

## SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON DRIFT GILLNET MANAGEMENT

Since 2001, the National Marine Fisheries Service, Southwest Region (SWR) has closed an area off the California/Oregon coast to drift gillnet (DGN) fishing during August 15-November 15. The purpose of this closure was to avoid jeopardy to leatherback turtles associated with entanglement and mortality in DGN operations. This closure (hereafter referred to in this statement as the leatherback closure) was based on a worst-case scenario, that is, the peak level of turtle takes reported in 1995 by the observer program.

The objective of the Draft Environmental Assessment (DEA) - "Management of the Drift Gillnet Fishery Exempted Fishing Permit And/Or Regulatory Amendment", dated March 2006 - is "to restore fishing opportunity in the California DGN fishery without jeopardizing the continued existence of species listed under the ESA" (DEA, p. 2). The general approaches considered in the DEA for achieving this objective include: (1) an exempted fishing permit (EFP) issued to a subset of DGN vessels (with 100% observer coverage), and/or (2) a change to the boundaries of the existing leatherback closure that would apply to all DGN vessels (with 20% observer coverage).

Of the seven alternatives to the status quo considered in the DEA, alternatives 1-3 include varying provisions related to establishment of an EFP, alternatives 4-5 include both EFP provisions and a change to the boundaries of the leatherback closure, and alternatives 6-7 pertain to a boundary change without the EFP. The boundary changes considered in alternatives 5-6 would open part of the southern portion of the current leatherback closure, an area considered productive with regard to target species. Alternative 7 would eliminate the leatherback closure altogether.

The EFP alternatives included suboptions related to: (a) a leatherback mortality cap of 1, 2 or 3 turtles per year; (2) a cap on DGN effort of 300, 500 or 600 sets per year, and (3) three alternative geographic suboptions defining the portion of the current leatherback closure within which the EFP would be allowed to operate. The EFP would be subject to 100% observer coverage, with the option of renewal in future years.

The analysis of management alternatives provided in the DEA is based on a number of assumptions regarding leatherback contact and mortality rates and changes in the level/distribution of DGN fishing effort. For instance:

- Mean turtle catch per unit of effort is assumed to be 7.7 leatherbacks per 1000 sets north of Point Conception and 0.5 leatherbacks per 1000 sets south of Point Conception (based on 1990-2004 observer data).
- Leatherback mortality is assumed to be 70% (based on 1990-2004 observer data), with the associated inference that leatherback mortality caps of 1, 2 and 3 translate into take limits of 1, 3 and 4 respectively.

- Effort projections for the EFP alternatives assume that fishing will not cease until the relevant set or take limit is reached.
- The average annual baseline level of effort for the fishery under the boundary change alternatives is assumed to be 1,463 sets (based on 2001-2004 observer data).
- DGN effort associated with each management alternative is estimated by scaling the anticipated level of effort under the alternative to the historical spatial distribution of DGN effort prior to the leatherback closure (derived from 1991-2000 logbook data).

The Scientific and Statistical Committee notes the following regarding the management alternatives:

- There is a high degree of uncertainty in the effort projections contained in the DEA. For instance, effort projections for the EFP alternatives are treated differently from effort projections for the boundary expansion alternatives. This inconsistency is particularly apparent for alternatives 4-5 (which include both EFP and boundary expansion provisions) and alternative 7 (for which the projected number of sets reported in DEA Table 4.4 is curiously lower than the effort projections for some of the less restrictive alternatives). Also, the expectation of effort expansion under the various alternatives appears inconsistent with the negative economic producer surplus indicated in a 2003 economic survey of DGN vessels (DEA, p. 147).
- The EFP alternatives include provisions (100% observer coverage, numeric caps on leatherback take) that strictly limit the effect of the fishery on leatherback turtles. Given these provisions, a cap on the number of sets would be superfluous with regard to leatherback protection. However, given the potential for contact between the DGN fishery and other sensitive species (e.g., sperm whales, shortfin pilot whales), a direct cap on take of these other species or a general cap on the number of sets may serve to limit these broader effects. Given the rare occurrence of leatherback interactions with the DGN fishery, an EFP without a set cap may lead to considerable expansion of effort in the fishery before the leatherback cap is reached.
- In addition to providing DGN fishing opportunities, the DEA notes the potential use of the EFP “to gather additional information under more controlled conditions, in terms of the amount of fishing effort that would occur and the maximum impact to leatherback sea turtles” (DEA, p. 4). If this is the intent, a well-defined hypothesis, a sample stratification scheme and a power analysis should be specified. Given the low probability of leatherback interactions with the DGN fishery and the need to keep leatherback mortalities to a minimum, EFP data will likely need to be collected for many years in order to statistically detect spatial and temporal differences in leatherback contact rates.