cochran, S.A., Tierney, P.W., in press. Seafloor video and still frame-grabs from USGS activities in Hawaiian nearshore waters. USGS Data Series 2012-XXXX

Swarzenski, P.W., Storlazzi, C.D., Presto, M.K., Gibbs, A.E., Smith, C.G., Dimova, N.T., Dailer, M.L., and Logan, J.B., 2012,. Nearshore morphology, benthic structure, hydrodynamics, and coastal groundwater discharge near Kahekili Beach Park, Maui, Hawaii. U.S. Geological Survey Open-File Report 2012-1166, 34 p. [http://pubs.usgs.gov/of/2012/1166

Gibbs, A.E., and Richmond, B.M., 2010. Oblique aerial photography of the Arctic Coast of Alaska, Cape Sabine to Milne Point, July 16-19, 2009 U.S. Geological Survey Data Series 503, 4 p and database [http://pubs.usgs.gov/ds/503/]

Gibbs, A.E., and Richmond, B.M., 2009. Oblique aerial photography of the Arctic coast of Alaska, Nulavik to Demarcation Point, August 7-10, 2006: U.S. Geological Survey Data Series 436, 6 p., 4 databases [http://pubs.usgs.gov/ds/436/]

Richmond, B.M., Cochran, S.A. and Gibbs, A.E., 2008. Geologic resource evaluation of Pu'ukohola Heiau National Historic Site, Hawaii. Part 1: Geology and coastal landforms. USGS Open-File Report 2008-1190.

Richmond, B.M., Cochran, S.A. and Gibbs, A.E. 2008. Geologic resource evaluation of Pu'uhonua O Honaunau National Historical Park, Hawaii. Part 1: Geology and coastal landforms. USGS Open-File Report 2008-1192

Richmond, B.M., Gibbs, A.E., and Cochran, S.A. 2008. Geologic resource evaluation of Kaloko-Honokohau National Historical Park, Hawaii. Geology and coastal landforms. USGS Open-File Report 2008-1191.

Cochran, S.E., Gibbs, A.E., and Logan, J.B., 2007, Geologic Resource Evaluation of Pu`ukohola Heiau National Historic Site, Hawai`i; Part II: Benthic habitat mapping: U.S. Geological Survey Scientific Investigations Report 2006-5254. [available on the World Wide Web at http://pubs.usgs.gov/sir/2006/5254/]

Gibbs, A.E., Cochran, S.A., Logan, J.B., and Grossman, E.E., 2007, Benthic habitats and offshore geological resources of Kaloko-Honokohau National Historical Park: U.S. Geological Survey Scientific Investigations Report 2006-5256. [available on the World Wide Web at http://pubs.usgs.gov/sir/2006/5256/]

Cochran, S.A., Gibbs, A.E., and Logan, J.B., 2006, Geologic Resource Evaluation - Pu'uhonua O Honaunau National Historical Park, Part II: Benthic habitat mapping: U.S. Geological Survey Scientific Investigations Report 2006-5258. [available on the World Wide Web at http://pubs.usgs.gov/sir/2006/5258/]

Gibbs, A.E., Grossman, E.E., and Richmond, B.M., 2005. Summary and Preliminary Interpretations of USGS Cruise A202HW: Underwater Video Surveys Collected off of Oahu, Molokai, and Maui, Hawaii – June-July 2002. *U.S. Geological Survey Open File Report* 2005-1244. 57p.

Buijsman, M.C., Sherwood, C.R., Gibbs, A.E., Frankin, J., and Gelfenbaum, G., 2002, Regional sediment budget analysis of the Columbia River Littoral Cell, USA: Overview and analysis of bathymetric and topographic volume calculations. *USGS Open File Report 02-281*

Gibbs, A.E., 2000. Bathymetric volume change: Data and analysis. *In*: Southwest Washington Coastal Erosion Workshop Report 1999, Gelfenbaum and Kaminsky (eds.) USGS Open File Report 00-439. pp. 75-80.

Gibbs, A.E., Buijsman, M.C., and Sherwood, C.R., 2000. Gridded Bathymetry Data, Washington-Oregon Coast: 1926-1998. USGS Open File Report 00-448. 36p.

Richmond, B. and Gibbs, A.E., 1998, Coastal impacts of an El Nino Season. USGS Open File Report M98-0240.

Gibbs, A. E. and Gelfenbaum, G., 1999. Regional Bathymetric change off the Washington-Oregon coast. *In*: Southwest Washington Coastal Erosion Workshop Report 1998, Gelfenbaum and Kaminsky (eds.) USGS Open File Report 99-524. pp. 72-76.

Hein, J.R., Bychkov, A.S., and Gibbs, A.E. (Eds.) 1994, Data and results from *R.V. Aleksandr Vinogradov* cruises 91-AV-19/1, North Pacific hydrochemistry transect; 91-AV-19/2, North equatorial Pacific Karin Ridge Fe-Mn crust studies; and 91-AV-19/4, Northwest Pacific and Bering Sea sediment geochemistry and paleoceanographic studies. US Geological Survey Open File Report 94-230. 292 p.

Gibbs, A.E., Sergeev, A.F., Sayluk, A.N., Hein, J.R., Tapinov, V.P., and Bychkov, A.S., 1994, Hydrological parameters and water structure over Karin Ridge, Central Pacific. *In*: Hein, J.R., Bychkov, A.S., and Gibbs, A.E. (Eds.) Data and results from *R.V. Aleksandr Vinogradov* cruises 91-AV-19/1, North Pacific hydrochemistry transect; 91-AV-19/2, North equatorial Pacific Karin Ridge Fe-Mn crust studies; and 91-AV-19/4, Northwest Pacific and Bering Sea sediment geochemistry and paleoceanographic studies. US Geological Survey Open File Report 94-230, pp. 169-186.

Other Publications

Gibbs, A. and Ewart, N., 2004, Coral Communities in Hawaii Mapped with GIS and Geospatial video. Spotlight on GIS in biodiversity and conservation. ArcNews, Fall 2004. Vol 26 no 3.

Gibbs, A. E., 2000. Against the Tide: The Battle for America's Beaches. Book Review. EOS – Transactions, American Geophysical Union. v.81, no. 28, July 11, 2000. P. 315-316

Gibbs, A.E. , 1991, Stratigraphy and development of Three Rooker Bar: A recently emergent barrier island, Pinellas County Florida, Unpbl. M.S. Thesis, Univ. So. Florida, Tampa, 131 p.