

# Evaluation of the Sampling Distribution of Tournament Versus non-Tournament Trips in the Large Pelagics Survey

Prepared by:

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Executive Summary only  
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## Executive Summary

Tournaments are an important part of the total directed fishery for pelagic highly migratory species (HMS). For certain species, catch rates and fish sizes from tournament trips can differ from those associated with non-tournament trips. It is important that fisheries surveys represent tournaments in proportion to their occurrence as either over- or under-representation of tournament trips could affect the accuracy of HMS catch rates, estimates, and size distributions. This study evaluated the sampling distribution of tournament trips in the NMFS Large Pelagics Survey (LPS) and pilot tested alternative data collection methods for HMS tournaments. The rate at which tournament trips are sampled in the LPS was evaluated to assess whether tournaments are being disproportionately represented in the data compared to non-tournament large pelagic trips. LPS data from 2003-2008 were analyzed to compare tournament sampling rates from the Large Pelagics Intercept Survey (LPIS) with tournament trip rates reported on the Large Pelagics Telephone Survey (LPTS). Results suggest that tournaments are being oversampled in the dockside LPIS compared to rates of tournament trip reporting on the complementary phone survey (LPTS). Oversampling of tournaments in the LPIS, and the potential for biased estimates associated with oversampling, is significantly more prevalent in LPS states north of Delaware (i.e., New Jersey through Maine) and in the private boat mode than the charter boat mode.

For comparison with LPS tournament data, an attempted census was conducted of all 2008 HMS tournaments from Maine through Virginia based on tournament operators summary reports. Operators of all identified HMS tournaments were mailed a notification letter and reporting summary form prior to the start of the event. Data from the pilot study were combined with Recreational Billfish Survey summary form data and Massachusetts' Sportfishing Tournament Monitoring Program data. Of the 89 total HMS tournaments identified, 63 (70%) had registered with NMFS. Data were collected from 59 of the 89 identified tournaments (66%). The average tournament had about 60 boats, although the data were heavily skewed in favor of smaller tournaments with only a few very large tournaments. The median value of 34 boats per tournament may, therefore, be a more appropriate central measure.

Dockside interviews were conducted with captains at five HMS tournaments. These data were analyzed, along with data from a new question added to the LPIS in 2009, to determine what proportion of fish caught in tournaments actually get weighed-in or reported to the tournament director. Findings showed that, overall, a significant proportion of tournament landings are never weighed-in, although results varied by species. For example, based on LPS June-August 2009 data, the proportion of

tournament landed fish weighed-in was 79% for sharks (thresher, shortfin mako, and blue), 67% for bluefin tuna, 48% for BAYS tunas (bigeye, albacore, yellowfin, and skipjack), and only 19% for dolphin. Results from the pilot study dockside sampling suggest that an even larger proportion of releases are not being reported to tournament directors.

Comparisons of 2008 total landings and total releases for select species were made between LPS tournament domain estimates and tournament director reports. Results indicate a systematic difference between director reports and LPS domain estimates. For all species analyzed, LPS tournament domain estimates of total landings and total releases were larger than corresponding totals from director reports. The systematic differences found when comparing LPS tournament domain estimates with director reported catches are likely due to a combination of two main factors: 1) A positive bias in LPS catch estimates resulting from dockside oversampling of HMS tournaments, and 2) Captains not reporting all fish caught to directors combined with the inability to identify reported fish in the 2008 LPIS catch data (question added to 2009 LPIS to identify reported tournament fish).

A sensitivity analysis was conducted on LPS estimates to determine: 1) which particular species are more sensitive to this potential bias, and 2) the relative magnitude of the catch estimation bias resulting from differing hypothetical rates of oversampling tournaments in the LPIS. For many species, including bluefin tuna, all BAYS tunas, and dolphin, down-weighting of tournament trips by as much as 25% or 50% still resulted in fairly insignificant changes to LPS landings estimates. Thus, these species appear to be fairly robust to oversampling of tournaments, indicating that catch rates (i.e., catch per LPS intercepted vessel trip) do not differ greatly between tournament and non-tournament trips within a given month/area/mode cell. By contrast, landings estimates for commonly targeted sharks (i.e., blue, common thresher, and shortfin mako) were particularly sensitive to tournament trip down-weighting. These shark species are more likely to be landed during an intercepted tournament trip than a non-tournament trip within a given cell. Results suggest a positive bias in LPS shark landings estimates and billfish release estimates due to LPIS disproportionate sampling of tournaments.

These findings support the need for changes in the current LPS design and possibly a new data collection methodology focused on HMS tournaments to improve on the accuracy of recreational shark catch estimates and estimates of billfish released alive. Based on the results of this pilot study, four alternative approaches for future sampling of HMS tournaments were identified: 1) Status quo, 2) Full tournament census, 3) Modified survey design, and 4) Hybrid design using census for effort and survey for catch rates. This study highlighted the tremendous diversity that exists among HMS tournaments. If

a census program is implemented a “one-size-fits-all” approach to data collection may not be optimal and different sampling strategies may be needed depending on tournament size, duration, target species, rules, and other characteristics. Criteria used to compare and contrast each alternative included cost, effect on identified bias, effect on precision of resulting HMS catch estimates, reporting burden, and overall feasibility in terms of constraints or key assumptions. The selection of a preferred alternative will require a more thorough evaluation of trade-offs, and weighing the relative advantages and disadvantages of implementing each alternative. This decision should ideally be based on input from HMS data users, data collection managers, tournament directors, and other affected stakeholders. Although this study focused on sampling HMS tournaments in the LPS geographic range, the recommendations and lessons learned may have wider applicability for sampling HMS tournaments in other geographic regions, as well as for sampling saltwater tournaments in general, regardless of target species.

### **Summary of Data Collection and Management Recommendations**

- A targeted outreach program aimed at increasing compliance with the HMS tournament registration and reporting requirements should be developed by NMFS to improve the accuracy and completeness of the current RBS or of a full tournament census or hybrid census-survey approach (if either of these alternatives are implemented). NMFS should routinely conduct Internet searches and employ other search techniques to identify and contact unregistered HMS tournaments.
- NMFS should continue to provide HMS tournament captains and directors species identification materials to both improve on the quality of self-reported tournament data and to promote good-will and compliance with registration and reporting requirements. In particular, NMFS should develop and distribute a billfish identification guide to help captains differentiate between roundscale spearfish and white marlin.
- To increase the enforceability of the tournament registration requirement, NMFS should consider issuing an actual permit to directors that legally allows them to hold the tournament. While increased enforcement, or the real threat of enforcement, will likely improve compliance rates, this option should only be exercised as a last resort given the social and economic

importance of HMS tournaments, and the fact that many tournaments are run as charity events or memorials.

- NMFS should encourage its state agency partners to get more involved with tournament data collection programs. The Massachusetts Sportfishing Tournament Monitoring Program (MSTMP) provides an excellent model that could perhaps be exported to other states. If a tournament census program is implemented, NMFS should consider providing funding for state agency involvement with HMS tournament data collections.
- Given the close link between registering and reporting, the project team recommends that NMFS consider giving a single office responsibility for administering both HMS tournament registration and data collection programs. If the full census alternative is selected, it is strongly recommended that a single NMFS office with a full-time program manager be identified as the lead for this attempted census of both billfish (RBS) and non-billfish tournaments. NMFS should also explore the feasibility of establishing regional coordinators responsible for collecting HMS tournament data in their particular region and feeding the information to a central office.
- NMFS should consider developing an online HMS tournament registration tool similar to the system currently in place for HMS permits.
- NMFS should consider revising the current HMS tournament director summary form for clarity and improved accuracy. Specific recommendations for improving this form are provided in Section 6.1.1.
- If a full census of all HMS tournaments (billfish and non-billfish) or hybrid census-survey is implemented, this new program will need to be integrated with the RBS in such a way as to assure that the integrity of the time series and the ability of RBS to continue to meet ICCAT and domestic reporting requirements are maintained.
- If the full census or hybrid census-survey alternative is selected NMFS should shift some of the reporting burden from tournament directors to captains. Innovative methods for collecting tournament catch and effort data from captains and for improving director-captain communications should be explored (e.g., texting, email, Internet). NMFS may also need to provide directors of larger tournaments with trained samplers to assist in the attempted census of catch and effort from all vessels.

- If the full census alternative is selected, NMFS should develop a standard web-based tournament reporting form to encourage posting and reporting of data on the Internet. With director permission summary results from the census can be posted at an official NMFS website as an outreach product for directors and captains that may help promote compliance with the reporting requirement.