

> Cc: Brandee Gerke <brandee.gerke@noaa.gov>
> Subject: Review of Hawaiian GT Stock Assessment/Potential Harvest manuscript
>
> Chris and Brandee, Thanks very much for your review comments I failed to thank
> you when the letter arrived over a week ago. More on this topic will be
> forthcoming, Milani the first author Bayesian model expert is composing a
> response to your science points. As you may know, or not know, the sole
> biological data used in this paper comes from my 30+ years of investigations
> of Hawaiian green turtles- that is, 10+ years working for the University of
> Hawaii, and 20+ years now with NOAA. Without this input such a stock
> assessment would not have been possible. Hence I quite naturally have a
> substantial justified buy-in professional interest in this paper. As a
> coauthor. The future *potential* for legally harvesting sea turtles on a
> sustainable basis* is entirely consistent with my professional philosophy, and
> does not clash with NOAA, SPREP, FWS or any other credible agency,
> governmental or NGO. The key word here is *potential*.
>
> Here in the Pacific Islands, including Hawaii, harvesting sea turtles for food
> and cultural practices is historically deep-rooted and very natural to
> indigenous (and even other) peoples. To investigate that *potential* in an
> international peer-reviewed journal (should it be able to survive that
> gold-standard- which we believe it can) will constitute a most excellent
> platform for broad informed discussion/recovery planning/status review by NOAA
> managers and scientists, including recovery teams, State of Hawaii, etc. And
> also the indigenous/local community itself. Including 'showing the way' for
> other Pacific island nations, where green turtle stocks are not anywhere in as
> good of shape as in Hawaii. In other words, to demonstrate that conservation
> protection can and does result in a road to recovery, given a few decades,
> i.e., if meaningful protective action is taken, there can be a 'light at the
> end of the tunnel' for other members of the Pacific community.
>
> Our paper talks about *potential* and it does not advocate in any way endorse
> or condone illegal actions. It is a platform for debate and informed
> planning. You are correct though that a statement is needed giving the current
> status of the stock as Threatened (fully protected except for unintentional
> fishery by-catch) under the ESA.
>
> When I have Milani's appraisal response I will forward it to you.
>
> Best regards, George

you need to know about that I would prefer not to say in email.

Or, several of us meet, Jerry, Jeff, me and you, and Bud. Your call of course.
Thanks, George

Date: Tue, 13 Sep 2005 07:46:02 +1000
From: Milani Chaloupka <m.chaloupka@uq.edu.au>
To: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>
Subject: Re: Sam's review comments draft manuscript-

George

The title reflects exactly what the paper is about - (1) Bayesian state-space methods, (2) harvest potential and (3) recovery potential. These 3 points are equally addressed in the paper. The harvest potential and Bayesian methods was in fact the primary reason for the contract and the paper. Addressing the issue of indigenous hunting rights was the main objective of the Council. Recovery potential was a side benefit that became apparent as I wrote the paper - and this part is also of great interest to environmental lawyers dealing with the revised s7 in the ESA and I am writing a paper with US lawyers on just that at the moment.

> Milani purpose of this message was to get some written comments back from you
> on your firm views-- then I will share them with Sam in prep for when you are
> in town. Good strategy?

> On Tue, 13 Sep 2005, Milani Chaloupka wrote:

> > Yes lets discuss with Sam at the SSC in private - I am sure that you will
> > agree

> > > Milani, Sam's comments about the title of our manuscript (as you will have
> > > read on the copy I fedexed you) read:

> > > "Since this a the first real stock assessment for GST, let's focus the
> > > TITLE on that. It's ok to mention the harvest potential, but that is
> > > really secondary to this paper."

> > > You and I have discussed this subsequent and you have firmly expressed the
> > > opinion/stance (as the first author) that the title should Not be
> > > changed, that the paper is equally about stock assessment (recovery) as it
> > > is about harvest potential. Further, that Kitty has reviewed the paper and
> > > feels equally strong about the title. That's my understanding.

> > > This leaves me, as a PIFSC scientist as second author, between a rock and
> > > a hard place. Could you please provide me with some added remarks to
> > > support our current title. Frankly, I feel comfortable with it as it is.
> > > And (or) when you are in town in a few weeks, maybe you could meet with
> > > Sam to discuss. I'd like to see everyone in agreement on this, or, at
> > > least not strongly Disagree (though I don't know for a fact that Sam holds
> > > any exceptionally strong feelings one way or the other. But he might.
> > > Thanks, George

> > --

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Date: Sat, 22 Oct 2005 22:36:33 -1000 (HST)
From: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>
To: George Balazs <gbalazs@honlab.nmfs.hawaii.edu>
Subject: JAW review of Baysian Harvest 10/05 Fwd: Your draft manuscript (fwd)

[Part 2: ""]

Date: Tue, 04 Oct 2005 16:29:18 -1000
From: Jerry Wetherall <Jerry.Wetherall@noaa.gov>
To: George Balazs <George.Balazs@noaa.gov>
Cc: Michael Seki <Michael.Seki@noaa.gov>,
Samuel Pooley <Samuel.Pooley@noaa.gov>,
Bud Antonelis <Bud.Antonelis@noaa.gov>
Subject: Your draft manuscript

George,

Here are a few comments on the draft manuscript "Using Bayesian State-Space Modelling to Assess the Recovery and Cultural Harvest Potential of the Hawaiian Green Sea Turtle Stock" by Chaloupka and Balazs

1. It is good to see the progress being made with understanding Hawaiian green turtles (HGT). This paper builds nicely on the long nesting time series. It provides the first estimate of the basic surplus production parameters for the Hawaii green turtle (HGT) population. In your recently published work showing the steady recovery of the population after 30 years of protection under the ESA, you wrapped up by discussing the HGT Recovery Plan for this population and suggesting that the population has met the recovery criteria stipulated in the Recovery Plan and its listing status under the ESA warrants review. The present paper provides information on the estimated level of recovery relative to carrying capacity that would help in such a delisting analysis. An analysis for possible delisting would now seem to be the top priority, with peer review. The other vital parameter calculated in fitting the surplus production model, and better estimated than the carrying capacity, is the intrinsic rate of increase. Down the road, this is the parameter that would provide critical guidance on any possible cultural harvest. So there are some useful results here.
2. From a technical standpoint, I'm not in a position to quibble with the surplus production model analysis, as I did not delve carefully into details of the approach taken, assumptions on priors, etc.. The HGT information used seems true to what I know about the population and I didn't spot anything awry with the estimation in my very cursory reading of the paper. However, I think the work should be given an independent peer review by a panel of turtle modelers and of technical experts.
3. I'd like to know if the results on stock productivity and stock size are consistent with predictions you'd get using other modeling approaches that incorporate other information on HGT population dynamics (e.g., reproduction, growth, mortality).
4. Although you showed uncertainties in nester population projections, the harvest analysis did not include an assessment of associated risk to the population under different harvest levels. Clearly this would be needed by managers.
5. The mention of target harvest levels and stock maintenance levels (e.g., > 0.63K), etc., draws attention to the total void of guidance on reference points for managing harvests of sea turtles...cultural or otherwise.

6. The conclusion that current nesting population is ~ 0.83K is interesting but I thought I heard you suggest during the program review that the current number of nesters was perhaps greater than any earlier level of abundance? Maybe not...my hearing is deteriorating in my old age.

7. The main concern I have, and a big one, is that you folks, having shown evidence of the recovery of the stock (your earlier paper) are leaping right into this exploration of harvest scenarios without any guidance from NMFS, USFWS, HDAR, and other agencies responsible for management of the HGT. I wondered whether the HGT Recovery Team has discussed the stock status and appropriate next steps. Given the sticky nature of delisting HGT, let alone allowing a harvest, I hope there is some deliberate plan to move ahead. Certainly the multi-agency Recovery Team should do its job. Just what is the team up to? On the NMFS side, both science and management need to be involved. Ideally, PIC action to estimate harvest potential of the HGT and conduct associated risk assessments should be taken as a direct response to a request from PIR, after PIR (or a joint task force including Council and other stakeholders) has determined that an option to harvest should be explored. On the PIR side there would probably have to be some policy and legal studies and determinations. As far as I know, there is no formal coordination of these activities, and no plan. Maybe I'm naive in thinking that such a deliberate approach could happen, but I fear that this paper could compromise such a possibility.

8. I suggest you guys remove the harvest analysis components from this paper and just cover the surplus production model and estimation of the model parameters (intrinsic rate of increase, carrying capacity) and the associated estimation uncertainties. You could also discuss possible improvements and embellishments to the model and perhaps suggest an analytical framework for using the production model results to explore management questions that might be posed, including possible cultural harvest, etc., and risk assessment. This reduced form of the paper would still need to be run through the sheep dip before full public exposure. The completion, writeup, and presentation of a harvest options study and risk analysis would be done later, according to a timetable developed with guidance from the Recovery Team, an inter-agency committee, or whatever.

9. Without question, this work needs to undergo a formal peer review in keeping with the OMB Peer Review Bulletin and the agency's basic science policies. A data call from NMFS will be coming any day now to revise the list of critical scientific information products being tracked under the PRB. Currently, we have monk seal fatty acid analysis, NWHI lobster stock assessment, and Hawaiian Archipelago bottomfish on the watch list, and plans for peer review are being developed for those. This HGT assessment should be added to the list.

I hope these points are helpful.

Jerry

Date: Wed, 5 Oct 2005 12:33:43 -1000 (HST).
From: George H. Balazs <gbalazs@honlab.nmfs.hawaii.edu>
To: Sam Pooley <samuel.pooley@noaa.gov>
Subject: Modelling the potential of Hawaii turtles for indigenous harvest

Sam I was very pleased to read Jerry's email review. Nothing had been said by Jerry up until this point, though I had given him a copy for "pre-review" at the same time I gave you yours. And just yesterday I had some considerable conversation with Jeff on the topic of the manuscript. All very useful. Also, I've just noted that the subject is on the forthcoming Council agenda 10/19 later in the day "Green Sea Turtle Harvest Potential."

A few things to note for clarification:

-Neither Milani (nor Kitty) have been leading me along on any of this. I have been my own man and eager for *sound science* to proceed. Milani is (as we all realize) the first author of this manuscript. Worldwide, this is something that one where one needs to be on the leading edge, not following up at the rear. The data used were the result of my many years of work, about 75% of which took place with NOAA. It would be professionally uncomfortable for me (and for Milani also I suspect) to proceed without me. But the fact is the data are out in the public arena, his modelling techniques are his creation, and this is work that many think needs to be in a peer reviewed journal for all to see, think about, and take shots at if they feel justified. I agree totally. From my end, I don't know the math or the modelling. But I do know that Milani is widely respected and incredibly well published in the realm of sea turtle modelling. He's a brilliant scientist. I trust him and his abilities, they've been proven to me over and over again (and at least three prominent long established sea turtle biologist, also friends of mine, share this view). We should never let Milani's sometime rough style of personality cloud our view of his science. Having said all of this, the "proof" to me is in the peer review journal process.

-I easily recognize that there are agency policy issues here. But I would hope they are not so substantial that the science gets smothered in some drawn-out process. The key items to me are (1) that all (first and foremost PIRO and FPR and even F) be aware beforehand that this paper has been prepared and moving ahead, (2) that a firm statement be made in the paper that this is science, not advocacy, i.e., scientifically examining the potential, and (3) a firm statement be made that currently the species (in Hawaii and elsewhere USA) is fully protected under the ESA and any real harvest would need a change in the listing, or allowances of harvest with the stock still listed. and (4) the word "cultural" or "indigenous" be added to the title "Using Bayesian state-space modelling to assess the recovery and *indigenous* harvest potential of the Hawaiian green sea turtle stock." We are talking about native people of Hawaii-Hawaiians. Opinions differ, but Hawaiians are a special group in Hawaii and indeed legally already have a number of recognized special considerations.

- The thought about turning to the Recovery Team first wouldn't be very productive or useful, in my view. Having been on the recovery team when it was active (hasn't been active for about 8 years- the job seems to have ended when the recovery plans were signed off in 1998, and even at that point the team hadn't met in 2 years) I would think that a peer reviewed paper would pull some weight and be seriously considered, along with other papers and data. Not the reverse (go to the recovery team before publishing a model/assessment like this).

I propose that you and I meet to informally discuss. There is an important item