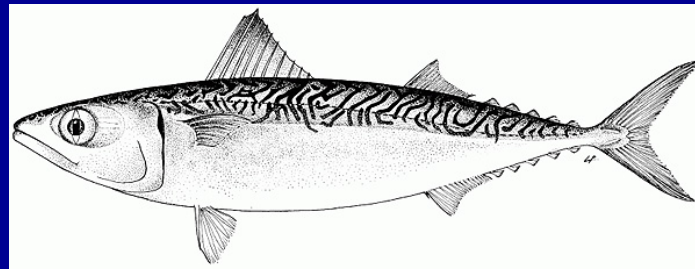


Pacific Mackerel Stock Assessment For U.S. Management In The 2008-09 Fishing Season

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Background



Distribution

Spawning Area

Fisheries



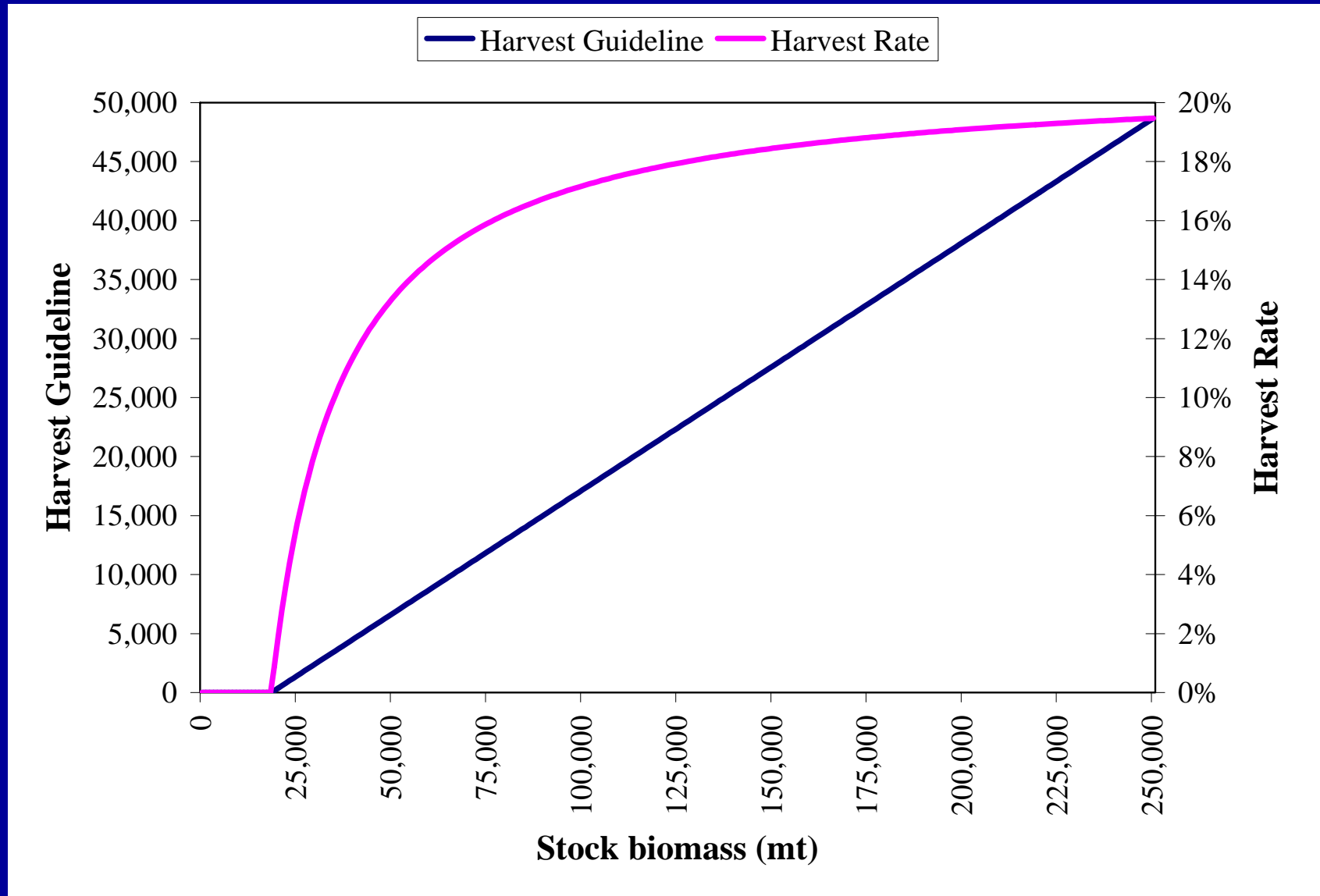
MANAGEMENT HISTORY

- No formal management prior to 1970; Canneries imposed minimum size limits and paid lower prices for fish <30 cm;
- State of California imposed moratorium 1970-1977;
- State of California Management 1978-1999:
 - Quotas based on population biomass (ages 1+),
 - No fishing when biomass <18,200 mt,
 - No quota restrictions when biomass >136,000 mt;
- Federal CPS Fishery Management Plan implemented Jan. 2000;
- No catch limitations by Mexico; min size=25.5 cm; limited entry;
- No international management agreements.

MSY CONTROL RULE – FEDERAL FMP:

Harvest Guideline = (Biomass_{t+} – Cutoff) x Fraction x Distribution

Harvest Guideline = (Biomass_{t+} – 18,200) x 0.30 x 0.70

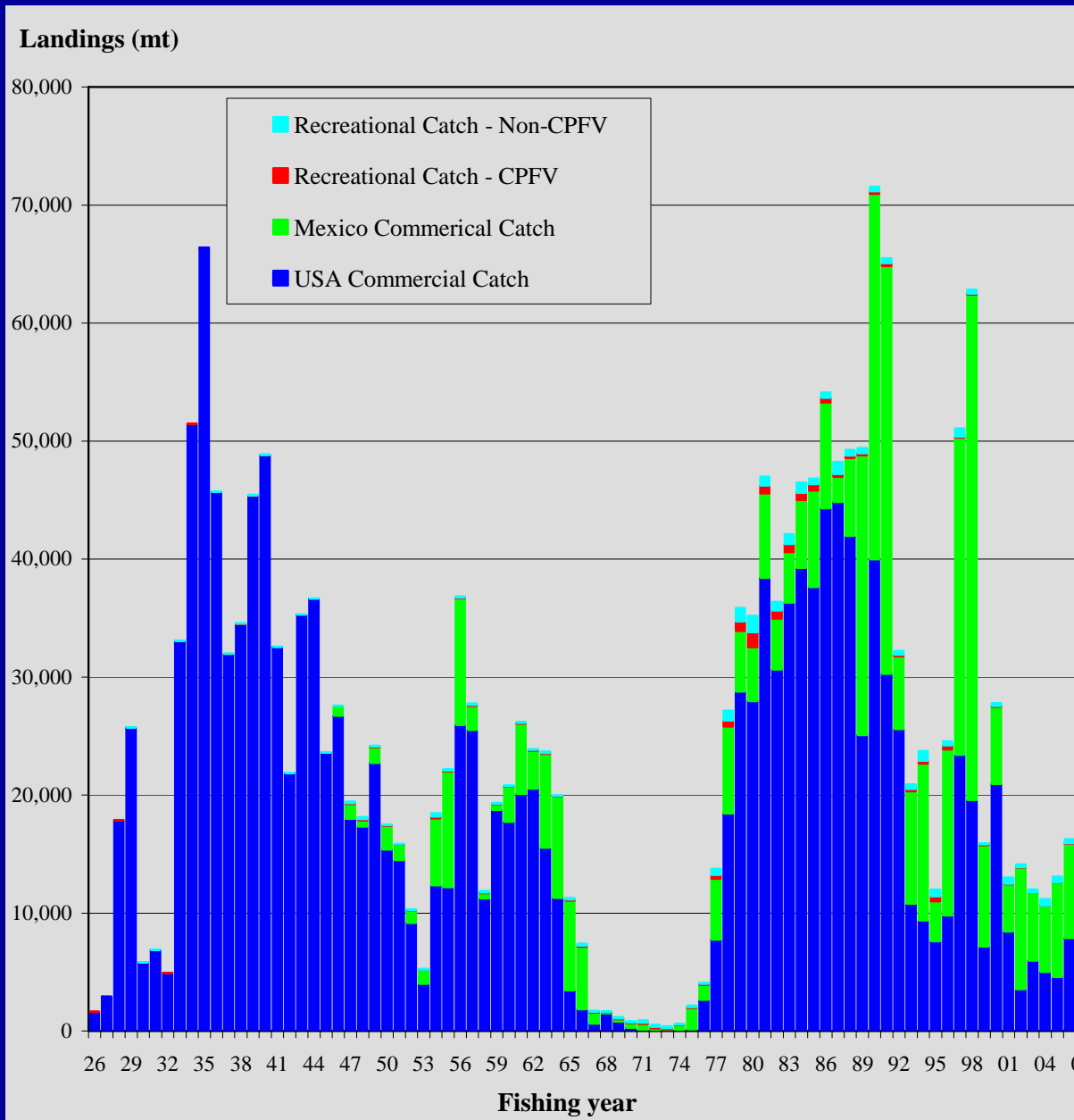


Landings

- California commercial 1926-27 onward
- Mexico commercial 1946-47 onward
- California recreational 1926-27 onward
 - Private boats, shore modes
 - Commercial Passenger Fishing Vessel (CPFV)



Landings

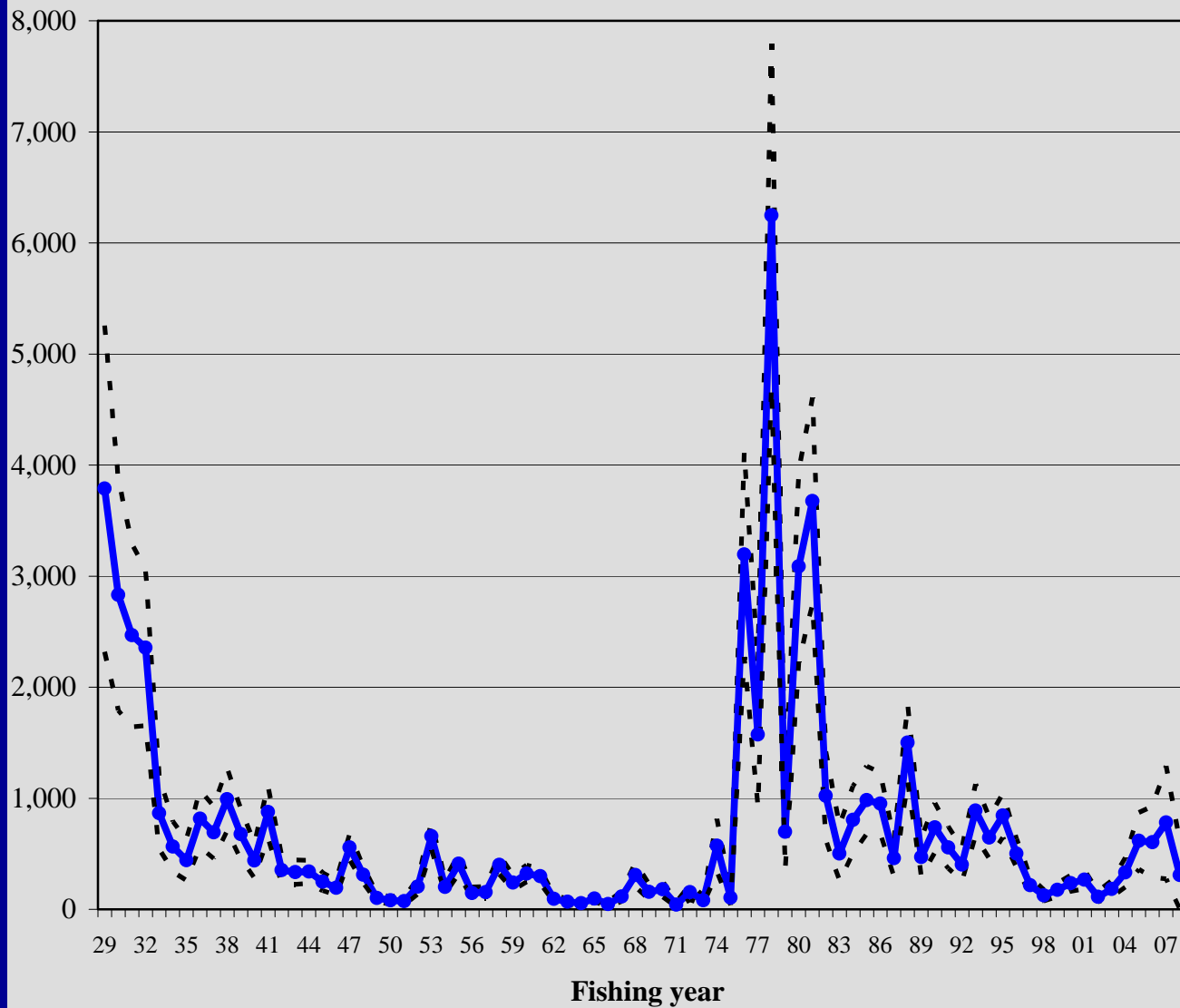


ASAP-E1 Model

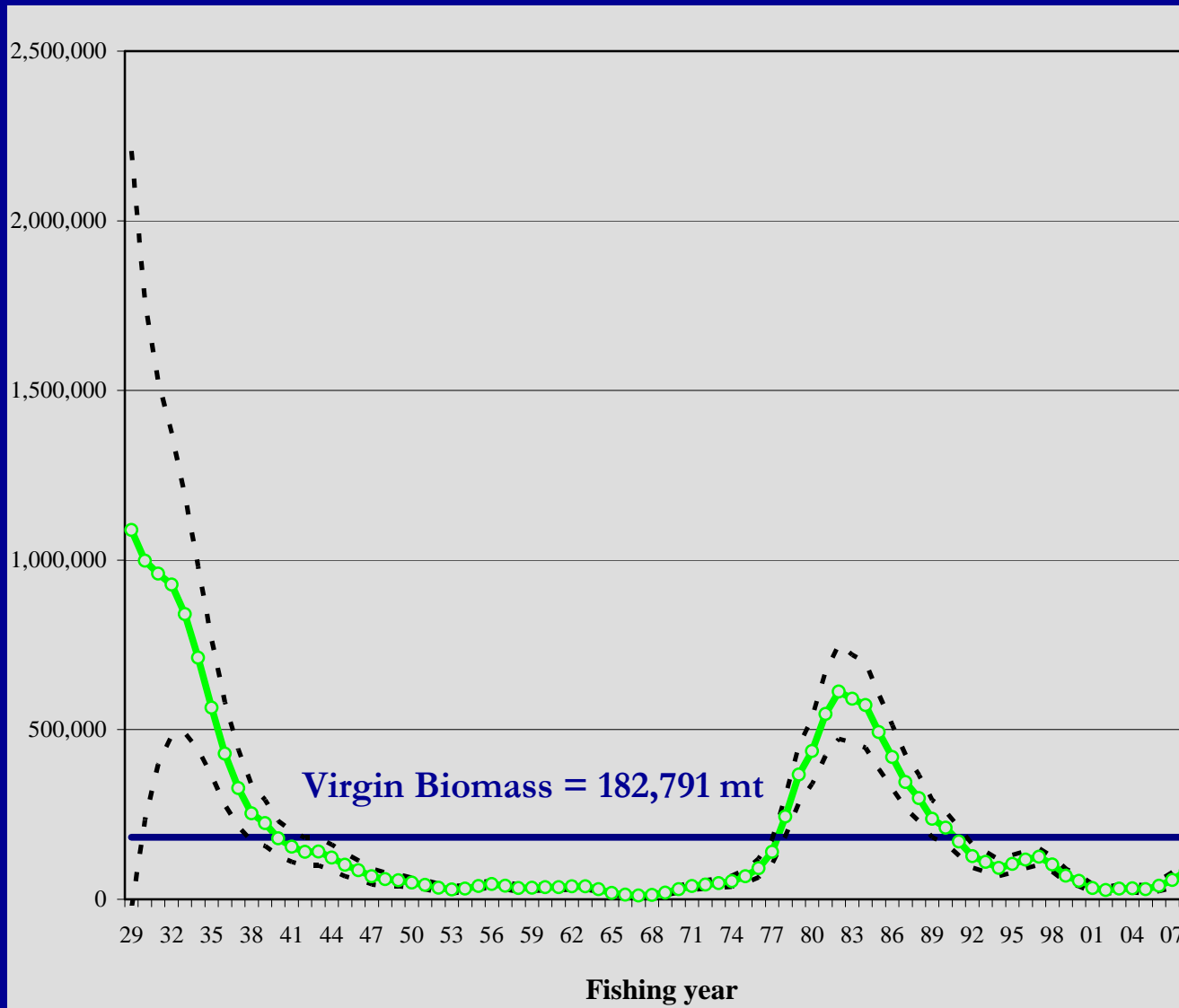
- *ASAP Version 1.3.2 (Legault and Restrepo 1998)*
- *Model Structure*
 - *Natural Mortality, $M = 0.5$*
 - *Sigma R = 0.7*
 - *Age 3 : Maturity ~ 50%*
 - *Year-specific weight-at-age*
 - *Spawner-Recruit curve: Standard Beverton & Holt*

Recruitment

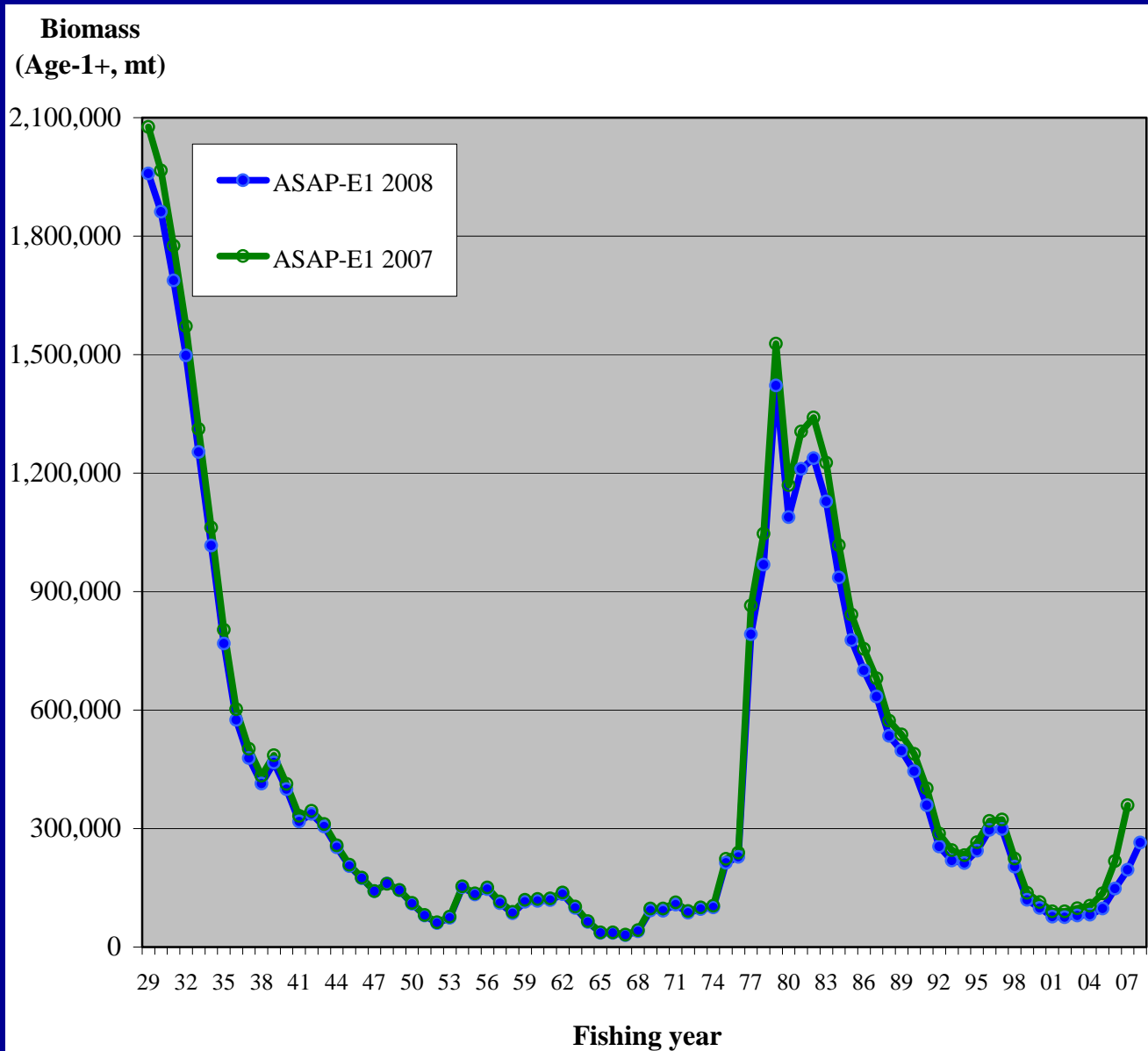
**R (Age-0 fish,
in millions)**



Spawning Stock Biomass



Age 1+ Biomass



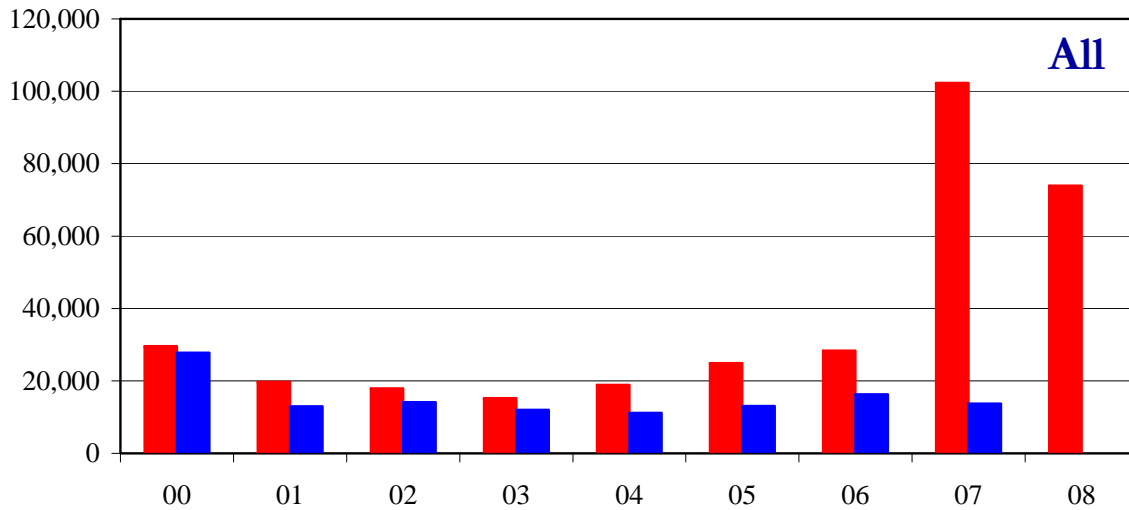
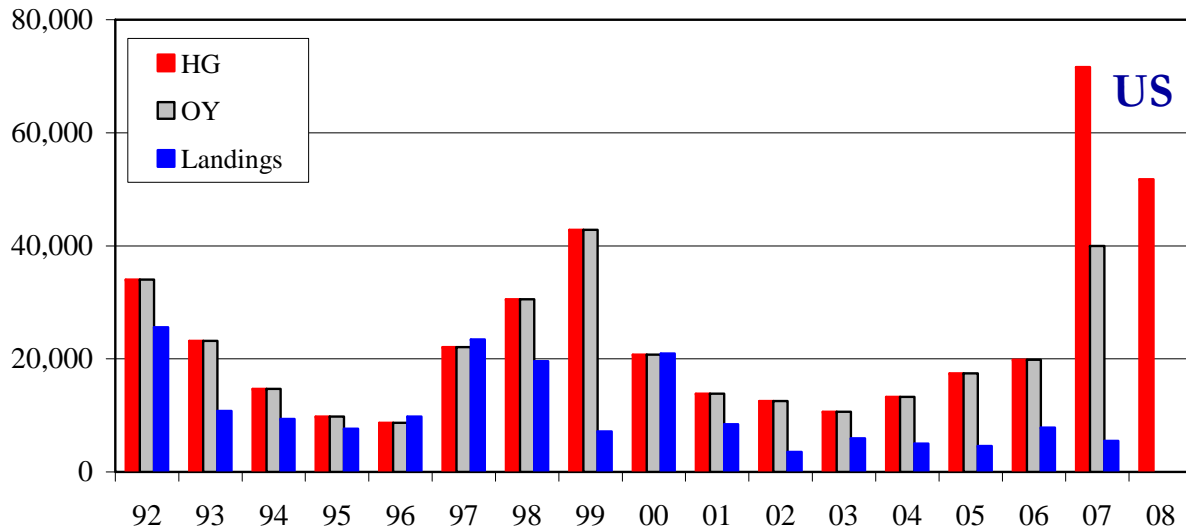
Harvest Guideline (HG_{08}) for 2008-09

$$HG_{08} = (\text{BIOMASS}_{08} - \text{CUTOFF}) * \text{FRACTION} * \text{DISTRIBUTION}$$

$$HG_{08} = (264,732 - 18,200) * 0.30 * 0.70$$

$$HG_{08} = \mathbf{51,772 \text{ mt}}$$

Landings, OY and HGs



Future Research and Data Needs

- Continuation of effort to obtain from Mexico:
 - Biological data
 - Fishery-independent survey data
 - CPFV logbook data from Mexico
- Age-reading studies will be conducted to construct an age-reading error matrix.
- Continue to examine the possibility of using SS2 as an alternative platform to ASAP.