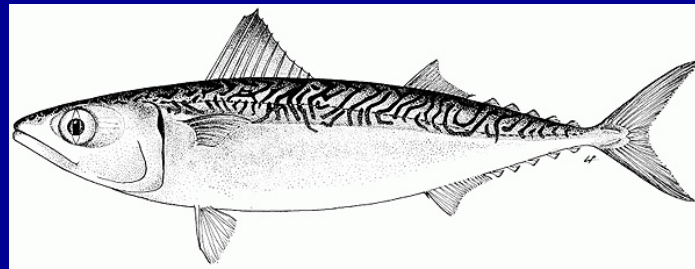


Pacific Mackerel Stock Assessment For U.S. Management In The 2007-08 Fishing Season

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Background



Distribution
Spawning Area

Fisheries



MANAGEMENT

- 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

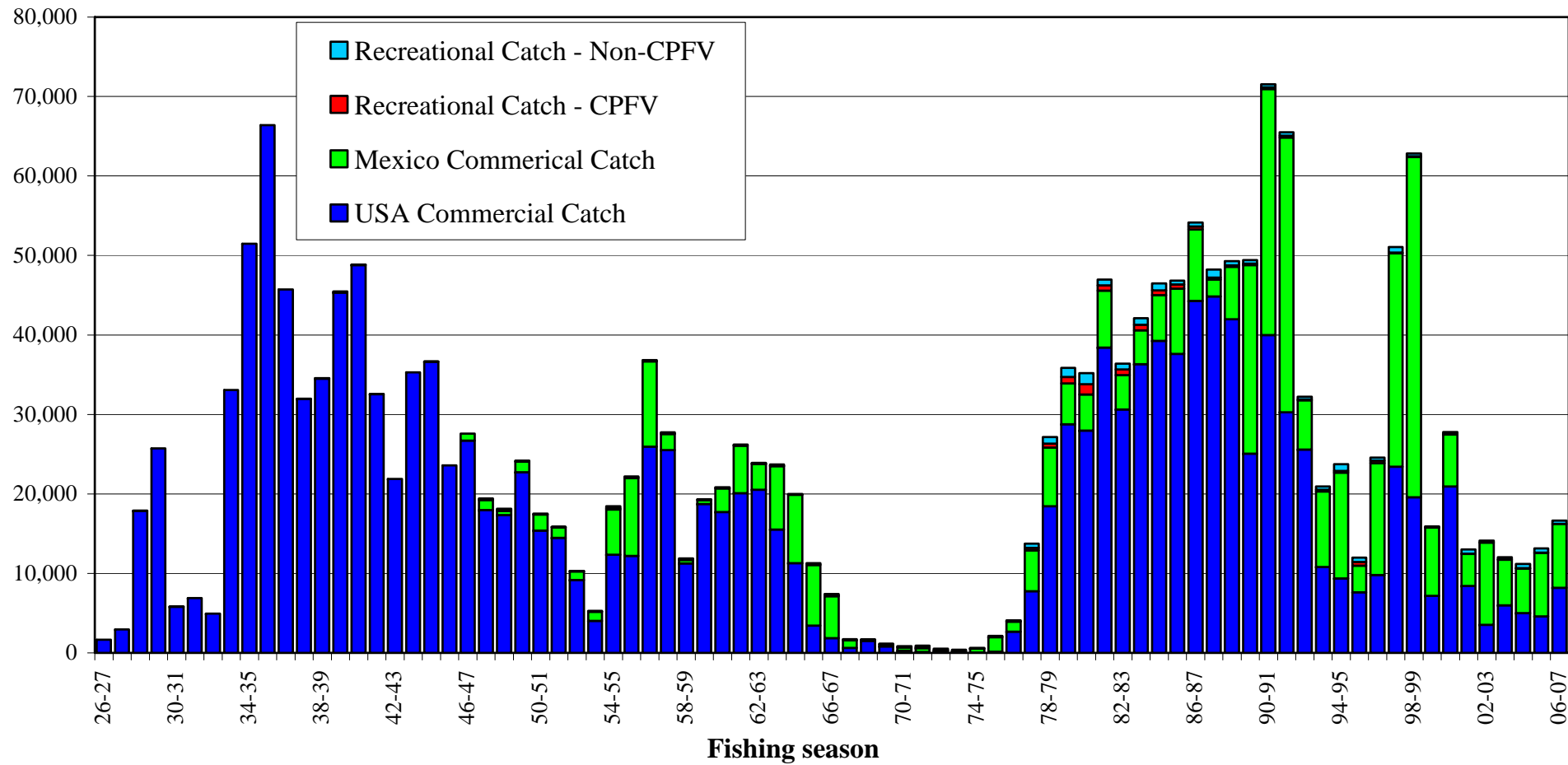
Landings

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

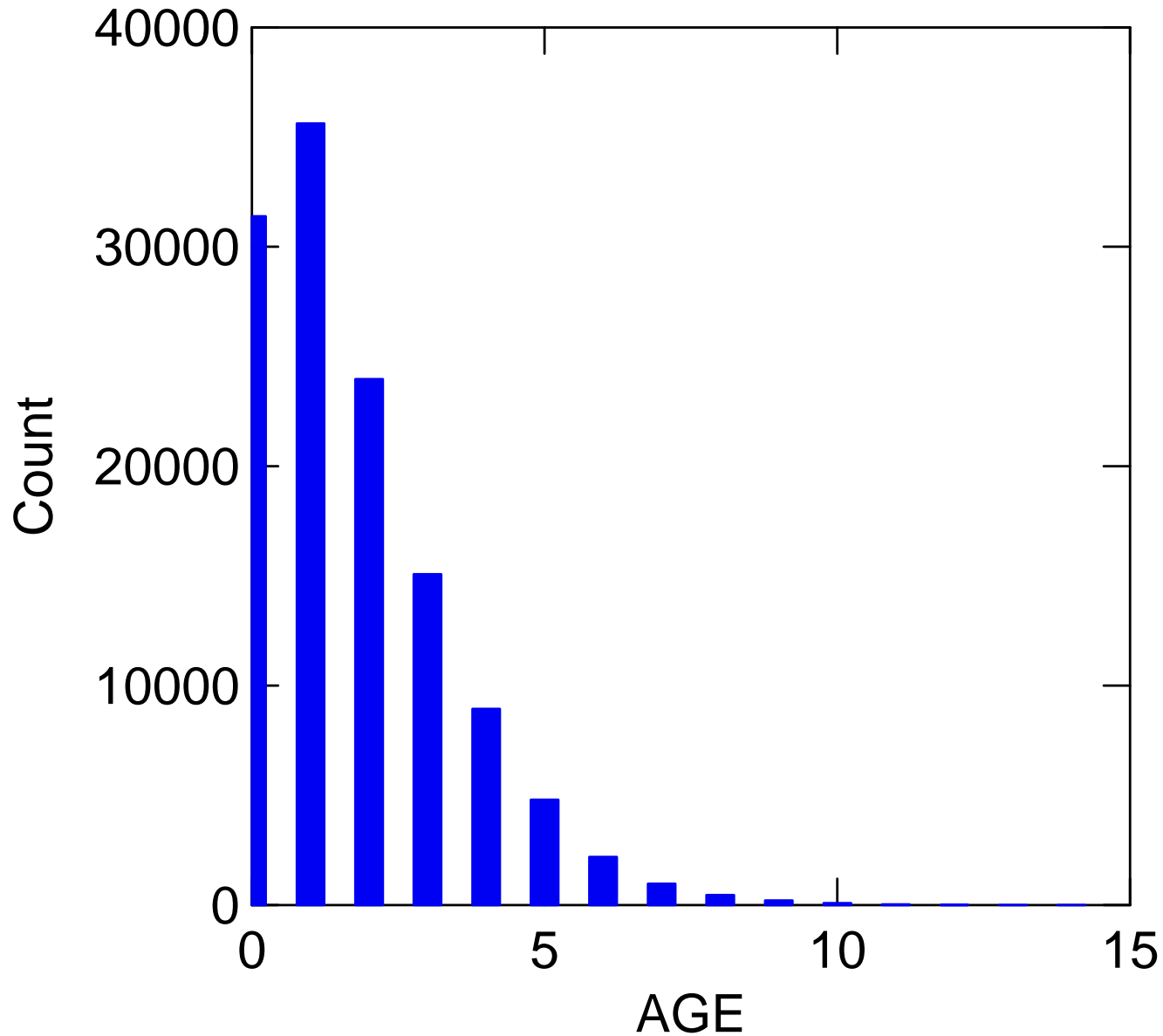


Landings

Landings (mt)



Age Frequency (1939-2006)



Assessment Model

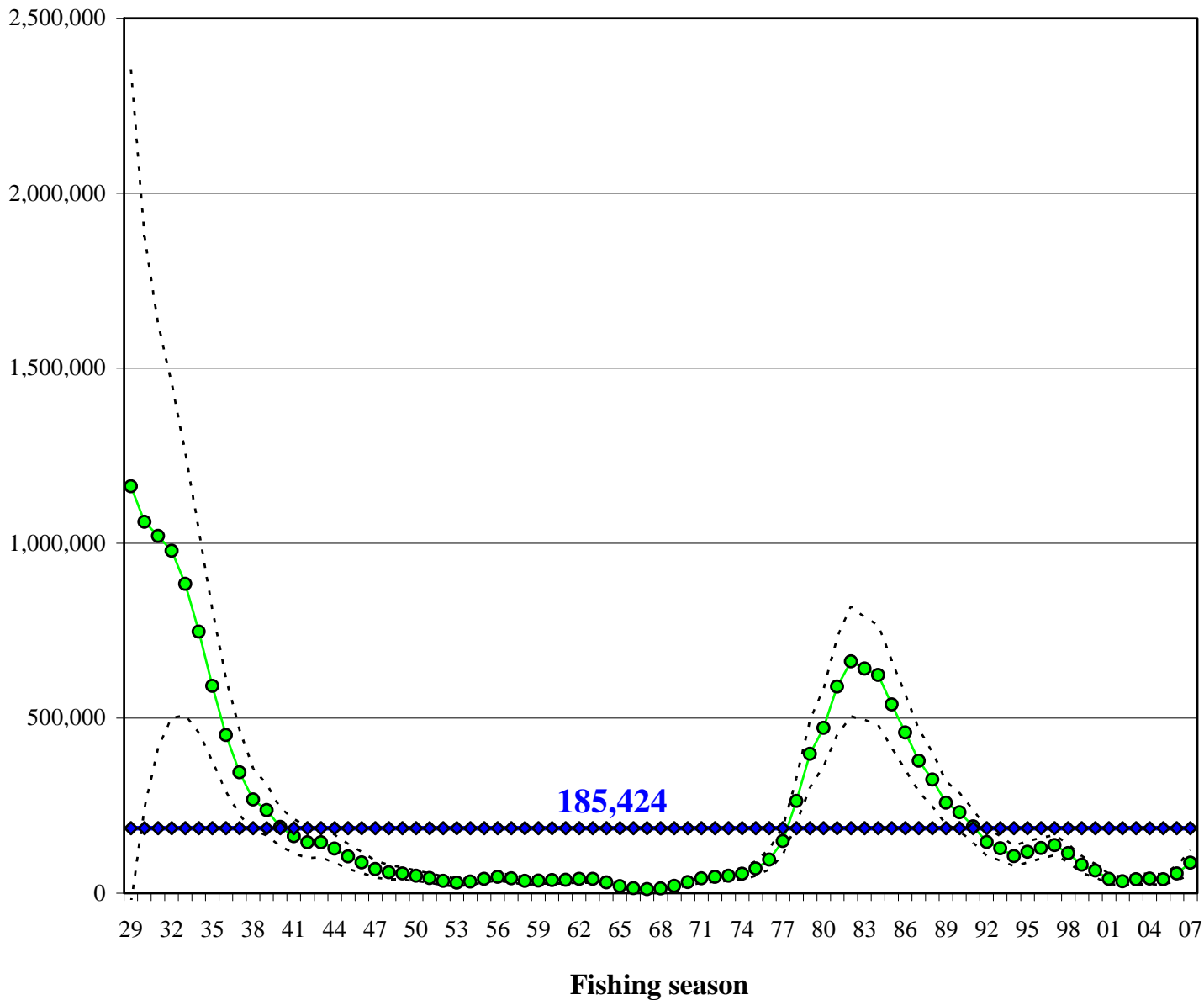
- *AGE-STRUCTURED ASSESSMENT PROGRAM
(ASAP, Legault and Restrepo 1998)*

- *Major Change*
 - *2006 Sigma R: 0.25*

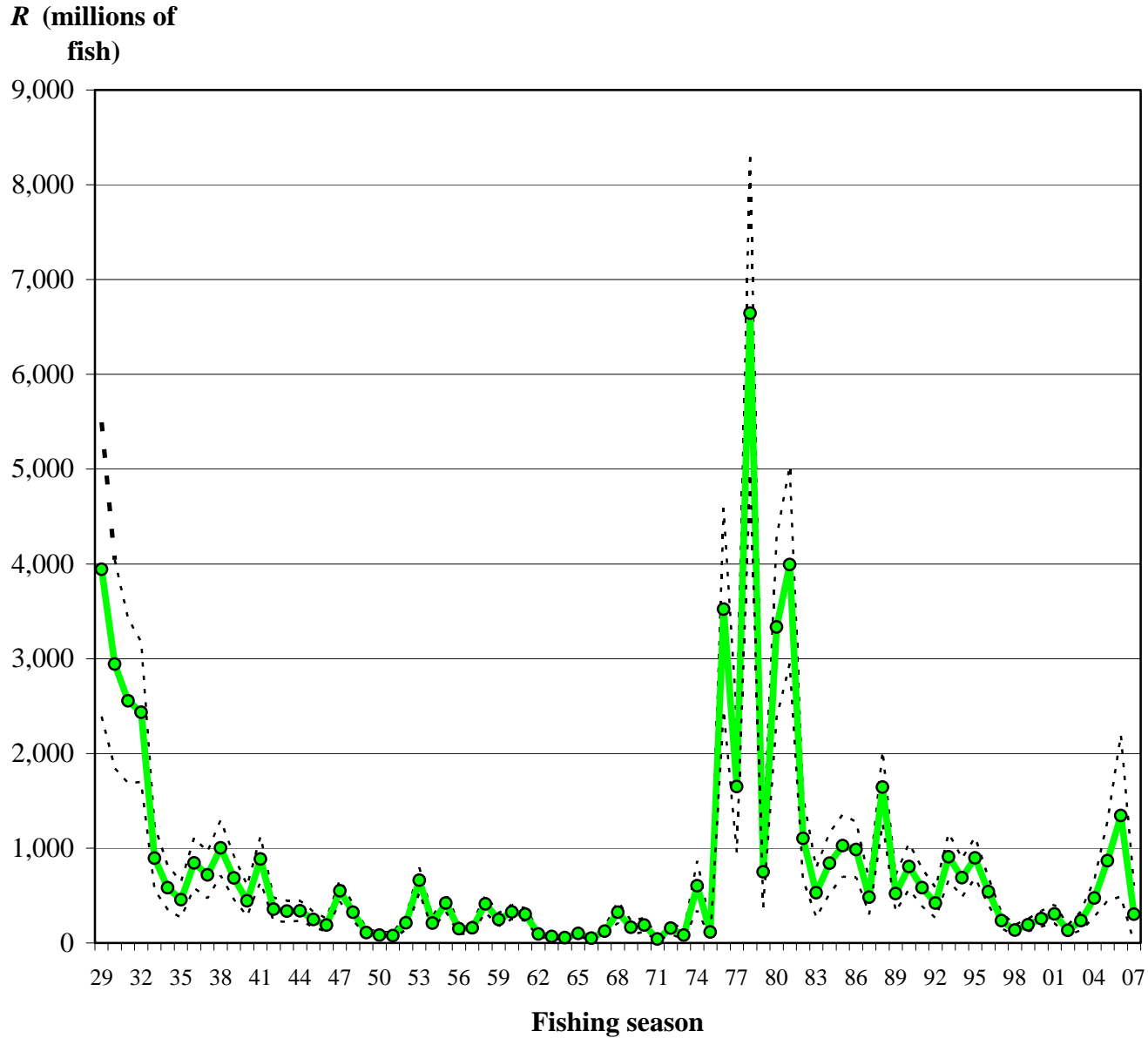
 - *2007 Sigma R: 0.70*

Spawning Stock Biomass

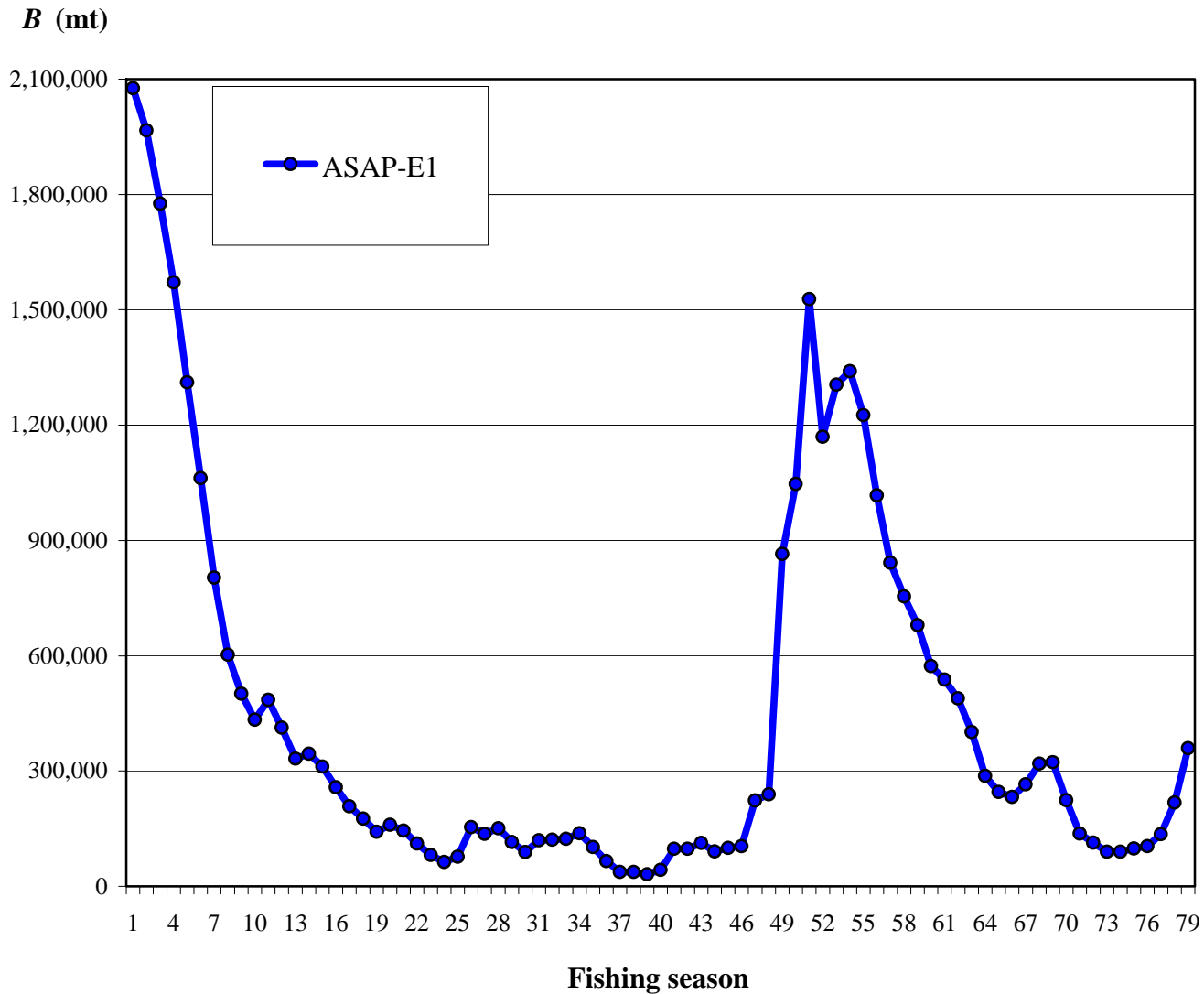
SSB (mt)



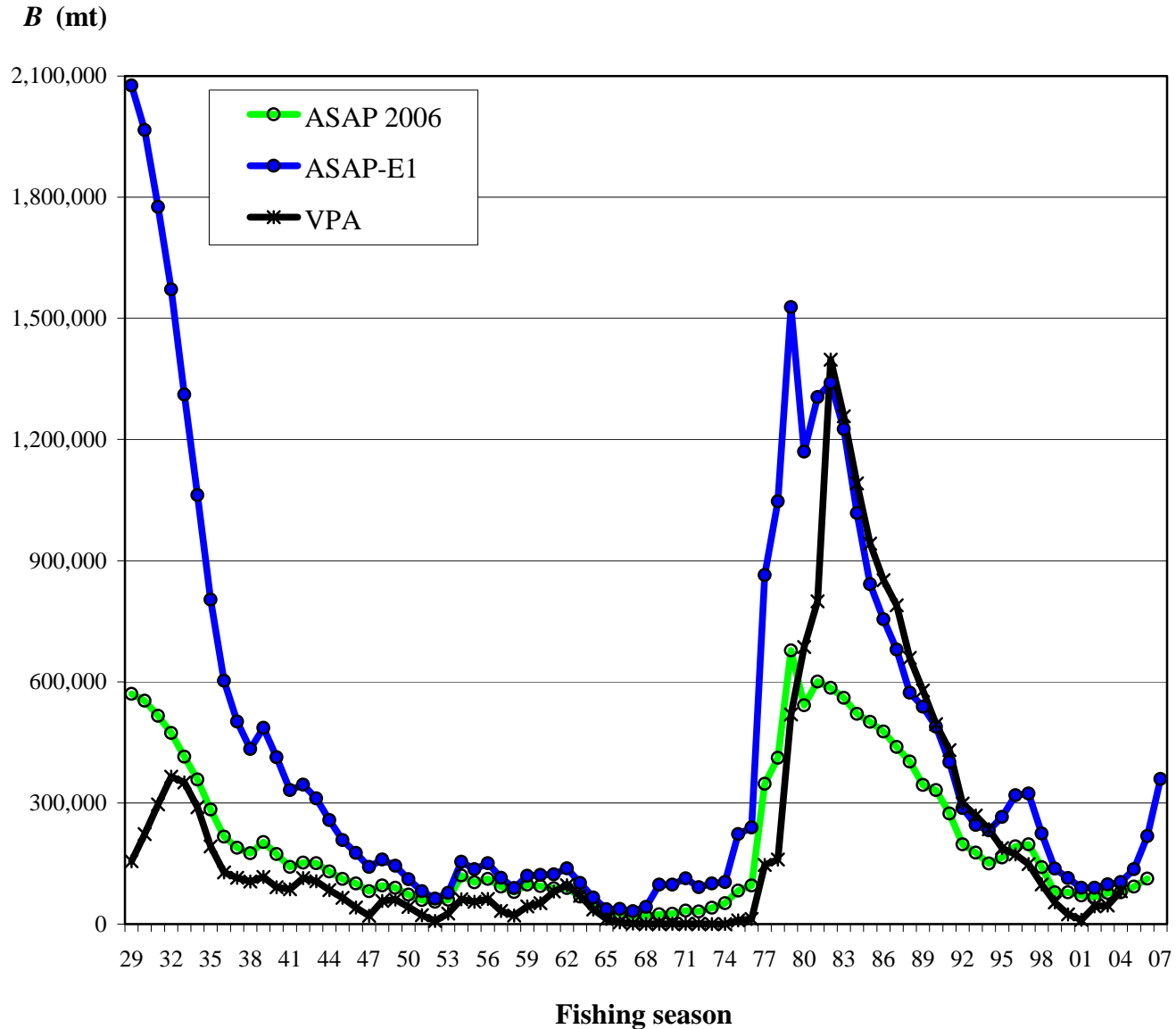
Abundance of Recruits (Age-0)



Age 1+ Biomass



Age 1+ Biomass

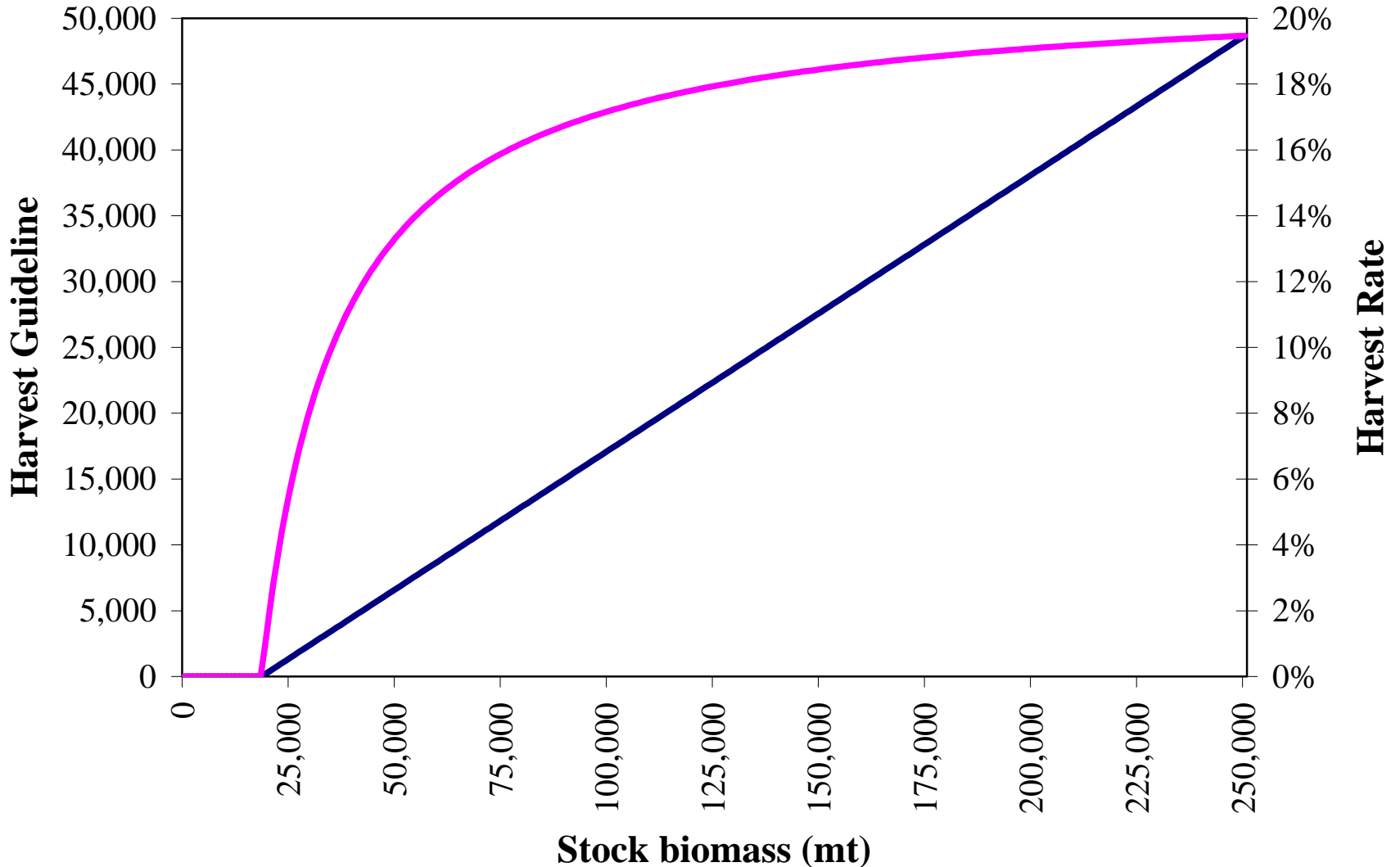


MSY CONTROL RULE – FEDERAL FMP:

Harvest Guideline = (Biomass₁₊ – Cutoff) x Fraction x Distribution

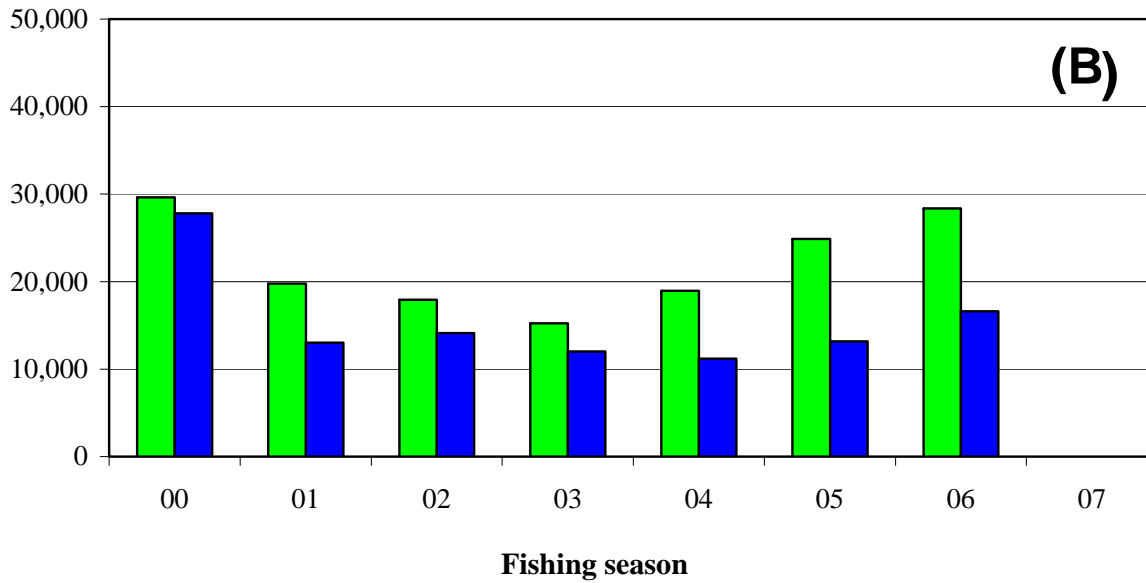
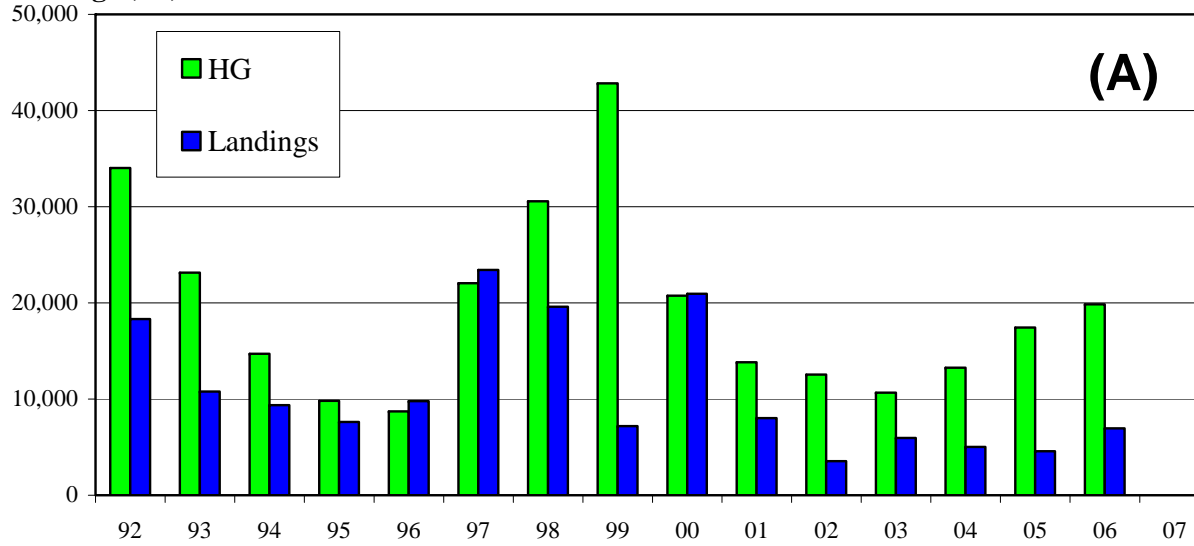
Harvest Guideline = (Biomass₁₊ – 18,200) x 0.30 x 0.70

— Harvest Guideline — Harvest Rate



Landings and HGs

Landings (mt)



Fishing season

Harvest Guideline ($HARVEST_{07}$) for 2007-08

$$HARVEST_{07} = (BIOMASS_{07} - CUTOFF) \bullet FRACTION \bullet DISTRIBUTION$$

$$HARVEST_{07} = (359,290 - 18,200) * 0.30 * 0.70$$

$$HARVEST_{07} = 71,629 \text{ mt}$$

Future Research and Data Needs

- Continuation of effort to obtain from Mexico
 - Biological data
 - Fishery-independent survey data
 - CPFV logbook data from Mexico
- Re-examination of the MSY control rule for Pacific mackerel