

**Steven Atran**

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**From:** Chris Koenig [koenig@bio.fsu.edu]  
**Sent:** Thursday, August 09, 2007 12:45 PM  
**To:** Wayne Swingle  
**Cc:** Coleman@bio.fsu.edu; Steven Atran; Alex.Chester@noaa.gov; Pete.Sheridan@noaa.gov  
**Subject:** Re: FW: Request for information about gag male to female sex ratios

**Follow Up Flag:** Follow up  
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**Categories:** Red Category

Wayne et al.:

Yes we have information on gag sex ratio. We monitored 15 gag spawning aggregations inside and 15 outside Madison Swanson reserve for three years (2003, 2004, and 2005). (Coordinates of these site were given to us by cooperating fishermen.) In those three years we regularly took age (spines and rays), size and sex data from gag and other species (red snapper, red grouper, and scamp) using non-consumptive methods (fin clips and biopsies). Gonads were sexed histologically and fin ray aging was validated by comparison with otoliths. Our data for the red snapper, red grouper and scamp showed significantly larger and older fish within the reserve relative to outside and for some (red snapper) there was a significant increase in size and age inside relative to outside over the study period. Gag showed no significant difference in age and size inside relative to outside. Gag sex ratio showed a significantly higher % males (8%) inside the reserve relative to background (before closure and outside during closure of the reserve) which was about 2%. However the percent males inside the reserve declined over the next two years to background levels of about 2%.

We will start another MARFIN-supported study this summer to evaluate demographics, among other objectives, inside relative to outside the reserves. Now with VMS in place in the commercial fishery, I expect that we will see a very different result. This is because the commercial fishermen poachers had a major impact by taking around 1000 lb per day in Madison Swanson (told to me by an informant commercial fisherman), and their target was almost exclusively gag.

It is important to recognize that the poaching had been a problem from the beginning of the closure in June 2000 as observed by me and by NMFS researchers. I offered to give a presentation to the Coast Guard Air Training Center personnel in Sept 2001 as they needed detailed information about the purpose of Madison Swanson and Steamboat Lumps. I have given talks to their fishery enforcement training classes every year since. They have data on the levels of poaching and explained to me that hurricane Ivan in 2004 and Katrina/Rita in 2005 caused their assets to be diverted to the emergencies that resulted. Thus surveillance and enforcement took a back seat. Poachers apparently took advantage of this situation, so poaching, especially by the commercial sector, was intense during 2004 and 2005.

I've attached powerpoint images that display our data on gag sex ratio gag size and age. Also included are size and age data comparing inside relative to outside the Madison Swanson for red grouper, red snapper, scamp, and amberjack. See notes at the bottom of some slides.

Please let me know if you need more information.

Best regards,

Chris