United States Department of the Interior

U.S. GEOLOGICAL SURVEY

USGS
Florida Integrated Science Center

MEMORANDUM

TO: Barry Drucker
Will Waskes

FROM: Allen Brooks
(352) 264-3478
CC: Ken Sulak

RE: Interim Report – The Fish Community of Sabine Bank and Ship Shoal

DATE: 5 March, 2004

Barry and Will,

I wanted to catch you up on the progress we have made so far regarding the two sand resource studies.

SABINE BANK, TEXAS

1) Summer Gear Testing Cruise - 19-25th July, 2003

We contracted the R/V Eugenie, a 17.6 m research vessel, from the Louisiana Universities Marine Consortium (LUMCON), Cocodrie, Louisiana, as the sampling platform for the cruise. Thirty-four trawl tows were made in the Sabine Bank area including thirteen tows on the interior of the bank, ten tows on the bank edge, and eleven tows off-bank. In all we collected 12,711 fish representing thirty-three fish species. Surprisingly, very few demersal fish were found accounting for only 267 (or 2.1%) of the total catch. Demersal fish abundance was two to four times greater on the interior and edge of the bank compared to off-bank samples. Overall, we did not catch any flatfishes (e.g., flounder, tongue fish), gobies, or blennies, and found only one searobin specimen. The two dominant demersal fish species were the Atlantic Croaker and Hardhead Catfish. We feel that hypoxic conditions are to blame for the lack of demersal fish. Although the bank wasn't hypoxic during our cruise, one week prior to our sampling the eye of hurricane Claudette passed within 150 miles of Sabine. The hurricane most likely disturbed the water stratification just prior to our arrival. In general oxygen levels were

still low (< 4.0 mg of O_2 / L) on some parts of the bank even after the hurricane. We feel in general that the cruise was successful in collecting information on summertime fish use of the bank and were able to work out an acceptable sampling design for future work. More detailed information concerning the cruise can be found in the Sabine 2003-01 Cruise Report.

2) Winter Sampling Cruise – January 15th-21st, 2004

We contracted the R/V Acadiana, a 17 m research vessel, from the Louisiana Universities Marine Consortium (LUMCON), Cocodrie, Louisiana, as the sampling platform for the cruise. Weather conditions made sampling a challenge but we did complete twenty-four trawl tows in the Sabine Bank area. Eight trawl tows were made on the interior of the bank, bank edge, and off-bank. Additionally, we conducted three trawls in the Heald Bank area with two tows on the bank and one off-bank. The fish collection is still being analyzed but very few demersal fish were found. Overall, we did not catch any gobies, or blennies, and found only one searobin and flatfish specimen. The two dominant demersal fish species were the Atlantic Croaker and Hardhead Catfish. At each sampling station a CTD cast was made to determine water quality parameters. In general the water column was well mixed with normoxic conditions. A grab sample was also taken at each sampling station.

3) Side Scan Mapping of Sabine Bank

A mapping contract was awarded by the USGS to Dr. Tim Dellapenna of Texas A&M University – Galveston to both produce high resolution side-scan sonar maps and physically characterize discrete benthic habitats in target areas of Sabine Bank. I met with Dr. Dellapenna in early September during the Estuarine Research Federation conference held in Seattle, WA. Dr. Dellapenna was able to complete a late September mapping cruise and the data from that cruise is presently being processed. They have a second cruise scheduled for early this summer to complete mapping of the target sites. We plan to collaborate with Dr. Dellapenna on the physical characterization of sedimentary habitat as soon as the mapping data has been processed.

4) SEAMAP Database

Our original proposal called for us to synthesize existing published knowledge of fish species utilizing sand resource areas based upon the NOAA NMFS SEAMAP historical database. We have acquired the SEAMAP trawl data for Sabine Bank, Heald Bank, Trinity Shoal, and Tiger Shoal from Mark Mcduff of NOAA. The data was not in a user friendly format. We have spent considerable time reorganizing all of this data and have almost completed the restructuring. We plan to start analyzing this database within the next few months.

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SHIP SHOAL – LOUISIANA

Weather permitted one day of sampling on Ship Shoal using the R/V Acadiana following the Sabine Bank cruise. On January 23rd during 19 hours of operations we completed nine trawl tows, four sled tows, and 16 box grab samples. Specifically, inside of a future dredge area on the bank four trawl tows, three sled tows and seven grab samples were taken while in a future non-dredged area of the bank two trawl tows, one sled tow, and four box grab samples were taken. Three trawl tows and five box grab samples were taken off-bank. Eight plankton tow samples were taken. Similar to the collections made on Sabine Bank, Texas, very few demersal fish and invertebrate species were found. On shipboard, one hundred and fifty-three stable isotope samples (64 vertebrate, 75 invertebrate, 14 plankton) were taken from the trawl and sled samples. The fish specimens retained for gut content analysis and benthic box core samples were brought back to our lab in Gainesville for future processing. We anticipate two more days of intensive sampling on Ship Shoal for stable isotope sample collection in late summer early fall.

If you have any questions or would like to discuss anything please do not hesitate to contact me.

Thank you,

Allen Brooks
USGS-BRD