

Science, Service, Stewardship



Projecting Recreational Catch from Available Data

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**NOAA
FISHERIES
SERVICE**



Data Sources

MRFSS:

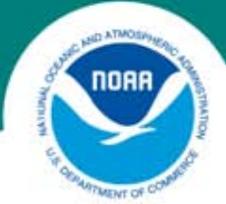
- 2-month waves
- Delivery ~ 45 days after end of wave

HEADBOAT:

- Monthly data
- Delivery varies

TEXAS PARKS & WILDLIFE DEPARTMENT:

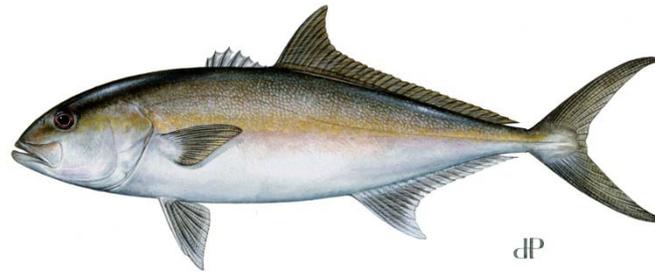
- 'High' (May 15-Nov 20) & 'Low' use (Nov 21-May 14) waves
- Delivery varies



Methods

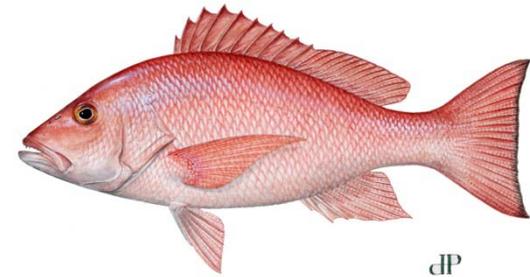
Greater Amberjack

- Regression
- Cumulative landings



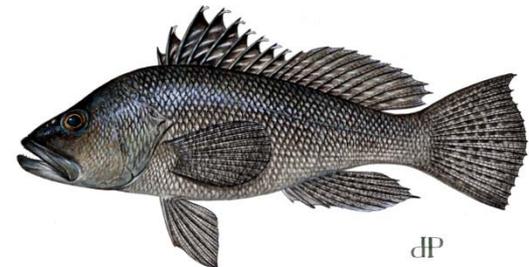
Red Snapper

- Prior year landings used as proxy;
adjust for average weight increases



Black Sea Bass

- Historical ratios of landings
used to expand reported landings





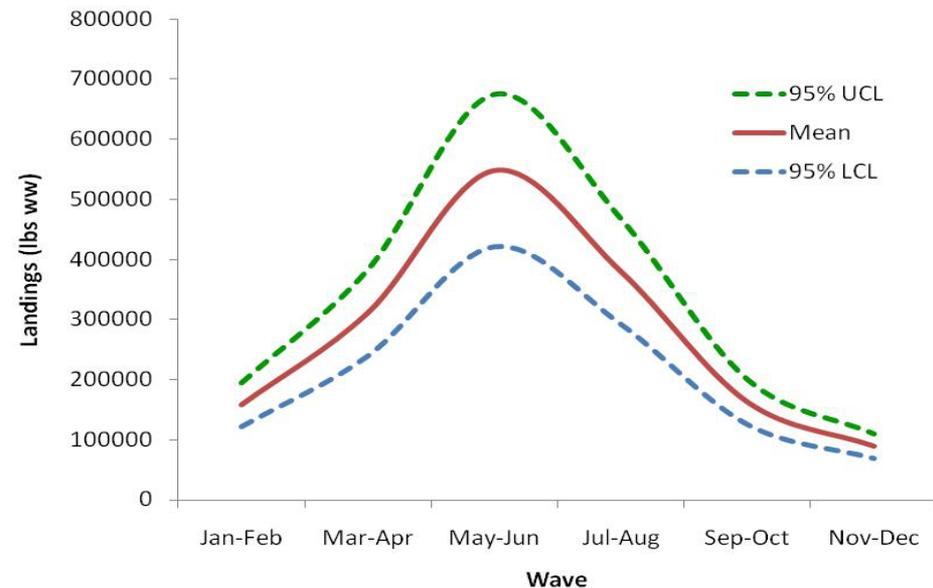
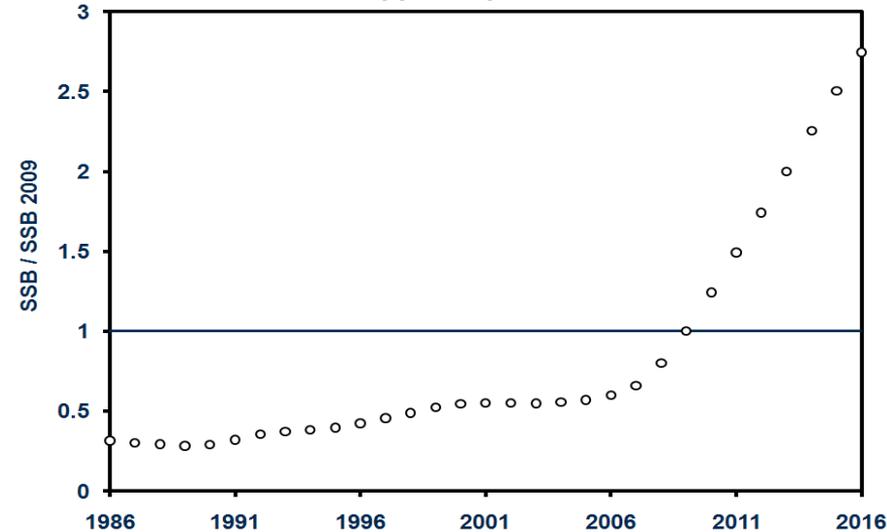
Common Assumptions

- Historical Landings ~ Proxy for Future Landings
- Landings uniformly distributed within waves
- All landings from wave when season is open
- States will adopt compatible regulations

Basic Projection Challenges

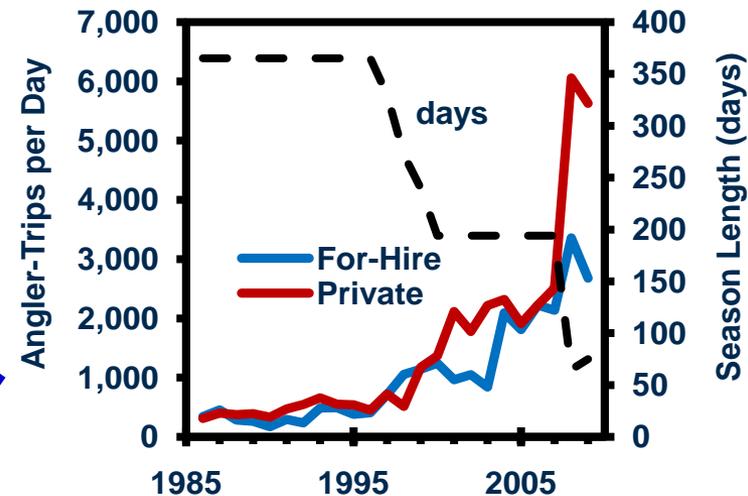
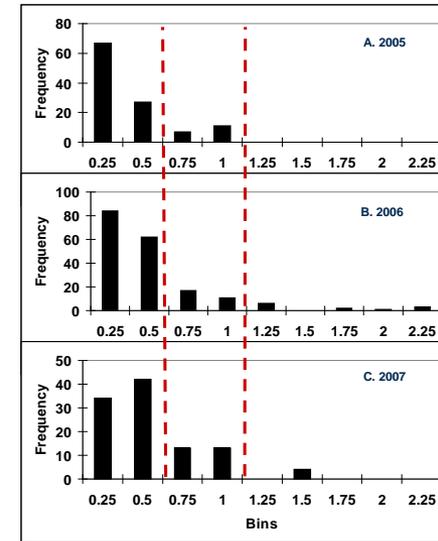
- **Time Lags**
 - Vary by data sources
 - Lags for management changes
- **Data Precision / Accounting for Uncertainty**
 - MRFSS PSE
 - Headboat? TPWD?
- **Impacts of Rebuilding**
 - Changes to TAC
 - Changes in Average Size
 - Changes in CPUE
- **Landings not Uniformly Distributed**
- **Handling Florida Keys**

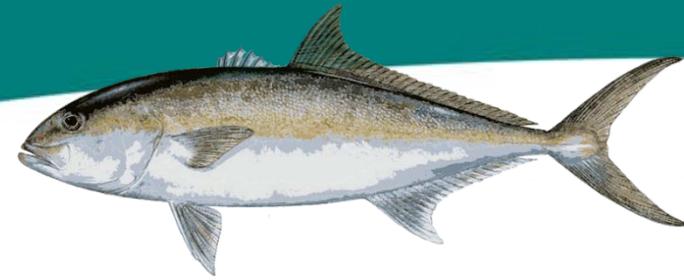
Red Snapper Population Growth



Advanced Projection Challenges

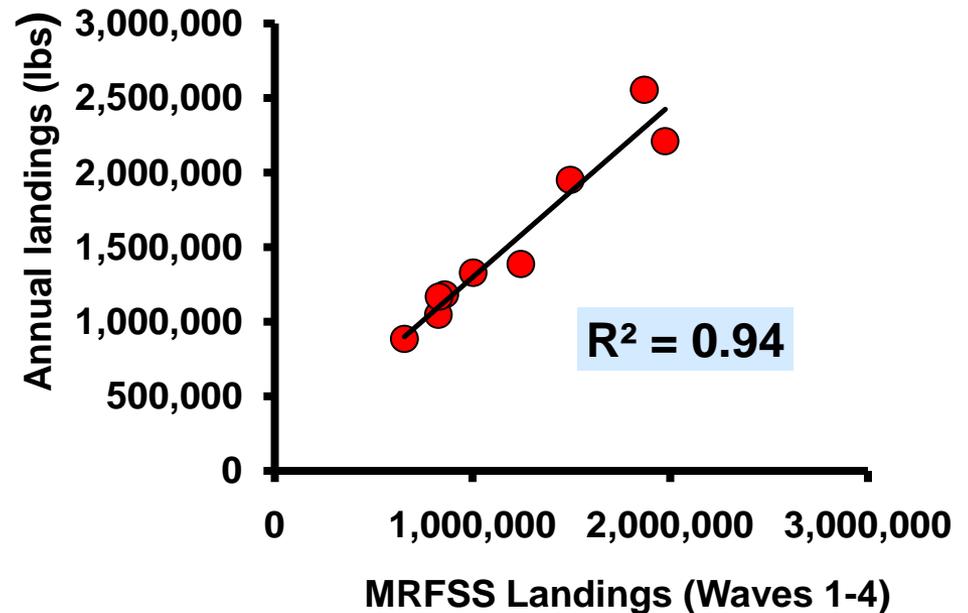
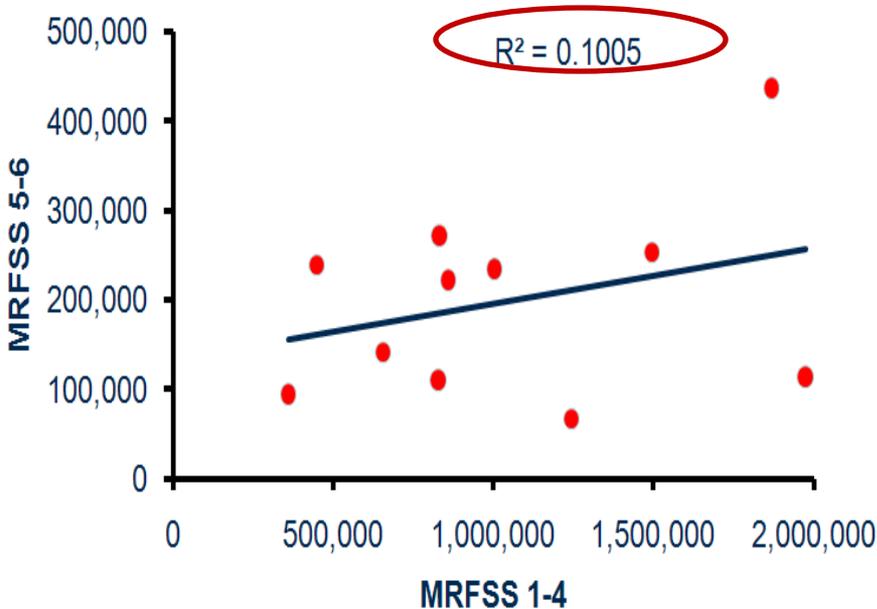
- **Impacts of Time/Area Closures**
 - Poor Spatial Data
 - Effort Shifting
 - Weekend openings
- **Impacts of Recently Implemented or Proposed Regulations**
 - Trip elimination
 - Changes in release mortality
 - Compliance rate
 - State compatibility
- **Changes in Participation**
 - Changes in targeting
 - Changes in fishing population
- **Effort Compensation**
 - Shortened season → Derby fishery





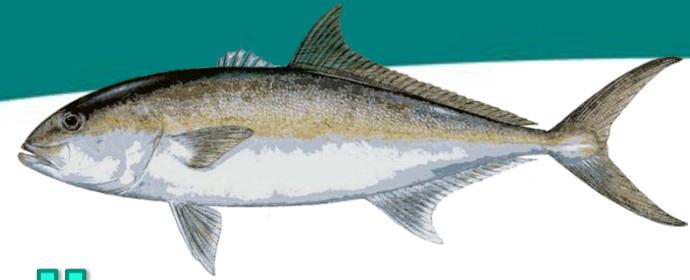
Regression Approach

Reported 2009 MRFSS landings (Waves 1-4) used to predict 2009 MRFSS landings based on regression of 2000-2008 data

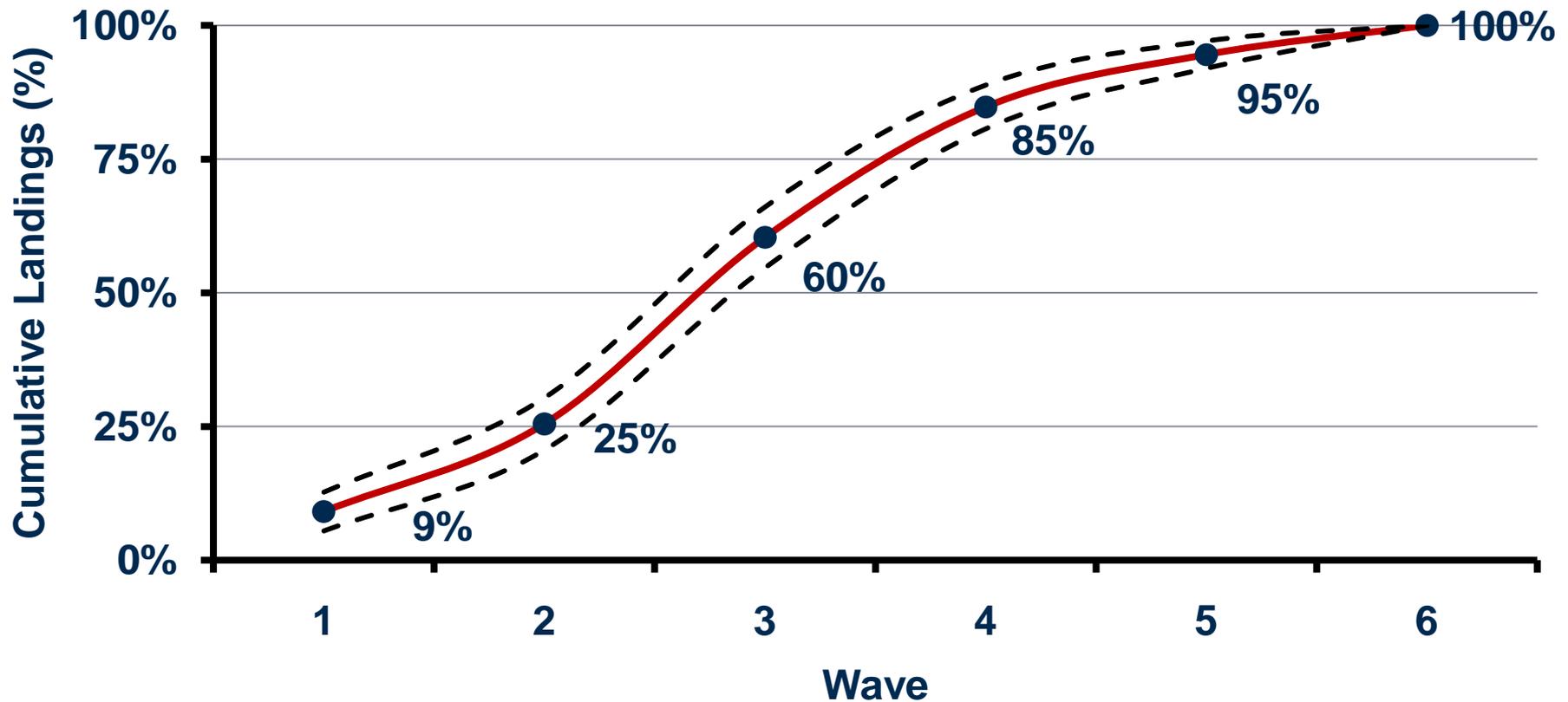


ISSUE: Waves 1-4 poor predictor

ISSUE: Data autocorrelated

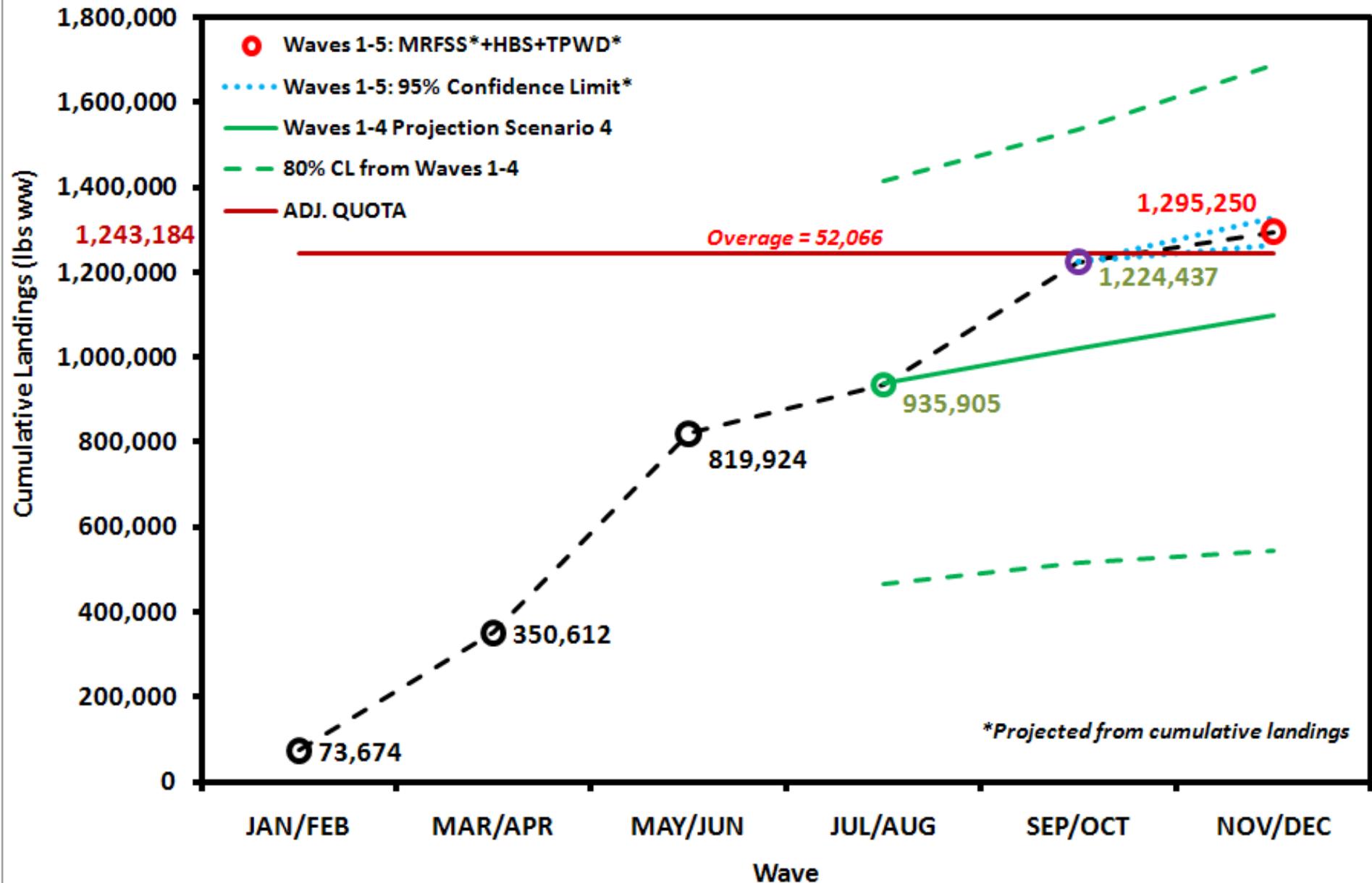


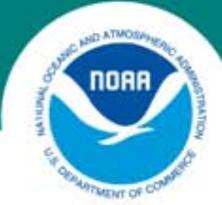
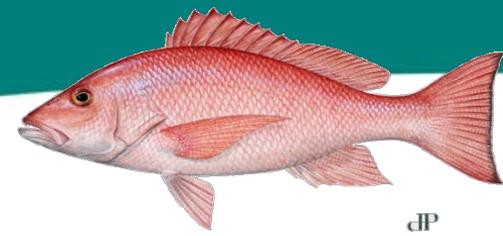
Cumulative Landings as a Predictor



Gulf Recreational Greater Amberjack Landings in 2010

Waves 1-4 vs. Waves 1-5 Projections





Fishing Season Projections: Potential New Approach

$$\frac{Catch_{lbs}}{day} = AvgWeight * \frac{Catch_N}{trip} * \frac{Trips}{day} * \Delta Effort$$

$$Days_{open} = \frac{TAC}{\left(\frac{Catch_{lbs}}{day} \right)}$$

Can compute by sector; solve for days open that brings landings closest to TAC

**CATCH (N)/TRIP LIMITED BY REGS
RECENT YEARS ~ BEST PROXY***

***could increase with increasing SSB** 11



Why We Need More Accurate & Timely Data

- **More accurate projections**
 - Reduced time period for projection = Reduced uncertainty
- **Did an overage occur? Are AMs necessary?**
- **More advance notice for quota closures**
 - Reduced economic hardship
 - Improved business planning
- **Reduced overages and associated payback**
- **Reduced probability of closure before quota is met**



Questions?

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