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Characterization of Swordfish Buoy Gear Catches in the Florida Straits

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with the red snapper chronology was also positive, but not significant (p > 0.1). Overall, growth
was remarkably similar across these snapper species, and was positively related to recruitment
through shared sensitivities to environmental variability.

**Baremore, I.E., and K.I. Andrews**
*Symposium Presentation*
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**The effects of propagating measurement error through the calculations of parameter
estimates on stock assessment model results**
Fishery biologists often take several morphometric measurements of fishes to assess growth
and other life history characteristics of a stock or population. Measurement error is higher for
some measurement techniques, and that error can affect the outcome of growth models, such
as the von Bertalanffy growth equation, and ultimately the stock assessment model. Length-at-
age data from six species of sharks were used to determine which length measurements
( precaudal, fork, natural total, and stretched total) produced variable parameter estimates,
specifically the k value, for the von Bertalanffy growth equation. Then the effects of propagating
the measurement errors on the outcome of stock assessments were determined for two species
of sharks with varying life histories: Atlantic sharpnose shark, *Rhizoprionodon terraenovae*, and
blacknose shark, *Carcharhinus acronotus*.

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**Characterization of swordfish buoy gear catches in the Florida Straits**
Swordfish buoy gear (SBG) is a relatively new commercial fishery located off the eastern and
southern coasts of Florida that began in 2002. The area targeted by this fishery has been
closed to pelagic longline gear (PLL) since 2001. Swordfish buoy gear has largely taken the
place of PLL as a commercial fishery for swordfish (*Xiphias gladius*) within the FEC.
Conceptually, SBG is similar to a vertical longline, with free-floating individual buoys
connected to approximately 100 meters of monofilament with one or two hooks constituting
one “buoy.” Most vessels currently using this gear are fishing approximately 10 “buoys”
simultaneously. Due to the way each individual “buoy” drifts independently with the current,
SBG is considered to fish more like PLL than the former NMFS classification of the “handgear”
gear type. This study compared swordfish catch and bycatch rates between 56 sets of
contemporary SBG field data and historical PLL observer data from the FEC. Catch was
dominated by swordfish (91.4%), followed by sharks (6.9%). Analyses show higher swordfish
catch-per-unit-effort (CPUE) for SBG vs. PLL (202.4 to 31.8 per 1000 hooks) and much lower
bycatch rates for SBG, including no istiophorid billfish, marine mammal, or sea turtle bycatch
during the 56 experimental sets. These data indicate that SBG is a cleaner and more efficient
commercial fishery for swordfish in this area when compared to PLL. Additional work using
small temperature-depth recorders (TDRs) indicate that the actual fishing depths (57.3 m ±
19.2 m) were much shallower than the predicted depths (71.7 m ± 23.7 m). On-going depth
modeling work with TDR data is described.