



Options for Improving Timeliness: Increasing the Frequency of Estimation

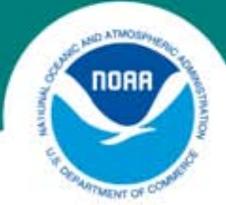
MRIP Timeliness Workshop
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Purpose of Monitoring

- Determine total catch with respect to a set Quota or ACL
- Detect changes in fishing activity or catch rate as early as possible
- Avoid invoking Accountability Measures



What is needed for monitoring?

- **Timeliness**
 - Frequent updates of data and statistics
- **Quality Data and Statistics**
 - Error-free data → unbiased catch statistics
 - Sufficient sampling → precise catch statistics
- **Access to Data and Statistics**
 - As immediate as possible
- **Reliable Forecasting**
 - Accounting for known changes in fishery



Components of the Interagency Electronic Reporting System (IERS) in Alaska

eLandings
web application



Timeliness

- seaLandings for at-sea fleet to report via email
- tLandings for tenders to reports via thumbdrive or email



Interagency repository
database



QA/QC

Agency Interface for
editing and submitting
data

Access

Shared by the 3 fishery
management agencies in Alaska:
NMFS, International Pacific Halibut
Commission, and Alaska Dept. Fish &
Game



Monitoring Factors

- Monitoring requirements should map to existing data collection capabilities
- Resolution of data collections and monitoring should match
- Collection capabilities and data resolution should be set to avoid Accountability Measures
- There is a desire to “get the last fish” and not leave any fish on the table

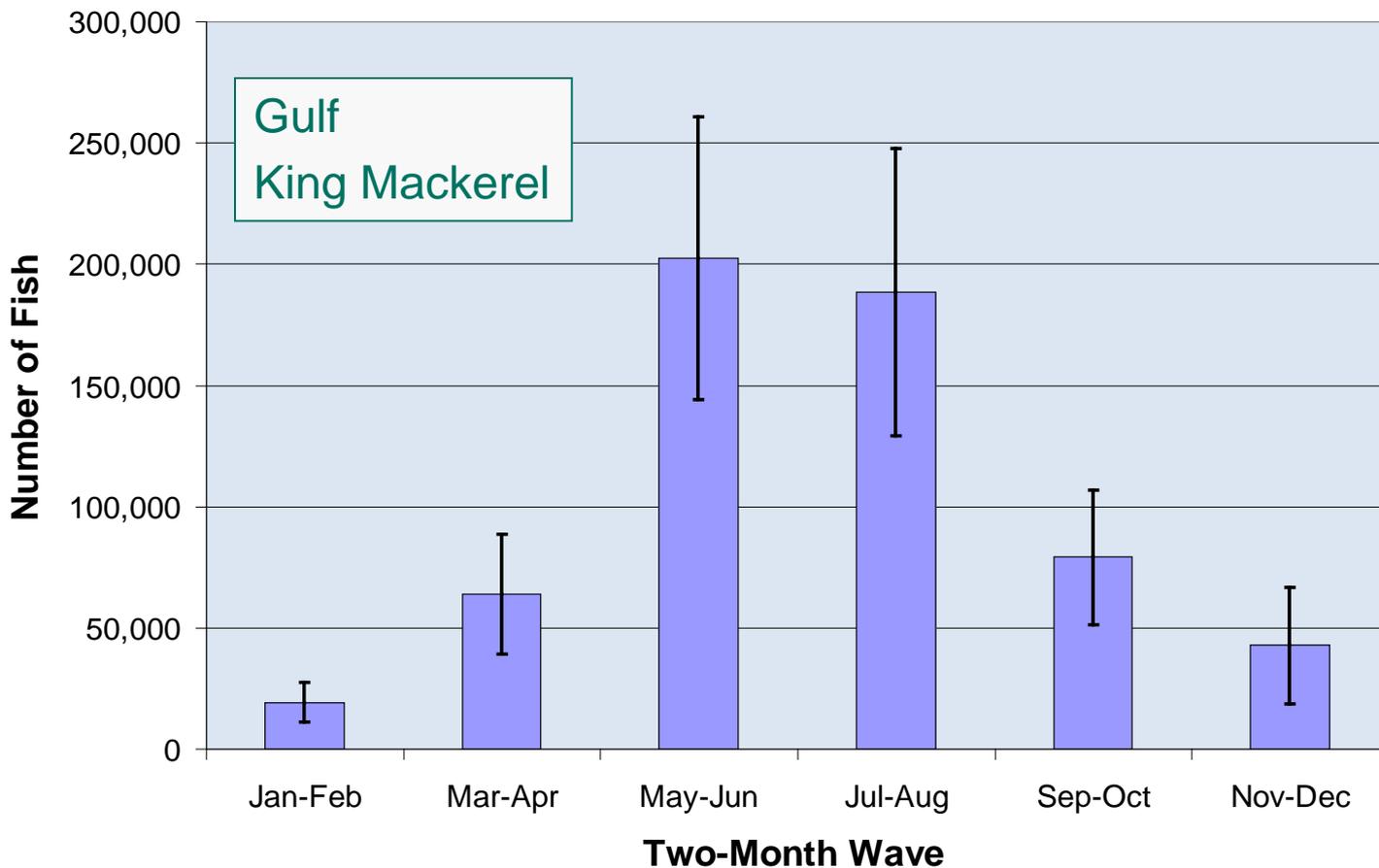


Recreational Fishery Monitoring

- Managers want more frequent updates to catch statistics
 - Current frequency varies by region and fishery:
 - Bimonthly – Atlantic, Gulf, Puerto Rico, Hawaii,
 - Monthly – Pacific ocean groundfish, Atlantic HMS
 - Weekly or daily – Pacific salmon and halibut
 - Desired improvements in survey designs:
 - Scalability for finer temporal resolution
 - Scalability for finer spatial resolution
 - Sufficient QA/QC to assure error-free data
 - Sufficient sampling to provide desired statistical precision

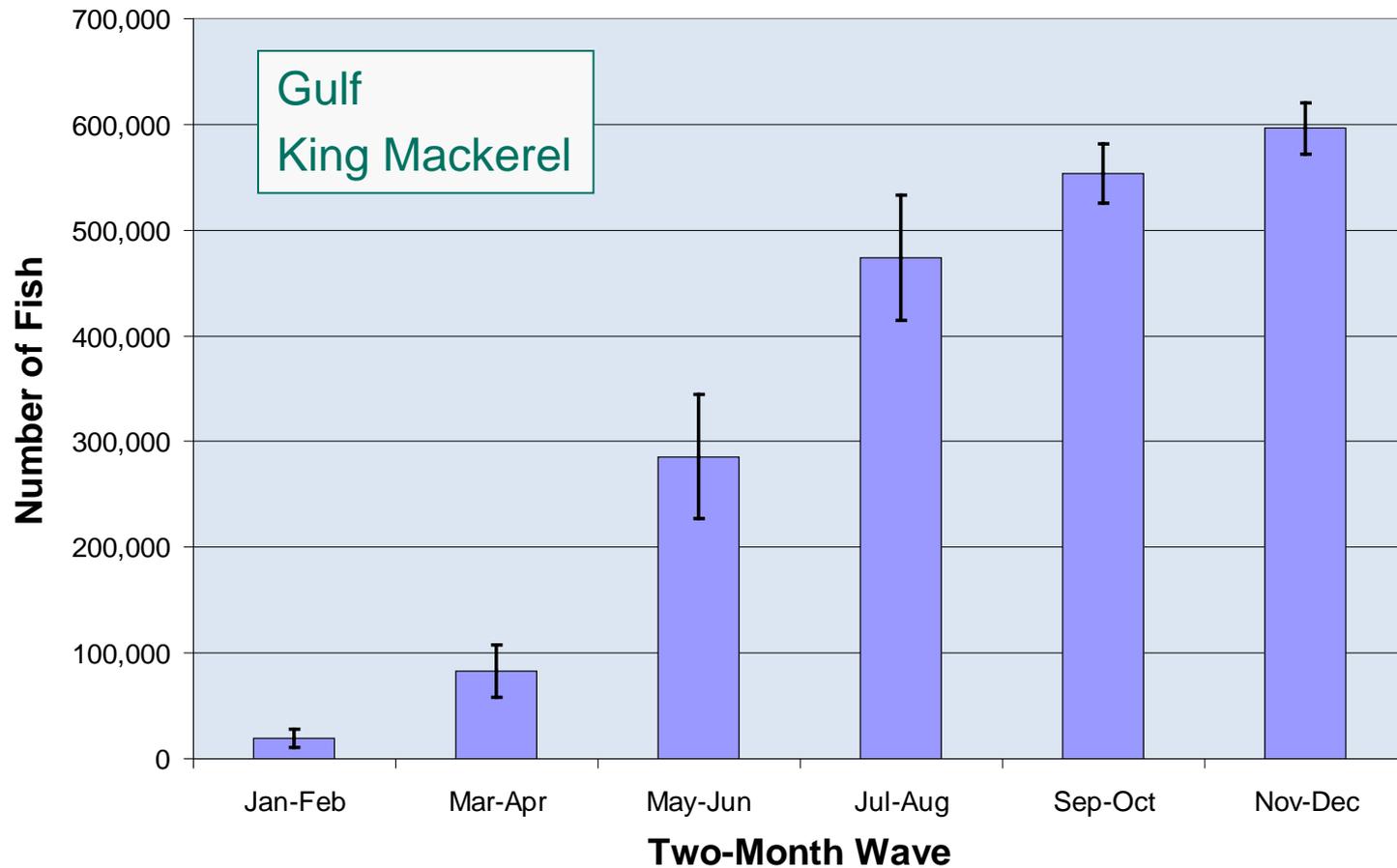


Atlantic and Gulf of Mexico Bimonthly Catch Statistics



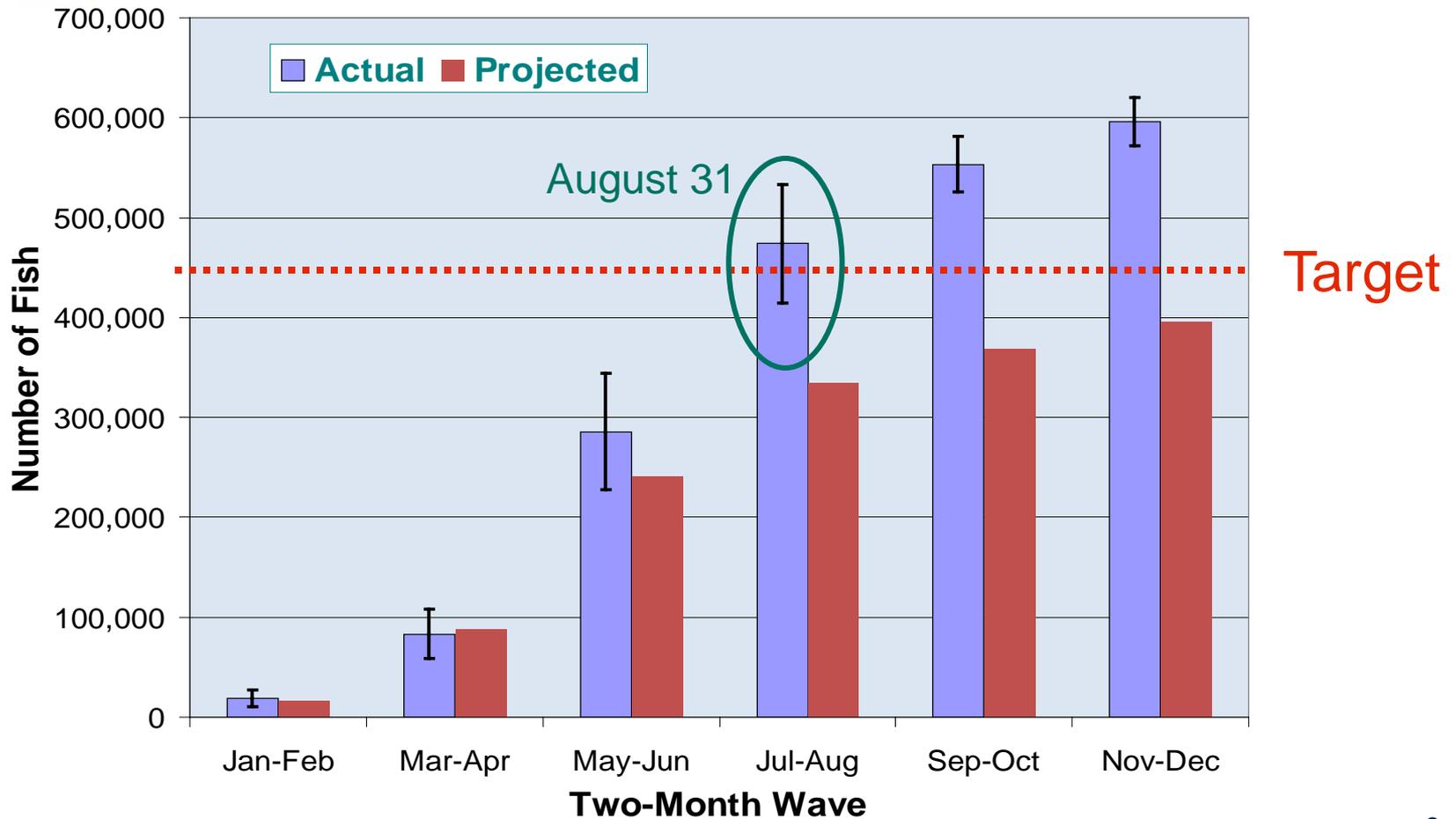


Bimonthly Updates of Total Catch





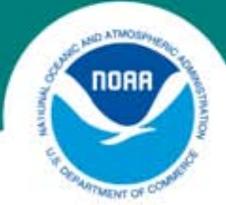
Bimonthly Monitoring of Total Catch



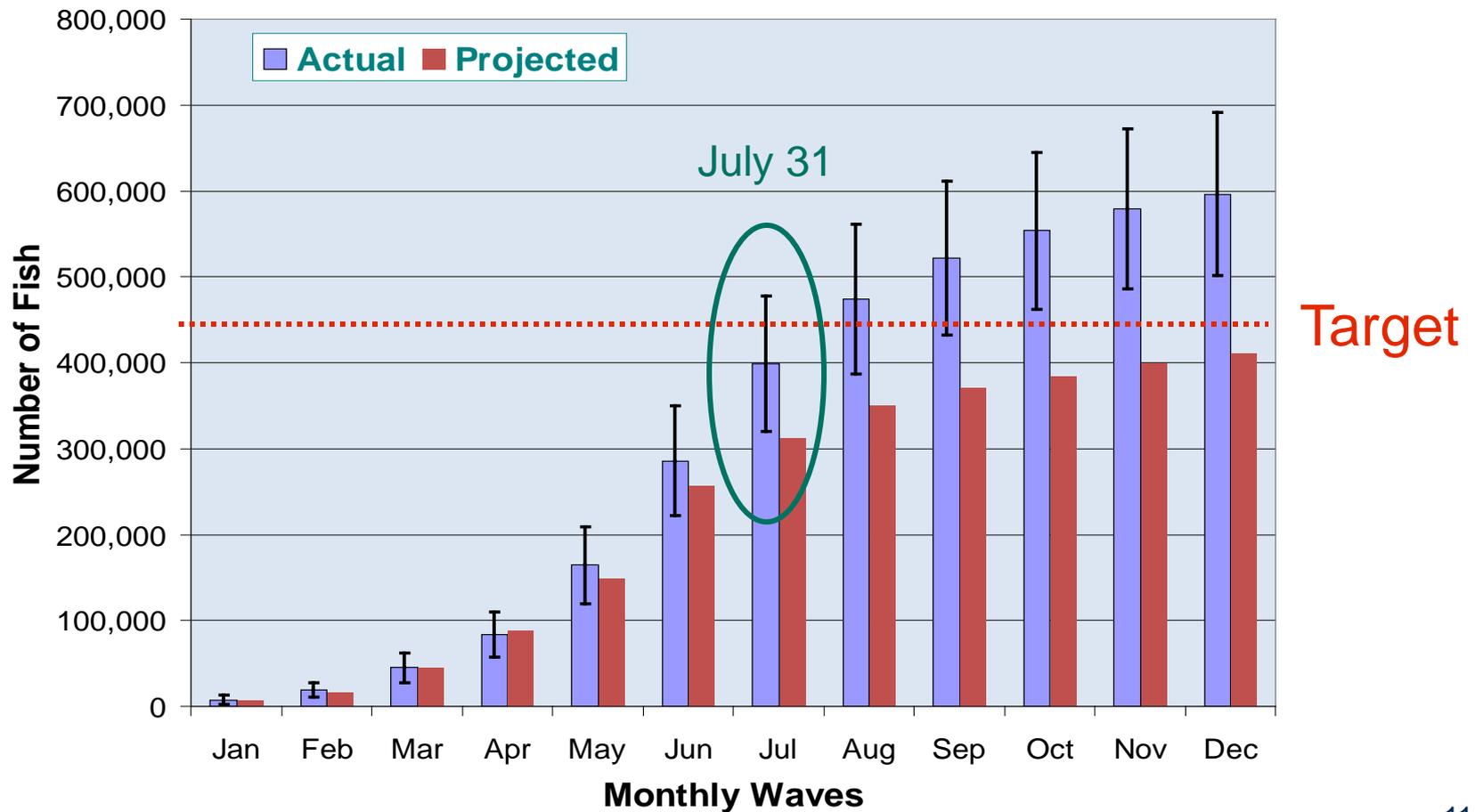


Can We Get Monthly Updates?

- We can change temporal stratification of fishing effort surveys to monthly
 - Phone calls made each month with one-month recall of trips
 - Effort estimates could be produced monthly
- We already stratify intercept survey sampling by month.
 - Mean catch rate and catch estimates could be produced monthly

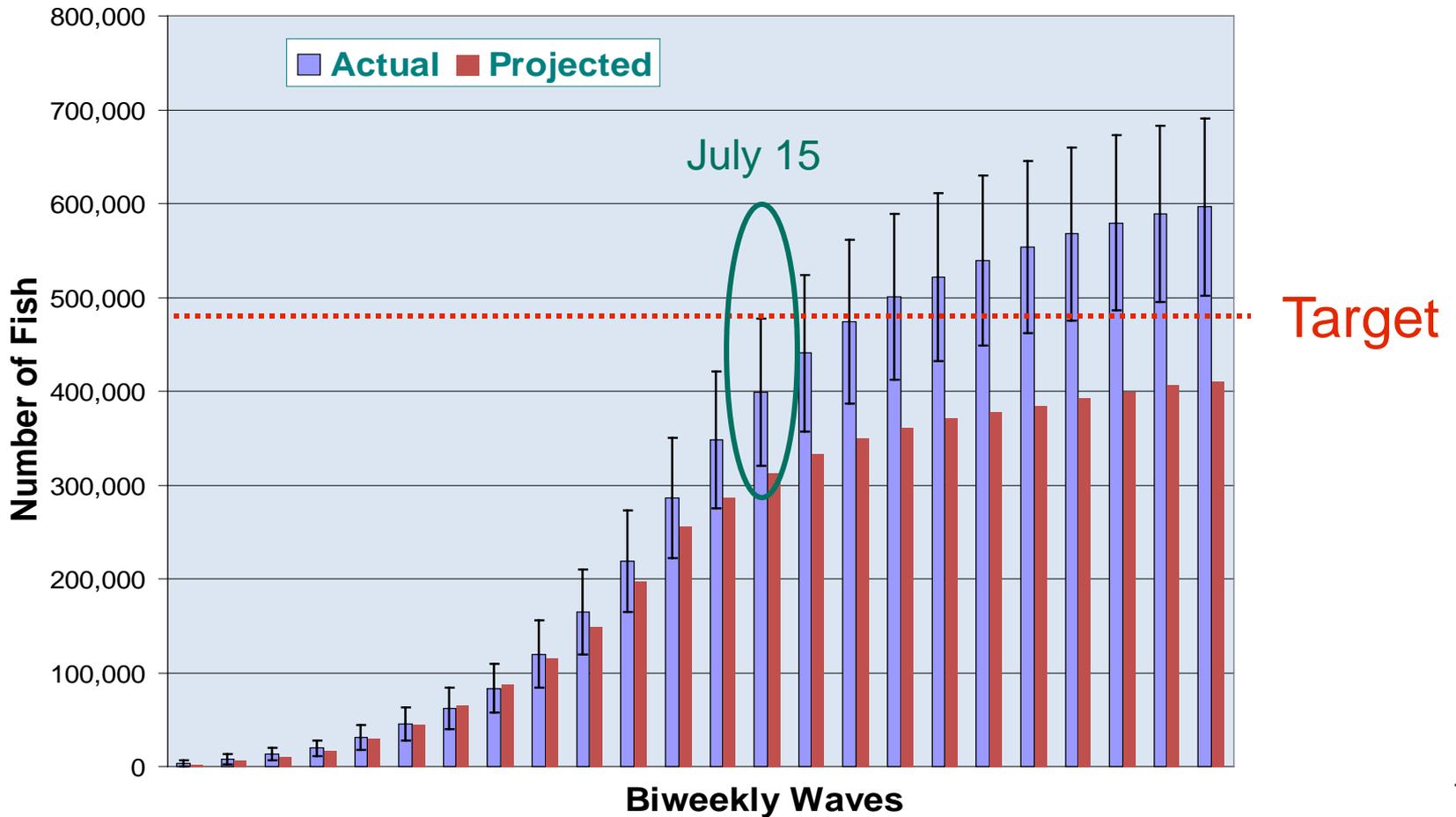


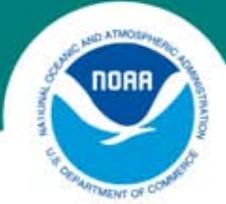
Monthly Monitoring of Total Catch





Biweekly Monitoring?





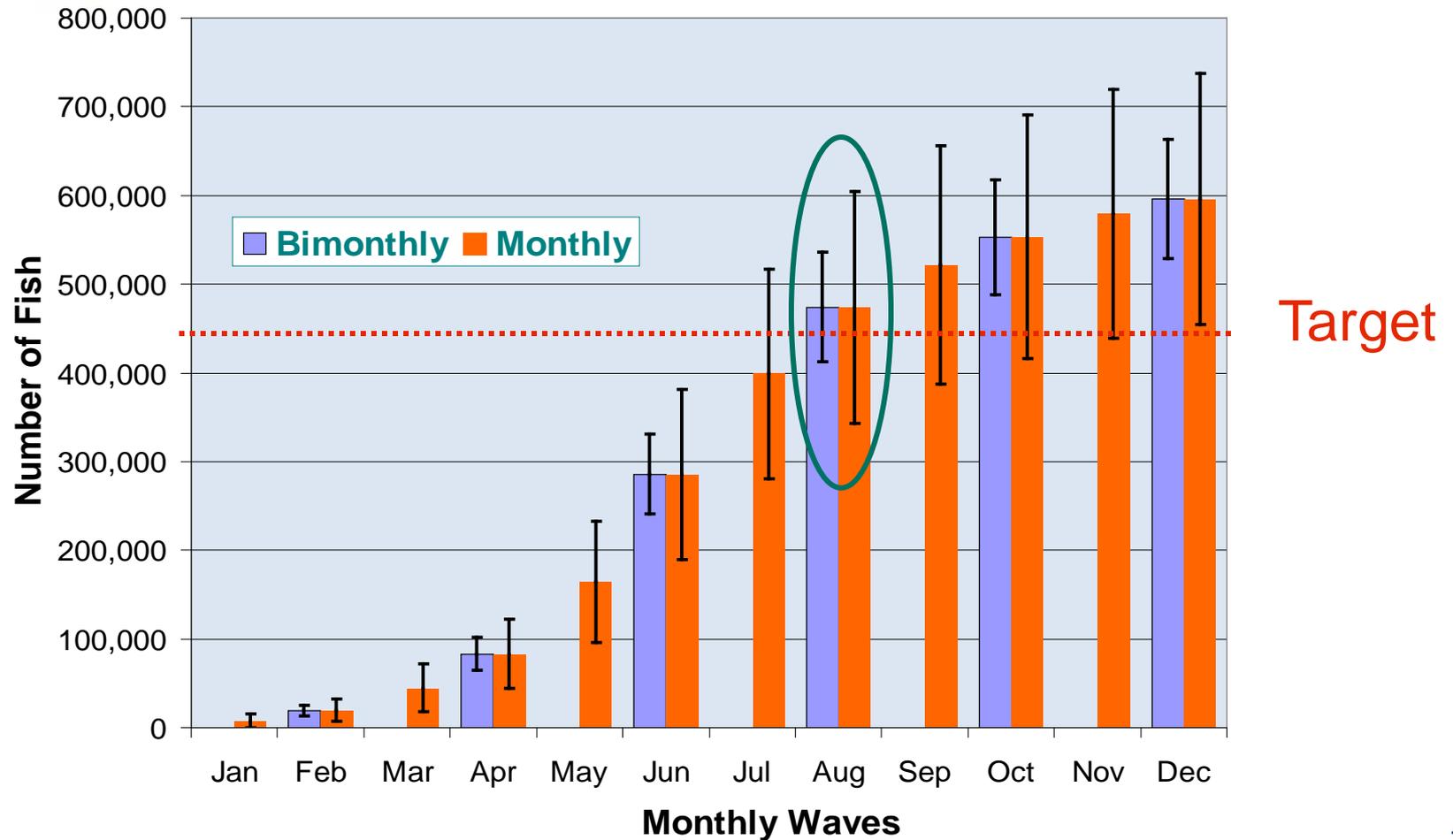
Sample Sizes and Costs?

- What sample sizes would be needed to get desired precision?
 - Can we just split bimonthly phone samples into 2 monthly samples?
 - Will standard intercept survey sample sizes be sufficient for monthly catch estimates?
- What would it cost?
 - Depends on the level of precision desired



Monthly vs. Bimonthly

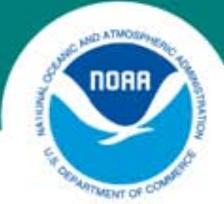
Simple Splitting of the Bimonthly Samples?



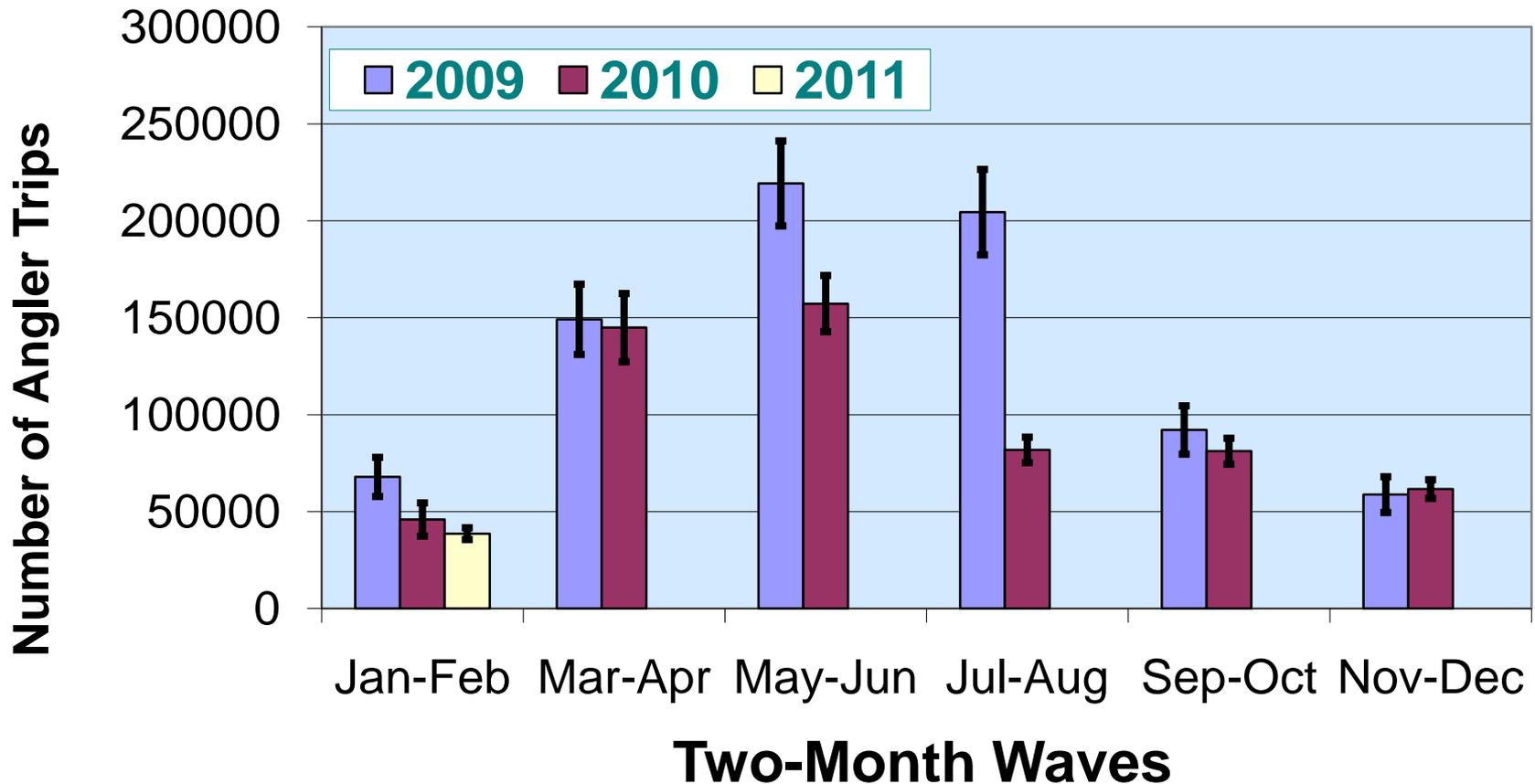


How do we achieve desired precision?

- Monthly phone survey sample sizes must be greater than half of the standard bimonthly samples
 - How much? ~40-50% greater
 - If bimonthly sample is 2,000, monthly sample should be 1,400-1,500
- Monthly intercept survey sample sizes must be greater than standards for bimonthly catch estimates
 - How much? ~40-50% greater
 - Standard monthly sample of 1,000 should be increased to 1,400-1,500



Gulf For-Hire Telephone Survey Precision Effects of Increased Sampling





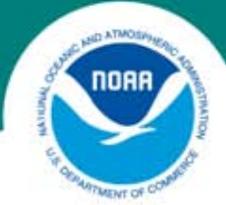
How much would it cost?

- A monthly survey design would cost about 40-50% more than a standard bimonthly survey design
- A new MRIP bimonthly survey design may cost as much as 30-50% more to implement than the current MRFSS bimonthly design
- Therefore, a monthly MRIP design could cost as much as 70-100% more than what we currently spend on MRFSS designs



What are the trade-offs to consider?

- Estimation frequency vs. Precision
 - Sampling levels must be increased to maintain same precision in total catch estimates at 2-month intervals.
- Optimizing sample allocations among monthly waves?
 - Should we front-load or target the sampling?
 - Could improve precision for species monitored in season.
 - May decrease precision for other species with late season patterns.



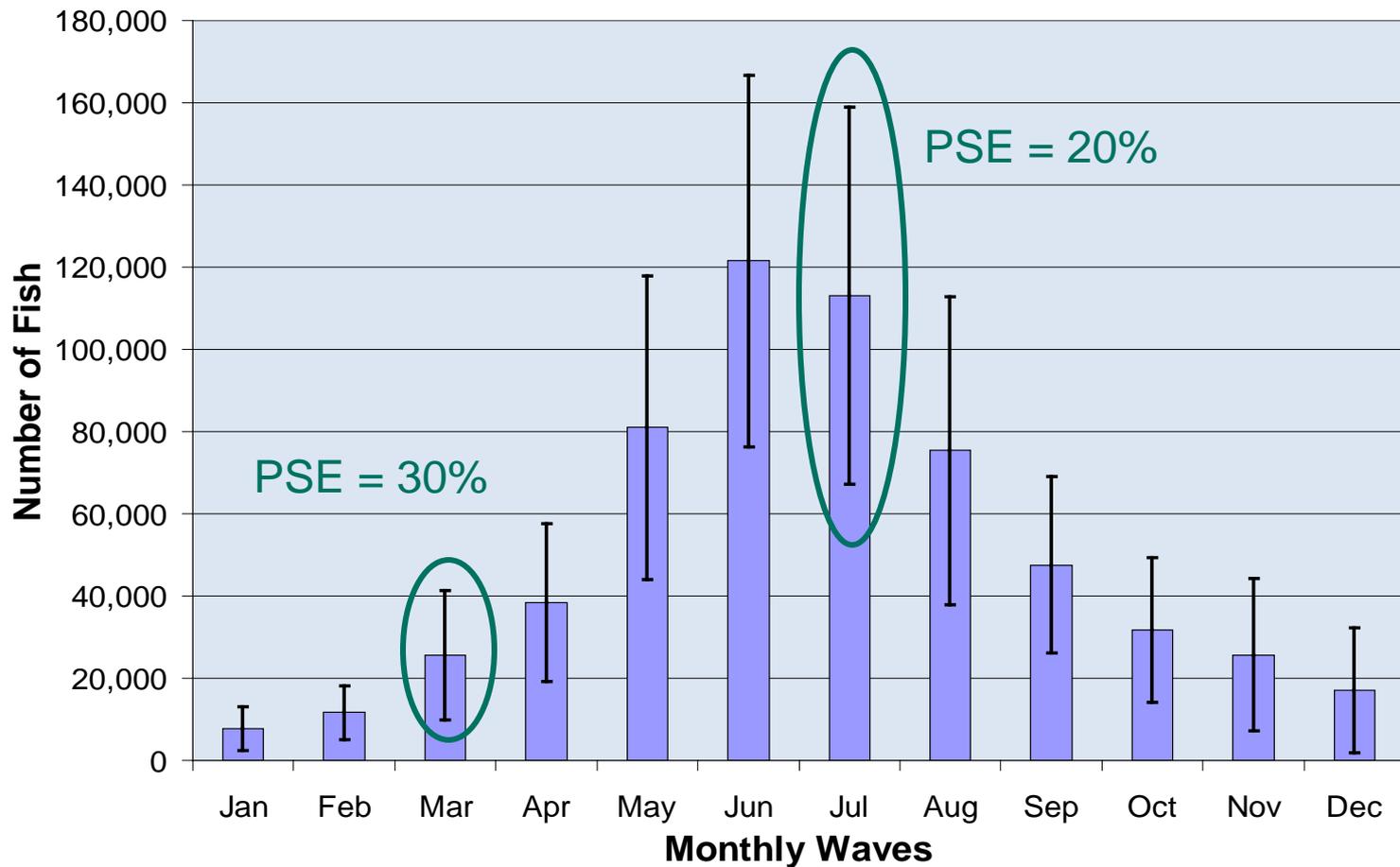
Monthly estimates or monthly updates?

- Will we scrutinize estimates for each month or focus on the relative precision of cumulative catch estimates?
- The temporal stratification should be employed to get a more precise cumulative estimate over several time periods.



Monthly Catch Estimates

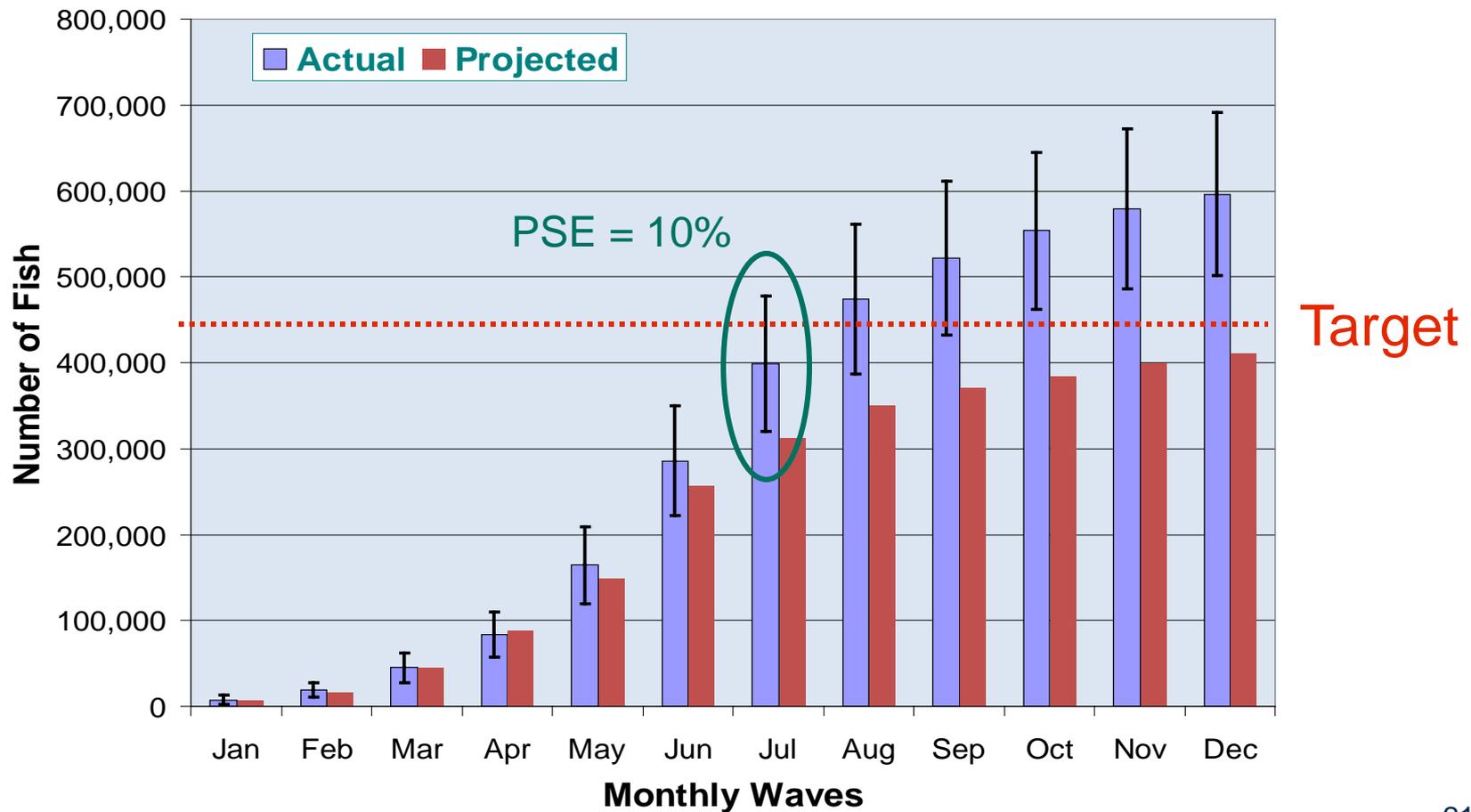
How precise must each of these be?





Monthly Catch Updates

Aren't these estimates the most important ones?





Important Issues

- The individual monthly estimates will not be as precise as standard individual bimonthly estimates.
 - Unless sample sizes are doubled across the board
- However, monthly estimates could be combined to produce cumulative estimates that are as precise as those based on standard bimonthly estimates
 - As long as sample sizes are increased by 40-50%



Questions?