

2018- Data, Graphics and Conversation about the Anahulu Project.

From: Carl Meyer <carlm@hawaii.edu>

Sent: Friday, March 2, 2018 7:01 AM

To: honu world <itsahonuworlindhawaii@hotmail.com>

Cc: Marc Rice <mrice@hpa.edu>

Subject: Re: Today at Anahulu

TURTLE ID NUMBER	SCL (CM)	Wt (KG)	Date Tagged	Transmitter	Date First Detected	Date Last Detected	Total Detections	Detection Span (days)
407D27655D	79.5	72.0	10/25/2016	A69-1601-55417	10/25/2016	2/13/2018	36640	476
4527306808	60.7	28.5	10/26/2016	A69-1601-55414	10/26/2016	2/7/2018	39429	469
Z313	89.8	106.3	10/27/2016	A69-1601-55410	10/27/2016	7/29/2017	25951	275
4627552B61	57.5	24.6	10/26/2016	A69-1601-55421	10/26/2016	6/14/2017	43040	231
8999	79.1	64.0	10/26/2016	A69-1601-55415	10/26/2016	6/11/2017	22657	228
45234C786B	78.8	63.6	10/26/2016	A69-1601-55407	10/26/2016	6/9/2017	75434	226
8995	72.4	50.4	10/26/2016	A69-1601-55408	10/26/2016	5/7/2017	23881	193
45241D0E17	51.3	22.0	10/25/2016	A69-1601-55420	10/26/2016	1/22/2017	9566	88
4524705807	56.9	25.0	10/26/2016	A69-1601-55409	10/26/2016	1/22/2017	13662	88
45254C1248	69.6	43.8	10/26/2016	A69-1601-55412	10/26/2016	1/19/2017	14079	85
45266A206E	85.6	98.6	10/25/2016	A69-1601-55419	10/25/2016	1/15/2017	8469	82
45255A7C5D	84.7	84.7	10/26/2016	A69-1601-55413	10/26/2016	1/8/2017	3039	74

8997	64.7	39.6	10/26/2016	A69-1601-55416	10/26/2016	12/28/2016	6905	63
Z306	66.1	44.0	10/27/2016	A69-1601-55411	10/27/2016	12/26/2016	5779	60
4526682A7B	72.1	54.1	10/25/2016	A69-1601-55418	10/25/2016	12/10/2016	6493	46

On Thu, Mar 1, 2018 at 8:59 PM, Carl Meyer <carlm@hawaii.edu> wrote:

Tag shedding is the most parsimonious explanation for the attrition curve. This could be validated by catching turtles at the entrance to Anahulu to see whether you come up with any of the original study animals minus their acoustic tags. Other explanations are that the tags stayed on but died (very very unlikely in my experience of using these tags), the turtles left the system or died (you and Marc are better qualified to answer that one than me). Guarantee this is something reviewers will ask.

On Thu, Mar 1, 2018 at 8:45 PM, honu world <itsahonuworldinhawaii@hotmail.com> wrote:

Interesting Indeed! We'll need to see who 55414 is (no time now for me I'm packing for 2 weeks in Tahiti et al.) Dislodging seems Very Unlikely to me knowing what we've know all these decades about our attachment technique. But the h of the turtle seems a high possibility,if the tag is in one place on the bottom. But then wonder why not swept down river-- unless rotting dislodged the tag and it sunk into the mud.

Let's go diving and find it!

Again Great Thinking great stuff! Aloha (or Ia Orana), George

From: Carl Meyer <carlm@hawaii.edu>
Sent: Friday, March 2, 2018 6:37 AM
To: honu world
Cc: Marc Rice
Subject: Re: Today at Anahulu

I did a quick QC of the data from each turtle. Although the detection durations vary among individuals (most likely due to tag shedding), only one individual looks to have shed a transmitter within range of a receiver. 55414 appears to have dislodged its tag within range of Anahulu station #1 in January 2017. We will, therefore, need to eliminate post-Dec 2016 detections of #55414 from analyses but all remaining turtles have good quality data albeit over different durations.

We will also need to carefully reconstruct the timeline of receiver download/loss/recovery/replacement events before and after the 2017 flood, so that we account for these in analyses. In broad terms, we maintained some level of acoustic monitoring in Anahulu throughout the study because post-flood some of our "lost" receivers were found still within the river, albeit downstream of their original stations. We also supplemented monitoring in the aftermath of the flood by hanging a receiver of Joanne's dock. So we are still able to ask the broad question of "when were turtles present in the river", as there were no actual days without acoustic monitoring. However, to ask finer-scale questions about turtle movements within the river, we will have to cut out data from the day of the flood (for "found but moved by flood" receivers), or day of last pre-flood download (for lost receivers), until re-establishment of the original array geometry. The latter is to avoid mistaking flood-driven movements of receivers for movements of turtles.

I think we can actually turn that flood event into an interesting facet of the study by asking the question "how soon did turtles return to Anahulu after a major flood event". We can create a nice visual showing water levels and salinity against a time-line of turtle detections before, during and after the flood event.

Cheers,

Carl

On Tue, Feb 27, 2018 at 1:40 PM, honu world <itsahonuworldinhawaii@hotmail.com> wrote:

Thank too Carl from this end. Note I really DO like the Methods at the end. More journals seem to be going in that direction. Aloha, George

From: Carl Meyer <carlm@hawaii.edu>
Sent: Thursday, February 22, 2018 7:33 AM
To: Marc Rice
Cc: honu world
Subject: Re: Today at Anahulu

Here is the manuscript I mentioned. This is the original submitted version, rather than the revised version because the latter has figures & legends split out into separate files, making it harder to follow. This journal places Methods at the end of the main article (after Discussion). I also include the supplementary files which contain a bunch of acoustic data tables & visualizations.

The manuscript is broader than just acoustic data but the acoustic monitoring sections have everything from basic tabulation, summaries, and visualizations to mixed-model analyses. There are also some other things we can do with the Anahulu data that are not in here (e.g. bubble plots, time-series analyses) but this is probably a good starting point for ideas on potential approaches to analyzing the turtle data.

Cheers,

Carl

On Thu, Feb 15, 2018 at 8:51 AM, Marc Rice <mrice@hpa.edu> wrote:

Good day, Gentlemen.

I think that we can pull this together over the next few months as long as Dr. Meyer is willing to work with me (an onerous task, I know) to analyze the data and instruct / guide me through some of the modeling software. I am eager to learn and will do my best.

It will be very instructive to see your manuscript Carl and I look forward to trying to understand how you handled and analyzed the data.

We will move forward once we get a look at the OB data and make a decision on when to terminate the project.

Aloha,

Marc

Marc R. Rice
Director, Science and Technology
Director, Sea Turtle Research Program
Member, MTSG Oceania Region

Hawaii Preparatory Academy
[65-1692 Kohala Mt. Rd.](http://www.hpa.edu)

[Kamuela, Hawaii 96743](#)

Phone: 808 881 4004

Cell: 808 987 6903

Web Site: www.hpa.edu/turtle

On Wed, Feb 14, 2018 at 12:23 PM, Carl Meyer <carlm@hawaii.edu> wrote:

Hi George,

Thanks for the update and glad to hear you guys got it in the bag before the storm. 45677 might be a ghost code produced by signal collisions - I have no record of it. I like the idea of mentoring Marc, as I have offered this to three grad students to date, and none took the bait. I also agree that it is time to wrap it up unless the OB has a bunch of turtle detections. One obvious question is "what drove the tag attrition?" - did the transmitters fall off, did they die, did the turtles leave? Whatever the answer is, there is plenty of meat in those data showing how turtles utilize that estuarine habitat.

I have a paper in (hopefully) the final stage before acceptance that contains a variety of analyses of acoustic data, ranging from basic summaries to in-depth mixed-models. If it gets accepted soon I'll send the journal link, if not, I'll email the manuscript. This will be a useful "a la carte" menu of ways to potentially visualize and analyze the Anahulu acoustic data. I know that now you are retired, you are extremely keen to get stuck in and learn how to do this stuff, so that you can teach Marc ;-)

Currently on land in Maui waiting for the storm to pass, then back on the water and incommunicado.

Cheers,

Carl

On Tue, Feb 13, 2018 at 4:13 PM, honu world <itsahonuworldinhawaii@hotmail.com> wrote:

Aloha Carl- no we didn't get rained out-- we were lucky! All four downloaded under Marc's excellent expertise and supervision. Only 2 turtle ID's on the downloads- Station 4 and 3 only had one turtle (the same one). Looks like we are near the end of the study. But the final decision-maker is OB. Eager for that one then we can close the curtain- and get busy with the next phase - either you mentoring Marc (his decision) as first author, or, a graduate student acceptable to the three of us is found. Very Best, hope your time was well-spent on Maui today, George

PS Carl- who is A69-1303-45677? If you don't have record of it I'll fire a quick note to Vemco to find out.

Carl Meyer, Ph.D.,
The Hawai'i Institute of Marine Biology
P.O. Box 1346
Kane'ohe, Hawai'i 96744
Email: carlm@hawaii.edu
<http://www.hawaii.edu/HIMB/ReefPredator>
