PART 2 of 2

MEMORANDUM 04/14/89

TO: ALL POTENTIAL TURTLE TAGGERS (That's you!)

FROM: DAVE GULKO

SUBJECT: MEETING AND ACTIVITY SCHEDULE TO QUALIFY TO PARTICIPATE IN STRP

CONGRATULATIONS!!! You have taken the first step required in order to participate in this spring's HPA/NMFS Sea Turtle Tagging Research Project. The project was started last year as an extension of some work that some HPA students did with the University of Hawaii at Hilo. The National Marine Fisheries Service personnel were so impressed with the quality, maturity and interest displayed by HPA students last year they have asked if we would like to continue the project this year. This is really a phenomenal opportunity for you! You may get the chance to work hands-on with an endangered species; collecting REAL data with REAL scientists that will be used to find out more about the Hawaiian Green Sea Turtle and perhaps ways of saving their populations from the increased effects of man. This is the sort of work that graduate and undergraduate students in college usually do; you may get the opportunity to be amongst some of the only high school students in the Unites States doing this kind of work. If you decide that you are interested in trying to join us on this expedition, you need to accomplish the following:

1) Complete and return to me the attached questionaire before Apr. 18th's meeting. Some material from this questionaire will be used to evaluate candidates.

2) Attend two meetings to be held on Tuesday evening, Apr. 18th and Sunday evening, Apr. 23rd. These meetings will be held in room 32 from 7:00 - 8:00 pm; failure to attend without talking to me beforehand will cause you to be dropped from consideration. The meetings will deal with introducing you to a number of aspects about sea turtles, their biology and natural history. We will also discuss basic sea turtle research techniques and perhaps set up a practice session in the pool to give you a taste of what you're in for. At the second meeting we will also be assigning preliminary research teams and duties. For those of you who have never been on one of these expeditions , I will have slides of previous trips for you to look at.

3) Take and pass a short test on the material presented at the two meetings. Scores on the test will be used to evaluate candidates.

4) There have been some changes from previous trips and it will be expected that those students participating will take on most of the load for the pre-trip planning and preparation...those students which do not help out with the pre-trip preparations will be dropped immediately from the program.

5) Finally, I've already initiated getting feedback from your teachers, coaches and dorm personnel about your being able to participate; I will be using this and the previous information to try to narrow down the list to around fifteen people - it's not going to be easy, it's a great group of people!!! Obviously because of the importance of this research project, I am going to try to take the most mature (not necessarily the oldest) and **INTERESTED** people that I can. In addition, having particapated on a previous expedition does not give you **any** advantage towards being placed on this one (in fact it just might count against you...)

Once again, please make sure that you attend the **mandatory** meeting on Tuesday, Apr. 18th and lug along any questions, ideas or suggestions you might have about the project. I'm really looking forward to this spring's expedition, I think it's going to be an exciting and fun trip!

MEMORANDUM

TO: O.D., COACHES, USO AND ALL INTERESTED FACULTY

FROM: DAVE GULKO

DATE: April 19, 1989

SUBJECT: SEA TURTLE RESEARCH PROJECT

The following students have expressed an interest in participating on last turtle tagging expedition to be held from Wednesday, 05/03/89 till Friday, 05/05/89. They will miss all of their Thursday and Friday classes and the last four periods on Wednesday.

If you feel that any of these students should be present in your class on those days because of their academic standing or due to any other extenuating circumstances, or if you have had dealings with this student and feel that he/she does not show the maturity or sense of responsibility required to participate on this project, please circle their name on this list and write a short reason as to why; in addition if you would like to discuss this in more detail please feel free to contact me directly. Please keep in mind that no decision has been made yet concerning which of these students will be able to participate and that your input would be **greatly appreciated (PLEASE!!!)** in helping me to "weed-down" this list.

1. Eva Anderson
2. Ginger Andrews
3. Kim Baxter
4. Lisa Berthoud
5. David Bitonti
6. Lisa Bleyle
7. Ferris Bogue
8. Julia Bringloe
9. Carl Bryson
10. Tuy Buckner
11. Chris Caldwell
12. Jacob Cordeiro
13. Matt Diffley
14. Ben Donahue
15. Fiona Ednie
16. Malia Fann
17. Kristen Glaspey
18. Karen Gomes
19. John Hall
20. Marc Handl
21. Katherine Hannah
22. Dawn Hegger
23. Marania House
24. Michael Hughes
25. Lance Jeffery
26. Claire Johnson
27. Hidetaro Kashima
28. Kevin Kramer
29. Jennifer Link
30. Joey Lopaka
31. Dana Mackey
32. Malia Manley
33. Julie Marrack
34. Malia McDevitt
35. Cal McDonald
36. Natasha McDonough
37. Liz Miura
38. Bek Mortemore
39. Marina Nogues
40. Sage Nottage
41. Glenn Pogue
42. Jane Provelenko
43. Jason Provelenko
44. Shannon Pustka
45. Adam Ranne
46. Laura Rice
47. Jeff Richardson
48. Monica Robbers
49. Steve Rudolph
50. Melanie Rufo
51. Jean Sakimura
52. Silicia Slade
53. Kim Sweet
54. Jeanie Tsang
55. Teva Victor
56. Sylvan Waller
57. Marayka Waters
58. Bart Wyatt

Also, (What, there's more?!!) if you feel that any of these people would greatly benefit from participating, please let me know. Thank you for taking the time to give me your feed back on this project.

HPA/NMFS TURTLE RESEARCH PROJECT INFORMATION SHEET

DEAR _____ (Now is that personal or what?):

CONGRATULATIONS!!!! You're being offered the opportunity to participate on the Spring STRP expedition, hope you decide to go for it!

O.k., here's the scoops:

DATES: 03/01/89 - 03/03/89 (Wednesday, Thursday & Friday)
You need to have loaded your gear Wed. morning during a free period. Everyone will eat first lunch and then we'll leave before the beginning of second lunch. You probably won't be free again until sometime Friday afternoon - plan accordingly! Don't forget about the mandatory homework sessions during the day.

TEAMS: We'll be working in four - five man teams this time, probably pulling two hour shifts each night. In addition, you might be asked to go on a night snorkel into the bowels of the bay to do some hand captures.

FINAL MEETING: There will be a final, mandatory meeting TUESDAY, FEB. 28, DURING BREAK in room 32; it is imperative that you be there. Also please bring the $12.00 (or be prepared to sign a charge slip) for the T-shirts. In addition, charge slips for food, soda and batteries will need to be signed at this time.

PLEASE NOTE:
I still might have to cut a couple people based upon teacher recommendations, I'll try to let you know as soon as possible.

Any questions??? See ya Tuesday!

----------PLEASE CUT AND RETURN TO MR. GULKO BEFORE TUESDAY----------

NAME:_____ DATE:_____

_____ YES!!! I WILL BE PARTICIPATING IN THIS FALL'S STRP EXPEDITION.

_____ NO, I'M SORRY BUT I DON'T HAVE MY ACT TOGETHER AND WILL NOT BE ABLE TO PARTICIPATE, I REALIZE THAT I'M A REAL SLIME FOR WAITING SO LONG TO TELL YOU BUT HOPEFULLY I'LL MATURE WITHIN THE NEAR FUTURE AND WILL BE ABLE TO GO ON A LATER TRIP.

NAME: _____

GRADE: _____

1. NAME THE THREE AGENCIES RESPONSIBLE FOR PROTECTING GREEN SEA TURTLES IN HAWAII:

A. _____ B. _____ C. _____

2. NAME THREE NATURAL PREDATORS AND FOUR HUMAN-RELATED INFLUENCES ON SEA TURTLE MORTALITY:

1)
2)
3)

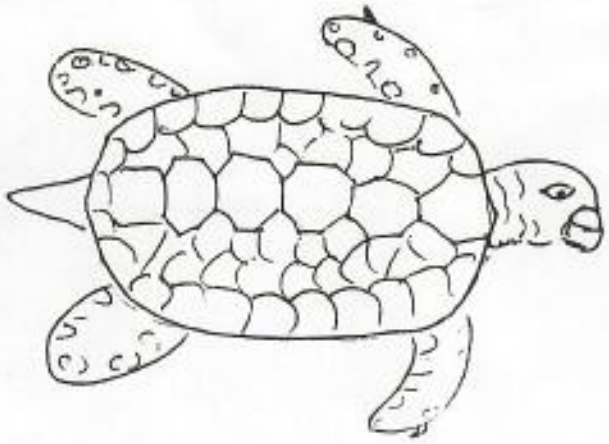
1)
2)
3)
4)

3. What are the three most important things to do while "On-shift" with your team at night:

1) 2) 3)

4. Why must you always wear a mask in the water at night?

5. Where (precisely) on this turtle would you look to see if it had already been tagged?



6. Why take a blood sample?

[redacted]

7. Name two purposes for turtle's tears?

9. Once again, what do you feel that you can honestly contribute to this project?

8. Why are Hi. Hawksbill Sea Turtles likely to become extinct in your lifetime whereas the Hi. Green Sea Turtle probably won't?

MAY 01, 1989

Dear ,

I'm sorry to inform you that you did not make the final cut for this spring's STRP expedition. This decision was not easily reached and required comparisons of grades, attendance, comments (from teachers, coaches, etc.), team leader evaluations, class standing along with other factors. Please understand that if I could manage a larger group - you'd be going. If everything works out right we'll be running more trips next year and I'd very much would like to have you try to come along - you already have an edge on most other people who apply. Please come and see me if you have any questions regarding this decision and please do not allow this to block you from future participation. This trip was limited by the number of people who could participate NOT the number of qualified applicants.

Thank you very much for your understanding in this matter.

Sincerely,

MEMORANDUM

TO: O.D., COACHES, USO AND ALL INTERESTED FACULTY

FROM: DAVE GULKO

DATE: May 01, 1989

SUBJECT: SEA TURTLE RESEARCH PROJECT

The following students have been invited to participate on the last turtle tagging expedition to be held from Wednesday, 05/03/89 till Friday, 05/05/89. They will miss all of their Thursday and Friday classes and the last four periods on Wednesday.

If you feel that any of these students should be present in your class on those days because of their academic standing or due to any other extenuating circumstances, please contact me immediately. Please keep in mind that this is hopefully the final list of students who will be able to participate and that these students will have mandatory study periods during the day at Kiholo. If any of these students drop out at the last minute I will be sure to notify you of the change.

1.	ANDERSON, EVA	Sophomore
2.	BERTHOUD, LISA	Sophomore
3.	BITONTI, DAVID	Freshman
4.	BOGUE, FARRIS	Sophomore
5.	BRYSON, CARL	Freshman
6.	CORDEIRO, JACOB	Freshman
7.	DIFFLEY, MATT	Junior
8.	HOUSE, MARANIA	Freshman
9.	JEFFERY, LANCE	Senior
10.	KASHIMA, HIDE	Sophomore
11.	KRAMER, KEVIN	Sophomore
12.	MCDONALD, CAL	Freshman
13.	MIURA, LIZ	Freshman
14.	MORTEMORE, BEK	Junior
15.	POGUE, GLENN	Freshman
16.	PORVELENKO, JANE	Freshman
17.	PROVELENKO, JASON	Senior
18.	RANNE, ADAM	Sophomore
19.	WALLER, SLYVAN	Junior
20.	WYATT, BART	Freshman

HAWAII CLIPPING SERVICE
P.O. Box 10242
Honolulu, Hawaii 96816
PHONE: 734-3124
Victoria Custer Elaine Stroup
HAWAII TRIBUNE HERALD
MAY 2 7 1988

Tribune-Herald

SCHOOLS

HPA STUDENTS HELP OUT — Students from Hawaii Preparatory Academy (above) are helping scientists of the National Marine Fisheries Service's Southwest Fisheries Center's Honolulu lab in studying Hawaiian green sea turtles at Kiholo Bay. The field study from April 27-29 included 17 HPA students and four from the Hawaii School for Girls in Honolulu.

Identical letters to the following:

Saran Fisnman
24 Sand Island Road
Honolulu, HI 96819

Erin Carlson
2421 Komo Mai Drive
Pearl City, HI 96782

Jennifer Loper
611 Hakaka Place
Honolulu, HI 96816

04/26/88

HPA/NMFS SEA TURTLE RESEARCH PROJECT

TEAM ASSIGNMENTS:

The following lists represents the team assignments for the third expedition. The first name listed are designated team leaders; these are people who have been on at least one previous expedition, they are familiar with the research, schedules and difficulties that might be encountered over the next three days - make use of them to answer any questions you might have.

	TEAM 1	TEAM 2	TEAM 3	TEAM 4	TEAM 5
Captain:	Joe T.	Tina L.	Kris L.	Jenni M.	Neil O.
	Marayka W.	Monica P.	Jeni McK.	Becky W.	Sissy K.
	Laura R.	Joe M.	Jason P.	Dan S.	Tanya B.
	.....	.....	Bek M.	.....	Erica F.

CAMP SET-UP:

Each team will be responsible for certain duties when we reach Kiholo; no one is to start setting up their own campsites (I will assign tents later) or claiming spots with their personal gear (Team 4 will place all personal gear on a tarp for later collection). After these duties are completed, we will get together with Dr. Balazs to discuss the project, our roles, what we will be doing and to answer any questions that might be raised. After this a group will swim out to set the net and we will start to run shifts.

TEAM 1: Set tarps up at the research site to provide shaded working area and afterwards help move gear to research site.

TEAM 2: Organize wetsuits, hoods, u/w lights (load batteries and check o-rings), tools and any other school gear not going to research site into back of WEP truck closest to trail to research site. Fill lanterns, prime them and set them up for the night. Set-up campfire and stack wood.

TEAM 3: Organize food into WEP truck farthest from trail to research site (all food not in coolers goes in front seat - windows up), try to organize so that team on cooking detail can find all the food items for that meal. Set-up grill and stoves. Set-up trash bags. Set-up all three Porta-Pottis (two for girls, one for guys) away from camp, place chemicals in correct place, don't forget TP.

TEAM 4: Set-up all three tents (not under coconut palms!) with rain flys. Set-up tarp attached to WEP truck closest to trail to research site along with ground tarp underneath. Place all personal gear and snorkeling equipment on ground tarp.

TEAM 5: Move turtle floats, measuring gear, nets, battery, turtle sign and any tagging gear to research site (BE VERY CAREFUL MOVING THIS GEAR). Unpacked boxes should be carefully stored underneath WEP truck or inside van.

SARAH FISHMAN

SARAH FISHMAN
24 SAND ISLAND RD.
HON HI 96819

We arrived at the Kona airport at around 1:00 pm. Mrs Fast, George, the guy responsible for the trip, his son Christian, Barry, who works at the National Marine Fishery Service and I waited for a half hour until the Hawaii Preparatory Academy people came to pick us up. David Gulko and Heidi arrived first. I dont know how Heidi got involved with this, but She's really nice. I'd say she's 21 or so. Another car came soon , and we left for the camp. We had to go to Hilo to get a part for the car, and then we were off.

The campsite is down a skinny rocky road that turns off the highway. There are big locked gates so people can only get in if they have a key. The camp is beautiful!There's a sort of cleared area (except for the palm trees with coconuts that can fall and kill you) where everyone put their tent. The beach is right there, a black sand rocky beach. We had to walk along a path to get to where the turtles are caught. There's a little stream that runs along thebeach;it's a stream because there is an island that makes that way. The mouth of the stream opens up to the ocean. , making a small bay. The net is put at the middle of this small bay. The big bay is all black and long. The lava that makes up this place is beautiful. You can see how it flowed and how it cooled. You know how lava looks when it's flowing; the very top cools so it doesn't move, but underneath, the lava breaks under and keeps moving. Then that cools and stays and so on. It looks like it should still be moving.

Teams are set up to keep 2½hour watches on the nets. I was

supposed to be on the second shift, but I'm going to go snorkling instead. This snorkling expedition is at night! I'm a little scared to go, because vision is so tunneled with only flashlight light to steer by. But it should be interesting. The nets were set up at 6:30 pm, and the first team was watching. I was back in the camp wandering around meeting the kids when someone said there was a turtle in the net. Already? wow. I grabbed my flashlight and headed down to the little bay. Five people or so swam out to the net. In Five minutes they came back with something in the innertube with a bottom on it. The turtle inside was huge, or at least Ithought so. George said it was only medium-sized. Oh well, what do I know? This creature was beautiful, healthy and strong. Even out of the water it only took a breath every five minutes or so. Hearing a turtle breath is creepy. If I were asleep some night and I heard something breath like that creature did I'd be scared out of my mind. He hisses when he breaths and that sounds like he's getting strangled. Every once in awhile he gets a gasping hissing breath.

The snorkling at night was seriously interesting. The water was very brackish. I couldn't see a thing. Mrs. Fast and I held on to the innertube, waiting for someone to see a turtle. That night George caught two turtles, which is unbelievable since I could barely see my hand in front of my face. All together six turtles were caught that night

The next morning after breakfast we went to take the data on the turtlesthat we needed before the day got too hot. Their shells, head, and tails were measured. We pumped their stomachs to see what they had eaten the night before, we drew their blood

and tried but failed to get fecal matter. Letting the turtles go was fun. We put them in the innertube and swam them out beyond the point.. It was fun to see them swim away. You knew they never wanted to see us again.

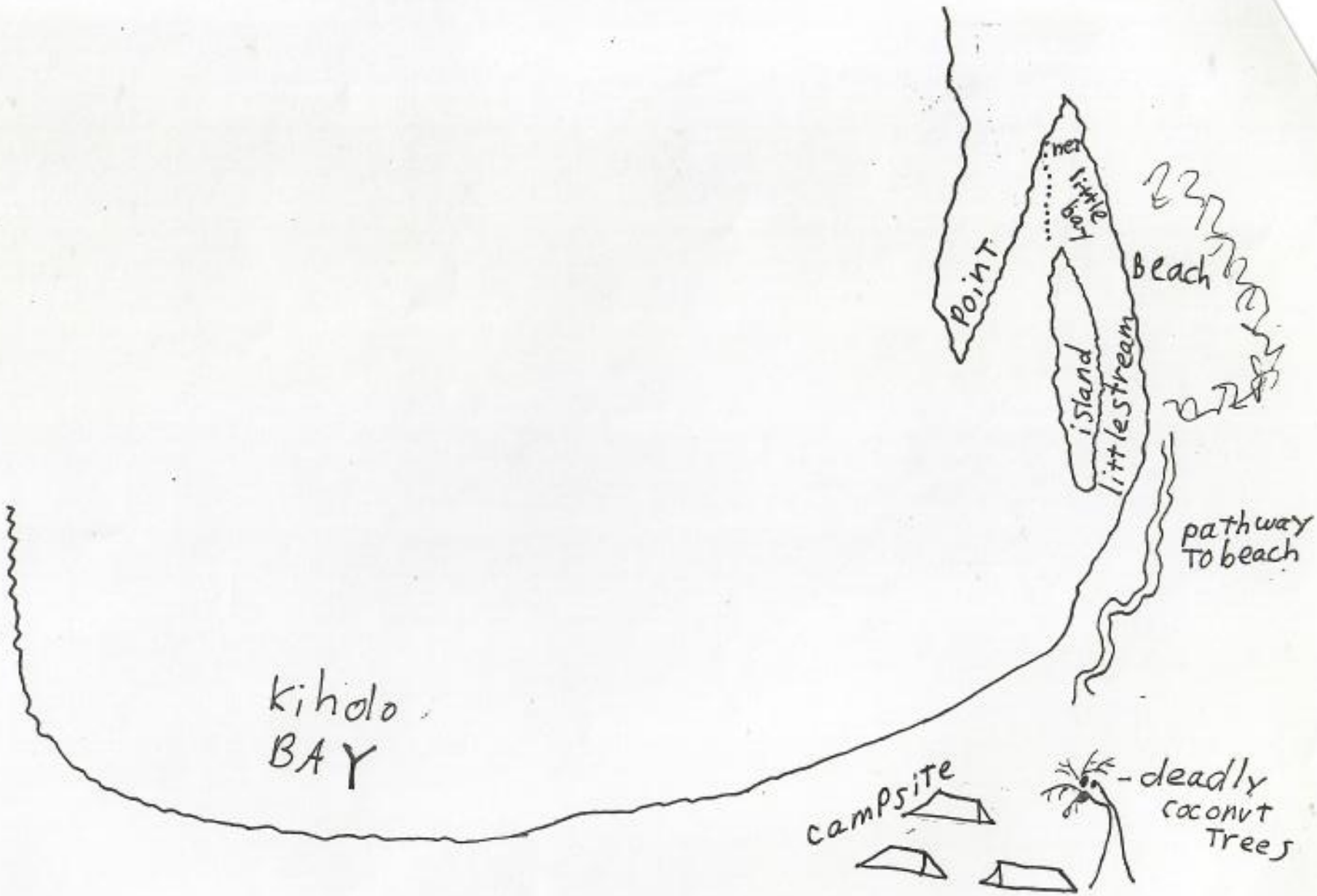
After the turtles were done, Mrs. Fast and I went on an exploration of the place. We walked from the little island to a beach on the point. we rested there for a while, soaking up the rays. We walked down the whole length of the point to the end of the little bay. As we were walking we saw two or three turtles stick their heads out of the water. When we got back to the beach we decided to go snorkling to try to catch some of those turtles, but we didn't see any. The water was freezing where we went snorkling. One of the very nice things about this place is that the ocean water is barely salty. The salt sinks down because it's denser, and the surface is almost totally salt free. So as we were getting out of the water we got all the salt washed off. While we were snorkling I could see where the salt water and the fresh water mixed. It was like a gas floating in the water, making everything look wavy. At first I thought my eyes were going weird on me, but Mrs. Fast said she saw it too.

We went back to camp and had lunch. Ifound out I had the second shift from 8:30 to 11:00 to watch the nets. I hung around for awhile and talked to Mrs. Fast in the tent. Heidi came in to say "hi" and we all talked for two hours about what we thought of E.S.P. and our perceptions of it. We talked about how untouchable and weird people are.

8:30 came along, so Mrs.Fast and I headed out to the beach for my shift. The two other kids, Barry, another adult Kimberly,

Mrs. Fast, and I played Scrabble while we waited. We caught one turtle on our shift and George, who had gone snorkling caught another one. The nets were taken down that night. Seven turtles were caught. The next morning we took the data on those turtles, let them go, and got all the tents down and the campsite ready to go. We left around 1:00 pm.

These three days will always stick out in my mind. Everything that happened was so beautifuland fun and interesting. I consider myself very, extremly lucky to have been able to do this.


Point
inner little bay
Beach
island
little stream
pathway
To beach
kiholo
BAY
campsite
deadly
coconut
Trees

Today is Wednesday, April 27,1988. I'm on the Big Island in Kiholo Bay. Here with me is my former biology teacher, now human physiology teacher, Mrs. Marty Fast, three other girls from HSG: Erin Carlson, Sarah Fishman, and Jennifer Loper, and seventeen other students from HPA. We are here to catch turtles in order to obtain and record blood samples, stomach samples, fecal samples, shell measurements, weight, and to tag them if they have not been tagged previously. This looks like fun! Try to imagine how you would feel if you could not wash for three days and had to use a weird toilet called a porta-pottie. Well, if this is what camping is like, I do not think I want to go camping anymore. At least, we have the porta-potties and that is better than the bushes. Tonight I helped to watch the nets that are stretched out across the lagoon. Every ten minutes, we shine a spotlight on the nets to detect movement from the floats or an occaisional head popping up for a breath of air. It is very important that we check the nets so that we do not kill the turtles by strangulation. The nets that we used are called tangle nets. The net holes are three square inches, about the size of a three to five year old turtle. The nets themselves are held down by weights and held up by floats. Once I tried to help to retrieve a turtle caught in the net but I did not succeed. I had borrowed Marty's wet suit and fins and when I put them on, I felt like a turtle myself. This was a new experience for me because I have never swum at night nor have I swum with a wet suit and fins. While walking backwards in the water, I was terribly uncoordinated. I thought to myself,"I'm going to fall!" I did not though. I just stayed in one place because I felt like I was stuck. Eventually, I got back to shore. There they had placed the turtles on their backs so that they would not escape. It looked as if the turtles were worshipping the moon. Finally, my shift was over, and I walked through the lava path and through the moving lava rock trap back to camp. The next day, April 28,1988, Thursday, we tagged, weighed, measured, all five turtles that we had caught last night. The last turtle, Jennifer, Erin, Sarah and I released it past the lagoon and out to sea so that it would not be caught again the same day. After that, Marty, Sarah, Erin, Jennifer and I went hiking over the lava in search of turtle bones. We did not find any turtle bones but

we did manage to find a great number of goat bones. Hiking over the lava was fun because it looked as if the lava was still flowing to the sea. You could see it oozing down to the sea. Sometimes you could see a turtle head popping up for a breath of air. The best part of the trip was seeing the long-ago solidified lava rock flow eternally flow into the sea. I had fun on this trip, the food was great, the porta-potties-ludicrous, and the Hawaiian sea turtles were interesting to learn about.

Bye,

Edna Fok

EDNA FOK
3185 OAHU AVE
HON HI 96822

June 27, 1988 F/SWC2

Ms. Edna Fok
3185 Oahu Avenue
Honolulu, HI 96822

Dear Edna,

I want to take this opportunity to thank you for the good job you did during our three-day field expedition during April to tag sea turtles at Kiholo Bay. I was duly impressed by the interest, enthusiasm, and cooperative spirit which you and all the students displayed during the course of our work. I enjoyed having you involved in the project. Good luck with your future endeavors.

Sincerely,

George H. Balazs
Zoologist and
Leader, Hawaiian Sea Turtle
Recovery Team

GHB:gr

bcc: GHB
HL

Erin Carlson

Kona Trip

Kona , the largest of the hawaiian islands , is about a twenty-seven minute flight from Oahu. It is made entirely of volcanic lava and is the home of many sea going birds and animals;including the green sea turtle.On April 27 , 1988 Jennifer Loper , Sarah Fishman , Edna Fok , Mrs.Fast and I went to Kona to study the endangered green sea turtle ,until the 29th.

Our first day in Kona , we were picked up at the airport and were driven to Kiholo Bay;the campsight where our research took place. On arriving at Kiholo Bay , we set to work learning the names of students and teachers from HPA; also members of the research team. Once being aquainted we set up camp and then set up the tangle nets across the lagoon. The tangle nets stretch fifty yards and have wooden floats connected on the top of them. If something were to get caught in the net , the floats would sink or there would be a change such as a bend in the net.

We were split up into teams of five and took two hour shifts watching the net.That night we caught five turtles and one ray. Because it is dangerous to try to untangle a ray, it was shot and brought to shore where it was debarbed and later disected. My shift , 11:30pm.-1:30am.,was the last shift for the night,so the net had to be pinned up. This is done so that nothing is tangled in the net when no one is on shift.The turtles were flipped on their backs and covered with a tarp to keep them from going anywhere and dehydrating.

At 8:30 , Thursday morning we worked on the turtles. George Balazs, a biologist with the National Marine Fishery Service, took measurements of the turtles(length, width, head size, flipperwidth, and tail length.)their weight and pumped their stomachs with the help of the students.

The green sea turtle which is most native to Hawaii of all the sea turtles, can weigh up to 400 lbs and has a dark shell with flecks on it. However, the turtles we studied ranged from weighing 20-102 lbs and were still very young. With everyones cooperation, it took about three hours to finish the job and return the turtles to the sea .They were carried out around the lagoon in a large inner tube with a wooden floor board.

Later that morning Jen , I , and three HPA students went through out the lagoon and took the salinity and temperature of the water. This was done to see in what kind of water the turtles are able to survive. It seems they prefer salt and fresh water mixed because the lagoon wasn't pure salt water, rather it had springs of fresh water which brought the salinity down. While we were doing that, we also took thepins out of the net that were holding it up.Shifts started that early afternoon. Once we werefinished our job in the lagoon, Jen and I

went on a hike with Sarah, Edna & Mrs. Fast around the lagoon. We were hoping to find some turtle bones because it is known that people hunt the green sea turtle for food and leave the bones and shell on the beach. Also, the turtles will eat floating plastic which they are unable to digest. This plastic remains in their stomachs and releases toxins which block food digestion. The turtle will die & its body is sometimes washed to shore. However, we did not find any turtle remains , but did find the bones of a herd of goats and some gun shells.

We went back to camp, ate , and went to our shifts. During my shift, George took a group of students snorkeling. They caught three turtles while snorkeling and two turtles in the net.

Friday morning we examined the turtles caught Thursday. Everyone helped take measurements, blood samples and pump the turtles stomachs. Most of them had red algae filaments in their stomachs. These procedures took about 2½ hours with everyones help. It was then time to pack up our belongings. From there we went back home .

Our trip to Kona was an experience I will never forget. Learning about an endangered species and their life style has helped me to better understand what their future will hold. Not only did I learn about the green sea turtle, but also how to work as a team. To study an animal in such depth takes the coopera - tion and work of not just one, but many persons. What made this trip a success was the involvement and participation of everyone as a team.

ERIN CARLSON
2421 KOMO MAI DR.
PEARL CITY, HI 96782

JENNIFER LOPER

JENNIFER LOPER
611 HAKAKA PL.
HON HI 96816

Introduction

On April 27,1988, I flew to Kona, Hawaii, on the Big Island for two days to study the Green Sea Turtles. I was accompanied by my Biology teacher, Mrs. Fast, and three other HSG students. Our trip was for the gathering of important data on these turtles. We were to catch, count and take samples to help in the study of these turtles. George Balazs, a biologist at the National Marine Fisheries Service joined us. When we arrived in Kona, we were met at the airport and driven to Kiholo Bay, north of Kona. There we started our study of the Green Sea Turtles.

Kona Trip

Wednesday

Upon our arrival at the airport in Kona, Mrs. Fast, Erin, Edna Sarah, George and I were picked up by a Big Island man named Matt. We all drove to Kiholo Bay. When we got there we were all placed into separate teams. The teams were made up of HPA and HSG students. There were about 17 HPA students and only 4 HSG students. My team helped get the snorkeling gear and underwater flashlights ready. We also collected firewood for the fire for that evening. After we did our jobs, everyone got together for awhile to get to know one another. We then all helped to set up the camp area and our tents. When camp was ready we went over to the next cove to set up the turtle net in the lagoon. As soon as this task was done we all had our dinner. After dinner the shifts started for watching the turtle nets. My teams shift was from 7 to 9pm. From the time the nets were placed until the time they were brought in or pinned up, people had to watch them constantly. During my shift, we caught two turtles. When the turtles would get snagged in the net, George, Joe and I would go out and untangle them from the net and then bring them to shore. We then would place them on their backs so that they were upside down and couldn't crawl away. After my shift, I stayed with Sarah and Erin for their shift. We caught a total of five turtles the first day, of which two of the turtles had been caught before. When all of the shifts were done at 1am, we all helped pin up the nets so that nothing would get caught in them while nobody was watching. Just before we went out to pin up the nets, something made them dip. We watched with the lights for awhile. Nothing came up, so a few people went out in the lagoon to check on what was keeping the net under. It turned out to be a large Eagle Ray. It was so tangled in the net that it was too riskey to try and get loose. It had very sharp barbs at the end of its tail that could cut someone very bad. George, went out to the net with his bang stick. After it was dead he was able to untangle it from the net and bring it to shore. We left it on the beach til morning. By the time Erin, Sarah, and I got to bed it was 2:30am.

Thursday

Thursday morning Erin and I woke up at 6:00am. We went for a run up past the second gate, turned around and came back to camp. Then we went to the lagoon area and went for a short swim before breakfast. After breakfast, we went to the turtle campsite and helped

examine the turtles. We took blood samples, fecal samples, measured the flippers, shell, head, and tails. Then we pumped their stomachs to take samples of what the turtles had eaten. The blood and fecal samples would be examined to see if these turtles contained parasites. It took about three hours to examine all five turtles. While some people were working with the turtles, other were watching a student from HPA disect the Eagle Ray. Before the turtles were released, they had numbers spray painted on them to see if we would catch any of the same turtles the following harvest. Another project we were involved in was to swim around the lagoon and gather temperature and salinity of the water in the lagoon. This took about two hours because we had to take the samples from particular areas. On our way back to the shore we all took the pins out of the nets from the night before. We then went back to the camp and ate lunch. Our team had mess clean up duty, which we hurried and finished. When clean up was completed, Mrs. Fast, Erin, Edna, Sarah and I went for a walk to look for turtle remains. The only remains we found were of goat bones. When we returned to camp we sat down for dinner. That evening I worked my shift from 5:30 to 7:30pm watching the nets. I again stayed and kept Sarah and Erin company during their shifts. People went snorkeling around the lagoon to catch turtles by hand. They caught three turtles this way, and two turtles in the nets. We all crashed when we got back to our tents.

Friday

This morning I had the shift to help cook breakfast. Then we all went to the lagoon to examine the turtles we had caught the night before. We again took all the samples as we had done with the other turtles. This took another two and a half hours. Then we all helped fold the nets and put them into boxes. The camp was next, we allcleaned up trash, packed away the tarps and put in boxes, and carried this over to our other camp, where all the food and supplies had to be packed and put in the back of trucks. Down came our tents and suitcases were packed. We all jumped into the truck and rode to the school bus. We then changed cars, Matt drove George, Mrs. Fast, Erin, Sarah, Edna and me to the airport. We waited two hours for the plane to come. George got on the first plane, and we took the next one to Honolulu. We gathered our luggage and were picked up by our families.

This trip to Kona was a great experience. Not only was it fun, but we learned alot about turtles and the gathering of information.

Another nice part of the trip, was meeting new friends and sharing these experiences with them. They were all fun to be around. To have the opportunity to study the sea turtles and to handle them was something I'll never forget. To be able to study them and touch them is something not everyone has the chance to do. I love to work with all kinds of animals so this is why the trip meant so much to me.

HAWAII PREPARATORY ACADEMY
KAMUELA, HAWAII 96743

SCIENCE DEPARTMENT

12/13/88

George Balazs
National Marine Fisheries Service
2570 Dole Street
Honolulu, HI 96822-2396

Dear George:

I am writing to you to request letters of recommendation for admission to graduate school at the University of Southern California in L.A., and the San Francisco State University. I realize that these schools are far away from Hawaii and are going to be a major change in orientation (especially for someone like me who has spent most of his time around coral reefs), but it is my hope that I can spend some time away from the islands and then return back to do some postgraduate work here. I also feel that after spending the last three years teaching to college-orientated students, I'd like to pursue a higher degree that would allow me to teach at a more advanced level and also conduct research at the same time.

At USC I am trying to get into the section of Marine Biology in the Department of Biological Sciences. I would really like to try to work with Dr. Gerald Bakus who studies the role of allelochemicals in controlling coral reef structure and predator-prey reactions. If this doesn't work out then I'd like to do work in ichthyology, invertebrates or benthic communities. At SFSU I want to do work at Moss Landing Marine Laboratory (where Mike Foster works and where Lisa Uttal is going) in deep sea biology, marine ecology, invertebrate zoology or ichthyology. Both of these universities have people who work in tropical systems, so it is my hope that I can make use of my knowledge and keep my hands in reef-related studies.

I really appreciate your taking the time to write these letters for me, I've really enjoyed working with you on the HPA/NMFS Sea Turtle Research Project and feel that I've gotten it to a point where, if you decide to, the school will continue it for years to come. I truly feel like I got a hell of a lot out of this project and hopefully put a lot back in. If there are any problems or you have any questions, I can be reached at the numbers listed below. The deadline for my application materials to these schools is January 15th, 1989. Once again, thank you very much for your support of me and I wish you and your family a very merry Xmas.

Sincerely,

Dave Gulko

till Dec. 17th
(808) 885-4139
Dec. 18th - 30th
(415)493-3014

HAWAII PREPARATORY ACADEMY
P.O. BOX 428 • KAMUELA, HAWAII 96743-0428
(808) 885-7321

11/18/88

George Balazs
Honolulu Laboratory
Southwest Fisheries Center, N.M.F.S.
2570 Dole St.
Honolulu, Hawaii 96822-2396

Dear George:

I wanted to take this opportunity to thank you for the letters that you sent to each of the students, besides letting each student know that you appreciate what he or she has done, these serve as an official recognition of that student's participation in the project. Often this may lead to that student using this project on his or her college application or for an experience reference later on. The students have been really up about this experience and I've received a number of requests from new students to try and participate in the next expedition in early March.

Mr. Hind's address is as follows:

Robert Hind III
P. O. Box 750
Kamuela, Hawaii 96743

I have arranged for about twenty photographs to be made up which detail the project and HPA students participation. I will label these and send them off to Mr. Hind.

Finally, I am putting together the student's evaluations of this past trip and will mail of copies to you as soon as they are available;

I would greatly appreciate any feedback you might have on how things went this past time and any recommendations for March. Both Bek and Natasha received the information that you sent them and I will try to find out how they're coming along on their respective projects and send you an update.

Take it easy and have a great Thanksgiving.

April 25, 1989

TO: SYLVAN WALLER
FROM: DAVE GULKO
SUBJECT: Sea Turtle Research Project - Pre-trip Organization Teams

Your team will be primarily concerned with EQUIPMENT ORGANIZATION. The following is a list of members of your team; you need to assign specific duties to each one of them. Some of the duties that need to be completed by Sunday, April, 30th are

1. Gather scientific gear (i.e. hydrometer, thermometers, etc.) and assemble in STRP storage locker.
2. Arrange to charge the car battery in the locker at the maintenance building.
3. Make sure that we have all the equipment that we will need and that it is in working order.
4. Clean and assemble Port-A-Pottis (Get chemicals from maintenanace or arrange to purchase chemicals from Sear's).
5. Gather a small amount of fire wood to take with us.
6. Clean grill in locker.
7. Make sure we have some preserving material, speciman jars and labels.
8. Purchase batteries and cylumes.

REMEMBER: You are to assign these duties evenly to the members of your team and KEEP TRACK of their progress. Plan on giving me a written evaluation by this Sunday, April 30th (I STILL NEED TO CUT 7 PEOPLE).

Also make sure that all of your team members realize that there will be a MANDATORY MEETING this Friday, April 28th, right after school (2:45pm) in Rm 32.

TEAM MEMBERS:

1. LIZ MIURA
2. JANE PROVELENKO
3. CAL MCDONALD
4. KEVIN KRAMER
5. CARL BRYSON
6. KIM BAXTER
7. LISA BERTHOUD
8. MATT DIFFLEY

April 25, 1989

TO: SHANNON PUSTKA
FROM: DAVE GULKO
SUBJECT: Sea Turtle Research Project - Pre-trip Organization Teams

The following is a list of members of your team who you need to assign duties to. Your team will be primarily concerned with PACKING & LOADING GEAR AND LOGISTICS. Some of the duties that need to be completed by Sunday, April 30th are

1. Put together a personal gear list for each participant. Don't forget to get them to bring their own tents, u/w lights, wetsuits and homework. Also inform them that each student is to keep a log of their experiences which is to be then rewritten into a short essay to be turned in when we get back.
2. Find out how many participants want to order STRP T-shirts (Show them a sample shirt), get size and number info. and have them sign a charge slip.
3. Inventory all gear and make any necessary repairs. Replace and /or fix any broken, worn or lost equipment. Examples: fix lanterns, stoves, buy propane and Coleman fuel, mantles, stitch up breaks in the tarps; move hoods, wetsuits, etc. to STRP locker.
4. Make sure that we have ALL dive lights, hoods, wetsuits and gloves and also that the lights are in working order.
5. Arrange for maintenance to fix the portable radios.
4. Wednesday, March 1st, pack and load gear into trailer.

REMEMBER: You are to assign these duties evenly to the members of your team and KEEP TRACK of their progress. Plan on giving me a written evaluation by this Sunday, April 30th.

Also make sure that all of your team members realize that there will be a MANDATORY MEETING this Friday, April 28th, after school (2:45pm) in Rm 32.

TEAM MEMBERS:

1. SAGE NOTTAGE (SECONDARY)
2. ADAM RANNE (SECONDARY)
3. CLAIRE JOHNSON
4. DAVID BITONTI
5. JASON PROVELENKO
6. MICHAEL HUGHES
7. JACOB CORDEIRO
8. MARANIA HOUSE
9. FERRIS BOGUE
10.

April 25, 1989

TO: BEK MORTEMORE
FROM: DAVE GULKO
SUBJECT: Sea Turtle Research Project - Pre-trip Organization Teams

The following is a list of members of your team who you need to assign duties to. Your team will be primarily concerned with FOOD ORGANIZATION. Some of the duties that need to be completed by THURSDAY April 27th or Sunday, April 30th are

1. Create and have approved a menu for the following meals: Wed. dinner; Thur. breakfast, lunch and dinner; Friday breakfast.
   Suggestions:
   - Beef and Chicken Fajitas (need container of salad dressing and pita bread) or shoyu chicken (need ginger, garlic & shoyu)
   - Kalbi shortribs or steak
   - Croissants and ham, eggs and cheese

   You did a fantastic job last time but once again I think that we need to monitor the "extras"...
2. Submit menu to SAGA by Thursday, April 27th.
3. Arrange to purchase soda and snacks; collect money from students to cover this expense (and cover costs of steak, etc).
4. Arrange for proper cooking gear, coolers, etc. to be acquired from SAGA.
5. Create charge slips for soda and day student meals, these are to be signed and turned in before we leave on wednesday.
6. Wednesday, March 1st, load food into trailer.

REMEMBER: You are to assign these duties evenly to the members of your team and KEEP TRACK of their progress. Plan on giving me a written evaluation by this Sunday, February 26th (I still need to cut 7 people).

Also make sure that all of your team members realize that there will be a MANDATORY MEETING this Friday, April 28th, right after school (2:45pm) in Rm 32.

TEAM MEMBERS:

1. HIDE KASHIMA (SECONDARY)
2. EVA ANDERSON (SECONDARY)
3. GLENN POGUE
4. BART WYATT
5. LANCE JEFFERY
6. MALIA FANN
7.

2/11/88

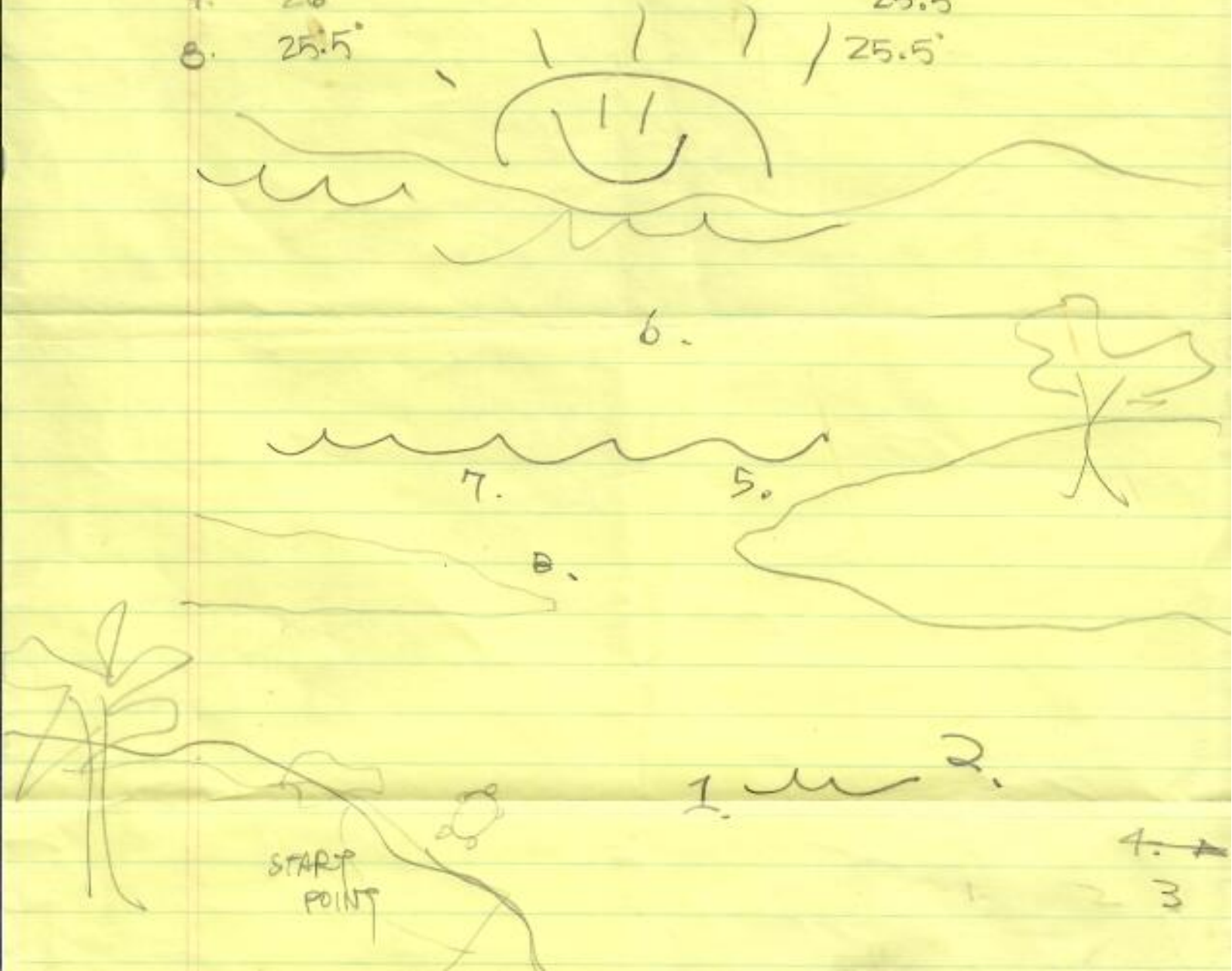
TINA &

KIHOLO BAY

START: 2:45 pm

END: 3:45 pm

	surface	bottom
1.	24°	25°
2.	23.5°	24.5°
3.	23.5°	25.5°
4.	24.5°	25°
5.	24°	25°
6.	26°	26°
7.	26°	25.5°
8.	25.5°	25.5°



4.	24.5°	25°
5.	24°	25°
6.	26°	26°
7.	26°	25.5°
8.	25.5°	25.5°

MEMORANDUM 09/22/88

TO: ALL POTENTIAL TURTLE TAGGERS (That's you!)

FROM: DAVE GULKO

SUBJECT: MEETING AND ACTIVITY SCHEDULE TO QUALIFY TO PARTICIPATE IN STRP

CONGRATULATIONS!!! You have taken the first step required in order to participate in this fall's HPA/NMFS Sea Turtle Tagging Research Project. The project was started last year as an extension of some work that some HPA students did with the University of Hawaii at Hilo. The National Marine Fisheries Service personnel were so impressed with the quality, maturity and interest displayed by HPA students last year they have asked if we would like to continue the project this year. This is really a phenomenal opportunity for you! You may get the chance to work hands-on with an endangered species; collecting REAL data with REAL scientists that will be used to find out more about the Hawaiian Green Sea Turtle and perhaps ways of saving their populations from the increased effects of man. This is the sort of work that graduate and undergraduate students in college usually do; you may get the opportunity to be amongst some of the only high school students in the Unites States doing this kind of work. If you decide that you are interested in trying to join us on this expedition, you need to accomplish the following:

1) Attend two meetings to be held on Sunday evening, Oct. 2nd and 16th respectively. These meetings will be held in room 41 from 6:30 - 8:00 pm; failure to attend without talking to me beforehand will cause you to be dropped from consideration. The meetings will deal with introducing you to a number of aspects about sea turtles, their biology and natural history. We will also discuss basic sea turtle research techniques and perhaps set up a practice session in the pool to give you a taste of what you're in for. At the second meeting we will also be assigning preliminary research teams and duties. For those of you who have never been on one of these expeditions , I will have slides of previous trips for you to look at.

2) Take and pass a short test on the material presented at the two meetings. Scores on the test will be used to evaluate candidates.

3) There have been some changes from previous trips and it will be expected that those students participating will take on most of the load for the pre-trip planning and preparation...those students which do not help out with the pre-trip preparations will be dropped from the program.

4) Finally, I've already initiated getting feedback from your teachers, coaches and dorm personnel about your being able to participate; I will be using this and the previous information to try to narrow down the list to around fifteen people - it's not going to be easy, it's a great group of people!!! Obviously because of the importance of this research project, I am going to try to take the most mature (not necessarily the oldest) and INTERESTED people that I can.

Once again, please make sure that you attend the **mandatory** meeting on Sunday, Oct. 2nd and lug along any questions, ideas or suggestions you might have about the project. I'm really looking forward to this fall's expedition, I think it's going to be an exciting and fun trip!

10/09/88

Dear George:

Things have been really busy over here as of late, but I wanted to take some time to let you know what's happening with us and getting ready for the upcoming STRP trip from Oct. 26 - 28. I've had a total of 53 students sign up for the upcoming trip and am in the process of trying to "weed" down this number to a manageable 15 students. I think the interest level amongst the students is very high and we're trying to make maximum use of this to attract really high quality and ambitious students into the program (see enclosed handouts and letter to Mr. Hind). This year the students are being given alot more responsibility for the pre-trip preparations and hopefully we can tie-in a journal assignment (for their English classes) and possibly some independent projects (got any ideas?). I've put out an invitation to the UH M.O.P. program to have a couple of their students participate and am still awaiting word on this.

If you can drop me a line to reconfirm the flights and times that you'll be using on this trip it would help me arrange vehicle logistics; also if there is any additional equipment that we should be lugging along I need to try and arrange for this (by the way, UH-Hilo MOP has offered us use of one of their turtle innertubes - do you think it's worthwhile to lug along a third float?). Otherwise we look in great shape, hopefully Mr. Hind will be able to observe some of the project this time as I think it would be really beneficial to solidify his support through his active participation on one of these excursions.

BANG STICK ?

If you have any questions about any of this information please feel free to contact me either at school (885-7321 ext. 50) or at home (885-4139), otherwise I'll see you in a couple weeks.

DAVE

- AIR FARE
- BATTERIES

Address=

October 7, 1988

Dear Mr. Hind:

I'm very sorry that it has taken me this long to get back to you with an update on the HPA/NMFS Sea Turtle Research Project. I attended a National Marine Educators Association conference this summer where I gave a presentation on the project to a group of educators from around the country. It was truly amazing to see how unique and special this project really is; people there found it hard to believe that the kind of REAL research opportunity that college undergraduates are rarely offered is being experienced by our high school students. People from the National Aquarium in Baltimore and the Center for Environmental Education in Washington have both expressed a strong interest in the project as a unique example of "hands-on" environmental education and as a potential model for places elsewhere. I've also been in touch with some people involved with the Great Barrier Reef Marine Park Authority who are interested in possibly using this, as a model, as part of their marine education program in Australia.

George Balazs has been in touch with me and we both feel that the project has such strong merits that we would like to try to continue it if possible. Some of the important benefits it provides the school are:

1) Unlike most high school science experiences (labs, fieldtrips, etc.), this provides students with the opportunity to work hands-on with REAL scientists doing REAL research. It's important to emphasize that the students are not just observing work done with an endangered species but actually doing most of the data collecting, monitoring and tagging themselves under the guidance of the chief scientist; this is a great opportunity to turn kids on to science and to the unique Hawaiian environment that surrounds them.
2) We know that experiences like this help kids to mature and start taking responsibility for the world around them. In order to be eligible to participate, students do most of the planning and preparation for the trip.
3) For a number of these students this opportunity provides them with a big boost in getting into the colleges that they're interested in as a result of a number of the reasons listed above.
4) It provides students with a way of interacting with professionals and college students which, due to HPA's location, would not otherwise be feasible.

We've had a tremendous increase in student interest for this project - 53 students have signed up for the 15 available positions. Students are eligible to participate based upon grades, teacher recommendations, attendance at two sea turtle seminars to learn more about the animal's biology and natural history, and then taking and passing a short test on the material they've learned, and helping with all of the planning and preparation for the trip. Students are divided into four groups with each group having a student leader; each group is

responsible for one aspect of the pre-trip preparation (equipment organization, food preparation, etc.) and then pulls shifts while we are on-site.

I was hoping that it would be possible for you to come down and see first hand what the project is like and how it runs; I realize that it might be difficult for you to take Wednesday, Thursday and Friday off from work, but perhaps we could arrange for you to meet us down there for one evening and then observe the tagging and measurement process the next morning. If there is any other information that I can provide for you or if you have any other questions concerning the project, please feel free to contact me at 885-7321 ext. 50 or at home at 885-4139. Once again, thank you very much for all of your support for this project.

Sincerely,

Dave Gulko

A mixed plate of ocean anecdotes

JIM RIZZUTO

Four anecdotes: one promising, one disturbing, one hopeful and one historical.

The Hawaii Division of Aquatic Resources expects to replace the Fish-Aggregation Devices (FADs) off Kawaihae sometime in mid November. These buoys disappeared last spring and summer, probably through natural causes (deterioration of the anchor line).

DAR spokesman Glenn Higashi, the man in charge of the FAD system, says the replacement operation depends on the availability of the vessel *Kila*. The *Kila* is the boat normally assigned by the state for FAD maintenance but is also involved in a wide range of other projects.

Higashi says the DAR hopes to barge the buoys to Kawaihae so they'll be available on site whenever the schedule of the *Kila* permits deployment. Having the buoys, lines and anchors nearby should speed the process, says Higashi, because otherwise the *Kila* would have to return to Honolulu between jobs to get the gear.

Right now, the vessel is involved in an interisland cable-laying operation.

Once the buoys have been replaced, Kawaihae boats should have three to choose from — OTEC, XX and ZZ. The DAR does not plan to replace YY because it is only an intermittent producer and rarely gathers fish.

A few weekends back, a sea turtle research team working in conjunction with the National Marine Fisheries Service (NMFS) discovered an illegal gillnet stretched point to point across Kiholo Bay. The mesh, said one member of the team, was clearly less than the two-inch minimum for gillnets stipulated by law.

During the team's two-day, overnight stay, the net was untended. It had been set out before the researchers arrived, remained untended while they were there and was still there after they left.

NMFS has no jurisdiction in state waters, so an official of the party contacted the state's enforcement division to report the violation and seek assistance. The caller was told that no enforcement officers were available. All had been assigned to the state's marijuana eradication program.

Seat turtles are endangered species. NMFS and its volunteer assistants, are capturing turtles at places like Kiholo, tagging them and releasing them to study age, growth, and other aspects of their natural history and biology.

Kiholo is an especially important site because the sheltered waters and sandy beach attract sea turtles. The researchers have been able to capture and tag more than a hundred Kiholo turtles over the past two years.

On last week's excursion, they were delighted to find a rare Hawksbill turtle — among the most endangered of the many kinds of sea turtles now threatened by loss of habit and predation.

As you wander around Honokohau Harbor looking at the tuna towers on all of the supersized big game boats, here's a historical trivia question for you to ponder.

What Hawaii boat was the first one with a tuna tower, when was it introduced and who was the skipper?

For Keauhou skipper Capt. Jack Ross, this was an easy question. He brought the Marleen here to Kona from Florida

See RIZZUTO: Page 18

From page 15

more than 20 years ago.

An article by Bruce Carter in the Feb. 4, 1968 Honolulu Star Bulletin was bannered "Look Out Marlin! Hawaii's First Tuna Tower."

Bruce's story led off with:

"Another first will make its bow in Kona waters this week when a sport cruiser with a Bimini-style tuna tower completes its cross channel run from Honolulu. Long a familiar sight off Florida and the Bahamas, none of the tuna towers has been used in the Hawaiian Islands heretofore."

Atlantic Ocean fishermen seeking bluefin tuna found the high perches — twice as high as a flying bridge — useful for spotting schooling fish far off in the distance.

Since we don't have bluefin here, local trollers had reservations about the value of these ungainly looking replicas of the Eiffel Tower.

"Whether the tuna tower will be of any assistance in spotting marlin in Kona waters remains to be seen," wrote veteran fisherman, author and captain, Bruce Carter. "Veterans doubt that anything other than the conventional flying bridge is necessary off Kona where the fish stay deep.

"As a result, critics will be closely watching the new cruiser to see if the tuna tower appears to be bringing better-than-average catches," he said.

The proliferation of tuna towers in the last two decades has swept away the critics — perhaps without settling the question.

Ironically, Captain Jack's current boat (what else? the Capt. Jack), designed by Jack, himself, has a flying bridge, but no tuna tower.

Questions and comments for this column should be addressed to Box 635, Kamuela 96743-0635.

NMFS project

Turtle Tagging at Kiholo Bay, Hawaii

by Kyle Miller
UH Manoa Student Coordinator

In two nights on a recent Big Island turtle tagging expedition, MOP Coordinator, Steve Russell and Student Coordinator, Kyle Miller (both from UH Manoa), along with students from the Hawaii Preparatory Academy (HPA) caught and tagged 29 Hawaiian green sea turtles (Chelonia mydas). The number was the largest ever caught in a turtle tagging project with the National Marine Fisheries Service (NMFS) project.

In studying the turtles and learning about their habitats, diets and migratory habits, NMFS hopes to better understand this threatened species. According to the Federal Endangered Species Act, a threatened species is defined as one that is likely to become an endangered species in the near future. An endangered species is one that is in immediate danger of extinction.

George Balazs of NMFS, and project organizer, Dave Gulko (MOP alumnus) led 17 HPA students to Kiholo Bay on the west side of the Big Island for this project. Gulko is a marine biology teacher at HPA.

The project began on the afternoon of March 1 when the participants drove from the HPA campus in Waimea, to Kiholo Bay, where they set up camp.

The students were divided into three teams that took turns cooking, cleaning and watching the turtle nets that were set up at the start of the expedition.

Above: George Balazs (NMFS) measures the width of the shell of a turtle as students from HPA help out. Top right: Manoa MOP Coordinator Steve Russell carries a turtle out from under the tarp. The tarp was used to cover the captured turtles overnight until they could be measured in the morning. Photos by Kyle Miller.

These tangle nets, set up along the mouth of the bay, were about 20 yards long, and were hung down in the water and supported by floats on the surface. Whenever a turtle would get caught in the net, its flippers would be visible on the water surface, or the net would sink.

Each team had two two-hour shifts nightly. The turtles were netted at night when they swam into the bay to sleep. Those that eluded the net were caught during the night snorkel in the bay.

This team effort worked well, and on the first night they caught 18 turtles. The turtles were kept until the next morning, at which time each turtle was tagged, photographed, and its data collected. The data include different shell measurements, the length of the flippers, the width of the head, its sex, and feces samples (to analyze diet). Over half of those caught in this project had been previously tagged, and this information was noted for a later comparison study.

After the turtles were released, the HPA students spent a few hours with their studies and then went on a snorkeling trip as the first shift prepared the nets for the second night of turtle catching.

Five turtles were caught in the net on the second night, and six sleeping turtles were caught during the snorkel trip. Balazs would snorkel the coastline of the bay with a dive light and find sleeping turtles under ledges and crevices. He would then signal to the teams, who would place the turtles on floating inner tubes to tow them to shore.

The following morning the second batch of turtles was tagged and released, after which the participants broke camp and went home.

Balazs and Gulko were impressed with the students' hard work, and some of the students went on to participate in the Punaluu Bay turtle tagging project in April with UH Hilo MOP.

UH Hilo

Sixth Annual MOP Student Symposium

by Lani Teshima
Managing Editor

As the culmination of hours of work spent on their skill projects, 15 MOP students from around the state gathered to make their presentations at this year's Sixth Annual Marine Option Program Student Symposium, sponsored by UH Hilo MOP.

And for the first time in the history of the symposium, every one of the four MOP campuses clenched an award.

The symposium was held on the UH Hilo campus on Saturday, March 4, with 14 presentations made in either of two categories: Research or Internships. The MOP students were judged on their abstracts, organization, presentation, and fielding of questions.

Manoa MOP was represented by six students, five made their presentations for Hilo MOP, with two each from both Maui MOP and Windward MOP.

The judges for this year's presentations were: UH Hilo MOP Co-Coordinators Walt Dudley; Leon Hallacher; Dave Krupp, Windward Community College (WCC) MOP Coordinator; Stewart Johnson, retired educator and UH Hilo community advisor; Pete Hendricks, agent with the Divison of Aquatic Resources of the state Department of Land and Natural Resources; Javier Mendez, UH Manoa graduate student; Dave Gulko, MOP alumnus and marine biology teacher at Hawaii Preparatory Academy; Kakkala "Gopal" Gopalakrishnan, Honolulu Community College (HCC) instructor; Keith Bigelow, UH Manoa oceanography graduate student; Steve Russell, Manoa MOP Coordinator; Tom Daniel, Director of the Natural Energy Laboratory of Hawaii; and John Craven, Director of the Law of the Sea Institute.

MCC MOP student Steve Holly receives a plaque from MOP Director Sherwood Maynard for capturing the "John P. Craven Award," which recognizes presentations of special achievement. Holly won the award with his video production titled, "Line Islands IV Educational Video Documentary." Photo by Kyle Miller.

The symposium was opened by UH Hilo MOP Co-Coordinator Walt Dudley, who spent the day as the emcee.

After a brief introduction, UH Hilo MOP Co-Coordinator Leon Hallacher, welcomed the presentors and guests to the symposium, and gave his personal thoughts on the event.

According to Hallacher, the symposium, and "MOP in general" allowed undergraduate students to conduct the kind of research and internships that are usually reserved for the realm of graduate students.

"Not only do we assist students with projects, but we also sponsor these types of forums where they can present their findings," said Hallacher. "And the quality of the work we have seen in the past (MOP symposiums) attests to the success of this program ... Clearly our mission in MOP is an important one."

Inspirational remarks were then made by MOP Counselor, John Craven, the co-founder of MOP and currently the Director of the Law of the Sea Institute here in Hawaii.

Craven had just returned from a conference in Texas where attendees assessed the ocean-related needs for the future of the U.S. Among those ideas included the need for an ocean waste disposal system, the recommendation for a more intensified focus on environmentalists, and "the use of deep ocean water as a recognition as the greatest resource we have," he said. On this topic, he talked briefly about the Ocean Thermal Energy Conversion (OTEC) plant on the Kona coast of the Big Island.

The Sixth Annual MOP Student Symposium gave old friends who hadn't seen each other a chance to get together, including Ligaya Stice (who represented WCC in her presentation, but is now studying at Manoa), Miki Grimes (formerly of WCC, currently at Manoa), and Cindy Wilburn (WCC). Photo by Lani Teshima.

1989

UHM MOP will be having a special potluck party on Friday, April 28 from 6:30 p.m. at Sans Souci Beach Park. The party will celebrate the end of the semester, plus the hiring of Steve Russell as our new Manoa MOP Coordinator. This party has a foods-of-the-sea theme, so bring any kind of food (except alcohol) that applies. Sans Souci Beach is right next to the Natatorium past the Waikiki Aquarium on Kalakaua Avenue. This is your chance to unwind during your study-for-your-exam sessions. Be there, or definitely be square!!!

Contents

Letters to MOP

Dear MOP Gang:

Hello from the "Old World" -- Portugal! I am down here on a two-week vacation getting away from gloomy London. The weather is gorgeous and the pace of life very Hawaiian-like! Sitting at a beachside cafe in Estovil is a very addictive form of relaxation. I trust all is well on your end(s)! Aloha, Bjorn (B.J.) Aune
MOP Alumnus
February 15, 1989

Sherwood:

It sounds like a busy season for you this year -- if it's May 2nd week, Sherwood must be in Qingdao (wherever that is).

I just completed my 2nd mates license, and have no idea where I'll ship out of next. I no longer have control; it's all union from here, since I've been at their school in Florida for two months. Am taking (yes, Sherwood) computer programming this month. Probably just enough to make me dangerous. Enjoy getting the newsletters from MOP. Take care and enjoy your work overseas. Aloha,
Heather Fortner
MOP alumna
March 21, 1989.

Seawords Ass't Editor Needed

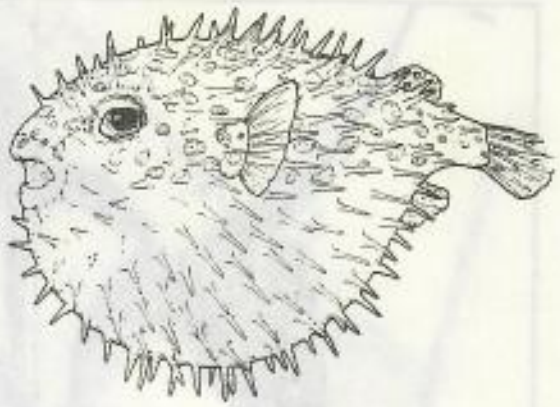
After some juggling of funds, MOP now has monies available to hire an assistant editor who does not have to be on the work study program through financial aid. This means that if you are a student at UH Manoa, you may be qualified to be the assistant editor at Seawords!

Duties include: Attending MOP functions, reporting on MOP activities, students and projects, writing news articles, re-writing news releases, editing news stories, layout of the newsletter, circulation, as well as some light clerical duties in the Seawords office area.

Desirable skills include: Good writing skills, with preference in writing news stories, basic working knowledge of a 35mm camera, and word processing. However, if you are a good writer, we can train you with practically everything else. Interest in the ocean and ocean activities are helpful, but not necessary.

The schedule is extremely flexible, as long as it is coordinated with the managing editor. The work is for up to 20 hours a week. The continuation of the position past June 30 will be dependent on satisfactory performance and availability of funds.

If you are interested in marine journalism, this is the perfect place to start! Call Lani now at 948-6000.



On the cover: Manoa MOPer Niki Grimes climbs out of the hatch of the Atlantis submarine in Kailua-Kona on the Big Island. The submarine ride was part of the MOP Student Symposium weekend. See this issue for related stories. Photo by Lani Teshima.

Seawords
University of Hawaii
Marine Option Program
1000 Pope Rd. #203
Honolulu, HI 96822
ph. (808) 948-6000

Editor: Lani Teshima

Seawords is a monthly news publication of the Marine Option Program, and is supported by the UH Sea Grant College Program, the state Ocean Resources Branch, the state Aquaculture Development Program and the UH. The opinions expressed herein are not necessarily those of MOP or of the UH.

Listen carefully and you will hear...

Seawords

MARINE OPTION PROGRAM UNIVERSITY OF HAWAII

News of the Marine Option Program University of Hawaii
Seawords April 1989 Vol. IV No. 4

In this issue:

Big Island Special

November 15, 1989

George Balaz
National Marine Fisheries Service
2570 Dole St.
Honolulu, Hawaii 96822-2396

Dear Mr. Balaz,

I talked to Natasha about the stomach samples taken from the turtles and she told me that she had sent them back to your office uncompleted because she hadn't had enough time to process them. As far as the remaining samples are concerned, I don;t know if you would feel comfortable sending them to me in light of the apparent mix-up with Natasha, but I am willing to press the samples if you would like.

In regards to the article you sent on a summer internship at Kilauea Point, I would like to thank you for thinking of me. I will contact Dan Moriarty.

How is the autopsy with the turtle found off the coast going? I was really suprised to hear about it's situation, being so far from home and all.

I appreciate the opportunities you have provided for me. Have a nice Thanksgiving.

HPA #8

Monica Traub
P.O Box 428
Kamuela, Hawaii 96743

Dear George,

Sorry its been so long getting back to you. I was trying to find the address you sent me to assure that you would get messages. Unfortunately I can't find it, so please let me know when I see you next week at the lecture. Enclosed is a thank you letter to Earl Bakken, he made a most generous donation to the program and is willing to continue the support in the future. Randy Vitousek would like to see students and faculty from HPA attend meeting set up by the land owners at Kiholo to try and zone Kiholo as a marine conservation area. The first meeting will be held sometime in January, which I plan on attending. I will let you know the date, so that if you are free perhaps you might be able to attend. The group leaders on the last trip were; Shannon Pustka, Eva Anderson, Marina Nogues, Rebecca Mortemore. Again I apologize for sending this off so late.

Thanks,
Monica Traub

GHB

May 17, 1989 F/SWC2:GHB

Ms. Bek Mortimer
Hawaii Preparatory Academy
P.O. Box 428
Kamuela, HI 96743-0428

Dear Bek,

This letter is to offer my formal congratulations for the excellent job you did as a team leader during our recent 3-day research expedition to capture and tag green turtles, Chelonia mydas, at Kiholo Bay. I appreciate the interest, enthusiasm and cooperative spirit you displayed as a student leader in this important work.

As you know, our cooperative sea turtle project with the Hawaii Preparatory Academy is the only one of its kind offering direct "hands-on" research experience to students at the high school level. The success of this unique program continues to be demonstrated as an effective way for students to gain field experience, while at the same time collect critical data on a threatened species at a reduced financial cost to the government.

Again, thank you for your involvement and contribution of time and talent. I wish you well in all your future endeavors.

Sincerely,

George H. Balazs
Zoologist and Leader,
Hawaiian Sea Turtle Recovery Team

HAWAII CLIPPING SERVICE
P.O. Box 10242
Honolulu, Hawaii 96816
PHONE: 734-8124
Victoria Custer Elaine Stroup

WEST HAWAII TODAY

FEB 8 1990

HPA students get 'hands-on' experience studying turtles

HPA has a mission unique in the high school world: to aid National Marine Fisheries Service scientists in their search for information about the Hawaiian green sea turtle, which could increase the population of this threatened species.

"Students helping scientists" is the brainchild of Dave Gulko, former HPA science teacher who is now working toward a Ph.D. at the University of Southern California. Gulko got the idea while assisting George Balazs, NMFS zoologist and turtle expert, during a joint research project between NMFS and college students in the University of Hawaii's Marine Option Program.

Balazs was interested in the idea: the site would be Kiholo Bay, an important feeding and sleeping area for green turtles, which was monitored only sporadically because of budget constraints. HPA students would provide the manpower and a generous donation from the late Robert L. Hind Jr., of Kailua-Kona provided the necessary funds for the first year of research. More recently, access to Kiholo and support of the program has been provided by the Kiholo Landowners Association, whose members acquired much of the property from the Hind family in 1988.

Such an opportunity is rare even for college students, much less high school students, according to Balazs and Gulko. "To learn about the biology of an endangered species up-close is a unique opportunity," Gulko said. "Most people have never seen a green sea turtle, but our students are gaining the hands-on experience of assisting a real scientist in real field conditions."

Since October 1987, Upper School students, science teachers, and Balazs have made three expeditions each year at Kiholo Bay. During each two night, three day field study, the student investigators assist Dr. Balazs as he gathers information about turtle growth rates, feeding behavior, and parasite infestation.

During each expedition, now led by Marine Biology instructor Monica Traub, students work day and night in well-defined jobs that test their research skills and tax their endurance. Most night work is done by students designated as water researchers. The turtle tenders help with on-shore work, which includes tagging, recording data, and care of the captured turtles through the night. Other students serve as camp facilitators, cooks, and photographers (both above and under water). All students are rotated so everyone gets a chance at each job.

Taking four-hour shifts through the night, the student-scientists watch the capture area and scan the large mesh tangle nets for signs of the elusive reptile. Once a turtle is snagged in the net, the dive team on duty swings into action to

See TURTLES
Page 31A

over

READY FOR RELEASE — Chris Reynolds (left), Jay Warkentin and Neil Ozaki, all members of the Class of 1988, release a turtle into the sea after having placed an identification tag on its flipper. The turtle is being lifted from an inner tube used to safely carry it to shore for tagging.

...turtles

From Page 29A

remove it rapidly to avoid any possibility of injury.

The turtle is carefully removed from the net, carried to shore in a large inner tube to await data collection. In the morning, each turtle is carefully measured and tagged on a fore-flipper with a corrosion-resistant ID tag. Stomach samples and fecal samples are taken, external parasites are noted and, in some cases, removed.

After all necessary scientific data has been gathered, the students carry the turtle back to the ocean's edge and release it. The turtle rides an ocean surge to deeper water then swims away in a burst of speed, none the worse for the experience.

Since that first trip two and a half years ago, sixty turtles have been captured, tagged and released. With each capture, valuable data helps scientists. For example, recaptures dating back to 1980 have occurred. These long-term recaptures indicate that the growth rates of turtles averaged about one-half inch per year in shell length, which is considered slow, according to Dr. Balazs. At that rate, it will take the turtle many years to reach a large enough size (about 32 inches) to be sexually mature.

"It's interesting that we don't have more recaptures," Balazs said. "That we catch 10-13 turtles indicates there's a good number of turtles depending on that site for eating, sleeping and living."

Other information provides data about injuries to sea turtles. One of the turtles had a non-functional hind flipper, the result of an injury that Dr. Balazs suspected almost amputated the flipper. Such injuries are most often caused by entanglement in a gill net or in monofilament fishing line.

NEWSMAKER 6-12-86
HSB A3

Studying turtles is his thing

Knowledge about threatened Hawaiian green sea turtles is growing because of an idea Big Island high school teacher Dave Gulko had last year.

In March, Gulko joined college students studying the turtles at Punaluu in Ka'u.

Study leader George Balazs of the National Marine Fisheries Service had known since 1973 about another turtle site at Kiholo in North Kona, but rarely had time to go there.

Name: Dave Gulko
Age: 27
Position: Biology teacher, Hawaii Preparatory Academy
Education: UH-Manoa
Next project: Manta rays

Gulko proposed leading teams of his Hawaii Preparatory Academy students to Kiholo, as Balazs leads college students to Punaluu.

The proposal was accepted both by Balazs and by Kiholo landowner Robert L. Hind Jr., who donated enough money for food and camping gear for groups of 15 to 20 students at a time.

Gulko led three three-day field trips in October, February and April.

The turtles were captured, usually with nets, by students working in two- to three-hour shifts during the night. During the day the turtles were tagged, studied and released.

Some of the Kiholo turtles captured by Balazs in prior years were found to be growing two to three times faster than their cousins at Punaluu.

Much remains to be learned, says Gulko. The turtles breed at French Frigate Shoals, 500 miles northwest of Honolulu, and have been much studied there.

But little is known of the major part of the turtles' lives after hatchlings leave the shoals and swim to the main Hawaiian Islands.

"How long does it take for the turtles to reach sexual maturity? What do they feed on? People have found a bunch killed by parasites. We took parasite samples to find out more," Gulko says.

Gulko's interest in marine biology started while he was a student at Castle High School when he joined a program called the Blue Water Marine Laboratory. He continued on for a degree in zoology at UH Manoa.

Gulko prepares much of his own teaching material because no one has written a text on Hawaiian marine biology since there are so few people teaching it.

"There's a whole other world in the ocean," he says. "It's something people should be learning about. It's part of their heritage."

Rod Thompson, Star-Bulletin

ADMINISTRATOR'S BRIEFING BOOK

BACKGROUND SHEET FORM

o BULLET TITLE: NMFS and Hawaii Preparatory Academy Conduct Cooperative Green Sea Turtle Research at Kiholo Bay, Hawaii

o BACKGROUND:

- Under the Endangered Species Act guidelines, the Southwest Fisheries Center Honolulu Laboratory has been monitoring annual nesting activity, migrations, growth rates, and other aspects of the Hawaiian green turtle, Chelonia mydas, in Hawaii. As part of this research, the Honolulu Laboratory conducted three field studies in fiscal year 1988 (21-23 October 1987, 10-12 February 1988, and 27-29 April 1988) on the Island of Hawaii at Kiholo Bay, an important feeding and sleeping area for green turtles.

  During the studies, turtles captured by hand or by net were tagged on a fore flipper for future identification and measured to determine growth rates. Also, stomach and fecal samples were taken, external parasites were noted and sometimes removed, then the turtles were released.

  Funding for the three field studies was provided by the Hawaii Preparatory Academy (HPA) at Kamuela, Hawaii. Some of the HPA students (about 17 per study) also assisted the Honolulu Laboratory scientists in the research. Prior to fiscal year 1988, Kiholo Bay was monitored only sporadically due to budget constraints.

o STATUS:

- The research results of the three field studies are very promising. In the October 1987 study, six turtles were captured; one of the turtles had been captured previously in August 1984. Thirteen turtles were captured in the February 1988 study; two of them had been captured previously in October 1980 and August 1984. Ten turtles were were captured in the April study; three had been captured previously: one in February 1988, one in March 1980 and again in August 1984, and one in August 1984.

o SIGNIFICANCE:

- The number of captures indicates that there is a sizable number of turtles depending on Kiholo Bay for eating, sleeping, and living.

- Long-term recaptures indicate that the growth rates of turtles averaged about 1.04 cm per year (range, 0.60-1.77 cm per year) and that Kiholo Bay is "home" to at least those turtles.

ORIGINATING OFFICE: F/SWC, La Jolla, California

CONTACT: George W. Boehlert
FTS (808) 943-1221

George Balazs
FTS (808) 943-1240

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Area Office - Southwest Region
2570 Dole St. - Honolulu, HI 96822

August 14, 1990 F/SWR14:ETN

Duane Kanuha
Director of Planning
County of Hawaii
25 Aupuni St.
Hilo, HI 96720

Dear Mr. Kanuha:

This is in reference to an application for a Special Permit from the Hawaii County Department of Public Works to develop a landfill in North Kona. Our agency's interest in this proposed project concerns the potential impact of groundwater contamination from leachate produced by the landfill and its effect on the nearshore waters of Kiholo Bay. Kiholo Bay is a significant green turtle foraging and resting habitat which is being studied by our Honolulu Laboratory. It is also one of the few known green turtle aggregations free of fibropapillomas, a debilitating disease which seems to be spreading throughout the Hawaiian population of green turtles, a Federally listed threatened species.

The general flow of groundwater in the area is from mauka to makai, which places Kiholo Bay downstream of the proposed landfill site. Contamination of the springs or ground water flowing into the Bay could affect the algae and sea grasses on which green turtles feed by inhibiting growth or result in bioaccumulation of heavy metals or chemical pollutants. In order to eliminate this potential for ground water contamination by leachate and the secondary impacts to turtle food resources in Kiholo Bay we recommend the following mitigating measures be included in any permit issued for the project.

1. The soil compacted membrane proposed as a liner for the landfill should be of suitable material and thickness to prevent leachate migration into the groundwater table. Standards similar to those required for EPA designated hazardous waste sites should be considered in designing the landfill liner.

2. Monitoring wells downstream of the landfill site and a monitoring schedule should be required as a permit condition. A contingency plan to suspend operations and modify the landfill should be developed in the event that testing reveals infiltration of leachate into the groundwater table.

Inclusion of these conditions and other mitigating measures such as leachate collection and pumping should eliminate any adverse impacts to green turtle habitat at Kiholo Bay from the proposed project. I can be reached at 808/955-8831 or at the address above should you have any further questions.

Sincerely yours,

Eugene T. Nitta

Eugene T. Nitta
Protected Species Branch

cc: F/SWR14, Lecky
R.M. Towill, C. Sakoda

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396

October 30, 1989 F/SWC2:GHB

Mr. Jerome Jude
P.O. Box 4829
Kailua-Kona, HI 96745

Dear Jerome,

I appreciated having the opportunity to meet you in person and discuss matters of common interest at Kiholo Bay. Many thanks for voicing your strong concern about the constant problem of gill nets being set back and forth across the bay, especially where turtles travel to rest and feed. The small mesh (1 1/2") net apparently allowed for Halalu, set without tending for 12 hours or more, must surely entangle and drown young turtles. we have in fact confirmed such mortality in one of the turtles tagged during the 1988 HPA project. Furthermore, we have now documented that juvenile hawksbills sometimes use the bay. As you probably know, this species is critically endangered in Hawaii, with an estimated nesting population of only two to three dozen adult females.

Your best chances for promoting good conservation practices at Kiholo would be for the community association of land owners to vigorously speak out on this subject as one voice. For example, the amount of trash tossed around by overnight campers is astounding. Plastic bags, common amongst the litter, blow into the bay where they are liable to be eaten by turtles and cause harm. Illegal littering might be an appropriate problem to tackle for starters.

As promised I am sending an assortment of articles about sea turtles and our research efforts. Again, thank you for your interest.

Sincerely,

George H. Balazs
Zoologist

Enclosures

cc: Marc Rice, HPA

GHB

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396

May 7, 1990 F/SWC2:GHB

Ms. Shannon Pustka
Hawaii Preparatory Academy
P.O. Box 428
Kamuela, HI 96743-0428

Dear Shannon,

This letter is to offer my formal and hearty congratulations for the excellent job you did participating in our field research at Kiholo Bay to study and tag Hawaii's threatened and endangered sea turtles (Chelonia mydas and Eretmochelys imbricata). I appreciate the interest, enthusiasm, and cooperative spirit you displayed as a student team leader involved in this important work.

As you know, our joint sea turtle project with the Hawaii Preparatory Academy is the only one of its kind offering "hands-on" research experience to students at the high school level. The success of this unique program continues to be demonstrated as an effective way for students to gain research experience, while at the same time facilitating government scientists to collect critical data on a protected species.

Again, thank you for your involvement and contribution of time and youthful talent. I wish you all the best in your future endeavors.

Sincerely,

George H. Balazs
Zoologist and Leader Hawaiian
Sea Turtle Recovery Team

cc: Marc Rice, HPA
Monica Traub, HPA

Same letter to:

Marina Nogues
Kevin Krammer
Marania House
Bek Mortemore
Laura Rice
Eva Anderson
Kristen Glaspey

GHB

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396

May 7, 1990 F/SWC2:GHB

Ms. Daniela Carriera
Hawaii Preparatory Academy
P.O. Box 428
Kamuela, HI 96743-0428

Dear Daniela,

This letter is to offer my formal and hearty congratulations for the excellent job you did participating in our field research at Kiholo Bay to study and tag Hawaii's threatened and endangered sea turtles (Chelonia mydas and Eretmochelys imbricata). I appreciate the interest, enthusiasm, and cooperative spirit you displayed as a student assistant involved in this important work.

As you know, our joint sea turtle project with the Hawaii Preparatory Academy is the only one of its kind offering "hands-on" research experience to students at the high school level. The success of this unique program continues to be demonstrated as an effective way for students to gain research experience, while at the same time facilitating government scientists to collect critical data on a protected species.

Again, thank you for your involvement and contribution of time and youthful talent. I wish you all the best in your future endeavors.

Sincerely,

George H. Balazs
Zoologist and Leader Hawaiian
Sea Turtle Recovery Team

cc: Marc Rice, HPA
Monica Traub, HPA

Same letter to:

Tracy Kopp	Krsita Lombardo	George Brandt
Sage Nottage	Kath Hannah	Heather Craven
Emma Clark	Alex Nesic	Dubi Negovetic
Greg Steven-Hazzard	Jessica Carew	Robbie Hastings
	Glen Pogue	Cassie Quaintance
Sylvan Waller	Jose Arroyo	Farris Bogue
Neil Stork	Rachel Shackelford	Jake Cordeiro
Bart Wyatt	Jennifer Loper	Teva Victor
Liz Miura	Jane Provalenko	Amanda Roth
Claire Johnson	Brian Johnson	Naaman Friefield
Justin Whittington		Tyson Rott

NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center

NEWS RELEASE

May 16, 1988

For immediate release

George W. Boehlert/George H. Balazs (943-1211/943-1240)

Students Help NMFS Honolulu Laboratory Study Green Sea Turtles

High school students are helping scientists of the Southwest Fisheries Center Honolulu Laboratory of the National Marine Fisheries Service study Hawaiian green sea turtles at Kiholo Bay on the Island of Hawaii. Such an opportunity is rare even for college students much less high school students, according to George Balazs, a zoologist with the NMFS Marine Mammals and Endangered Species Program.

Students of the Hawaii Preparatory Academy at Kamuela, Hawaii, have assisted Balazs in three field studies on green turtles at Kiholo Bay since October 1987. The field study on April 27-29, 1988, included 17 HPA students as well as 4 students from the Hawaii School for Girls in Honolulu.

"Students helping scientists" is the brainchild of Dave Gulko, an HPA science teacher. Gulko got the idea while assisting Balazs during a joint research project between NMFS and college students in the University of Hawaii's Marine Option Program.

(more)

1st ADD
Students help NMFS

Balazs was very interested in Gulko's idea: Kiholo Bay, an important feeding and sleeping area for green turtles, was monitored only sporadically because of budget constraints. Gulko's students would provide the needed manpower for such research; a generous donation from the late Robert L. Hind, Jr., of Kailua-Kona, Hawaii, provided the necessary funds for one year of research.

During the field studies, the student-scientists are grouped into teams that work in 2- to 3-hour shifts through the night, when turtles are sleeping and much easier to catch. The duties of each team are rotated so that students learn as much as possible about turtle research. Duties include watching for turtles, tending captured turtles, helping collect data, photographing turtles, camp duties and cooking.

To study and tag a turtle, it must first be caught either by hand or by net. Using a net is the more successful method. Dive teams stretch a large mesh tangle net across the lagoon. When a turtle is snagged in the net, the team watching from shore notifies a dive team, which quickly moves into action to carefully remove the turtle. The turtle is carried to shore and, in the morning, is tagged on a fore flipper and measured. Also, stomach and fecal samples are taken and external parasites are noted and sometimes removed. Then the turtle is set free.

The research results of the three field studies have been very promising. In the April study, 10 turtles were captured. Three had been captured previously in 1980, 1984 and February 1988. In the February study, 13 turtles were captured; 2 of them were long-term recaptures.

(more)

2d ADD
Students help NMFS

Long-term recaptures indicate that the growth rates of turtles averaged about half an inch per year. Long-term recaptures also indicate that Kiholo Bay is "home" to at least those turtles.

"It's interesting that we don't have more recaptures," said Balazs. "That we catch 10-13 turtles indicates there's a good number of turtles depending on that site for eating, sleeping and living."

Students selected for the program must have good grades and display a high degree of motivation and a willingness to work. Part of their evaluations are also based on how well they perform during the planning stages of the research. This experience gives students a taste of the logistics involved in planning a scientific field study.

The other teachers and the HPA administration are behind the program 100 percent, according to Gulko, who knows of no other project like this in Hawaii and perhaps the United States. Gulko is presenting a paper on the program in July at the National Marine Educator's Association in Santa Cruz, California.

Neither Gulko nor Balazs could say for certain whether the program would continue next year. "But we've been so judicious in spending the money, we have enough for one or two nights of research this summer, with seven or so students," said Balazs.

Both Gulko and Balazs agree that the program is a success so far. "The future of the joint program looks very bright," said Balazs.

The NMFS is an agency within the U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

(30)

G: [illegible] standard 3.0

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396

November 3, 1988 F/SWC2

Mr. Joe Thill
Cooperative Sea Turtle Research Project
Hawaii Preparatory Academy
P. O. Box 428
Kamuela, Hawaii 96743-0428

Dear Joe,

I want to take this opportunity to thank you for the fine job you did during our recent three-day research expedition to tag and study green sea turtles (Chelonia mydas) at Kiholo Bay. I was duly impressed by the interest, enthusiasm, and cooperative spirit which you and all the students displayed during the course of our work. I enjoyed having you involved in the project and I look forward to working with you again.

When time permits, I would greatly appreciate receiving a short letter from you summarizing the educational and other benefits you obtained from participating in this research project. Also, please include any suggestions you may have for project improvements with regard to enhancing your experience from a student's perspective.

Sincerely,

George H. Balazs
Zoologist and
Leader, Hawaiian Sea Turtle
Recovery Team

cc: David Gulko
Marc Rice

GHB:gr

bcc: GHB ✓
HL

Identical letters sent to the following students:

1) Mr. Joe Thill
2) Ms. Bek Mortemore
3) Ms. Simone Maliejewski
4) Mr. Chris Caldwell
5) Mr. Sylvan Waller
6) Mr. Lance Jeffery
7) Ms. Marania House
8) Mr. Shannon Pustka
9) Ms. Jane Provalenko
10) Mr. Jason Provalenko
11) Ms. Tracy Kopp
12) Mr. Darren Redford
13) Ms. Julia Bringloe
14) Mr. Eric Backman
15) Ms. Stephanie Rutgers
16) Ms. Natasha McDonough
17) Mr. Kevin Kramer
18) Ms. Sage Nottage

5/89

Dear Dr. Balazas ,

The experience you offered myself and the rest of our Hawaii Prep group was an exercise in meaningful , thought invoking , and fun study , which no laboratory no matter how endowed can replace . For this I am truly grateful .

For myself it offered one of he most stimulating experiences of my life as I swam only feet away from a mystery body that would either spell my group's success or could have caused utter failure . At the point when we found the ray I felt heightened awareness of how ill equipped man is in the sea but yet how we are the only ones that can predict its outcome . For others I know that it helped rebound scientific curiosity in students who were burned out from class room work .

Brevity is important so on to the basics . For our next trip I feel we missed no essentials and will be busy building he facilities toward luxury features(chairs) and a more varied diet , though not to say what we ate wasn't acceptable but certain foods just didn't hold for the conditions , namely the short ribs(short life due to picky campers) and pineapples (which nature single-handedly destroyed , did you see the size of the fruit flies on the final day?We're talking airplanes .)

Final notes(we were waiting I know) on two of my last three dives we have encounter turtles . Just north of Kawaihae when Jason and I were spearing we encountered a lone turtle of say fifty rounds . On a dive two weeks later of the Mauna Lani Resort at a place named Turtles we encountered three each playing within fifteen feet of us . None were tagged (just wait)

and all were sleeping or resting on the bottom as we first passed them .

Well thank you once again for everything and looking forward to seeing you in March .

Sincerely

ERIC BACKMAN

MEMORANDUM

TO: O.D., COACHES, USO AND ALL INTERESTED FACULTY

FROM: DAVE GULKO

DATE: February 26, 1989

SUBJECT: SEA TURTLE RESEARCH PROJECT

HAWAII PREPARATORY ACADEMY
P.O. BOX 428 • KAMUELA, HAWAII 96743-0428
(808) 885-7321

The following students have been invited to participate on the third turtle tagging expedition to be held from Wednesday, 03/01/89 till Friday, 03/03/89. They will miss all of their Thursday and Friday classes and the last four periods on Wednesday.

If you feel that any of these students should be present in your class on those days because of their academic standing or due to any other extenuating circumstances, please contact me immediately. Please keep in mind that this is hopefully the final list of students who will be able to participate and that these students will have mandatory study periods during the day at Kiholo. If any of these students drop out at the last minute I will be sure to notify you of the change.

1.	ADAMS, KATHERYN	Sophmore
2.	ANDERSON, EVA	Sophmore
3.	BACKMAN, ERIC	Senior
4.	BERTHOUD, LISA	Sophmore
5.	GLASPEY, KRISTEN	Freshman
6.	HANNAH, KATHERINE	Freshman
7.	HEGGER, DAWN	Junior
8.	KRAMER, KEVIN	Sophmore
9.	MORTEMORE, BEK	Junior
10.	NEGOVETIC, DUBI	Junior
11.	NEGOVETIC, VISNJA	Junior
12.	NOGUES, MARINA	Junior
13.	PUSTKA, SHANNON	Junior
14.	RICHARDSON, JEFF	Senior
15.	SWEET, KIM	Sophmore
16.	THOMAS, RYDER	Freshman
17.	WALLER, SLYVAN	Junior
18.	WYATT, BART	Freshman
19.	ZIVKOVIC, IVANA	Junior

HAWAII PREPARATORY ACADEMY
KAMUELA, HAWAII 96743

SCIENCE DEPARTMENT

4/3/87

Dear George,

I am writing to you to express my thanks for letting my students and I participate in the MOP/NMFS Turtle Project; I know that both Pat and Ian both got ALOT out of the experience and have shared that with their classmates. I've talked to Walt about participating next spring and hopefully contributing more towards the project. Additionally, I am very interested in your suggestion about the possibility of a HPA/NMFS turtle project in N. Kona; as I mentioned earlier the school has a bunch of equipment that could be used in such a project (4WD [redacted] boats, camping gear, measuring gear, etc.).

Anyways, once again - Mahalo for allowing us to participate and I look forward to hearing from you.

Sincerely,

Dave Gulko

D. Gulko
HAWAII PREPARATORY ACADEMY
P.O. BOX 428
KAMUELA, HAWAII 96743-0428

FYI & write R'HIND

Return.

Good potential for 1-2x year netting at Kiholo Bay in N. KONA. PROCEED?

Geo high school ages?

OK WGG.

HAWAII PREPARATORY ACADEMY
KAMUELA, HAWAII 96743

SCIENCE DEPARTMENT

10/1/87

DEAR GEORGE,

Well, things are starting to get rolling over here - I have about 20 students (incl. 2 from UH Hilo) broken down into 4 teams of 5 each. Adult-wise there will be Marc, Walt Dudley, ANNE Oldford (A teacher from HPA) and her friend and myself. Each team has already been assigned tasks to do as a group to make sure all the equipment, vehicles and food is ready to go Oct. 21st.

Already a number of students are trying to figure out how they can turn this experience into a research project... We've started working on 2 floats, I'll let you know if we run into any problems. If you come-up with anything else you think we might need, drop me a line —

SEE YA IN A COUPLE WEEKS

DAVE

SIDE NOTE:
OUR DIVE LIGHTS TAKE 4 AA BATTERIES EACH

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396

May 4, 1988 F/SWC2:GHB

Ms. Tanya Bishop
Student Investigator
Cooperative Sea Turtle Research Project
Hawaii Preparatory Academy
P. O. Box 428
Kamuela, Hawaii 96743-0428

Dear Tanya,

I want to take this opportunity to thank you for the fine job you did during our recent three-day field expedition to tag sea turtles at Kiholo Bay. I was duly impressed by the interest, enthusiasm, and cooperative spirit which you and all the students displayed during the course of our work. I enjoyed having you involved in the project and I look forward to working with you again.

Sincerely,

George H. Balazs
Zoologist and
Leader, Hawaiian Sea Turtle
Recovery Team

cc: HPA Science Teachers:

Marc Rice
David Gulko
Matt Hughes

Identical letters sent to the following individuals:

Laura Rice

Alison Kerr

Marayka Waters

Jeni McKenzie

Erica Fischer

Joe Magaldi

Dan Sayre

Bek Mortimore

Becky Norley

Jason Proklenko

Each of the following Student Investigators received a copy of the same letter:

(2) Brett Deci

(3) Dana Ellis

(4) Lisa Hadway

(5) Kris Lasko

(6) Tina Liu

(7) Pati Lovernich

(8) Jennifer Mann

(9) Glenn Murfin

(10) Andre Nogues

(11) Theresa O'Keefe

(12) Neil Ozaki

(13) Chris Reynolds

(14) Joe Thill

(15) Jay Warkentin

GHB

November 1, 1988 F/SWC2

Ms. Bek Mortemore
c/o Mr. David Gulko
Hawaii Preparatory Academy
P. O. Box 428
Kamuela, HI 96743-0428

Dear Bek,

Enclosed are the data that I promised to send you for use in your science project on green turtles (Chelonia mydas) at Kiholo Bay. I encourage you to reorganize this information to suit your own needs. There are several ways to present these data to emphasize significant findings (for example, growth rates).

An acknowledgement of our agency's cooperative role in this project would be appreciated. Please feel free to contact me if you need any additional help or information.

Sincerely,

George H. Balazs
Zoologist

Enclosure

GHB:gr

bcc: GHB
HL

October 31, 1988 F/SWC2:GHB

Ms. Natasha McDonough
c/o Mr. David Gulko
Hawaii Preparatory Academy
Kamuela, HI 96743-0428

Dear Natasha,

Under separate cover I am sending you the algae samples collected from green turtles (Chelonia mydas) at Kiholo Bay that we talked about for use in your science project. There are 11 samples from stomach flushings and one sample of feces. The feces of the green turtle almost always contain recognizable algae suitable for identification purposes. All twelve of the samples were collected during our February 1987 field study (HPA No. 2).

With Mr. Gulko's assistance, I am sure that you will be able to make professional pressings for use as a permanent reference collection. The sample I previously gave you can serve as a model. Where sufficient sample exists, please make a second pressing for me to retain in my reference files.

Sample/turtle tag No.

Stomach contents	Feces contents
8903	8714 feces
8905	
8909	
8911	
8701	
8702	
8714	
8716	
8720	
8722	
8724	

If you have any questions please feel free to contact me. I can provide you with more samples after the ones we just collected have been identified by our professional consultant.

Sincerely,

George H. Balazs
Zoologist

Enclosure
GHB:ll
Enclosure
bc: Balazs, HL

10/26/87

Dear George,

Things are starting to return to normal over here on the Big Island after last week's trip to Kiholo. Most of the kids thought it was one the best experiences that they have had at HPA; I wanted to take this opportunity to thank you very much for making it happen. Marc and I are going to get together in the near future and come up with a evaluation of how we think the trip went (actually, we'll be talking more about ways of improving it next time...) and I would greatly appreciate any thoughts you might have on the subject.

Concerning the sighting of the dead turtle at Kiholo this past weekend, I have talked to a number of students and they have confirmed that the turtle was wedged into the rocks within the tidal range and that they did not see any tags on the fore flippers (although I should note that none of these students were present on the tagging expedition and therefore might have missed noticing a tag since they did not know what exactly to look for or where to look for it). They also said that they did not remember seeing anybody gill netting in the area (or fishing for that matter...), but once again, they were not there for the whole week-end, but were camped by the houses on the other side of the bay.

Finally, here's the list of student participants that you requested; I think all in all, they did a pretty good job.
Take care and I'll talk to you soon.

PAUL CAMPBELL
BRETT DECI
DANA ELLIS
LISA HADWAY
KRIS LASKO
TINA LIU
PATI LOVERNICH
JENNIFER MANN
GLENN MURFIN
ANDRE NOGUES
THERESA O'KEEFE
NEIL OZAKI
CHRIS REYNOLDS
JOE THILL
JAY WARKENTIN

FACULTY: MARC RICE, DAVE WHITENACK AND MYSELF.

TURTLE TAGGING

On the 11th of October the people that were on the list posted in the Dining hall all met in Room 32 for a brief meeting to explain about what the turtle tagging is about, what kind of work we would have to do, we also learned about the turtles themselves and why it is so important for us to tag them.

On the 18th, 19th, and 20th of October I went on a trip to Kiholo Bay as a member of the group that was chosen to go turtle tagging. the 18 to 20 people that went on the trip not including faculty were grouped into three groups that had certain duties to fulfill to get ready for this trip. on Tuesday night we, my group, went down to the kitchen to chop meat and pack up the food for the trip. This was one of the one of the duties that had to complete as Group One. When we finished we went up to our dorms and packed for the next day.

On Wednesday, all the people on the expedition gathered in the Commons at 7:30 to help pack up all the things into different trucks and to have a brief talk with one of the chaperones. Basically before we all left we all knew what we were going to have to do, how much cooperation was expected from us and what kind of work we would have to do. We finally left at about 9:30 that morning and went on our way. We reached Kiholo at about

10:00 and started to set-up camp. When we finished setting up camp, we ate lunch and became acquainted with Dr. Belozs. When we were all finished with lunch we sat down and Dr. George Belozs talked to us about the project, how it started, what it was in the past, he gave us some background on it and some statistics or data from the past projects. Afterwards he talked to us about what he planned on doing this time and we asked questions about it. Afterwards we transported some of the materials over by foot and by swimming them over and also by kayak.

By this time it was already 4:30 and so the first shift group had to go over and watch the netthat had been put up earlier. That group stayed on shift for 2 hours and then another group took over. This procedure lasted until 12:30 that morning. At 10:00 a small group of snorklers went out on a night snorkel to catch some turtles by hand that were hiding in the rocks on the sides of the lagoon. When they came back with the turtles Mr. rice went out on the kayak and pinned up the net for the night. that night we had caught five turtles. The next morning we weight and measured them and set them free. After we finished we went back to camp and started our mandatory study hall. It started at 11:00 and ended at 12:00 then we had lunch. After lunch we continued study hall for another hour. At 2:00 we had free time to do anything. We could study, walk along

the beach or rocks or join the skeleton crew that was set up just to keep an eye on the net so that we wouldn't have to pin it up. At 4:30, we started our 2 hour shifts again. During all of these shifts at least Mr. Rice, Mr. Watson, or Mr. Belozo were always there to supervise. No one went into the water to get a turtle out of the net with out one of the three there to make sure there was nothing near the net like a stingray that would hurt us. That night there was a night snorkel. During the night snorkel we caught seven turtles including a Hawksbill turtle which is only one of its kind found there. That night we caught a total of twenty turtles, thirteen which were not captured.

The next morning we all went down there and recorded the data about the turtles. When we finished with that we let them go and started closing down camp. we all cleaned up the observation site and our campsite. We packed up an left about 2:00 after a quick lunch. We got back to school at 2:45 and washed down all our gear, ports potties and other things that we used. We put them away when we finished we all went up to our dorms and cleaned ourselves.

From this project I have learned some interesting things. I have learned more information about turtles, more than I ever knew before; I have learned about how to record data, about the different parts of the turtle and itself. I have learned how to remove the turtles

from the net and how to handle them. From this I have also experienced a slap from one of the turtles as I brought it to the water. The turtle tagging project was fun and it filled us up with knowledge. Most of us experienced a lot from this trip and for some it was their first camping trip. I hope that these projects continue because they might be able to find and capture more turtles especially Hawksbills, which will help to prove the point that Kihalo Bay is a place with the preferred habitat for sea turtles and also other endangered turtles will be better if this place be made a sanctuary or reserve where these animals can't be harmed and can live in peace to revive their numbers.

BY JESSICA CAREW

George Brandt

10/30/89

Per. B

My Turtle Tagging Experiences

The October turtle tagging trip was my first experience in turtle tagging. I found it exciting and enjoyable. I learned some things about turtles that I did not know before.

Before this trip I did not know that there were any green sea turtles. I knew that there were turtles in the ocean but I did not know what type. I also learned that there are turtles called hawk's bills.

In addition I learned something about the migratory habits of turtles. I found out that turtles usually return to their place of birth to lay their eggs. I learned that there are many turtles in the [French Frigate Shoales] and that it is a place where many turtles return to, to lay eggs. I also learned that Kiholo bay is a sight where many turtles return to over and over. For example one turtle that was caught had been captured at least four times at the same location.

I gained some information about the life cycles of turtles. I learned that the green sea turtle does not reach sexual maturity until about 30 or more years of age. I was told by Doctor George Balaz that after mating the female

green sea turtle can keep the male's sperm inside her body

for prolonged times, which results in the female being able to lay several batches of a hundred or more eggs.

Doctor Balaz also told us that some turtles have layed eggs in the Hawaiian islands, and that one turtle layed eggs on Kauai of which none survived. He also explained that when the turtles emerge from their eggs, they are able to tell if it is hot or cold out by the sand temperature. Also we were told that the hatchlings will not leave the nest until the outside temperature is colder in order to excape being killed by the heat. Also I learned that many hatchlings are killed by birds and other predators while makeing their ways to the water.

After the turtles reach the water they are not seen for several years where upon they begin to be seen. Then they start to return to a certain place for the rest of their lives.

On this trip I learned how to capture the trutles. I also learned something about how to record information about the turtles. For example how to weigh the turtles, identify markings, take measurements, and to remove parasites.

This trip was a great learning experience. I felt good about doing something to help preserve our endangered species. At the same time I enjoyed the camping and other free time activites. And of course the night snorkel was a interesting experience. I hope HPA continues to offer this unique trip.

George Brandt

TURTLE TAGGING MARINA NOGUES

OCT. 31, 1989

Turtle Tagging should be an experience that every student at H.P.A. has the opportunity to participate in. It tests the students' responsibility and ability to cooperate amongst other students with whom they do not usually associate.

I feel the extra responsibility placed on me as a group leader lent much to my educational experience. It made me realize what exactly we were there to do. It was our work over those two days that will ultimately help in the argument that Kiholo Bay is a thriving turtle sanctuary.

The expedition during the month of October was really quite successful. I feel that although things didn't seem to be all that organized here at school, once the trip got under way, things straightened out a lot and the teams worked efficiently with their group leaders and the faculty advisors. The first night snorkel was not as well organized as hoped for by the leaders, but I must confess that I played a role in that. The people should have been rounded up before the minute the snorkel started, and being one of the free groups, mine should have participated well. I think the second night was a hit because the people learned what not to do and eagerly participated in all events they could.

Overall, I feel that this particular trip was very profitable to the people involved. It taught every participant what a helpful role he or she was serving to the turtles. We were giving back to nature a small part of all that we take.

Kristen Glaspey

TURTLE-TAGGING EXPEDITION

When we arrived at Kiholo Bay, everyone pitched in immediately to set up camp. Though we were slow getting out of school, we got things done fairly quickly once we were actually at the site. It wasn't the most pleasant work - I helped set up the porta-potties - but it got done rapidly. Besides, watching Kevin swing from the rafters to hook up a tarp was hilarious.

Once our personal gear was set up we started sending gear over to the research site and we still had time to spare before Dr. Balazs arrived. Once he got there, though, we were working as efficiently as possible to get the net untangled, attatch it to another net, and then swim it across the bay. I was the last person to hand the net out to the swimmers and I kept worrying that I might tangle it somehow, but that was just needless paranoia. When the net was finally out, the first shift started their watch while the rest of us headed back to camp. I wasn't needed until the second shift so I just hung around with everyone and talked and we had a good time.

When I was on shift that night, we only caught one turtle. Dr. Balazs, Mr. Watson and I had a hard time untangling him from the net and eventually Dr. Balazs had to cut a few pieces of the net. According to Dr. Balazs, this turtle also nearly bit my wrist off in its flailing around. Needless to say, I kept a sharp eye on where the turles' mouths were after that. I didn't go on the night snorkel after my shift, opting instead to fall asleep quite quickly once I got back to camp.

The next morning I was on breakfast crew, but nobody woke me up until it was too late for me to help much - I did a lot of cleaning up instead. When we got over to the research site, everyone (including Dr. Balazs) was pretty relaxed because we only had five turtles to take data on. Consequently, Dr. Balazs spent a lot of time on each one and took out all of their burrowing barnacles. Once that was done, though, we had to study for two hours.

I was on the first shift that day and had the fun task of pulling down and straightening the net. Other than searching for the walkie-talkie and watching the fishermen with the gill-net collect their rotting fish, there was no more action during that shift. I was also on the last shift that night so (because there were no more wetsuits) I stayed back with Mr. Rice, Mr. Watson, Daniella and Sage at the net. Sage and I met the snorkellers at the drop-off point and gave them an empty float in return for a float full of sometimes several turtles! I'm always going to remember Eva paddling back to the beach saying, "Kevin got a Hawksbill!!! It's in the kayak!!!" I think that moment started the best part of the trip, when Eva and Kevin were unofficially named its parents and Balazs was just flying high - he even kept the turtle in his car trunk overnight!!

The next morning we were working at top speed, taking only the most important measurements since we had twenty turtles to work up. Balazs did spend a long time on the Hawksbill and all of us marvelled at the miracle of Kevin actually capturing an animal so high on the endangered species list. A group of about seven of us

Robbie Hastings
HPA #8
18-20 Oct. 89

On Wednesday, the 18th of October, we went down to Kiholo to catch, measure, and tag turtles. When we got there we set up camp. When that was done we went across the bay to the observation site and got that ready. Almost as soon as Dr. Bellas arrived we tied the net together and put it across the lagoon. By the time that was done it was time for the first shift to begin. That night we only caught a few turtles in the net and on the night snorkle.

The next morning we went out across the bay to measure the turtles we caught the night before. That was really interesting because I have never touched a turtle before. First we would check if the turtle had tags if they did we scraped them off, read the numbers, and record it in the book. Then we measured them. Some turtles were harder to measure than others because of their size and some were a lot calmer than others. We covered their heads with a rag because it seemed to calm them down. After they were measured we weighed them. All the information was recorded in the speckled composition book that Dr. Bellas keeps all the information in. When we had all the measurements we needed we paddled them out and let them go in the bay.

When we got back to camp we had a studyhall with lunch in the middle. That afternoon we had some free time, but not a lot because the first shift started shortly after we were done.

My team was on the second shift that day. On the shift before us two turtles were caught. About as soon as my shift started the turtles decided they wanted to get out of the lagoon. Right after the second shift started four turtles got caught in the net at the same time. Mr. Rice and a couple of other people went out to bring them in in the inner tubes. It was like that most of the night. Infact, we were standing the water for what seemed like for ever on the way to the night snorkle because turtles kept getting caught in the net when we started out. We caught many turtles on the night snorkle that night, including an endangered baby Hawksbill. When we got back from the snorkle we took in the net.

The next morning we measured, weighed, tagged them and let them go in the bay. When we were through with the turtles we rolled the nets up and cleaned up the observation site. Then we packed up our things at the observation site and went back to camp. We the cleaned up the camp and packed our things up. After lunch and we put every thing in the trucks we left.

I am glad I was able to on the Turtle Tagging trip because I am interested in saving the turtles. I think that if possible Kiholo should be turned into a national park or something to protect the sea turtles. I learned a lot about the beautiful animals on this trip.

HPA #8
18-20 oct 89

Tracy Kopp

10-30-89

IMPRESSIONS OF TURTLE TAGGING

Tagging turtles is a unique experience that everyone should try. To feel the nip of the night water, to rush out to rescue a sea creature in the tangle of a net. To experience the thrill of not knowing what may be lurking, then to feel an exhilaration of conquering your fear and succeeding in returning to shore with a new turtle.

Then the next morning, watching the sun rise while sharing breakfast with friends you might never have spent time with. Later, feeling the heat of the sun on your back as you bend to examine one of the creatures caught earlier. Recognizing their strength as you help to stop their struggling. Then you see their relief and happiness as you release them after a night on shore.

Turtle tagging provides something for everyone! gives the National Marine Fishery Service information and data to set guide sanctuaries for the Hawaiian Green Sea Turtle, it provides students of HPA with an experience that no one else receives, it also instills in them a sense of what we're doing to our planet. The next time they are ready to throw a plastic bag into the breeze, they'll think about it and throw it in a dumpster instead.

I am exceedingly grateful for the opportunity we have to do this. I know it has taught me a lot and I wish to continue participating in projects like this. Hawaii has lost so many of its natural inhabitants

already. It gives me a sense of pride to know that I may be doing something to help and to enlighten others.

329-3737
322-9696

F/SWC2:GHB

Ms. Barbara Nichols
P.O. Box 2845
Kailua-Kona, HI 96745

Dear Barbara,

I want to take this opportunity to thank you for the important information you provided to me concerning tagged turtle No. 8945, 8946 found dead at Kiholo Bay on August 19, 1988. From the description you provided, I agree that the animal likely died from forced submergence in a gill net. This is a regrettable adverse impact on sea turtles that is a widespread problem in the Hawaiian Islands. The turtle that you found was originally tagged at Kiholo in June of this year in our cooperative research project with the Hawaii Preparatory Academy.

As you know, all sea turtles in the Hawaiian Islands are listed and protected under the U.S. Endangered Species Act and wildlife laws of the State of Hawaii. The National Marine Fisheries Service is charged with the responsibility of conducting research that will aid in the recovery of sea turtle populations, and their eventual return to former levels of abundance. I have enclosed several articles about our work at Kiholo Bay, as well as general information about sea turtles, which you may find interesting. If you have any questions, or items of special concern that you would like to discuss, please feel free to call me at 943-1240 or 943-1221.

Again many thanks for your help.

Sincerely,

George H. Balazs
Zoologist

Enclosure

GHB:ey
cc: Balazs
HL

Late Sept 89

Shannon Pustka
P.O. Box 1180
Kamuela, Hawaii
96743

Mr. George Ballazs,

I don't know if you remember me, but I went on several of the turtle tagging expeditions you conducted with H.P.A. last year. You sent each of us a letter verifying that we had participated in the program. This letter was deposited in my college file, unfortunately a few documents from my file have been lost, yours being one of them.

If it is not too much trouble, could you please send me another one to my school address: box 428, Kamuela, Hawaii, 96743? Thank you for the time and knowlege you have given me and my H.P.A. peers. I hope to see you on the upcoming trips.

Sincerely,

Shannon Pustka

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Fisheries Center Honolulu Laboratory
2570 Dole St. • Honolulu, Hawaii 96822-2396

March 21, 1989 F/SWC2:GHB

Ms. Shannon Pustka
Hawaii Preparatory Academy
P. O. Box 428
Kamuela, HI 96743-0428

Dear Mr. Shannon,

This letter is to offer my formal congratulations for the excellent job you did during our recent 3-day research expedition to capture and tag green turtles, Chelonia mydas, at Kiholo Bay. I appreciate the interest, enthusiasm, and cooperative spirit you displayed as a student participant in this important work.

As you know, our cooperative sea turtle project with the Hawaii Preparatory Academy is the only one of its kind offering direct "hands-on" research experience to students at the high school level. The success of this unique program continues to be demonstrated as an effective way for students to gain field experience, while at the same time collect critical data on a threatened species at a reduced financial cost to the governement.

Again, thank you for your involvement and contribution of time and talent. I wish you well in all your future endeavors.

Sincerely,

George H. Balazs
Zoologist and Leader, Hawaiian
Sea Turtle Recovery Team

5-3-94 ED
5-3-94

STATE OF HAWAII

DOCARE-6

Dept. DLNR
Div. DOCARE

INVESTIGATION REPORT

1. REPORT NUMBER: HA 94-260

2. INVESTIGATOR: ED LEWIS

CLASSIFICATION: ENDANGERED SPECIES (HAWAIIAN SEA TURTLE)

3. ISLAND: Hawaii

4. DISTRICT: West Hawaii

5. COMPLAINANT (Firm Name, if Business): ED LEWIS PR NMFS 5-3-94

6. SEX / RACE / AGE:

7. D.O.B:

8. OCCUPATION: CREO III

9. ADDRESS: P.O. Box 310 Capt. Cook

10. SCHOOL EMPLOYED/SCHOOL ATTENDING: STATE OF HAWAII

Res. Ph.:

Bus. Ph.: 323-3141

11. LOCATION OF OFFENSE AND CLOSEST INTERSECTING STREET: Kiholo Bay Makai Queen Kaahumanu Hwy.

12. DATE/TIME/DAY OCCURRED: 04-23-94/1530/Saturday

13. DATE/TIME REPORTED: 04-23-94/1615/ Saturday

14. DESCRIBE LOCATION OF OFFENSE OR TYPE OF PREMISES: Off Shore/ North of Kiholo Bay

15. HOW REPORTED: Phone

16. VEHICLE INVOLVED ( ) — Year / Make / Model / Color(s) / License No. / I.D. Characteristics

17. BOAT INVOLVED ( ) — Length / Make / Model / Color(s) / Name / HA No. / I.D. Characteristics

18. REGISTERED OWNER / Address / Res. Phone

CODE: W = Witness S = Suspect (Fill in Composite Description) R = Reporting Person

19. NAME	Age	Sex	Code	Address	Res. Phone	Bus. Phone
Marc R. RICE		M	R	P.O. Box 428 Kamuela, Hi.	885-4965	885-8203

20. SEX	Composite Description Race	Age	Wt.	Build	Hair	Eyes	Complex	Clothes/I.D. Characteristics

21. INVESTIGATION: 1. Insert a synopsis of the crime of incident. 2. Summarize details of the crime or incident. 3. Denote persons from whom statements taken and who took them. 4. Identify additional suspects and witnesses. 5. Identify additional investigators. 6. Use opposite side for continuation of report, if necessary.

Synopsis

Reporting party reported Hawaiian Sea Turtle dead at Kiholo Bay.

ASSIGNMENT/ARRIVAL

4-23-94: 1430 Hrs. Assigned by WQM 674 Hilo Control to investigate a complaint of a dead green sea turtle at Kiholo Bay.

04-24-94: 0830 Hrs; Arrived at Kiholo Bay and meet with Marc RICE reporting party.

REPORTING PARTY STATEMENT

Marc RICE related that he is with the Hawaii Prep Academy/National Marine Fisheries Cooperative Sea Turtle Research Program. While at Kiholo Bay studying the turtles, one of his students found a dead turtle (Hawaiian sea turtle) next to the shoreline at the north side of Kiholo Bay in the lagoon area. Upon inspecting the carcass he concluded that it was slaughtered about three (3) or four (4) days ago, meat taken and just shell and intestine were left.

22. REPORT WRITTEN BY	Badge No	Date/Time	23. SUPERVISOR APPROVING	Badge No
ED LEWIS	#181	4-24-94	CHARLES NAHALE	#7

24. DISPOSITION

( ) Unfounded ( ) Arrested/No Prosecution ( ) Citation/No. ( ) Adult ( ) Arrested/Prosecuted ( ) Juvenile ( ) Other/No Arrest

25. Date/Time Reproduced	26. Distribution	27. Connecting Report No.

H# 94-260

ED LEWIS 04-24-94 ENDANGERED SPECIES

INVESTIGATION OF DEAD TURTLE

This Officer and Marc RICE walked to the site where the turtle was found. While at this area I found another dead turtle about twenty (20) yards away from the first turtle. It also was slaughtered, meat taken and just shell and intestine left. At this time the two (2) turtles were badly decompose (smelly and lots of maggots).

Pictures were taken of the carcass. Also it was determined that the turtle shells be covered with rocks and taken at a latter time to be sent to National Marine Fisheries. Mr. Rice will be sending samples taken from the turtles to the lab. to be examined for studies.

At this time no evidence could be found as to the responsible person(s) of the killing of the green sea turtles.

SCENE

The scene is located on the Island of Hawaii, district of North Kona, North side of Kiholo Bay in the lagoon area, approx. 30 feet from shore.

PHOTO

See photo record attached.

RECOMMENDATION

I recommend that this case be closed record only, checks will be made periodically in this area also this report be routed to National Marine Fisheries atten: George BALAZS.

CLOSED: RECORD ONLY

APPROVED

Charles NAHALE Supervisor West Hawaii

ED LEWIS #181
CREO III WH
04-24-94 1200 Hrs.

HA 94-260

PHOTO RECORD

ENDANGERED SPECIES

Photo #1
Depicts turtle #1 Mr. RICE reported.
Size: 58.8 centermeters by 44.5 centermeters.

Photo #2
Depicts turtle #2 this Off. found.
Size: 43.4 centermeters by 34.8 centermeters.

APPROVED

C. NAHALE, Supervisor West Hawaii

ED LEWIS
CREO III
04-24-94

#181
WH
1200 HRS

STATE OF HAWAII

DOCARE-6

Dept. DLNR
Div. DOCARE

INVESTIGATION REPORT

1. REPORT NUMBER: HA 94-260
2. INVESTIGATOR: ED LEWIS

3. CLASSIFICATION	4. ISLAND	5. DISTRICT
ENDANGERED SPECIES (HAWAIIAN SEA TURTLE)	Hawaii	West Hawaii

6. COMPLAINANT (Firm Name, if Business)	7. SEX / RACE / AGE	8. D.O.B.	9. OCCUPATION
ED LEWIS NMFS 5-3-94			CREO III

10. ADDRESS	11. SCHOOL EMPLOYED/SCHOOL ATTENDING	Res. Ph.	Bus. Ph.
P.O. Box 310 Capt. Cook	STATE OF HAWAII		323-3141

12. LOCATION OF OFFENSE AND CLOSEST INTERSECTING STREET	13. DATE/TIME/DAY OCCURRED	14. DATE/TIME REPORTED
Kiholo Bay Makai Queen Kaahumanu Hwy.	04-23-94/1530/Saturday	04-23-94/1615/ Saturday

15. DESCRIBE LOCATION OF OFFENSE OR TYPE OF PREMISES	16. HOW REPORTED
Off Shore/ North of Kiholo Bay	Phone

17. VEHICLE INVOLVED ( )	Year	Make	Model	Color(s)	License No.	I.D. Characteristics

18. BOAT INVOLVED ( )	Length	Make	Model	Color(s)	Name	HA No.	I.D. Characteristics

19. REGISTERED OWNER	Address	Res. Phone

CODE: W = Witness S = Suspect (Fill in Composite Description) R = Reporting Person

20. NAME	Age	Sex	Code	Address	Res. Phone	Bus. Phone
Marc R. RICE		M	R	P.O. Box 428 Kamuela, Hi.	885-4965	885-8203

21. SEX	Composite Description Race	Age	Wt.	Build	Hair	Eyes	Complex	Clothes/I.D. Characteristics

21. INVESTIGATION: [illegible] additional suspects and witnesses. 5. Identify additional investigators. 6. Use opposite side for continuation of report, if necessary.

Synopsis

Reporting party reported Hawaiian Sea Turtle dead at Kiholo Bay.

ASSIGNMENT/ARRIVAL

4-23-94: 1430 Hrs. Assigned by WQM 674 Hilo Control to investigate a complaint of a dead green sea turtle at Kiholo Bay.

04-24-94: 0830 Hrs; Arrived at Kiholo Bay and meet with Marc RICE reporting party.

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Marc RICE related that he is with the Hawaii Prep Academy/National Marine Fisheries Cooperative Sea Turtle Research Program. While at Kiholo Bay studying the turtles, one of his students found a dead turtle (Hawaiian sea turtle) next to the shoreline at the north side of Kiholo Bay in the lagoon area. Upon inspecting the carcass he concluded that it was slaughtered about three (3) or four (4) days ago, meat taken and just shell and intestine were left.

22. REPORT WRITTEN BY	Badge No	Date/Time	23. SUPERVISOR APPROVING	Badge No
ED LEWIS	#181	4-24-94	CHARLES NAHALE	#7

24. DISPOSITION

( ) Unfounded
( ) Arrested/No Prosecution
( ) Citation/No
( ) Adult
( ) Arrested/Prosecuted
( ) Juvenile
( ) Other/No Arrest

25. Date/Time Reproduced	26. Distribution	27. Connecting Report No.

HA 94-260

ED LEWIS 04-24-94 ENDANGERED SPECIES

INVESTIGATION OF DEAD TURTLE

This Officer and Marc RICE walked to the site where the turtle was found. While at this area I found another dead turtle about twenty (20) yards away from the first turtle. It also was slaughtered, meat taken and just shell and intestine left. At this time the two (2) turtles were badly decompose (smelly and lots of maggots).

Pictures were taken of the carcass. Also it was determined that the turtle shells be covered with rocks and taken at a latter time to be sent to National Marine Fisheries. Mr. Rice will be sending samples taken from the turtles to the lab. to be examined for studies.

At this time no evidence could be found as to the responsible person(s) of the killing of the green sea turtles.

SCENE

The scene is located on the Island of Hawaii, district of North Kona, North side of Kiholo Bay in the lagoon area, approx. 30 feet from shore.

PHOTO

See photo record attached.

RECOMMENDATION

I recommend that this case be closed record only, checks will be made periodically in this area also this report be routed to National Marine Fisheries atten: George BALAZS.

CLOSED: RECORD ONLY

APPROVED

Charles NAHALE Supervisor West Hawaii

ED LEWIS #181
CREO III WH
04-24-94 1200 Hrs.

PHOTO RECORD

HA 94-260
ENDANGERED SPECIES

Photo #1
Depicts turtle #1 Mr. RICE reported.
Size: 58.8 centermeters by 44.5 cen-

Photo #2
Depicts turtle #2 this Off. found.
Size: 43.4 centermeters by 34.8 cen-

termeters.

termeters.

APPROVED
C. NAHALE, Supervisor West Hawaii

ED LEWIS
CREO III
04-24-94

#181
WH
1200 HRS

Summary of 25 turtles tagged and resighted
at Kiholo Bay, Hawaii, 3-5 May 1989

Compiled by George H. Balazs
Southwest Fisheries Center Honolulu Laboratory
National Marine Fisheries Service, NOAA
2570 Dole Street, Honolulu, HI 96822-2396

Inconel Tag No.	Carapace length (cm)		Time interval in years	Growth rate (cm/yr)
	Initial	Recovery		
Y-105	46.0	46.6	0.2	3.0*
8905	41.6	44.8	1.2	2.7
3315	42.9	58.0	9.2	1.6
8947	70.1	70.3	0.8	0.3*
8903	39.1	41.6	1.2	2.1
8702	43.4	47.9	1.5	3.0
Y-102	56.8	56.9	0.2	0.5*
8909	44.8	47.4	1.5	1.7
Y-21	42.0	43.5	0.5	3.0*
Y-133	42.0	42.4	0.5	0.8*
8941	41.9	43.8	1.0	1.9
Y-117	63.0	63.4	0.2	2.0*
7789	57.8	63.4	4.8	1.2
7774	53.0	57.7	4.8	1.0
Y-124	47.3	47.6	0.5	0.6*
8929	42.6	45.3	1.0	2.7
Y-142	52.0	52.1	0.2	0.5*
8716	46.1	47.6	1.2	1.3
Y-96	43.6	44.2	0.2	3.0*
8939	49.3	50.3	1.0	1.0
8712	45.1	46.7	1.5	1.1
Y-2	50.4	51.7	0.5	2.6*
Y-122	51.2	51.7	0.2	2.5*
7785	51.2	59.0	4.7	1.7
7755	42.7	49.2	4.8	1.4
Mean	46.2	--	1.7	1.7
Range	39.1-70.1	--	0.2-9.2	0.3-3.0

* = Projected growth rates based upon time intervals of <1 year.

HONOLULU LABORATORY
Southwest Fisheries Center
2570 Dole Street
Honolulu, HI 96822-2396

SUMMARY OF TAGGING DATA FOR THE HPA/NMFS GREEN TURTLE RESEARCH PROJECT AT KIHOLO BAY, HAWAII

Compiled by G. H. Balazs

Tag No.	Straight carapace (cm) Length	Width	Date/time	Capture method
Expedition No. 1, 21-23 October 1987				
[a]7778, 7779, (8701)	60.6	49.1	10/21, 2230	Hand
8702, 8703	43.4	34.8	10/21, 2245	Hand
8704, 8705, 8706	55.0	43.0	10/21, 2300	Hand
8707, 8708	45.3	44.9	10/22, 1800	Net
8709, 8710, 8711	52.7	--	10/22, 1545	Net
8712, 8713	45.1	36.4	10/23, 0320	Net
Expedition No. 2, 10-12 February 1988				
8714, 8715	42.4	32.9	2/11, 0120	Net
8716, 8717	46.1	37.8	2/11, 0015	Net
8718, 8719	45.6	35.1	2/10, 2230	Hand
8720, 8721	59.2	45.6	2/10, 2300	Hand
8722, 8723	46.5	37.9	2/10, 2330	Net
8724, 8725, 8902	58.7	47.6	2/10, 1830	Net
8903, 8904	39.1	32.9	2/11, 1830	Net
8905, 8906	41.6	34.7	2/11, 1835	Net
[a]3476, 3477, (8907)	64.3	51.8	2/11, 1845	Net
[a]7759, 7760, (8908)	56.5	44.9	2/11, 1930	Net

Summary of tagging data (Kiholo Bay).--Continued.

Tag No.	Straight carapace (cm) Length	Width	Date/time	Capture method
8909, 8910	44.8	35.5	2/11, 2030	Hand
8911, 8912, 8913	59.5	47.8	2/11, 2045	Hand
8914, 8915, 8916, 8917	66.5	50.6	2/11, 1930	Net
Expedition No. 3, 27-29 April 1988				
8924, 8925, 8926	71.6	55.4	4/27, 2215	Net
8927, 8928	43.0	34.7	4/27, 2000	Net
8929, 8930	42.6	33.7	4/27, 2000	Net
8931, 8932	42.7	35.3	4/27, 1855	Net
[b]8720, 8721	59.3	45.6	4/27, 1855	Net
[a]3317, 7782, (8933, 8934)	65.8	49.5	4/28, 2030	Hand
[a]7774, (8935, 8936)	57.3	45.3	4/28, 2030	Hand
8937, 8939	40.8	35.0	4/28, 2045	Hand
8939, 8940	49.3	38.9	4/28, 1930	Net
8941, 8942	41.9	34.3	4/28, 1835	Net

[a]Long-term tag recoveries, all of which were originally captured and tagged at Kiholo Bay. Growth data, as measured by an increase in straight carapace length, are as follows:

7778, 7779, (8701)	Originally captured 8/9/84 (3.2 yr interval). Mean yearly growth of 0.87 cm (0.34 in).
3476, 3477, (8907)	Originally captured 10/14/80 (7.3 yr interval). Mean yearly growth of 1.77 cm (0.70 in).

7759, 7760, (8908)	Originally captured 8/8/84 (3.5 yr interval). Mean yearly growth of 0.83 cm (0.33 in).
3317, 7782, (8933, 8934)	Originally captured 3/21/80 (8.1 yr interval). Mean yearly growth of 2.02 cm (0.80 in). Also recaptured 8/9/84 (3.8 yr interval since present capture). Mean yearly growth of 0.6 cm (0.24 in).
7774, (8935, 8936)	Originally captured 8/9/84 (3.8 yr interval). Mean yearly growth of 1.13 cm (0.45 in).

[b]Short-term tag recovery.

8720 8721	Originally captured and tagged 2-1/2 mo earlier at Kiholo Bay on 2/10/88 (during Expedition No. 2).

SUMMARY OF TAGGING DATA FOR THE HPA/NMFS GREEN TURTLE RESEARCH PROJECT AT KIHOLO BAY, HAWAII

Compiled by G. H. Balazs

Tag No.	Straight carapace (cm) Length	Width	Date/time	Capture method
Expedition No. 1, 21-23 October 1987				
7778,[a] 7779, (8701)	60.6	49.1	10/21, 2230	Hand
8702, 8703	43.4	34.8	10/21, 2245	Hand
8704, 8705, 8706	55.0	43.0	10/21, 2300	Hand
8707, 8708	45.3	44.9	10/22, 1800	Net
8709, 8710, 8711	52.7	--	10/22, 1545	Net
8712, 8713	45.1	36.4	10/23, 0320	Net
Expedition No. 2, 10-12 February 1988				
8714, 8715	42.4	32.9	2/11, 0120	Net
8716, 8717	46.1	37.8	2/11, 0015	Net
8718, 8719	45.6	35.1	2/10, 2230	Hand
8720, 8721	59.2	45.6	2/10, 2300	Hand
8722, 8723	46.5	37.9	2/10, 2330	Net
8724, 8725, 8902	58.7	47.6	2/10, 1830	Net
8903, 8904	39.1	32.9	2/11, 1830	Net
8905, 8906	41.6	34.7	2/11, 1835	Net
3476,[a] 3477, (8907)	64.3	51.8	2/11, 1845	Net
7759,[a] 7760, (8908)	56.5	44.9	2/11, 1930	Net

Summary of tagging data (Kiholo Bay).--Continued.

Tag No.	Straight carapace (cm) Length	Width	Date/time	Capture method
8909, 8910	44.8	35.5	2/11, 2030	Hand
8911, 8912, 8913	59.5	47.8	2/11, 2045	Hand
8914, 8915, 8916, 8917	66.5	50.6	2/11, 1930	Net
Expedition No. 3, 27-29 April 1988				
8924, 8925, 8926	71.6	55.4	4/27, 2215	Net
8927, 8928	43.0	34.7	4/27, 2000	Net
8929, 8930	42.6	33.7	4/27, 2000	Net
8931, 8932	42.7	35.3	4/27, 1855	Net
8720,[b] 8721	59.3	45.6	4/27, 1855	Net
3317,[a] 7782, (8933, 8934)	65.8	49.5	4/28, 2030	Hand
7774,[a] (8935, 8936)	57.3	45.3	4/28, 2030	Hand
8937, 8939	40.8	35.0	4/28, 2045	Hand
8939, 8940	49.3	38.9	4/28, 1930	Net
8941, 8942	41.9	34.3	4/28, 1835	Net
Expedition No. 4, 28-30 June 1988				
8709,[b] 8710 8711	54.3	42.6	6/28, 2300	Hand
8716,[b] 8717	46.0	37.5	6/28, 2300	Hand
8707,[b] 8708	46.2	37.4	6/28, 2300	Hand

Summary of tagging data (Kiholo Bay).--Continued.

Tag No.	Straight carapace (cm) Length	Width	Date/time	Capture method
8704,[b] 8705 8706	56.0	44.1	6/28, 2330	Hand
8943, 8944	42.2	34.4	6/28, 2330	Hand
8702,[b] 8703	45.3	36.0	6/28, 2330	Hand
8945, 8946	49.7	38.7	6/28, 2330	Hand
8947, 8948 8949	70.1	55.5	6/28, 1900	Hand
7778,[b] 7779 8701	61.6	50.4	6/29. 2300	Hand
8712,[b] 8713	45.2	36.5	6/29, 2300	Hand
3951, 3952	55.1	43.3	6/29, 2330	Hand

[a]Long-term tag recoveries, all of which were originally captured and tagged at Kiholo Bay. Growth data, as measured by an increase in straight carapace length, are as follows:

7778, 7779, (8701)	Originally captured 8/9/84 (3.2 yr interval). Mean yearly growth of 0.87 cm (0.34 in.).
3476, 3477, (8907)	Originally captured 10/14/80 (7.3 yr interval). Mean yearly growth of 1.77 cm (0.70 in.).
7759, 7760, (8908)	Originally captured 8/8/84 (3.5 yr interval). Mean yearly growth of 0.83 cm (0.33 in.).
3317, 7782, (8933, 8934)	Originally captured 3/21/80 (8.1 yr interval). Mean yearly growth of 2.02 cm (0.80 in.). Also recaptured 8/9/84 (3.8 yr interval since present capture). Mean yearly growth of 0.6 cm (0.24 in.).
7774, (8935, 8936)	Originally captured 8/9/84 (3.8 yr interval). Mean yearly growth of 1.13 cm (0.45 in).

[b]Short-term tag recovery.

8720, 8721 8711	Originally captured and tagged 2 1/2 mo earlier at Kiholo Bay on 2/10/88 (during Expedition No. 2).

8709, 8710	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/22/87 (Exp. No. 1). Estimated mean yearly growth of 2.4 cm (0.94 in.).
8716, 8717	Originally captured and tagged 4 1/2 mo earlier at Kiholo Bay on 2/11/88 (Exp. No. 2). Estimated mean yearly growth of 0 cm (0 in.).
8707, 8708	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/22/87 (Exp. No. 1). Estimated mean yearly growth of 1.3 cm (0.53 in.).
8704, 8705 8706	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/21/87 (Exp. No.1). Estimated mean yearly growth of 1.5 cm (0.59 in.).
8702, 8703	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/21/87 (Exp. No. 1). Estimated mean yearly growth of 1.5 cm (0.59 in.).
7778, 7779 8701	Recaptured 8 mo earlier at Kiholo Bay on 10/21/87 (Exp. No. 1). Originally tagged at Kiholo Bay on 8/9/84. See footnote a.
8712, 8713	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/23/87 (Exp. No. 1). Estimated mean yearly growth of 0 cm (0 in.).

Summary of growth rates
for 15 green turtles, Chelonia mydas, tagged
and recaptured at Kiholo Bay, Hawaii

HI GROWRATE:GH15

Compiled by George H. Balazs

Primary tag No.	Initial straight carapace length cm	Recapture interval in year	Growth rate in cm/year
7770	38.0	4.2	1.57
7751	45.7	4.2	1.76
7755	48.7	4.6	1.30
7768	50.4	4.2	1.98
3526	52.6	7.7	1.32
7759	56.5	3.5	0.83
7774	57.3	3.8	1.13
7776	57.5	4.6	1.00
3315	58.2	9.0	1.70
7778	60.6	3.2	0.87
7789	63.2	4.3	0.79
3476	64.3	7.3	1.77
3317	65.8	8.9	1.83
3499	67.4	8.0	1.20
3487	70.4	8.3	1.50

$n = 15$

$\bar{x} = 1.37$ cm/yr

Summary of 24 green turtles tagged and resighted
at Kiholo Bay, Hawaii, 18-20 October 1989

Compiled by George H. Balazs
National Marine Fisheries Service, NOAA

Inconel tag No.	Carapace length (cm) Straight standard/notch	Curved	Weight (lb)	Notation
	18-19 October 1989 (5 turtles)			
8702, 03 (Y251LH)	49.0/48.7	52.0	34.5	NP; a; photo of 8702
8909, 10	49.0/48.8	52.0	41.0	NP; a
Y252, 53	44.8/44.4	48.0	25.5	NP
8712, 13	47.7/46.7	50.5	32.0	NP; a
8709, 10, 11	56.6/56.2	60.5	58.0	NP
	19-20 October 1989 (19 turtles)			
8934, 35, 7782, 3317	65.9/ --	70.0	86.0	
7751, 52, Y1	48.2/ --	52.0	34.0	LHF line mutilation
7785, 86, Y303	59.6/59.2	63.0	67.0	NP; a
8935, 36, 7774	57.9/ --	62.0	58.0	a
8937, 38	44.3/44.1	46.5	31.0	
Y105, 06	47.9/ --	51.0	34.0	a; photo of Y105
Y111, 12	44.5/44.2	47.0	27.0	
8716, 17	49.1/ --	52.5	43.0	a; damaged PC's
Y124; 25	48.8/ --	51.0	37.0	a; damaged PC
7770, 71, Y25	47.9/47.7	51.5	38.8	
Y255, 56	41.8/41.5	44.5	21.0	P
Y248, 49	49.2/48.8	51.5	37.0	a
Y2, 3	53.0/52.7	56.0	53.0	P; a
8903, 04	43.5/42.8	45.0	27.0	a
Y245, 46	51.7/51.4	55.0	44.0	a
Y257, 58	53.5/53.0	56.5	40.5	NP
Y259, 60	41.8/41.4	44.5	23.0	P
Y261, 62	42.4/41.7	44.5	22.0	NP; 3.5 cm barn
Y263, 64	49.5/49.0	52.0	41.0	NP
	Hawksbill hand-captured, 19 October 1989, at 2230 hours			
Y254, D095, D097	32.9/31.2	34.5	9.5	Photos

NP = Nonprudent behavior (9 total).
P = Prudent behavior (3 total).
a = Turtle also captured during HPA No. 7, 3-5 May 1989 (12 total).

All turtles deeply engraved with Dremel moto tool on first lateral left. All HPA No. 7 turtles had been engraved on second lateral left. Substantial regrowth apparent during the 5-month interval.

New tags applied during HPA No. 8 - Y251-Y264 (14 total).

KiHoLo, GHB

Summary of 15 turtles tagged at Kiholo Bay, Hawaii, 13-15 May 1973

George H. Balazs

Monel size 49 tag No.	Straight carapace length (cm)	Date, time, and remarks
602	52.4	5/13 p.m. - 5/14 a.m.
603	41.9	5/13 p.m. - 5/14 a.m.
604	45.7	5/13 p.m. - 5/14 a.m.
605	66.0	5/13 p.m. - 5/14 a.m.
607	47.6	5/14, 1400 h
608	49.7	5/14, 1400 h
609	37.3	5/14, 1900 h green alga on shell
610	42.9	5/14, 1900 h light brown shell
611	41.3	5/14, 1900 h blind on left eye
612	47.6	5/14 p.m.-5/15 a.m.
614	63.2	5/14 p.m.-5/15 a.m.
615	50.5	5/14 p.m.-5/15 a.m.
616	64.1	5/14 p.m.-5/15 a.m.
617	44.6	5/14 p.m.-5/15 a.m.
618	43.5	5/14 p.m.-5/15 a.m.

Size range - 37.3-66.0 cm

Salinity readings near net (low tide)
Surface - 7 ppt
8-ft depth = 28 ppt

HPAKIHOL.GHB

SUMMARY OF TAGGING DATA FOR THE HPA/NMFS GREEN TURTLE RESEARCH PROJECT AT KIHOLO BAY, HAWAII

Compiled by G. H. Balazs

Tag No.	Straight carapace (cm) Length	Width	Weight lb	Date/time	Capture method
Expedition No. 1, 21-23 October 1987 (6 turtles, 1 tag resighting)					
7778,[a] 7779, (8701)	60.6	49.1	--	10/21, 2230	Hand
8702, 8703	43.4	34.8	--	10/21, 2245	Hand
8704, 8705, 8706	55.0	43.0	--	10/21, 2300	Hand
8707, 8708	45.3	44.9	--	10/22, 1800	Net
8709, 8710, 8711	52.7	--	--	10/22, 1545	Net
8712, 8713	45.1	36.4	--	10/23, 0320	Net
Expedition No. 2, 10-12 February 1988 (13 turtles, 2 tag resightings)					
8714, 8715	42.4	32.9	--	2/11, 0120	Net
8716, 8717	46.1	37.8	--	2/11, 0015	Net
8718, 8719	45.6	35.1	--	2/10, 2230	Hand
8720, 8721	59.2	45.6	--	2/10, 2300	Hand
8722, 8723	46.5	37.9	--	2/10, 2330	Net
8724, 8725, 8902	58.7	47.6	--	2/10, 1830	Net
8903, 8904	39.1	32.9	--	2/11, 1830	Net
8905, 8906	41.6	34.7	--	2/11, 1835	Net
3476,[a] 3477, (8907)	64.3	51.8	--	2/11, 1845	Net
7759,[a] 7760, (8908)	56.5	44.9	--	2/11, 1930	Net

Summary of tagging data (Kiholo Bay).--Continued.

Tag No.	Straight carapace (cm) Length	Width	Weight lb	Date/time	Capture method
8909, 8910	44.8	35.5	--	2/11, 2030	Hand
8911, 8912, 8913	59.5	47.8	--	2/11, 2045	Hand
8914, 8915, 8916, 8917	66.5	50.6	--	2/11, 1930	Net
Expedition No. 3, 27-29 April 1988 (10 turtles, 3 tag resightings)					
8924, 8925, 8926	71.6	55.4	102	4/27, 2215	Net
8927, 8928	43.0	34.7	24	4/27, 2000	Net
8929, 8930	42.6	33.7	25.5	4/27, 2000	Net
8931, 8932	42.7	35.3	26.5	4/27, 1855	Net
8720,[b] 8721	59.3	45.6	65.5	4/27, 1855	Net
3317,[a] 7782, (8933, 8934)	65.8	49.5	82.5	4/28, 2030	Hand
7774,[a] (8935, 8936)	57.3	45.3	56	4/28, 2030	Hand
8937, 8939	40.8	35.0	24	4/28, 2045	Hand
8939, 8940	49.3	38.9	37.5	4/28, 1930	Net
8941, 8942	41.9	34.3	22.5	4/28, 1835	Net
Expedition No. 4, 28-30 June 1988 (11 turtles, 7 tag resightings) (Note: All 6 turtles captured during Exp, No. 1 were recaptured on Exp. No. 4)					
8709,[b] 8710 8711	54.3	42.6	49.5	6/28, 2300	Hand
8716,[b] 8717	46.0	37.5	33	6/28, 2300	Hand
8707,[b] 8708	46.2	37.4	30.5	6/28, 2300	Hand

Summary of tagging data (Kiholo Bay).--Continued.

Tag No.	Straight carapace (cm) Length	Width	Weight lb	Date/time	Capture method
8704,[b] 8705 8706	56.0	44.1	51.5	6/28, 2330	Hand
8943, 8944	42.2	34.4	23.5	6/28, 2330	Hand
8702,[b] 8703	45.3	36.0	27.5	6/28, 2330	Hand
8945, 8946	49.7	38.7	35.5	6/28, 2330	Hand
(Found dead floating in Kiholo Bay on 8/19/88--likely gill net mortality)					
8947, 8948 8949	70.1	55.5	99	6/28, 1900	Hand
7778,[b] 7779 8701	61.6	50.4	71	6/29, 2300	Hand
8712,[b] 8713	45.2	36.5	29	6/29, 2300	Hand
3951, 3952	55.1	43.3	50.5	6/29, 2330	Hand
Expedition No. 5, 26-28 October 1988 (21 turtles, 12 tag resightings)					
7751,[a] 7752 (Y-1)	45.7	34.7	27.5	10/26, --	--
8909,[b] 8910	45.7	35.8	33.5	10/26, --	--
8903,[b] 8904	40.3	33.9	21.5	10/26, --	--
3526,[a] 3527 (Y-15)	52.6	40.5	41.5	10/26, --	--
7768[a] (Y-16, Y-17)	50.4	39.0	39.0	10/26, --	--
7789,[a] 7790 (Y-18)	63.2	49.8	76.0	10/26, --	--
Y-2, Y-3	50.4	41.7	47.5	10/26, --	--
Y-4, Y-5	41.0	33.0	21.5	10/26, --	--
Y-6, Y-7	41.0	32.9	24	10/26, --	--

Y-8, Y-9, Y-10	56.2	42.7	53.5	10/26, --	--

Summary of tagging data (Kiholo Bay).--Continued.

Tag No.	Straight carapace (cm) Length	Width	Weight lb	Date/time	Capture method
Y-11, Y-12	52.5	41.4	45	10/26, --	--
Y-13, Y-14	48.4	38.4	33.5	10/26, --	--
8722,[b] 8723	46.8	37.8	26.5	10/27, 1815	Net
Y-23, Y-24	42.1	34.7	24	10/27, 1830	Net
3951,[b] 3952	55.3	43.5	49	10/27, 1830	Net
7770,[a] 7771	44.6	34.9	29	10/27, 1930	Net
8939,[b] 8940	49.6	39.0	38	10/27, 2030	Net
3499,[a] 3500 3501	67.4	54.3	87	10/27, 2130	Net
7778,[b] 7779 8701	61.8	50.4	78.0	10/27, 2200	Hand
Y-19, Y-20	44.9	34.4	26	10/27, 2230	Hand
Y-21, Y22	42.0	33.6	24	10/27, 2230	Hand
Expedition No. 6, 1-3 March 1989 (29 turtles, 9 tag resightings)					
Y-94, Y-95	41.3	33.9	24.0	3/1, 2230	Hand
Y-96, Y-97	43.6	35.9	27.0	3/1, 2230	Hand
Y-98, Y-99, Y-100	53.8	42.1	47.0	3/1, 2300	Hand
3315,[a] 3316 (Y-101)	58.2	46.5	62.0	3/1, 2230	Hand
Y-102, Y-103, Y-104	56.8	44.1	57.0	3/1, 2300	Hand
Y-105, Y-106	46.0	35.6	29.5	3/1, 2300	Hand
Y-107, Y-108	47.2	36.3	31.5	3/1, 2230	Hand
3487,[a] 3488 (Y-109, Y-110)	70.4	54.1	92.5	3/1, --	Net
8931,[b] 8932	43.6	35.9	28.0	3/1, 2300	Hand

Summary of tagging data (Kiholo Bay).--Continued.

Tag No.	Straight carapace (cm)		Weight lb	Date/time	Capture method
	Length	Width			
8903,[b] 8904	41.0	40.6	24.5	3/1, --	Net
Y-111, Y-112	43.6	36.0	25.5	3/1, --	Net
8722,[b] 8723	46.9	37.5	33.5	3/1, --	Net
Y-113, Y-114	43.9	35.2	26.0	3/1, --	Net
7776,[a] 7777 (Y-115, Y-116)	57.5	45.6	62.0	3/1, --	Net
Y-117, Y-118, Y-119	63.0	47.8	68.0	3/1, --	Net
Y-120, Y-121	47.6	37.4	36.5	3/1, --	Net
Y-122, Y-123	51.2	39.7	44.5	3/1, --	Net
Y-124, Y-125	47.3	37.3	35.5	3/2, 2230	Hand
7755,[a] 7756 (Y-126)	48.7	39.8	39.5	3/2, 2300	Hand
Y-127, Y-128	47.3	37.9	34.5	3/2, 2300	Hand
Y-2,[b] Y-3	50.9	42.9	47.5	3/2, 2230	Hand
Y-129, Y-130	52.5	41.6	46.5	3/2, 2330	Hand
Y-131, Y-132	54.2	40.5	45.0	3/2, 2330	Hand
Y-133, Y-134	42.0	32.8	--	3/2, 2230	Hand
Y-135, Y-136, Y-137	61.5	48.8	90.0	3/2, --	Net
Y-138, Y-139	42.6	37.2	--	3/2, --	Net
3317,[a] 7782, 8933, 8934	65.8	49.5	--	3/2, --	Net
Y-140, Y-141	45.9	37.4	--	3/2, --	Net
Y-142, Y-143	52.0	40.0	--	3/2, --	Net

[a]Long-term tag recoveries, all of which were originally captured and tagged at Kiholo Bay. Growth data, as measured by an increase in straight carapace length, are as follows:

7778, 7779, (8701)	Originally captured 8/9/84 (3.2 yr interval). Mean yearly growth of 0.87 cm (0.34 in.).
3476, 3477, (8907)	Originally captured 10/14/80 (7.3 yr interval). Mean yearly growth of 1.77 cm (0.70 in.).
7759, 7760, (8908)	Originally captured 8/8/84 (3.5 yr interval). Mean yearly growth of 0.83 cm (0.33 in.).
3317, 7782, (8933, 8934)	Originally captured 3/21/80 (8.1 yr interval). Mean yearly growth of 2.02 cm (0.80 in.). Also recaptured 8/9/84 (3.8 yr interval since present capture). Mean yearly growth of 0.6 cm (0.24 in.). Also recaptured 3/2/89, but no change in carapace length since capture of 4/28/88. Therefore 1.83 cm/yr for 8.9 yr.
7774, (8935, 8936)	Originally captured 8/9/84 (3.8 yr interval). Mean yearly growth of 1.13 cm (0.45 in).
7751, 7752 (Y-1)	Originally captured 8/8/84 (4.2 yr interval). Mean yearly growth of 1.76 cm (0.69 in).
3526, 3527 (Y-15)	Originally captured 3/5/81 (7.7 yr interval). Mean yearly growth of 1.32 cm (0.52 in).
7768 (Y-16, Y-17)	Originally captured 8/9/84 (4.2 yr interval). Mean yearly growth of 1.98 cm (0.78 in).
7789, 7790 (Y-18)	Originally captured 8/30/84 (4.3 yr interval). Mean yearly growth of 0.79 cm (0.31 in).
7770, 7771	Originally captured 8/9/84 (4.2 interval). Mean yearly growth of 1.57 cm (0.62 in).
3499, 3500 3501	Originally captured 10/18/80 (8.0 yr interval). Mean yearly growth of 1.20 cm (0.47 in). Also recaptured 8/30/84 (4.3 yr interval since present capture). Mean yearly growth of 0.26 cm (0.10 in).
3315, 3316 (Y-101)	Originally captured 3/21/80 (9-yr interval). Mean yearly growth of 1.7 cm (0.67 in).
3487, 3488 (Y-109, Y-110)	Originally captured 10/16/80 (8.3-yr interval). Mean yearly growth of 1.5 cm (0.59 in).
7776, 7777 (Y-115, Y-116)	Originally captured 8/9/84 (4.6-yr interval). Mean yearly growth of 1.0 cm (0.39 in).

7755, 7756 (Y-126)	Originally captured 8/8/84 (4.6-yr interval). Mean yearly growth of 1.3 cm (0.51 in).

[b]Short-term tag recoveries.

8720, 8721 8711	Originally captured and tagged 2 1/2 mo earlier at Kiholo Bay on 2/10/88 (during Expedition No. 2).
8709, 8710	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/22/87 (Exp. No. 1). Estimated mean yearly growth of 2.4 cm (0.94 in.).
8716, 8717	Originally captured and tagged 4 1/2 mo earlier at Kiholo Bay on 2/11/88 (Exp. No. 2). Estimated mean yearly growth of 0 cm (0 in.).
8707, 8708	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/22/87 (Exp. No. 1). Estimated mean yearly growth of 1.3 cm (0.53 in.).
8704, 8705 8706	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/21/87 (Exp. No.1). Estimated mean yearly growth of 1.5 cm (0.59 in).
8702, 8703	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/21/87 (Exp. No. 1). Estimated mean yearly growth of 1.5 cm (0.59 in.).
7778, 7779	Recaptured at Kiholo Bay on 10/21/87 (Exp. No. 1) and again on 10/27/88 (Exp. No. 5). Originally tagged at Kiholo Bay on 8/9/84. See footnote a. Mean yearly growth of 0.93 cm (0.37 in) since originally tagged 4.3 yr ago.
8712, 8713	Originally captured and tagged 8 mo earlier at Kiholo Bay on 10/23/87 (Exp. No. 1). Estimated mean yearly growth of 0 cm (0 in.).
8909, 8910	Originally captured and tagged 7 1/2 mo earlier at Kiholo Bay on 2/11/88 (during Exp. No. 2). Estimated mean yearly growth of 1.44 cm (0.57 in).
8903, 8904	Originally captured and tagged at Kiholo Bay on 2/11/88 (during Exp. No. 2). Recaptured on 10/26/88 (Expedition No. 5). Mean yearly growth of 0.83 cm (0.33 in) since 2/11/88.
8722, 8723	Originally captured and tagged at Kiholo Bay on 2/10/88 (during Exp. No. 2). Recaptured on 10/27/88 (Expedition No. 5). Mean yearly growth of 0.37 cm (0.15 in) since 2/10/88.

3951, 3952	Originally captured and tagged 4 mo earlier at Kiholo Bay on 6/29/88 (during Exp. No. 4). Estimated mean yearly growth of 0.60 cm (0.24 in).
8931, 8932	Originally captured and tagged 10 months earlier at Kiholo Bay on 4/27/88 (Expedition No. 3). Estimated mean yearly growth of 1.08 cm (0.42 in).
Y-2, Y-3	Originally captured and tagged 4 months earlier at Kiholo Bay on 10/26/88 (during Expedition No. 5).

A HPA/NMFS green turtle assessment and tagging study for six expeditions, 10/21/87 through 3/3/89 (16 months):

72 different turtles handled ranging 39.1-71.6 cm in straight carapace length.

Distribution of size classes in 5 cm increments, as follows:

35-40 cm	1 (1%)
40-45 cm	22 (31%)
45-50 cm	17 (24%)
50-55 cm	10 (14%)
55-60 cm	11 (15%)
60-65 cm	5 (7%)
65-70 cm	3 (4%)
70-75 cm	3 (4%)