Golden Crab MSY, OFL and ABC Options

Prepared by: Gregg Waugh, SAFMC Staff

June 2009

I. Maximum Sustainable Yield (MSY)

a. **Option 1. No action. There is no MSY specified for golden crab**, and this is a requirement of the MSA. Amendment 3 proposed an MSY range of 4 to 12 million pounds but NMFS disapproved the estimate because the best scientific information available indicated that the range was too high.

b. **Option 2. MSY = 5 million pounds.** This figure is supported by the AP.

c. **Option 3. MSY = 2.5 million pounds.** This figure was suggested by NMFS in their rejection of the MSY proposed in Amendment 3 (letter from Joseph E. Powers to Fulton Love dated September 12, 2001): "The Southeast Fisheries Science Center in its January 12, 2001, memorandum noted that the results of the most recent stock status evaluation (Harper et al. 2000) indicates that the proposed MSY proxy (4-12-million pounds) appears to be several fold higher than indicated by analyses of historical landings. Specifically, the most recent fishery-based proxy of MSY for the southern and middle zones are on the order of 684,000 pounds per year. Information presented in Section 3.3 of Amendment 3 and in Table 2 summarize MSY proxies for the northern zone. The estimates vary from 170,000 to 1,650,000 pounds. Adding the estimates for the three zones would provide a region-wide proxy of approximately 2.5-million pounds."

d. **Option 4. MSY = 400,000 – 600,000 pounds.** This figure is based on average landings from various years between 1995 and 2007.

e. **Option 5.** Others???

II. Overfishing Level (OFL)

a. **Option 1. No action.** The Maximum Fishing Mortality Threshold (MFMT) = the fishing mortality rate that produces maximum sustainable yield (F_{MSY}) (Golden Crab Amendment 3). The Minimum Stock Size Threshold (MSST) is defined as a ratio of current biomass ($B_{CURRENT}$) to biomass at MSY or (1-M)*B_{MSY}, where 1-M should never be less than 0.5 (Golden Crab Amendment 3). Golden crab would be overfished if current biomass was less than MSST and would be recovered when current biomass ($B_{CURRENT}$) was equal or greater than the biomass at MSY.

b. **Option 2. OFL = F_{MSY} = 0.7047** based on annual catch data (Harper, Eyo, and Scott, 2000; Table 6).

c. **Option 3. OFL = F_{MSY} = 0.2055** based on quarterly catch data (Harper, Eyo, and Scott, 2000; Table 5).

d. **Option 4.** Others??

III. Allowable Biological Catch (ABC)

a. **Option 1. No action. There is no ABC specified for golden crab.**

b. **Option 2.** ABC = 2 million pounds. This is 500,000 pounds less than MSY Alternative 3 (2.5 million pounds).

c. **Option 3.** ABC = 1.5 million pounds. This is 1,000,000 pounds less than MSY Alternative 3 (2.5 million pounds).

d. **Option 4.** Others??