

COASTAL PELAGIC SPECIES MANAGEMENT TEAM STATEMENT ON
PACIFIC MACKEREL HARVEST GUIDELINE FOR THE 2005/2006 FISHERY

The Coastal Pelagic Species Management Team (CPSMT) supported conclusions from the most recent Pacific mackerel stock assessment presented at the Southwest Fisheries Science Center in La Jolla, California in May 2005 and further recommends the Pacific Fishery Management Council (Council) implement the resulting harvest guideline (HG) associated with the harvest control rule stipulated in this species' fishery management plan (FMP) for the 2005/2006 management season (i.e., July 1, 2005 through June 30, 2006). Based on a total stock biomass estimate (July 1, 2005) of 101,147 mt, the HG for U.S. fisheries is 17,419 mt. This HG recommendation is roughly 32% greater than the HG adopted by the Council for the 2004/2005 fishing year (13,268 mt).

Stock assessment modeling of Pacific mackerel was conducted using a forward-simulation, maximum likelihood-based Age-structured Assessment Program (referred to as ASAP). The ASAP model is based on the 'AD Model Builder' (ADMB) software environment, which is essentially a C++ library of automatic differentiation code for nonlinear statistical optimization.

The final ASAP model was based on fishery-dependent data from a single fishery (i.e., combined landings from California's commercial and recreational fisheries, and the fishery off Baja California, Mexico). Fishery-independent data used in the model consisted of relative abundance time series (indices) developed from three research surveys: an index ('proportion positive') of spawning abundance based on ichthyoplankton data collected through the ongoing California Cooperative Oceanic Fisheries Investigations (CalCOFI) survey; a standardized, catch per unit effort (CPUE) index from California-based commercial passenger fishing vessel (CPFV) logbooks; and an index of total abundance from aerial spotter plane survey data. Parameterization of the baseline model was similar to the final Stock Assessment Review Panel (STAR)-based model recommended in the most recent review (June 2004) of this ongoing assessment.

As the Pacific mackerel abundance estimate has decreased over the past several years, the CPSMT discussed overfishing concerns related to this fishery. Based on the available sample data, current modeling approach, and harvest control rule precautions in place, there is, currently, not an immediate concern related to overfishing of Pacific mackerel. That is, historically, intermittent periods of high recruitment (e.g., late 1970s to early 1980s) have supported relatively high amounts of fishing pressure. More recently, however, protracted periods of generally lower recruitment have contributed to lower levels of total and spawning stock biomass. Fishing pressure is largely influenced by availability of the resource to the fishery, as well as market factors. The U.S. West Coast-based Pacific mackerel fishery targets mackerel in the northern parts of its overall range and in inshore waters. It is possible that mackerel abundance could be strong south of the U.S. border and/or in offshore waters beyond the range of the U.S. West Coast coastal pelagic species (CPS) fleet. Also, as in other CPS fisheries, market dynamics greatly influence total harvest. While mackerel is desirable, it is not as important to the CPS fishery as Pacific sardine and market squid. In addition, most commercial harvest of Pacific mackerel occurs within the area under limited entry as defined by the CPS

FMP. Thus, given these reasons, the level of fishing effort relative to mackerel abundance should not give rise to immediate concern. However, model estimates regarding the spawning stock biomass-recruitment relationship indicate little reproductive-related compensation at low levels of spawning stock biomass, and thus, issues surrounding recruitment-based overfishing should be monitored closely.

Finally, 'overfishing' for Pacific mackerel is defined in the CPS FMP as harvest exceeding acceptable biological catch (ABC) for two concurrent years. Recent annual landings have been well below ABCs. The 'cutoff' value (18,200 mt) in the harvest control rule essentially serves as a proxy for an overfishing threshold. The current total stock biomass estimate (101,147 mt) is well above this threshold level.

PFMC
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