

## **Curriculum Vitae –October 27, 2017**

**NAME:** MARC R. RICE

### **PRESENT POSITION:**

Director, HPA Sea Turtle Research Program  
Director, Information Technology Services  
Member, Marine Turtle Specialist Group, IUCN

### **ORGANIZATION:**

Hawaii Preparatory Academy  
65-1692 Kohala Mt. Rd.  
Kamuela, Hawaii 96743  
Office Phone: 808 881 4004  
Fax: 808 881 4003  
Email: [mrice@hpa.edu](mailto:mrice@hpa.edu)  
Web Site: [www.hpa.edu/turtle](http://www.hpa.edu/turtle)

### **PROFESSIONAL POSITIONS:**

2008-2016 Chairman, Computer Science Department  
2004-present Director of Science and Technology  
1987-present Director, HPA Sea Turtle Research Program  
1976-2016 Diving Safety Officer, Hawaii Preparatory Academy  
(NAUI Instructor # 4404) Member AAUS  
Director of Boating and Boating Safety (USCG Captain  
License #780985)  
1997-2004 Assistant Headmaster, Hawaii Preparatory Academy  
1981-1996 Director of Studies, Hawaii Preparatory Academy  
1980-1981 Sabbatical Leave, Science Teacher at the American School  
of Paris  
1976-1980 Chairman, Science Department, Hawaii Preparatory  
Academy  
1972- 1976 Science Teacher- Natural Sciences, Chemistry, Physical  
Science  
1970-1972 United States Army, Viet Nam Veteran  
Honorably Discharged, 1972

### **EDUCATION:**

1968-1970 University of Hawaii, Manoa. Major: Zoology. Master of  
Science  
1964-1968 Humboldt State University. Major: Biology. Bachelor of

Science, Magna Cum Laude.

## **PROFESSIONAL AFFILIATIONS:**

Marine Turtle Specialist Group of the International Union for Conservation of Nature, Oceania Region  
American Association of Underwater Sciences  
National Association of Underwater Instructors  
National Marine Educators Association

## **AFFILIATION WITH SEA TURTLE RESEARCH, CONSERVATION AND EDUCATION:**

Since 1987 I have worked cooperatively with NOAA/NMFS as the Director of the Hawaii Preparatory Academy Sea Turtle Research Program. I have conducted/been part of over 300 field expeditions to capture, tag, measure and assess green, hawksbill, loggerhead and olive ridley turtles in the Pacific ocean. The majority of my work has taken place on Hawaii Island but I have worked extensively on Oahu, Maui, Molokai, Lanai and the Northwestern Hawaiian Islands. In addition to Hawaii, we have conducted research projects in Japan, Australia, American Samoa, New Caledonia, Palmyra Atoll and Midway Atoll.

Relevant Experience (Description): See also attached table.

**Capture-Hand/Dip-** from 1987-2010 I conducted in-water hand captures of green (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricate*) turtles using snorkel and scuba equipment at several sites on Hawaii Island, Midway Atoll (1999, 2000, 2001), Palmyra Atoll, Molokai Hawaii, Oahu, Hawaii, Lanai, Hawaii. I have used scoop nets to capture green and hawksbill turtles in the same locations previously mentioned and today, the scoop net is our primary method of capture in many locations. These techniques have been conducted without supervision since 1994 and I have captured over 500 animals during that time.

**Capture-Encircle-**For 7 years, I was involved in a “pound net” capture and tagging program where we deployed a large circular net (75 M diameter) and a 200 meter guide fence net that enabled us to capture green turtles on the island of Molokai. We would deploy the net, let it soak for a period of time and then capture, measure and tag the green turtles that were in the pound part of the net. I was involved in the deployment of the net, the setting of the bottom of the net and the placement and deployment of the guide net. We carefully monitored the net during the soak and removed captured turtles as appropriate. This capture technique has always been conducted in conjunction with NOAA supervision and cooperation.

**Capture-Tangle-**Since 1987 I have used tangle nets to capture green turtles in Hawaii. We have used 14” mesh, 100M X 2M and larger nets to block off swim-

ways used by green turtles in many areas of Hawaii Island, Oahu, Lanai and Palmyra Atoll. Training in this technique was conducted by George Balazs (NOAA/NMFS retired). These techniques have been conducted without supervision since 2000.

**Collect Tumors-** I have used scalpels, biopsy punches and surgical scissors to obtain tumor tissue samples for research projects. We have also conducted in water capture to secure and remove for treatment tumored green turtles in Hawaii. I have observed the injection of dermex as a treatment of tumors. Training for these procedures was conducted in the field by George Balazs (NOAA/NMFS retired), Thierry Work (USGS) and Bob Morris (private contract veterinarian). Samples obtained were preserved and labeled for analysis by others.

**Instrument, epoxy attachment-** I have attached over 300 satellite tags to green turtles, hawksbill turtles, loggerhead turtles (*Caretta caretta*) and olive ridley turtles (*Lepidochelys olivacea*). The primary method of attachment used polyester resin and fiberglass cloth to attach the instruments to (usually) the second central scute of the animal with the antenna oriented posteriorly. I have also, on occasion, used two-part epoxy resins to attach satellite tags. The tags I have used are manufactured by Wildlife computer and Telonics. Over the years I have used numerous models from each company. My original training on the deployment of satellite tags was in the mid-90s by George Balazs (NOAA/NMFS retired). I have deployed ~30 satellite tags unsupervised. I have also attached 30 sonic tags (Vemco™ and Sonotronics™) and programmed and retrieved data from the Vemco MR2 receivers. I have deployed 38 time-depth recorder tags (TDR) (Wildlife Computers™ MKtags) to green turtles. This included setup and data downloads. Training for these particular deployments was conducted by George Balazs (NOAA/NMFS retired). I have attached 15 of the TDRs unsupervised and 10 of the sonic tags unsupervised.

**Lavage-** I have participated in and conducted lavage of green turtles at Kiholo Bay, Hawaii, Kapoho, Hawaii, and Lanai, Hawaii to obtain plant materials consumed by juvenile, subadult and adult green turtles. We used appropriate sized calgon tubing, hand pump to introduce sea water and fine mesh capture nets to sequester the algal samples washed out. Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired). I have conducted lavage on over 40 green turtles. I have not conducted any lavage unsupervised.

**Mark, carapace (temporarily)-** During capture and tagging operations, we always mark the carapace of turtles with a small dot of white enamel paint just prior to release to prevent recapture. During some capture and release studies I have used a Moto Tool to etch a number, letter or symbol into one of the lateral scutes on both the left and right for more long term visual identification. The etched figure is then painted with fast drying enamel for ease of viewing. I have carried

out this procedure several hundred times unsupervised. Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired).

**Mark, Flipper-** For many years (1987 to present) I used Inconel clip on tags to attach to the left and right front and the left and right hind flippers for identification purposes. This technique was done without supervision. Training for this particular technique was conducted by George George Balazs (NOAA/NMFS retired).

**Mark, PIT-** Since 1996, I have been using passive integrated transponder tags to mark captured turtles. These tags are inserted into the hind flippers (left and / or right) axially, just under the dorsal skin layer between the first and second phalanges. This procedure has been completed for many years (1996-present) without supervision. I have also attached larger (32mm) RFID tags externally to the 3<sup>rd</sup> lateral scutes (left or right) in a study of diel migratory behavior of juvenile and subadult green turtles at Kiholo Bay, Hawaii Island, Hawaii. Training for these techniques was conducted by George Balazs (NOAA/NMFS retired).

**Sample Blood-** I have obtained blood samples from juvenile, subadult and adult green turtles using vacutainers or syringes . Samples thus obtained were heparinized and refrigerated immediately. Depending on the purpose of the sample, they were spun down to separate plasma and cellular components, kept on ice and/ or placed in a liquid nitrogen cryogenic freezer. The training for the sterilization of the area, the method of finding the cervical vessels and the “stick” were conducted in the field by George Balazs (NOAA/NMFS retired), Thierry Work (USGS) and Jennifer Lynch (NIST). I have used this technique to extract blood samples on 20 green turtles since the year 2010.

**Sample, Cloacal Swab-** I took cloacal swab samples from 5 juvenile and subadult green turtles in 2016 at Punalu'u Hawaii during a study by Dr. Karla McDermid of the effect of glyphosate on the intestinal flora of green turtles in Hawaii. Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired). I have not used this procedure unsupervised.

**Oral Examination-** Using a bird speculum, I always done an oral inspection of captured turtles to look for lesions, tumors, hooks and line and bits of algae for food preference analysis. We have done this continually for 31 years. This technique became particularly important during a period when some juvenile turtles were presenting oral lesions which, we believe, were caused by the consumption of annelid worms (fire worms, *Eurythoe complanata*). Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired) and I have used it since 1987.

**Scute scrapings-** During work with Jennifer Lynch (NIST), I learned how to conduct scute scrapings for the study of Persistent Organic Pollutants (POPs). I have only personally done a few of the actual scrapings. None of the work was conducted unsupervised.

**Shell Etch (Other)-** Since 1995 I have used a Dremel Moto Tool to etch a number, letter or symbol into one of the lateral scutes on both the left and right for more long term visual identification. The etched figure is then painted with

fast drying enamel for ease of viewing. This technique is used whenever there is need to identify individual turtles on a long term basis by researchers or volunteer monitors. Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired) and I have used this procedure for 20 years without supervision.

**OTC injection-** I conducted tetracycline injections into the left shoulder region of many green turtles over the years in conjunction with humeral growth line / age determination experiments. Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired). I have always been in the presence of a NOAA PI when this procedure was performed.

**Measure-** Turtles captured using hand capture / net capture techniques have all been measured according to the requirements of the NOAA/NMFS sampling protocol. We do straight measurements using a caliper and curved measurements using flexible fiberglass tape measures. I have performed all necessary measurements unsupervised since 1994. Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired).

**Weigh-** All captured animals are weighed to the nearest .25 Kg. using a digital scale. We have been weighing these animals since our tagging operations first started in 1987. Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired). I have used this procedure unsupervised since 1988.

### **Publications:**

Briscoe, D.K., D.M.Parker, G.H. Balazs, M. Kurita, T. Saito, H.Okamoto, M. Rice, J.J. Polovina and L.B.Crowder. 2018. Active dispersal in loggerhead sea turtles (*Carretta caretta*) during the 'lost years'. Proc. R. Soc. B 283: 20160690

Briscoe, D.K., D.M. Parker, S. Bograd, E.Hazen, K.Scales, G.H.Balazs, M. Kurita, T.Saito, H.Okamoto, M.Rice, J.J. Polovina and L.B.Crowder.2016. Multi-year tracking reveals extensive pelagic phase of juvenile loggerhead sea turtles in the North Pacific. Movement Ecology (4:23).

Allen, Camryn D. Summer L. Martin, Jennifer M. Lynch, Tammy M. Summers, Jessy Hapdel, Marc Rice, Jeffrey A. Seminoff, T. Todd Jones. 2017. How many males are enough? Feminization of green sea turtle foraging aggregations in the Pacific. Proceedings of the 37<sup>th</sup> International Symposium on Sea Turtle Biology and Conservation. Las Vegas, Nevada.

Donham, Emily, Michael S. Foster, Marc R. Rice, Gregor M. Cailliet, Mary M. Yoklavich, and Scott L. Hamilton. 2017. Natural history observations of Hawaiian

garden eels, *Gorgasia hawaiiensis* (Congridae: Heterocongrinae), at the Island of Hawai'i. *Pacific Science* vol. 71, no. 2:135-147.

Parker, D.M., G.H. Balazs, M.R. Rice, S.M. Tomkeiwicz. 2014. Variability in Reception Duration of Dual Satellite Tags on Sea Turtles Tracked in the Pacific Ocean. *Micronesica* 2014-03, 8pp. Published online 26 June 2014.

Lee, S.H., Rice, M.R., Balazs, G.H. (in Press). A Novel Use of An Ancient Hawaiian Fishpond by Green Turtles (*Chelonia mydas*). Proceedings of the 34<sup>th</sup> International Symposium on Sea Turtle Biology and Conservation. New Orleans, LA. 2014.

Rice, M.R. (2014). A novel use of An Ancient Hawaiian Fishpond by Honu (*Chelonia mydas*). Video Presentation in Proceedings of the 34<sup>th</sup> International Symposium on Sea Turtle Biology and Conservation. New Orleans, LA.

J.M. Keller, G.H. Balazs, F. Nilsen, M. Rice, T.M. Work and B.A. Jensen. (2014). Investigating the potential role of persistent organic pollutants in Hawaiian green sea turtle *fibropapillomatosis*. *Environmental Science and Technology*. Accepted for publication June 25, 2014, DOI: 10.1021/es5014054

Schock TB, Keller JM, Rice M, Balazs GH, Bearden DW (2013) Metabotyping of a Protected Non-Model Organism, Green Sea Turtle (*Chelonia mydas*), using 1H NMR Spectroscopy and Optimized Plasma Methods for Metabolomics. *Current Metabolomics* 1:279-290.

Snover ML, Balazs GH, Murakawa SKK, Hargrove SK, Rice MR, Seitz WA. 2013. Age and growth rates of Hawaiian hawksbill turtles (*Eretmochelys imbricata*). *Marine Biology* 160: 37-46.

Jennifer M. Keller, George H. Balazs, Brenda A. Jensen, Frances Nilsen, Marc R. Rice, and Thierry M. Work. 2013. A Preliminary Screening of Persistent Organic Pollutant Concentrations in Hawaiian Green Turtle Plasma in Relation to Fibropapillomatosis. Proceedings of the Thirty-Third Annual Symposium on Sea Turtle Biology and Conservation, Baltimore, Maryland.

Rice, M.R. and G.H. Balazs. (2011) Survey of Basking Green Turtles at Midway Atoll. Proceedings of the 32nd International Sea Turtle Symposium, San Diego, CA.

Kobayashi, D.R., R. Farman, D. Parker, J.J. Polovina, A.S. Ren, M.R. Rice, & G.H. Balazs. (in press). Pelagic Habitat Characterization of Loggerhead Turtles, *Caretta caretta*, in the South Pacific Ocean (2008-2009): Insights from Satellite Tag Tracking and Environmental Data. Proceedings of the 32nd International

Sea Turtle Symposium, San Diego, CA.

Rice, M. R. and G. H. Balazs. 2010. Hawaiian Green Turtles Dive to Record Depths During Oceanic Migrations. Kama, D. and M. C. Lopex Castro Compilers. Proceedings of the Twenty-Eighth Annual Symposium on Sea Turtle Biology and Conservation, January 22-26, 2008. NOAA Technical Memorandum NMFS-SEFSC-602.

Rice, M. R. and G. H. Balazs. 2008. Diving behavior of the Hawaiian green turtle (*Chelonia mydas*) during oceanic migrations. *Journal of Experimental Marine Biology and Ecology* 356, 121–127.

Catellacci, A., A. Wooddell, and M.R. Rice. 2006. Cleaning symbiosis between herbivorous reef fish and green turtles (*Chelonia mydas*) at Puako, Hawaii. In Proceedings of the Twenty-sixth Annual Symposium on Sea Turtle Biology and Conservation, April 4-8, 2006, Agia-Pelagia, Crete, Greece

Craig, P., D. Parker, R. Brainard, M. Rice, and G. Balazs. 2004. Migrations of green turtles in the central South Pacific. *Biological Conservation*, 116(2004):433-438.

Balazs, G.H., Keuper-Bennett, U., Bennett, P., Rice, M.R., Russell, D.J. 2003. Evidence for near shore nocturnal foraging by green turtles at Honokowai, Maui, Hawaii Islands. Seminoff, J. A. Compiler, Proceedings of the Twenty-Second Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-503, 308 pp.; 2003, p. 32-34.

Chaloupka, M., G. Balazs, and M. Rice.

2003. Spatial and temporal variation in Hawaiian green turtle somatic growth behaviour. In J.A. Seminoff (comp.), Proceedings of the Twenty-second Annual Symposium on Sea Turtle Biology and Conservation, April 4-7, 2002, Miami, Florida, p. 35. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-503.

Balazs, G. H., U. Keuper-Bennett, P. Bennett, M. R. Rice, and D. J. Russell. 2003. Evidence for near shore nocturnal foraging by green turtles at Honokowai, Maui, Hawaiian Islands. In J.A. Seminoff (comp.), Proceedings of the Twenty-second Annual Symposium on Sea Turtle Biology and Conservation, April 4-7, 2002, Miami, Florida, p. 32-34. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-503.

Quaintance, J. K., M. R. Rice, and G. H. Balazs.

2003. Basking, foraging, and resting behavior of two sub-adult green turtles in Kiholo Bay Lagoon, Hawaii. In J.A. Seminoff (comp.), Proceedings of the Twenty-second Annual Symposium on Sea Turtle Biology and Conservation, April 4-7, 2002, Miami, Florida, p. 225-226. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-503.

Balazs, G. H., S. K. K. Murakawa, D. M. Parker, and M. R. Rice.

2002. Adaptation of captive-reared green turtles released into Hawaiian coastal foraging habitats, 1990-99. In A. Mosier, A. Foley, and B. Brost (comps.), Proceedings of the Twentieth Annual Symposium on Sea Turtle Biology and Conservation, February 29- March 4, 2000, Orlando, Florida, p. 187-189. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-477.

Rice, M. R., G. H. Balazs, D. K. Kopra, and G. C. Whittow.

2002. Ecology and behavior of green turtles basking at Kiholo Bay, Hawaii. In A. Mosier, A. Foley, and B. Brost (comps.), Proceedings of the Twentieth Annual Symposium on Sea Turtle Biology and Conservation, February 29-March 4, 2000, Orlando, Florida, p. 153-155. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-477.

Rice, M. R., G. H. Balazs, and D. Zatz. 2002. Seaturtlecam: Live interactive video feed of basking Hawaiian green turtles. Mosier, A., Foley, A., Brost, B. Compilers, Proceedings of the Twentieth Annual Symposium on Sea Turtle Biology and Conservation. NOAA Technical Memorandum NMFS-SEFSC-477. 369 pp.; 2002, p. 316-318

Balazs, G. H., M. R. Rice, P. A. Bennett, and D. Zatz.

2002. Remote interactive digital imaging: Implementation of a SeaTurtleCam System in the Hawaiian Islands. In A. Mosier, A. Foley, and B. Brost (comps.),



Proceedings of the Twentieth Annual Symposium on Sea Turtle Biology and Conservation, February 29- March 4, 2000, Orlando, Florida, p. 316-318. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-477.

Harrington, K. A., M. R. Rice and G. H. Balazs.  
2002. Habitat use of mixohaline fish ponds by green turtles at Kiholo Bay, Hawaii. In A. Mosier, A. Foley, and B. Brost (comps.), Proceedings of the Twentieth Annual Symposium on Sea Turtle Biology and Conservation, February 29-March 4, 2000, Orlando, Florida, p. 285-286. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC- 477.

Balazs, G. H., M. R. Rice, N. Hoffman, S. K. K. Murakawa, and D. M. Parker.  
2005 . Green turtle foraging and resting habitats at Midway Atoll: Significant findings over 25 years, 1975-2000. Coyne, M.S. and R.D. Clark Compilers. Proceedings of the Twenty-first Annual Symposium on Sea Turtle Biology and Conservation, February 24-28, 2001, Philadelphia, Pennsylvania. NOAA Technical Memorandum NMFS-SEFSC 528.

Rice, M. R., G. H. Balazs, L. Hallacher, W. Dudley, G. Watson, K. Krusell, and B. Larson. 2000. Diving, basking and foraging patterns of a sub-adult green turtle at Punalu'u, Hawaii. In F.A. Abreu-Grobois, R. Briseño-Dueñas, R. Márquez-Millán, and L. Sarti-Martínez (comps.), Proceedings of the Eighteenth International Sea Turtle Symposium, March 3- 7, 1998, Mazatlán, Sinaloa, México, p. 229-231. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-436.

Rice, M. R. and G. H. Balazs. 2000. Obake turtles of Hawaii. In H. Kalb and T. Wibbels (comps.), Proceedings of the Nineteenth Annual Symposium on Sea Turtle Biology and Conservation, March 2-6, 1999, South Padre Island, Texas, p. 172. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-443.

Balazs, G. H., M. Rice, S. K. K. Murakawa, and G. Watson.  
2000. Growth rates and residency of immature green turtles at Kiholo Bay, Hawaii. In F.A. Abreu-Grobois, R. Briseño-Dueñas, R. Márquez-Millán, and L. Sarti-Martínez (comps.), Sixteenth Symposium Proceedings Addendum in the Proceedings of the Eighteenth International Sea Turtle Symposium, March 3-7, 1998, Mazatlán, Sinaloa, México, p. 283-285. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-436.

Davis, E. E., M. R. Rice, K. A. Harrington, and G. H. Balazs.  
2000. Green turtle diving and foraging patterns at Puako, Hawaii. In H. Kalb and T. Wibbels (comps.), Proceedings of the Nineteenth Annual Symposium on Sea Turtle Biology and Conservation, March 2-6, 1999, South Padre Island, Texas, p. 153-154. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-443.

Quaintance, J. K., M. R. Rice, and G. H. Balazs.  
In Press. Monitoring green turtle basking behavior with remote video cameras.  
In  
Proceedings of the Twenty-first Annual Symposium on Sea Turtle Biology and  
Conservation, February 24-28, 2001, Philadelphia, Pennsylvania. U.S. Dep.  
Commer., NOAA. Tech. Memo. NMFS-SEFSC.

Balazs, G. H., M. Rice, S. K. K. Murakawa, and G. Watson. 2000. Growth rates  
and residency of immature green turtles at Kiholo Bay, Hawaii. In F.A. Abreu-  
Grobois, R. Briseño-Dueñas, R. Márquez-Millán, and L. Sarti-Martínez (comps.),  
Sixteenth Symposium Proceedings Addendum in the Proceedings of the  
Eighteenth International Sea Turtle Symposium, March 3-7, 1998, Mazatlán,  
Sinaloa, México, p. 283-285. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-  
SEFSC-436.

Finn, M. A. and M. R. Rice. 1994. Hawaiian monk seal observations at Necker  
Island, 1993. *'Elepaio*. 55(9):55-58.

Table 1. Relevant Experience Table: Marc R. Rice

Relevant Task	Job Title	Training	Training Level	Time Performing Task/Species	No. of Procedures Performed	Supervised	Unsupervised	Permits
Capture-Hand/Dip	CI & Field Assistant	These techniques have been conducted without supervision since 1994 and I have captured over 500 animals during that time. Rodeo style capture-trained by C. Limpus, Australia.	Expert	600 h <i>C.mydas</i> , <i>E.imbricata</i> , <i>C. caretta</i>	>500 turtles	Yes(250 h)	Yes(250 h)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Capture/Encircle	CI & Field Assistant	Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired) and fishers on Molokai.	Experienced	100 hours <i>C. mydas</i>	~200 turtles	Yes(100 h)	No	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Capture-Tangle	CI & Field Assistant	Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired)	Expert	600 h <i>C.mydas</i> , <i>E.imbricata</i>	>100	Yes(800 h)	Yes(>200h)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Collect Tumors	CI & field assistant	Training for these procedures was conducted in the field by George Balazs (NOAA/NMFS retired), Thierry Work (USGS) and Bob Morris (private contract veterinarian).	Competent	10h <i>C.mydas</i>	30 procedures	Yes (25 procedures)	Yes (5 procedures)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Instrument,	CI & Field	Training was conducted by George	Expert	600 h	>300	Yes (250 h)	Yes (50 h)	Hawaii State Special

Epoxy attachment	Assistant	Balazs (NOAA/NMFS retired) on <i>C.mydas</i> , <i>E. imbricate</i> , <i>L. olivacea</i> , <i>C. caretta</i> .		<i>C. mydas</i> , <i>E.imbricata</i> , <i>C. caretta</i> & <i>L. olivacea</i>	Satellite tags, sonic tags, time depth recorders, & RFID tags			Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Lavage	CI & field assistant	Trained by George Balazs (NOAA/NMFS retired).	competent	15 hours <i>C.mydas</i>	20 turtles	Yes (20)	No	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Mark, Carapace (Temporarily)	CI & field assistant	Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired).	Expert	600 h <i>C.mydas</i> , <i>E.imbricata</i>	>1000 turtles	Yes (>500)	Yes(>500)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Mark,flipper	CI & field assistant	Training for this particular technique was conducted by George George Balazs (NOAA/NMFS retired).	Expert	600 h <i>C.mydas</i> , <i>E.imbricata</i>	>500 turtles	Yes (35h)	Yes (15 h)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Mark,PIT	CI & field assistant	Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired).	Expert	600 h <i>C.mydas</i> , <i>E.imbricata</i> , <i>C. caretta</i>	>200 turtles	Yes (25h)	Yes(25h)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Sample	Field	The training for the sterilization of	Competent	2 h	20 turtles	Yes (2h)	No	Hawaii State Special

Blood	assistant	the area, the method of finding the cervical vessels and the "stick" were conducted in the field by George Balazs (NOAA/NMFS retired), Thierry Work (USGS) and Jennifer Lynch (NIST).		<i>C.mydas</i>				Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Sample, cloacal swab	CI & field assistant	Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired).	experience d	1 h <i>C. mydas</i>	5 turtles	Yes (1h)	No	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Oral examination	CI & field assistant	Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired)	Expert	>100 h <i>C. mydas</i> <i>E. imbricata</i>	>1000 turtles	Yes (75 h)	Yes (25 h)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Sample, Tissue	CI & field assistant	Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired)	Competent	10 h <i>C. mydas</i> <i>E. imbricata</i>	~75 turtles	Yes (10 h)	no	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Sample, Scute Scraping	CI & field assistant	Training for this particular technique was conducted by Jennifer Lynch (NIST) AND George Balazs (NOAA/NMFS retired)	Experience d	1 h <i>C.mydas</i>	3 turtles	Yes (1 h)	No	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Shell Etch	CI & field	Training for this particular technique	Expert	>25 h	>500 turtles	Yes (20)	Yes (5 h)	Hawaii State Special

	assistant	was conducted by George Balazs (NOAA/NMFS retired)		<i>C. mydas</i> <i>E.imbricata</i>				Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
OTC injection	CI & field assistant	Training for this particular technique was conducted by George George Balazs (NOAA/NMFS retired).	Competent Worked with <i>C. mydas</i>	2 h <i>C. mydas</i>	20 turtles	Yes (1.5 h)	Yes (.5)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Measure	CI & field assistant	Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired).	Expert	>500 h <i>C. mydas</i> , <i>E.imbricata</i> , <i>C. caretta</i> & <i>L. olivacea</i>	>1000 turtles	Yes (300 h)	Yes (200 h)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A
Weigh	CI & field assistant	Training for this particular technique was conducted by George Balazs (NOAA/NMFS retired).	Expert	>200 h <i>C. mydas</i> , <i>E.imbricata</i> , <i>C. caretta</i> & <i>L. olivacea</i>	>1000 turtles	Yes (100 h)	Yes (100h)	Hawaii State Special Activity Permit No. 2017-301 NMFS Permit No. 15685 and USFWS PermitNo. TE-72088A