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NOAA

MRIP Improved Recreational Catch Estimation

New England Fishery Management Council
February 1, 2012

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Agenda

- **The Science Side**
 - Why a new estimation method
 - What we found
 - What's driving the changes
 - Next Steps for MRIP
- **The Management Side**
 - How changes affect management and stock assessments.
 - What we're doing to transition to the use of MRIP estimates



The Marine Recreational Information Program

Created in 2007 to address:

- Recommendations of the National Research Council's *Review of Recreational Fisheries Survey Methods*.
- New requirements of the 2006 Magnuson-Stevens Act.
- Stakeholder confidence in catch and effort estimates.



NRC Findings on Catch Estimation Method

- Estimation process is not matched to how we gather data.
- Shore-side sampling methods emphasize maximizing angler intercepts at the expense of statistical rigor.
- These two factors inserted potential for bias into the point estimates and their precision.

*NRC recommended we fix both
the way we estimate catch and the way we gather data.*



MRIP Response to the NRC Findings

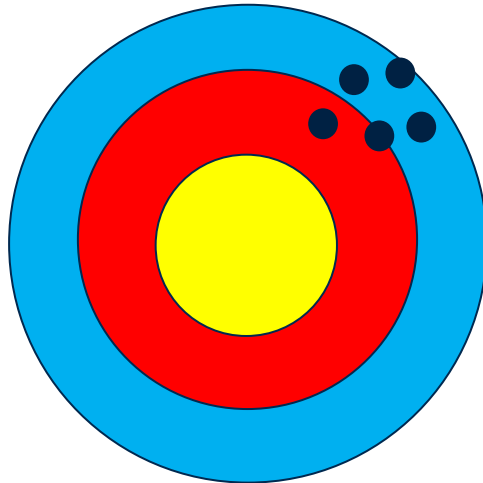
We've **eliminated the potential for bias** in the estimation method by:

- Aligning the formulas we use to produce catch estimates with the way in which we collected catch data so two can work in concert.
- Appropriately weighting data to account for sampler discretion in surveying **alternate sites**.
- Dropping **alternate mode** data chosen at samplers' discretion.

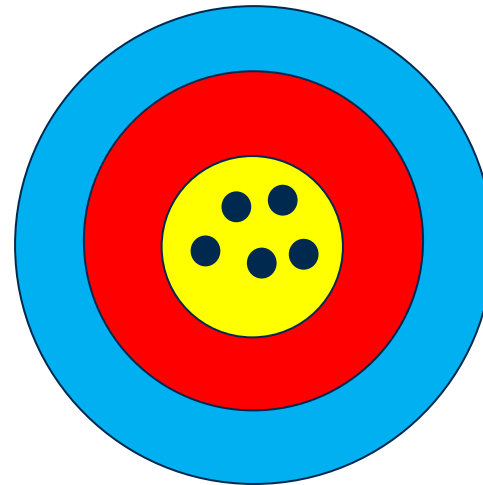
This peer-reviewed methodology, developed in partnership with leading experts in the field, ensures the new MRIP catch estimates will be free of design bias.



The Effect of BIAS



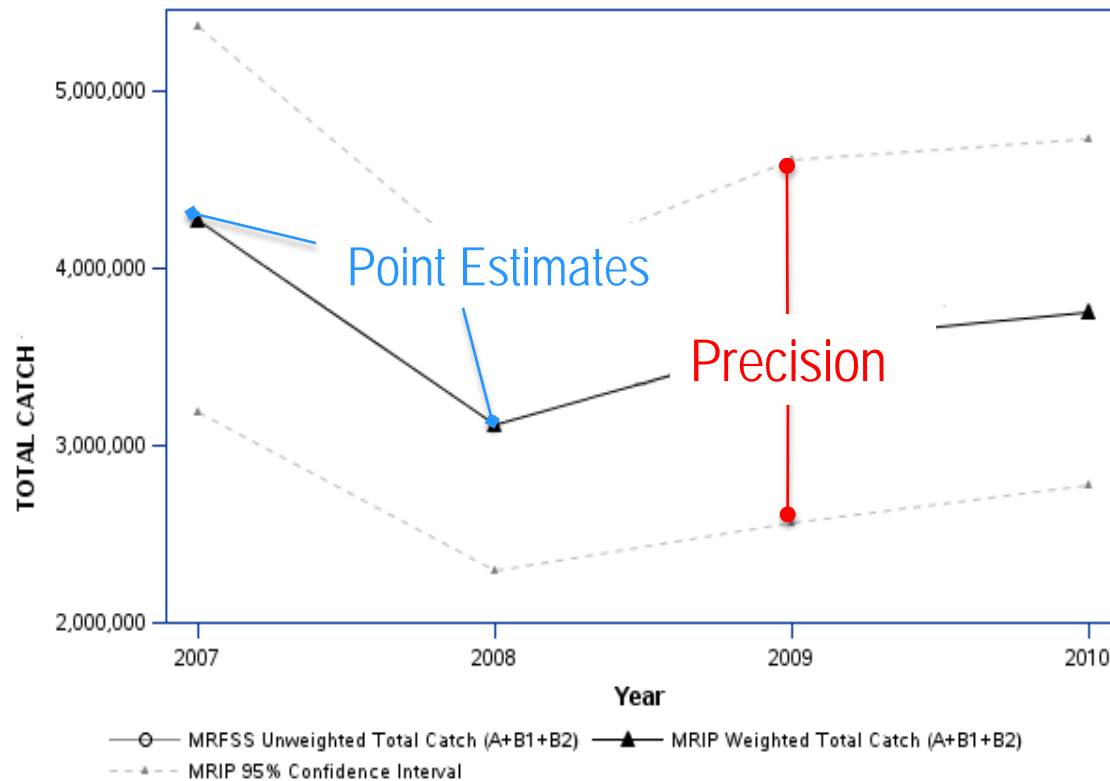
**Precise, but
inaccurate**



**Precise and
accurate**



Anatomy of an Estimate



Removing potential bias affects both the **point estimate** and its associated measure of **precision**, expressed either as the Percent Standard Error (PSE) or graphically as the Confidence Interval.



Creates Solid Foundation

The new MRIP estimation methodology is one of a series of improvements over the current MRFSS.

The estimation method is a beginning, not an end.

The improved methodology fixes a fundamental design issue and sets the stage to invest resources in future improvements – such as enhanced angler intercept surveys, improved precision, and more frequent reporting – to meet customer and stakeholder needs.



MRIP Next Steps

In 2012, the MRIP team will be evaluating results from a number of pilot projects including:

- A new electronic logbook reporting system for charter boats and headboats,
- An enhanced angler dockside survey to complement the improved catch estimation methodology,
- An improved survey utilizing the National Saltwater Angler Registry which gathers angler trip data,
- Ways to support more frequent reporting and posting of estimates.



MRIP Next Steps

Beginning in 2013, MRIP expects to implement these improvements:

- An enhanced angler dockside survey,
- An improved survey to gather angler trip data,
- Increased sampling to improve precision and timeliness.



Results of Re-estimation

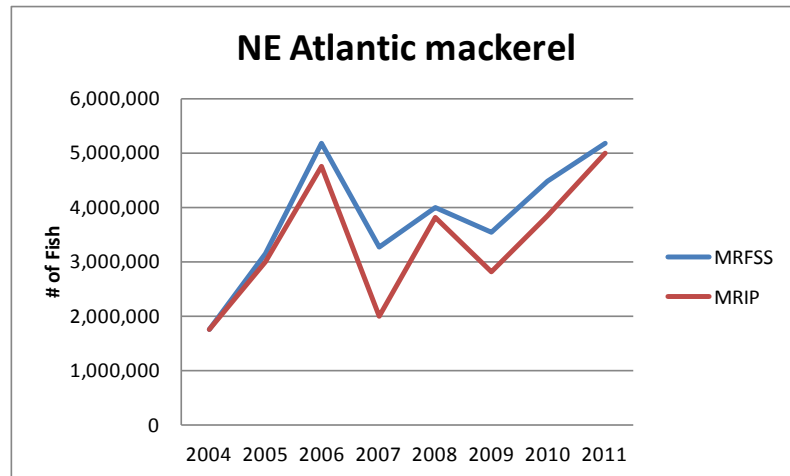
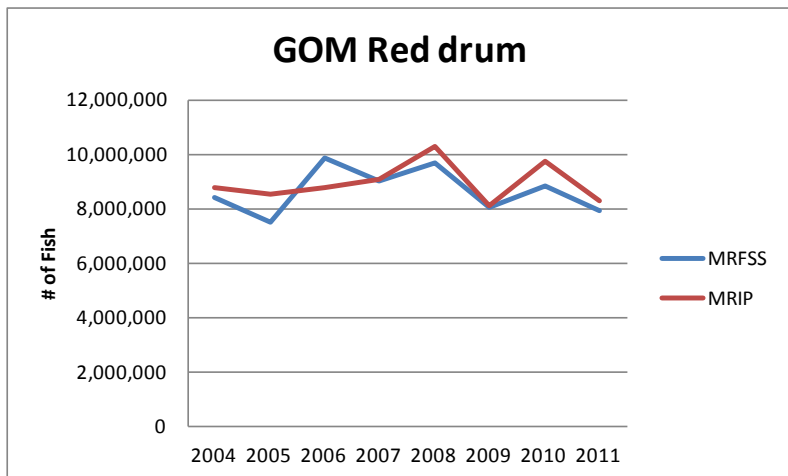
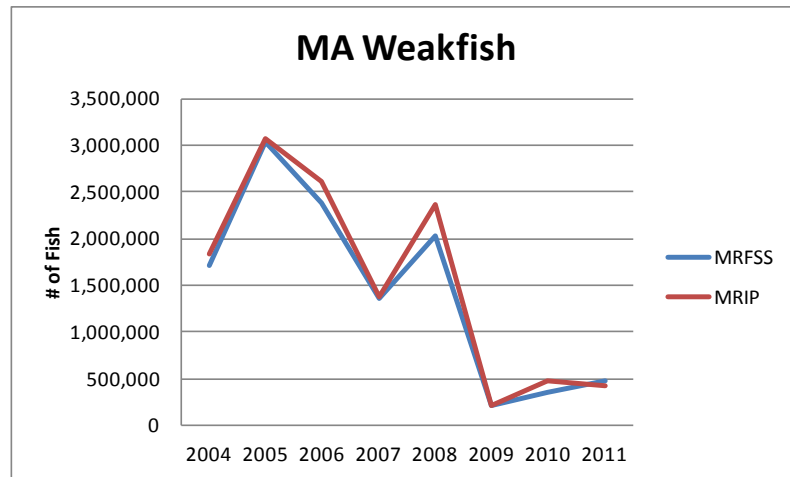
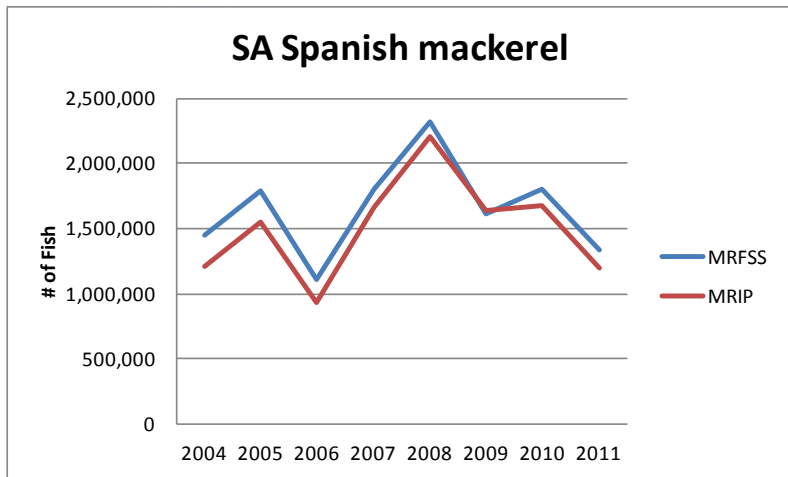
The improved MRIP method allows us to re-calculate catch estimates going back to 2004 for the Atlantic and Gulf coasts.

Two key results:

1. Removing bias creates no specific trends in direction or size of changes. Some estimates go up, some go down, and some stay about the same.
2. While the precision appears lower than what we previously reported, the new MRIP estimates are more accurate and our understanding of the actual uncertainty is significantly improved.

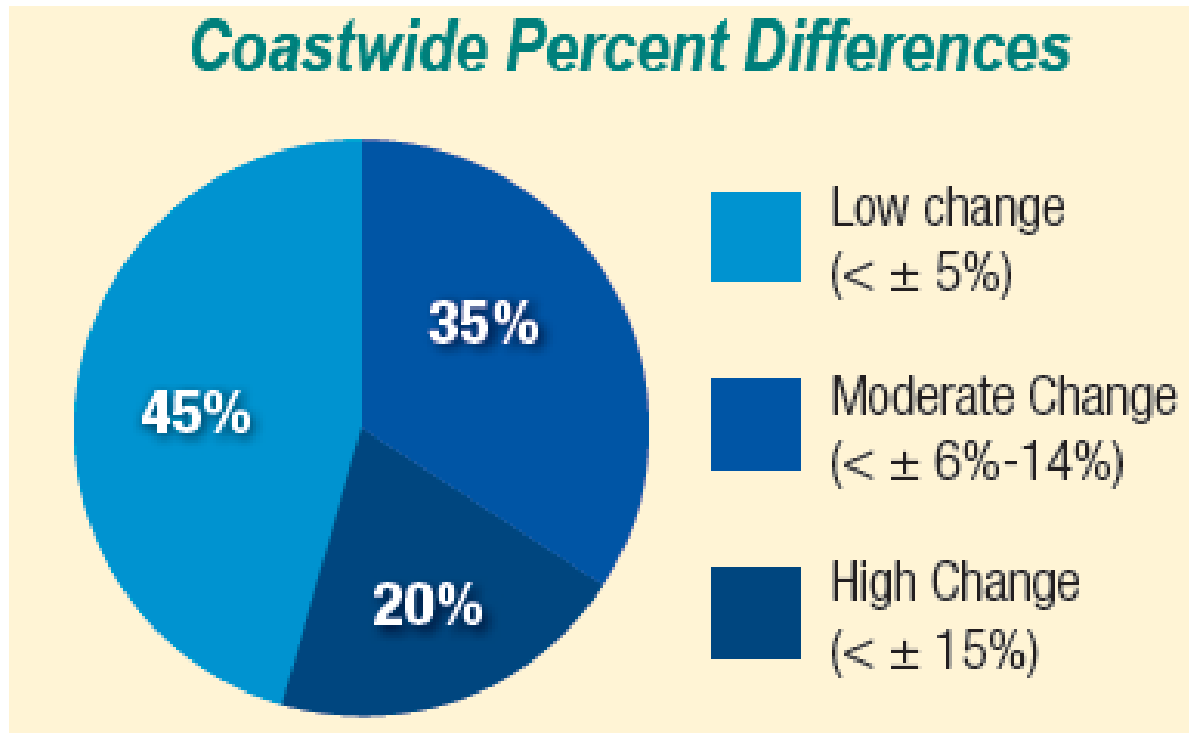


Representative Results





Most Estimates Don't Change Significantly



Note: Differences vary on a species-by-species basis and by state.



Key Recreational Species

Region	Key Regional Fishery Species	Difference between MRIP and MRFSS*	Percentage of Quota Allocated to Recreational
Atlantic HMS	Atlantic yellowfin tuna	+9%	n/a
New England	Gulf of Maine Atlantic cod**	-25%	34%
	Gulf of Maine haddock**	-20%	28%
Mid-Atlantic	Summer flounder***	-1%	40%
	Scup***	+18%	22%
	Black sea bass (northern stock)	+8%	51%
South Atlantic	Red grouper	+27%	55%
	Gag grouper	+8%	49%
	Vermillion snapper	+1%	32%
	Greater amberjack	No change	59%
	Black sea bass**	-7%	57%
	Red Snapper	-13%	72%
Gulf	Greater amberjack	+11%	73%
	Red grouper	+11%	24%
	Gray triggerfish	+9%	79%
	Gag grouper	+6%	61%
	Red snapper	+2%	49%
	King mackerel**	No change	68%

These figures are based on landings (in weight) and calendar year unless otherwise noted. Percentages note differences between the annual average landings between MRIP and MRFSS estimates. For example, the MRIP estimate for Atlantic yellowfin tuna is 9 percent higher than the previously published MRFSS estimate.



Key Observations

1. Each estimate is impacted by the removal of multiple potential sources of bias.
2. MRIP estimates are more accurate, even if some are similar to the original MRFSS numbers.
3. The majority of stocks managed using Annual Catch Limits *will not be affected* by the transition to MRIP estimates.



Potential Impact of Changes

Changes in catch estimates can affect:

- **Stock assessment results**
 - Are we overfishing now? What's the biomass?
- **Management actions**
 - What's the appropriate catch limit? Are we under or over the catch limit? Do we need to change allocations?

Where there are significant changes in the estimates, revisions to fishing regulations may be necessary.



Key Steps in the Transition Strategy

1. Coordinate with the Councils' Scientific and Statistical Committees to review all available information.
2. Begin discussions with Councils and Commissions on reviewing the stock assessment schedule to understand if any changes are needed for those stocks most affected by the transition to MRIP.
3. Host a Calibration Workshop to develop a process for incorporating MRIP-based estimates into stock assessments.
4. Based on those findings, Councils and their Scientific and Statistical Committees can begin reviewing their management measures and if necessary making changes through FMP amendments and recommended revisions to regulations.



Transition Strategy Key Takeaways

- Transition from MRFSS to MRIP estimates has implications on managers, scientists, stock assessors and fishermen.
- Calibration workshop will provide method for integrating MRIP data into usual processes in 2012 and beyond.
- Transition will be transparent and inclusive of the Councils, Commissions, States, and other stakeholders.



MRIP Questions

Query the data and find other helpful resources online at:

www.CountMyFish.noaa.gov.

Contact us with questions at:

Gordon.Colvin@noaa.gov or

(301) 427-8118



MRIP Integrated Transition Strategy

Science Has Lead

Management Has Lead

Transition Issue	Jan 12	Feb 12	Mar 12	Apr 12	May 12	Jun 12	Jul 12	Aug 12	Sep 12	Oct 12	Nov 12	Dec 12	Jan 13	Feb 13	Mar 13	Apr 13	May 13	➔
Work with Councils and Commissions to re-prioritize stock assessments given the new landings data	◆	◆	◆	◆	◆	◆	◆	◆	◆									
Ongoing intercept and effort survey pilot projects	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆						
Monitor landings using MRFSS and MRIP estimates; Where estimates differ, determine AMs at end of season	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆						
NMFS calibration workshop and peer review process			◆	◆	◆	◆	◆											
Stock assessment updates/data-poor analysis to estimate new biological reference points and ACLs								◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Possible ACL Amendments for data-poor stocks									◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Monitor landings using MRIP only; Determine AMs at end of season or adjust per calibration methodology													◆	◆	◆	◆	◆	◆
Implement improved intercept survey, estimation, and effort survey designs													◆	◆				
Possible ACL Amendments for newly assessed stocks														◆	◆	◆	◆	◆