



**NOAA  
FISHERIES**

Southeast Fisheries  
Science Center,  
Beaufort Lab

# Overview of Assessment Process

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# Outline

- Assessment process and goals
- Brief history of SEDAR
- TOR development and approval
- Sensitivity and uncertainty/risk evaluation expectations
- Transparency efforts
- Assessment throughput
- Procedures workshops, purpose and topics
- Potential SEDAR improvements based on white paper

# Stock Assessment Process

**Data**

Query, Hole Filling, QA/QC, Summarize, etc.

**Analysis**

Index Modeling, Catch Curve Analysis, Bycatch Modeling, Discard Modeling, Age-Growth Analysis, etc.

**Assessment**

Stock Assessment Process

**Report**

Summarize Results

Set Regulations

**Management**

# Stock Assessment Goals



- What do managers need?
- What does the Magnuson Act require?
- What can we afford?

## Frequency of assessments:

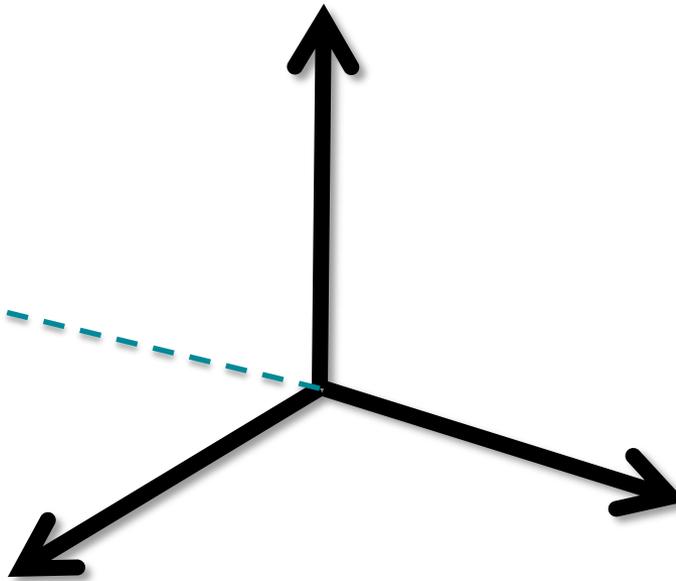
- Every species every year?
- No more than 5 years between assessments?
- Frequency based on monitoring metrics?

# Stock Assessment Competing Goals

**COST?**

**TRANSPARENT**

**SEDAR**



**TIMELY**

**THOROUGH**

"You can have it fast and cheap but it won't be good; you can have it fast and good but it won't be cheap; or you can have it good and cheap but it won't be fast." -The Manager's Dilemma

# History of SEDAR

1918

- “On the question of the biological basis of fisheries” by Fedor Ilyich Baranov

2000-2001

- SEFSC starts discussions for developing an assessment review process
- Red Porgy assessment published with erroneous data
- SEDAR created by SEFSC staff to address Red Porgy data issues

2001-2002

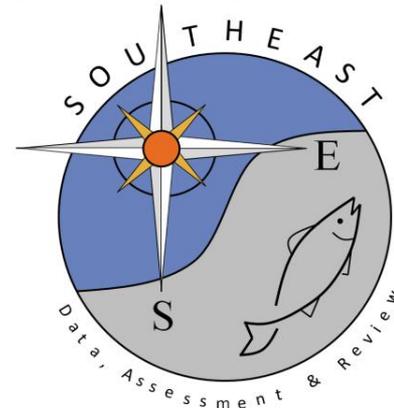
- SEDAR 01 – Red Porgy benchmark stock assessment
- SEDAR was an SEFSC run process, used CIE reviewers from the outset
- Key part of process is Data Workshop, overall transparency, and reproducibility of results

2003-2004

- SEDAR 04 – Process co-run by SEFSC and SAFMC staff

2005-present

- SEDAR run by councils with steering committee



# History of SEDAR - Reviews

SEDAR 01 – RW included 1 CIE, 1 Council, 1 AP, 2 NMFS, 2 SSC, and 0 NGO

SEDAR 02 – RW included 2 CIE, 1 Council, 1 AP, 2 NMFS, 2 SSC, and 0 NGO

SEDAR 03 – RW included 2 CIE, 2 Council, 3 AP, 2 NMFS, 6 SSC, and 1 NGO

SEDAR 04 – RW included 2 CIE, 0 Council, 0 AP, 2 NMFS, 1 SSC, and 1 NGO

SEDAR 05 – RW included 2 CIE, 0 Council, 3 AP, 3 NMFS, 3 SSC, and 0 NGO

...

SEDAR 09 – RW included 3 CIE, 1 NMFS chair

SEDAR 10 – RW included 3 CIE, 1 NMFS chair

SEDAR 12 – RW included 3 CIE, 1 NMFS chair

SEDAR 15 – RW included 3 CIE, 1 USGS, 1 NMFS Chair

SEDAR 17 – RW included 3 CIE, 1 NMFS Chair

...

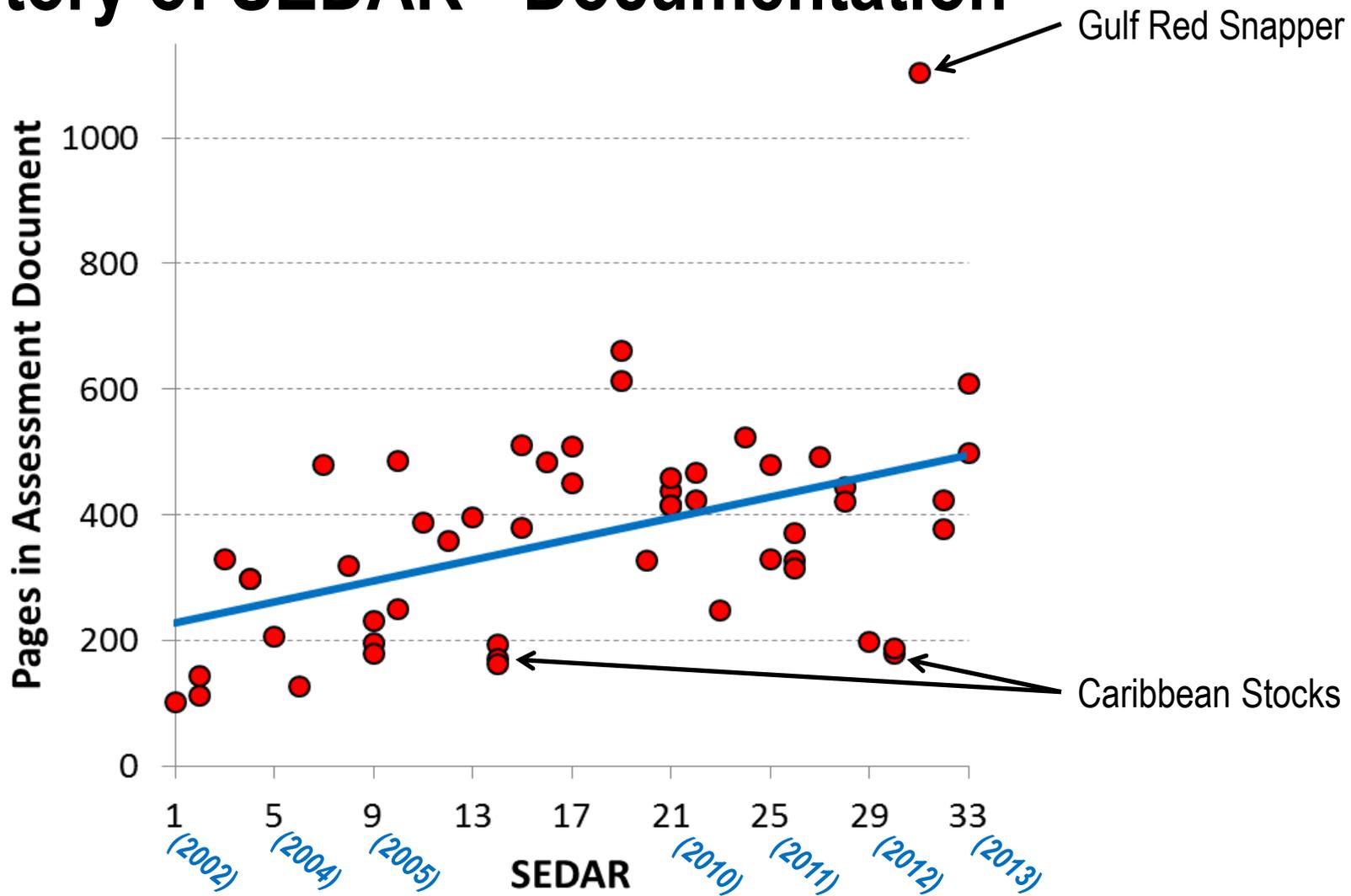
SEDAR 19 – RW included 3 CIE, 2 SSC, 1 NMFS Chair

SEDAR 25 – RW included 3 CIE, 3 SSC

SEDAR 32 – RW included 3 CIE, 3 SSC

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# History of SEDAR - Documentation



*\*does not include workshop working papers*

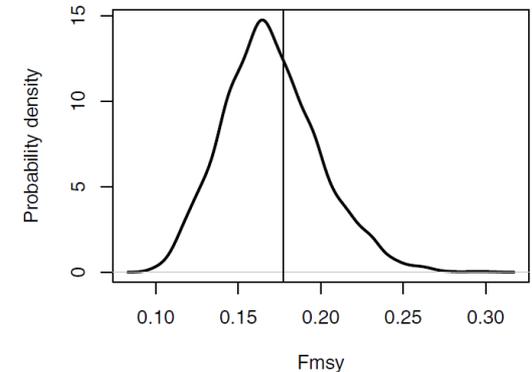
# TOR development and Approval

- SEDAR Coordinator submits framework TORs to assessment lead for review and revision
- SEDAR Coordinator submits revised TORs to Cooperator for review and approval
  - SSC review and Cooperator approval is expected.
  - Each Cooperator develops an approach to handle task.

*In some cases TORs have been added that could not be addressed or resulted in reviewer concerns.*

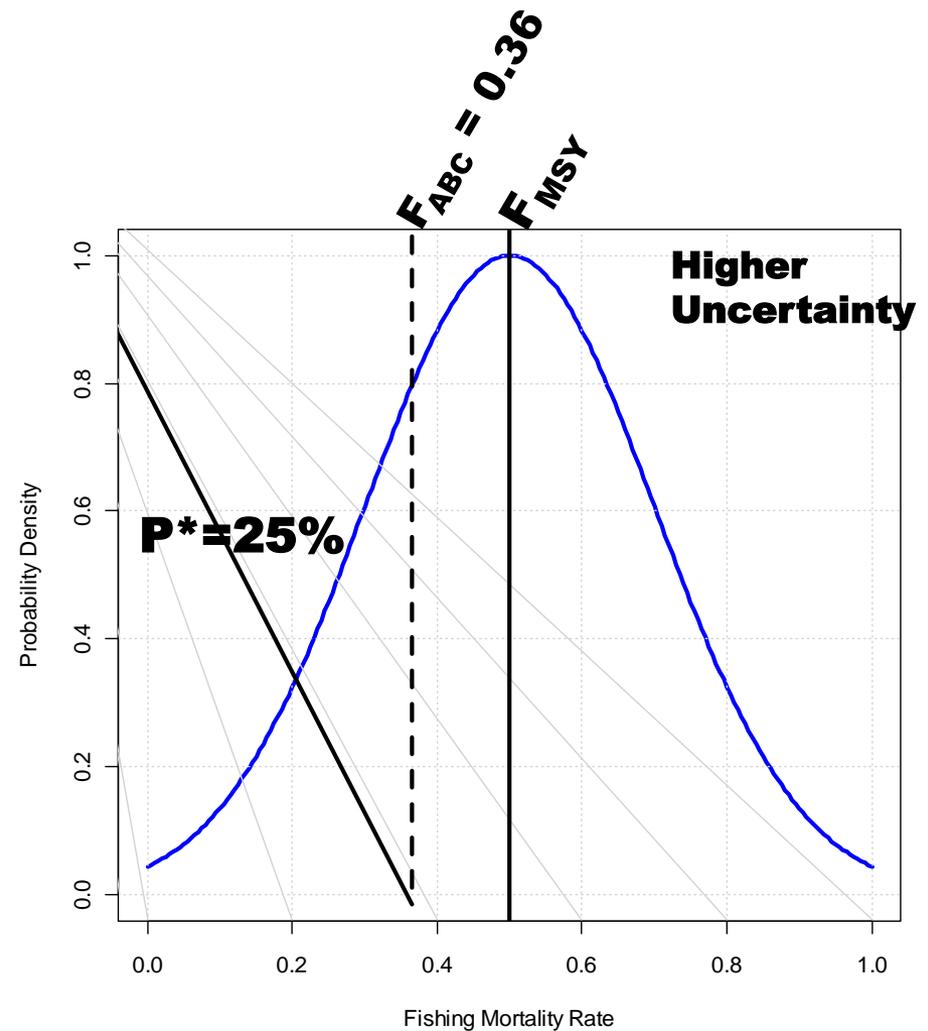
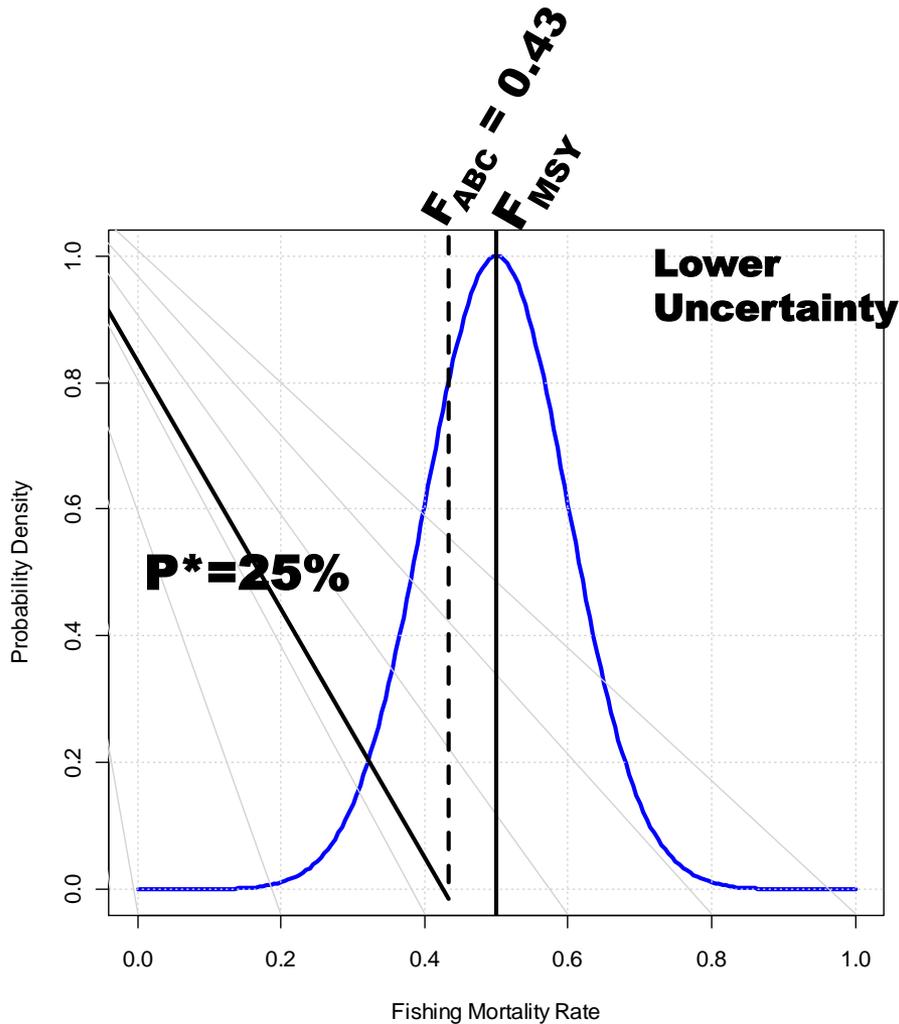
# Sensitivity/uncertainty/risk evaluation

- SEDAR process does not call for sensitivity analyses, but they are routinely done.
- SEDAR requires a characterization of uncertainty
  - Continuity run
  - Statistical uncertainty (e.g. pdf)
  - Uncertainty workshop
- Uncertainty  $\neq$  Risk
  - Risk is not formally addressed, loss/cost functions not included



# Sensitivity/uncertainty/risk evaluation

$P^*$  = probability of overfishing

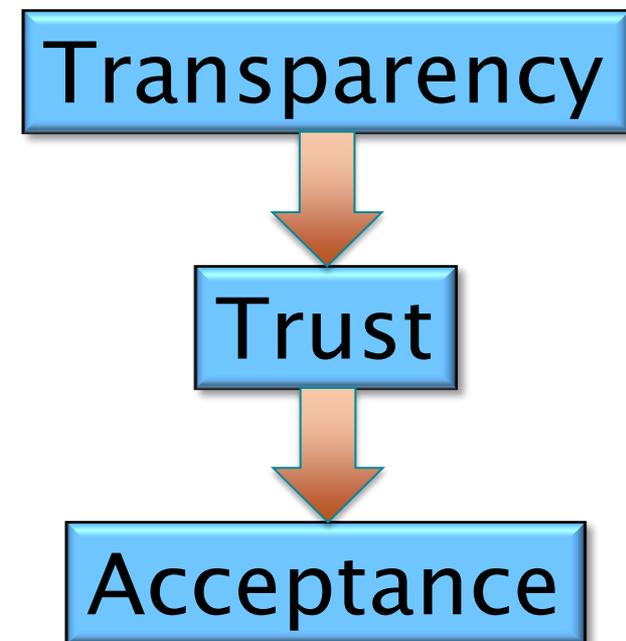


# Transparency efforts

Transparency is a key feature of SEDAR

Transparency is achieved through:

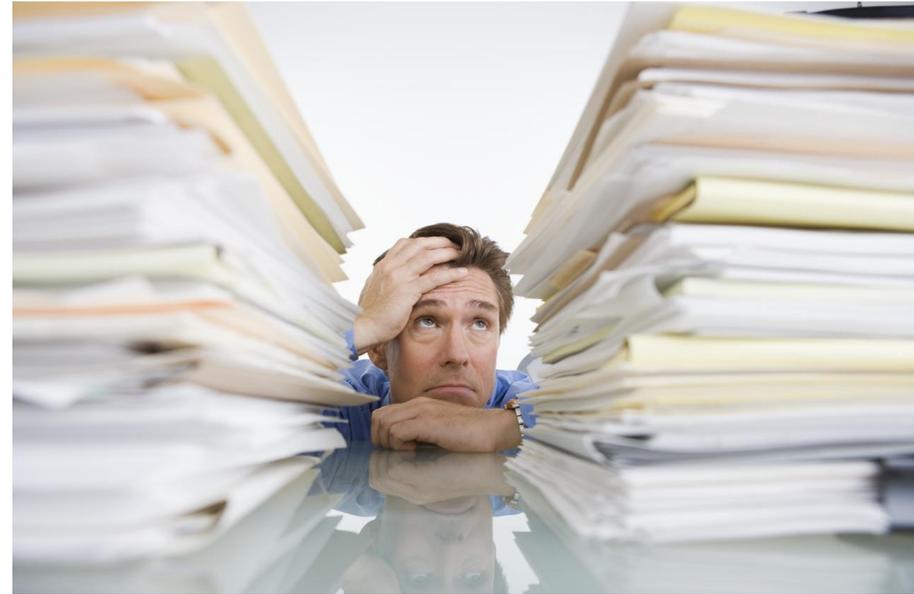
- Thorough documentation
- Information availability
- Open meetings (including input)



# Transparency efforts: Documentation

## Types

- Working Papers
- Reference Documents
- Data Summaries
- Assessment Reports



Workshops and Webinars recorded

SEDAR Procedures and Policies (SOPPs) documented and approved by Steering Committee

Concern: Final assessment product and subsequent linkage to management action is sometimes challenging to find

# Transparency efforts: Availability

Website posting of all document types

- Some limitations due to confidentiality

Process and technical documents and recordings retained in the SEDAR Administrative Record

- Managed by SEDAR Staff, hosted at SAFMC

SEDAR Goal: Working papers available to participants and public prior to workshops and meetings.



# Transparency efforts: Open Meetings

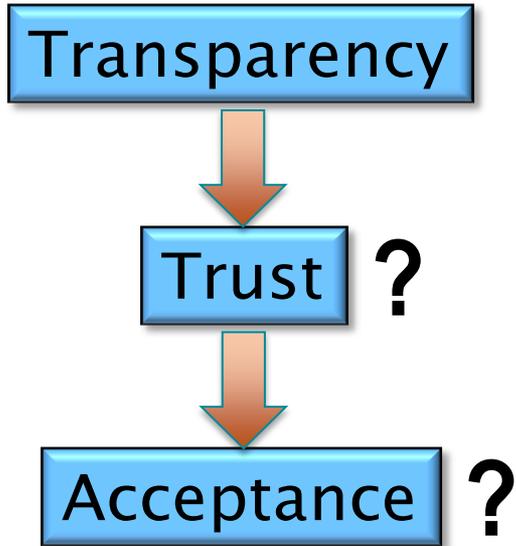
- All SEDAR workshops and webinars open to the public
- **Stakeholders serve as panelists at data and assessment workshops**

Concern: how panelists are selected. In some cases scientists have been excluded.

- Public comment opportunities scheduled for each meeting event
- Meetings noticed in the FR and announced by Cooperator



# Transparency – Goals achieved?



SEDAR workshops have many stakeholders involved:

- Dealing with unsolicited or uninformed input leads to inefficiency
- Conflict of interest among some SEDAR participants



# Assessment throughput

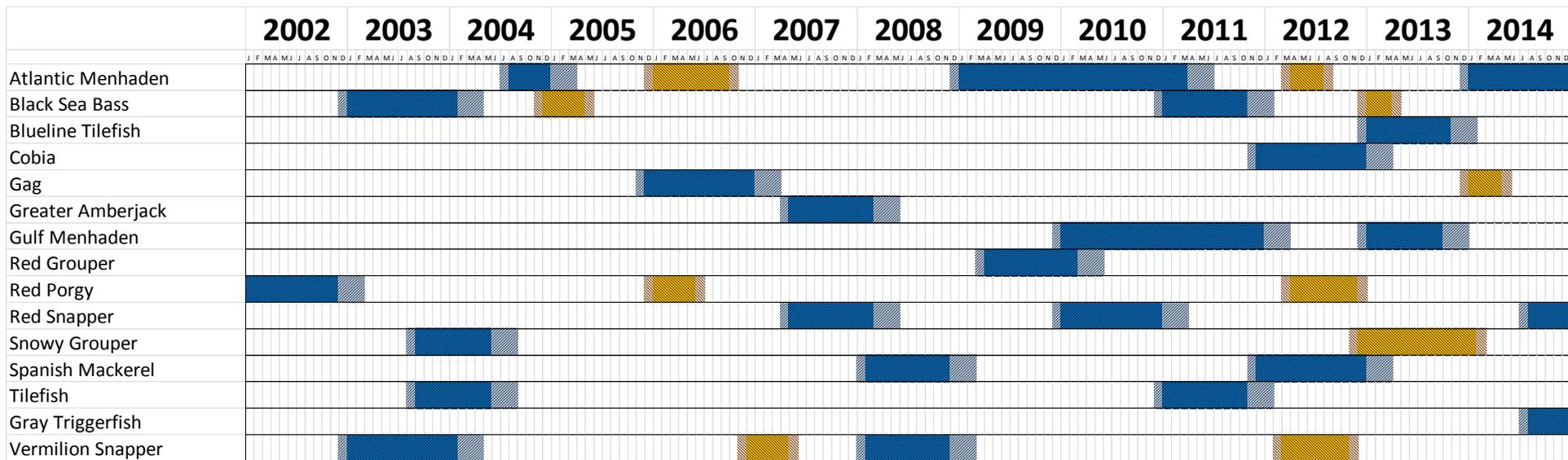
## Ex: South Atlantic (2002-2013)

Note the ratio of  
benchmarks to updates

Species	Assessment Group	Benchmarks	Updates
Atlantic Menhaden	Beaufort	2003, 2010	2006, 2012
Black Sea Bass	Beaufort	2003, 2011	2005, 2013
Blueline Tilefish	Beaufort	2013	
Cobia	Beaufort	2013	
Gag	Beaufort	2006	
Greater Amberjack	Beaufort	2007	
Gulf Menhaden	Beaufort	2011, 2013	
Red Grouper	Beaufort	2009	
Red Porgy	Beaufort	2002	2006, 2012
Red Snapper	Beaufort	2007, 2010	
Snowy Grouper	Beaufort	2004	2013
Spanish Mackerel	Beaufort	2008, 2013	
Tilefish	Beaufort	2004, 2011	
Vermilion Snapper	Beaufort	2003, 2008	2007, 2012
Black Grouper	FWC	2009	
Hogfish	FWC	2004	
Mutton Snapper	FWC	2007	
Spiny Lobster	FWC	2005	2010
Yellowtail Snapper	FWC	2003	2011
Goliath Grouper	Miami/FWC	2004, 2010	
King Mackerel	Miami	2004, 2008	
Wreckfish	Industry	2013	
★ 49 Unassessed Species	???	???	???
6 Ecosystem Component	-	-	-

# Assessment throughput

## Ex: Beaufort Staff



-  = Benchmark Assessment
-  = Update/Standard Assessment

*Number of Lead Assessment Analysts in Beaufort over this time has ranged from 2-5, currently at 4.*

Shaded areas indicate range of dates for start and stop of assessment activity

- Dark bars indicate start of scoping call through date of final report
- Light bars indicate pre- and post- workshop activity

# SEDAR Procedures workshops

**Purpose:** Address broad issues that affect multiple assessments

**Goals:** Provide Best Practices Guidance & reduce need for repetitive discussion at regular workshops

**Current Limitation:** Time and Funding.

**Concern:** Additional burden on assessment staff.

# SEDAR Procedures Workshops

**Indices (2008)** - Guidelines for evaluating indices

**Catchability (2009)** - Guidelines for addressing catchability (e.g. time-varying)

**Caribbean Data (2009)** - Inventory and evaluation of Caribbean data

**Uncertainty (2010)** - Evaluating uncertainty & supplying ABC control rules

**GOM Episodic Events (2012)** - Identify data sources and uses

**South Atlantic Shrimp Data (2014)** - Identify data and approaches for assessment and bycatch estimation

**Best Practices, Data (2015)** - Guidelines for data evaluation & compilation

**Best Practices, Assessments (2016)** - Guidelines for assessments

# SEDAR challenges

## SEFSC Perspective



- Council run process, SEFSC bears the cost
- Time and money spent at each stage appropriate?
  - Data Workshops
    - Involve a lot of personnel
    - Often readdress common issues
    - Tasks/deliverables often delayed
  - Assessment Workshops
    - Involve a lot of personnel
    - Communication between stakeholders and scientists challenging
  - Review Workshops
    - International CIE reviewers can be costly
    - Panels sometimes focus on irrelevant issues
- Are stocks prioritized efficiently?

# SEDAR improvements

Next few slides address SEDAR challenges

Summary of an SEFSC internal white paper

(see reference document 'Proposed SEDAR revamp v6.0.docx')

- Ideas developed over two year period
- Input from all regions involved with SEDAR
- Planned submission to the SEDAR Steering Committee

# SEDAR improvements

**Problem:** Data and Assessment Workshops readdress issues tackled by previous workshops

**Solution:** Create a SEDAR Methods Working Group (MWG)

- Approve data processing and assessment methods across SEDARs
- Two subcommittees:
  1. Data Processing Subcommittee
  2. Stock Assessment Subcommittee
- Issues only need addressing once, then uniformly applied to all SEDARs

*Never revisit the past, that's dangerous. You know, move on.*

*- Robert Redford*

# SEDAR improvements



**Problem:** Communication between stakeholders and SEDAR scientists is disorganized, but very important

**Solution:** Create SEDAR Stakeholder Advisory Panels (SAPs)

- SAPs would facilitate education for stakeholder representatives and increase effective communication from stakeholders.
- SAPs would advise the SEDAR process, eliminating the need for stakeholders to serve on data and assessment workshop panels.
- SAPs would be created to represent specific stock groupings.
- Educational workshops to increase SAP members' knowledge.
- SAPs would represent stakeholder concerns during SEDAR workshops.
- SAP membership terms would be for multiple years, allowing continuity across SEDARs.

# SEDAR improvements

**Problem:** Benchmark assessments are being applied too often. Data Workshops take a tremendous amount of resources and are a large drain on the SEDAR process.

**Solution:** Reduce the frequency of Benchmark assessments and the three associated workshops (data, assessment and review) .

- Creation of the MWG will reduce the need, duration, and topics for Data and Assessment Workshops.
- Benchmarks should be reserved for unassessed stocks and for significant issues not previously resolved by the MWG.

*If you had to identify, in one word, the reason why the human race has not achieved, and never will achieve, its full potential, that word would be 'meetings.'*

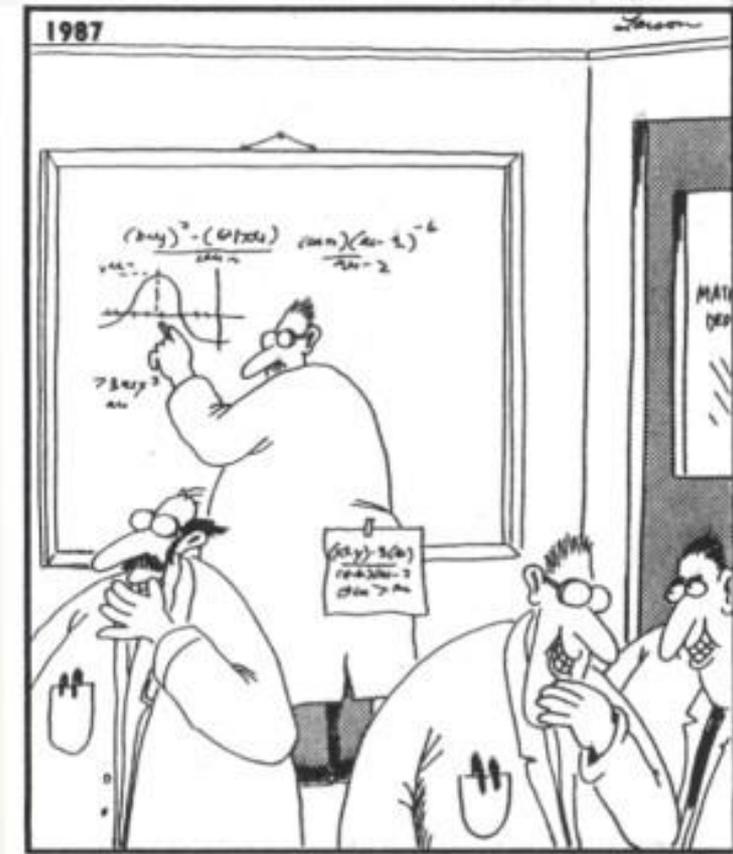
*- Dave Barry*

# SEDAR improvements

**Problem:** Peer Review Workshops are resource intensive and CIE reviewers unfamiliarity with Southeast stocks and methods has caused inadvertent obstructions in the process.

**Solution:** Greater use of SSCs for assessment reviews and a lesser amount for CIEs.

- Allow the SSCs to be the primary reviewers of all SEDAR assessments.
- Use CIE for desk reviews on benchmarks, to serve as additional input to the SSCs prior to their reviews.



Peer review

Credit: Gary Larson - The Far side

# Software improvements

Stock Assessment Data and Models being used are diverse, complex, and not very user friendly.

- Dedicated resources to software improvement will pay-off

Software should be developed with the goal of automating processes:

- Data queries should be much easier
- Basic analyses, including things like GLM modeling should be automated
- Commonly used assessment models/configurations should be automated
- Rapid incorporation of newest techniques/methods

# Summary - Considerations

Who should be administering SEDAR?



# Discussion Topics

## Time and cost of assessment process:

- Are resource commitments to SEDAR appropriate?
- Is SEDAR delivering the best bang-for-the-buck?

## Competing goals:

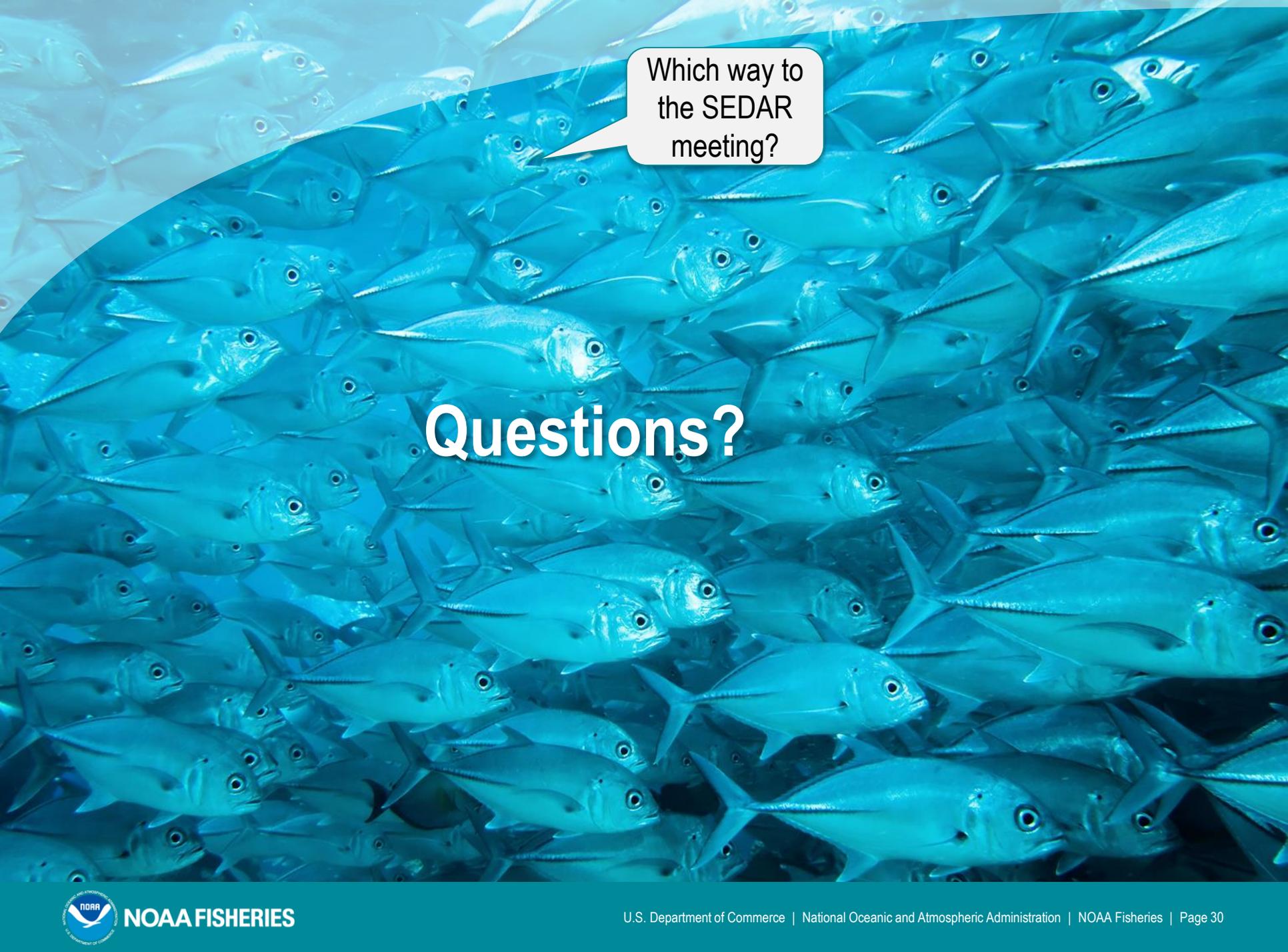
- Are transparency, thoroughness, and timeliness balanced appropriately?
- Do we need to increase throughput? How can we increase throughput?

## Software upgrades:

- What are the costs and benefits of streamlining data queries?
- What are the costs and benefits of streamlining basic data analyses?
- What are the costs and benefits of streamlining assessment modeling?

## SEDAR improvements:

- Create methods working group (reduce duplicate efforts)
- Create stakeholders advisory panel (improve communications)
- More update assessments = more assessments/unit time (increase throughput)
- Use SSC for more reviews, less CIEs (reduce costs)



Which way to  
the SEDAR  
meeting?

# Questions?

# Model for assessment process – beyond SEDAR

*10 year plan for assessments?*

## Data Collectors/Providers

- Collect raw data
- Manage datasets
- Provide queries and easy access to data
- Research new data collection

## Data Analysis Tools and Model Developers

- Develop methods and user friendly software
  - Data processing tools (e.g. index generation, age frequencies, etc.)
  - Assessment models, projection code
  - Graphic and tabular output
- Research new methods

## Assessment Modelers/Forecasters

- Run assessment models
- Run projection analyses
- Write reports

