

## Update on the status of Eastern Bering Sea pollock

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**T**he pollock fishery in the EBS is the largest single-species fishery in the US and catches in the past few years have been at the highest levels in recent history, approaching 1.5 million t.

*The following is largely extracted from Ianelli et al. (2004). See <http://www.afsc.noaa.gov/refm/docs/2004/EBSpollock.pdf> for further details.*

Bottom trawl and echo-integration trawl surveys were conducted in summer 2004 in the eastern Bering Sea. The biomass estimate from the 2004 NMFS summer bottom-trawl survey was 3.75 million tons, a substantial drop from the value of 8.14 million tons estimated in 2003. The biomass estimate from echo-integration trawl survey was 3.31 million tons, down from 3.6 million tons estimated in 2002 but close to the average estimated by this survey since 1982 (3.36 million tons). Stock levels for EBS pollock appear to be lower overall than estimated in 2003 and the projected 2005 biomass is the lowest estimated since 1992. The 2000 year class appears to be above average and the main age group available to the fishery. Subsequent year classes are currently estimated to be below average and will result in further short-term declines in abundance. Projections (based on Tier 3 harvest levels) indicate the ABC could be below 1.1 million t by 2007 (Fig. 1). However, since in the BSAI region there is a cap on the total groundfish TAC of 2 million tons, the catch of pollock is unlikely to exceed 1.5 million t. Hence, projections using alternative constant catch scenarios may be more realistic for projection purposes (e.g., Fig. 2). While current stock levels are quite high, given the expected recruitment and array of year-classes available to this fishery, the stock is expected to decline in the next few years to near or below target levels.

### ABC setting process for EBS pollock

The stock assessment for EBS pollock is considered by the NPFMC SSC to have reliable estimates of uncertainty in  $F_{msy}$  and SSB and therefore maximum permissible ABC and OFL are derived from Tier 1 of the amended FMP (see WP-7 of this meeting). As with all NPFMC groundfish species, the recommended ABC can be set below the maximum permissible ABC level. In practice, this is done for various conservation reasons including ecosystem concerns, stock status uncertainty, and analyses on risk aversion. The Tier 1 calculations are derived from a risk averse analysis and have the basic property that the greater the uncertainty (in  $F_{msy}$  and current stock size), the lower the maximum permissible ABC. For 2005, the maximum permissible ABC was 1.962 million tons, based on the harmonic mean value of  $F_{msy}$ . The OFL level was specified at 2.104 million tons corresponding to the arithmetic mean of  $F_{msy}$ . The TAC was set to 1.478 million t due to constraints imposed by having the sum of all groundfish TACs be no greater than 2.0 million t.

### The 2005 Fishery

Preliminary results for the first half of the 2005 fishery indicate that production rates were similar to recent years (Fig. 3). The distribution of the catch has varied in this period but generally progresses from heavy concentrations of removals north of Unimak Island and extending north and west of this area along the 200 m isobath as the season develops (Fig. 4). A clearer picture emerges on catch-location variability if the spatial aspect of the fishery is plotted each year against some average catch level. This was done for the period 2000-2005 for the first months of the winter fishery (Fig. 5).



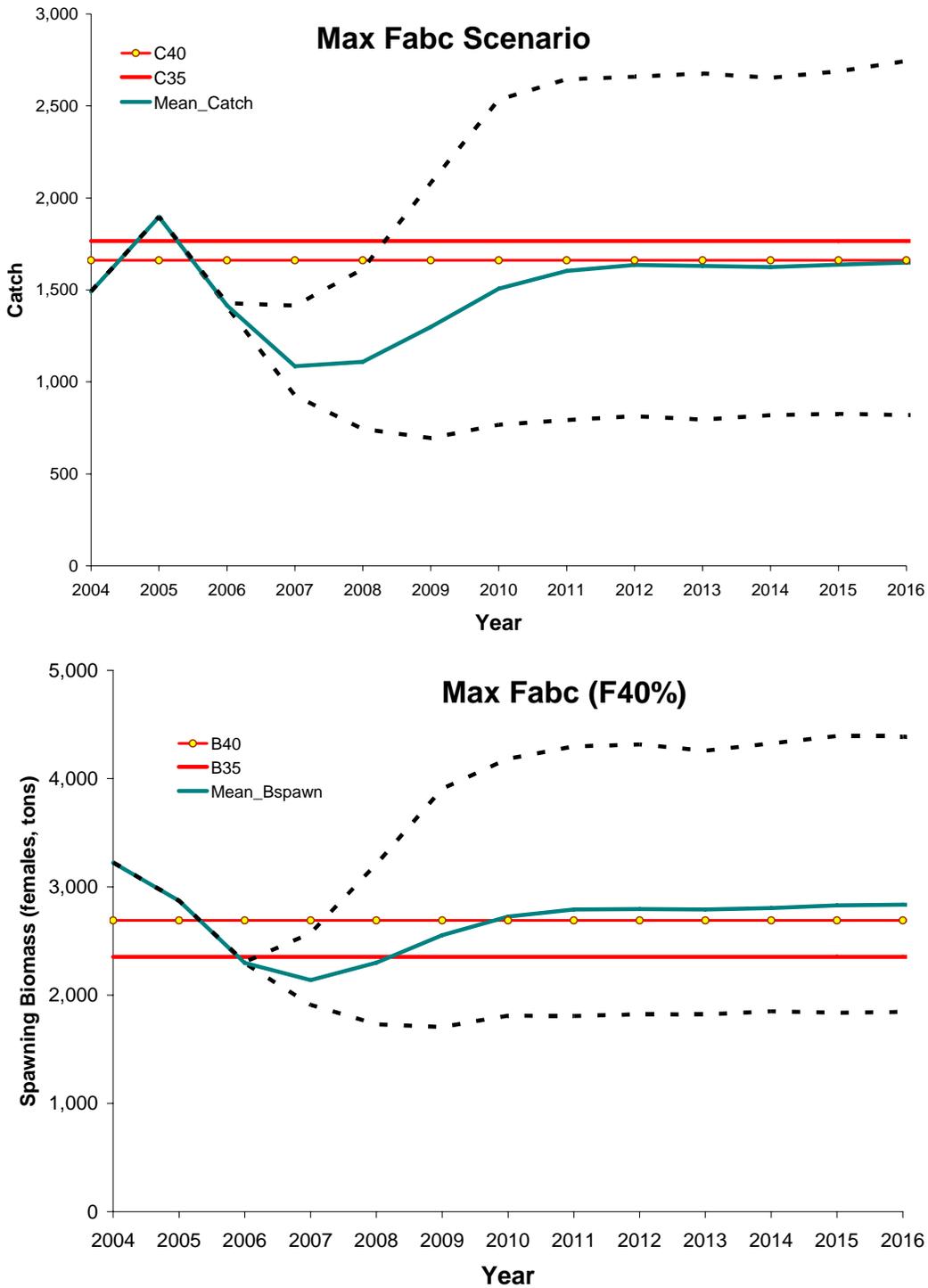


Figure 1. Projected EBS walleye pollock **yield** (top) and **Female spawning biomass** (bottom) relative to the long-term expected values under  $F_{35\%}$  and  $F_{40\%}$  (horizontal lines) for Model 1.  $B_{40\%}$  is computed from average recruitment from 1978-2004. Future harvest rates follow the guidelines specified under Scenario 1, max  $F_{ABC}$  assuming  $F_{ABC} = F_{40\%}$ .

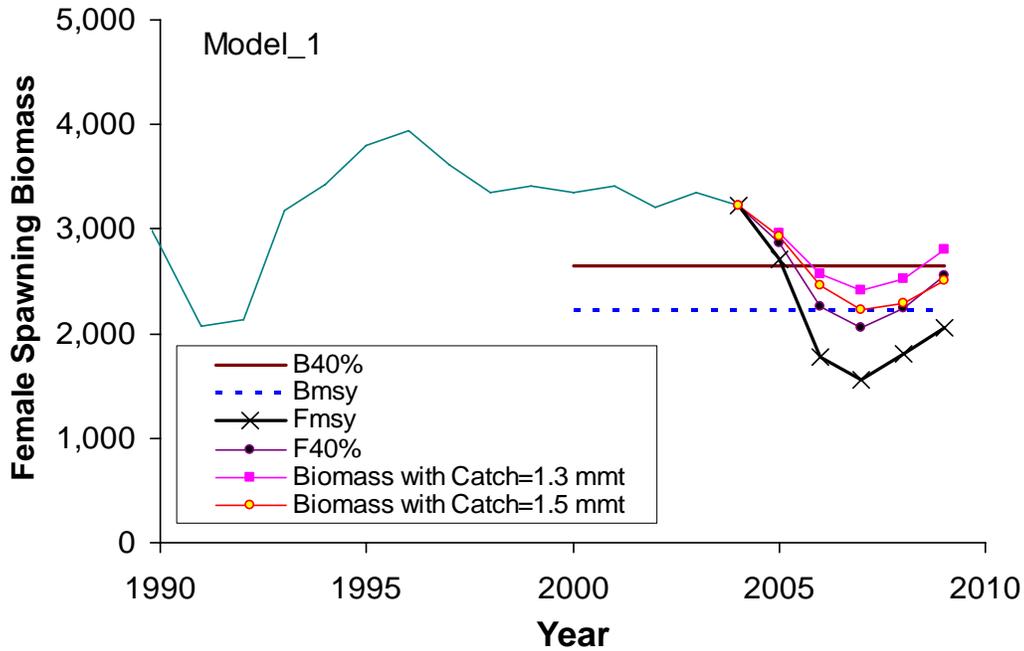


Figure 2. EBS walleye pollock female spawning biomass abundance trends, 1990-2009 as estimated by Ianelli et al., 2004 under different 2005-2009 harvest levels. Note that the  $F_{msy}$  and  $F_{40\%}$  catch levels are unadjusted arithmetic mean fishing mortality rates. Horizontal solid and dashed lines represent the  $B_{msy}$ , and  $B_{40\%}$  levels, respectively.

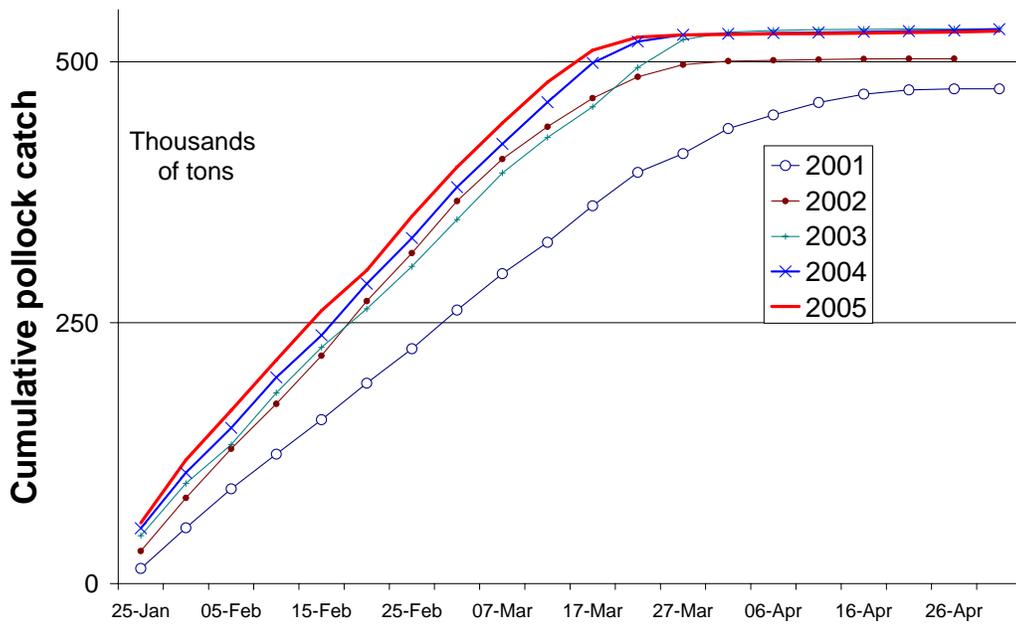


Figure 3. Cumulative catch levels for 2005 compared to recent years for the first season (winter) based on observer data.

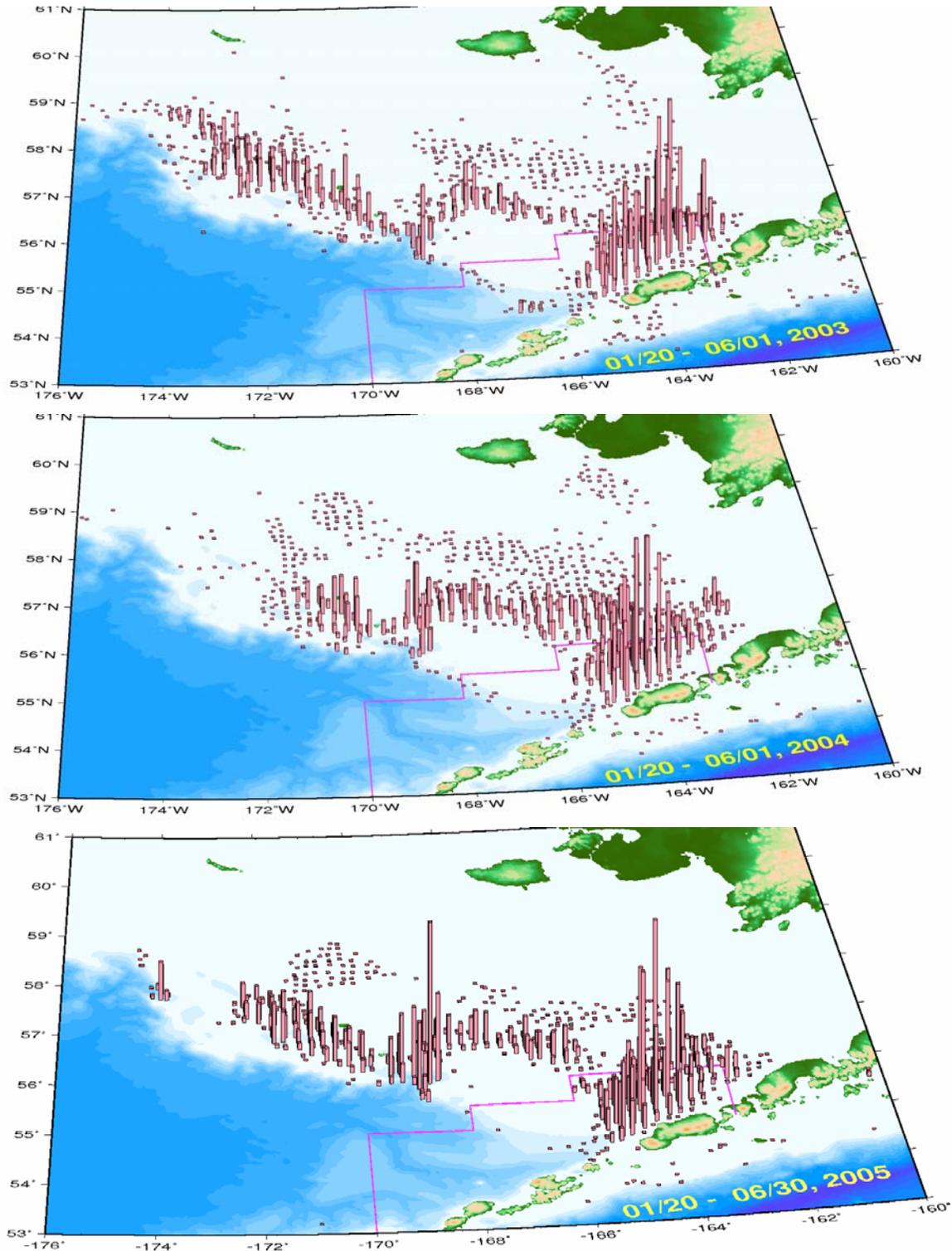


Figure 4. Concentrations of the pollock fishery 2003-2005, January - June on the EBS shelf. Line delineates SCA (sea lion conservation area). The column height represents relative removal on the same scale in all years.

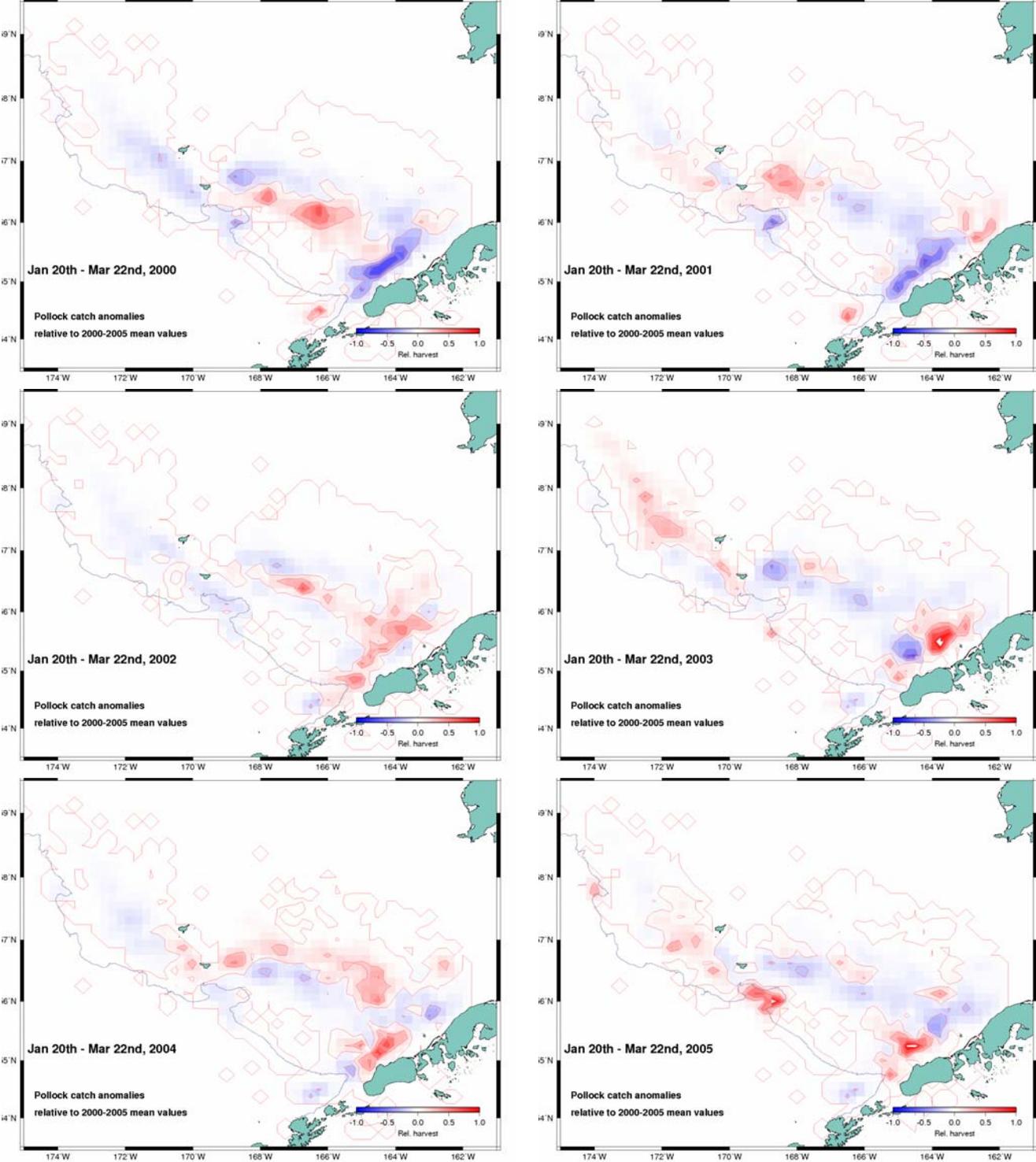


Figure 5. Geographic anomalies of catch for the period Jan 20<sup>th</sup> – March 22<sup>nd</sup> by year relative to the average catch over 2000-2005.