

## SEDAR ASSESSMENT PRODUCTIVITY

September, 2013

SEDAR began in 2002 as a joint endeavor between the South Atlantic Council and the Southeast Fisheries Science Center. At that time there were no dedicated staff and limited assessment resources available in the region, so assessment output was low. Much of the work of the first few assessments was completed through joint efforts of state, university and federal scientists. Over the years the program has grown through hiring dedicated staff; expanding the scope to include all three Councils in the Southeast Region, the Highly Migratory Species Division of NOAA Fisheries and the Gulf and Atlantic States Marine Fisheries Commission; increasing assessment staff at the Southeast Center; and the contributions of the Florida Fish and Wildlife Conservation Commission in assessing regional stocks.

The program now averages over 10 stock assessments per year (Figure 1). Assessment productivity has increased steadily over time, reaching an annual peak of 12 assessments in 2007 and 2012. From 2002 through 2013, 54 individual stocks were assessed, from one to four times each, for a total of 92 assessments prepared. An additional eleven assessments are planned in 2014, including one stock not previously assessed. A summary of assessed stocks, showing when and how often each was assessed, is provided in Table 1.

Figure 1. SEDAR assessment productivity by year and type.

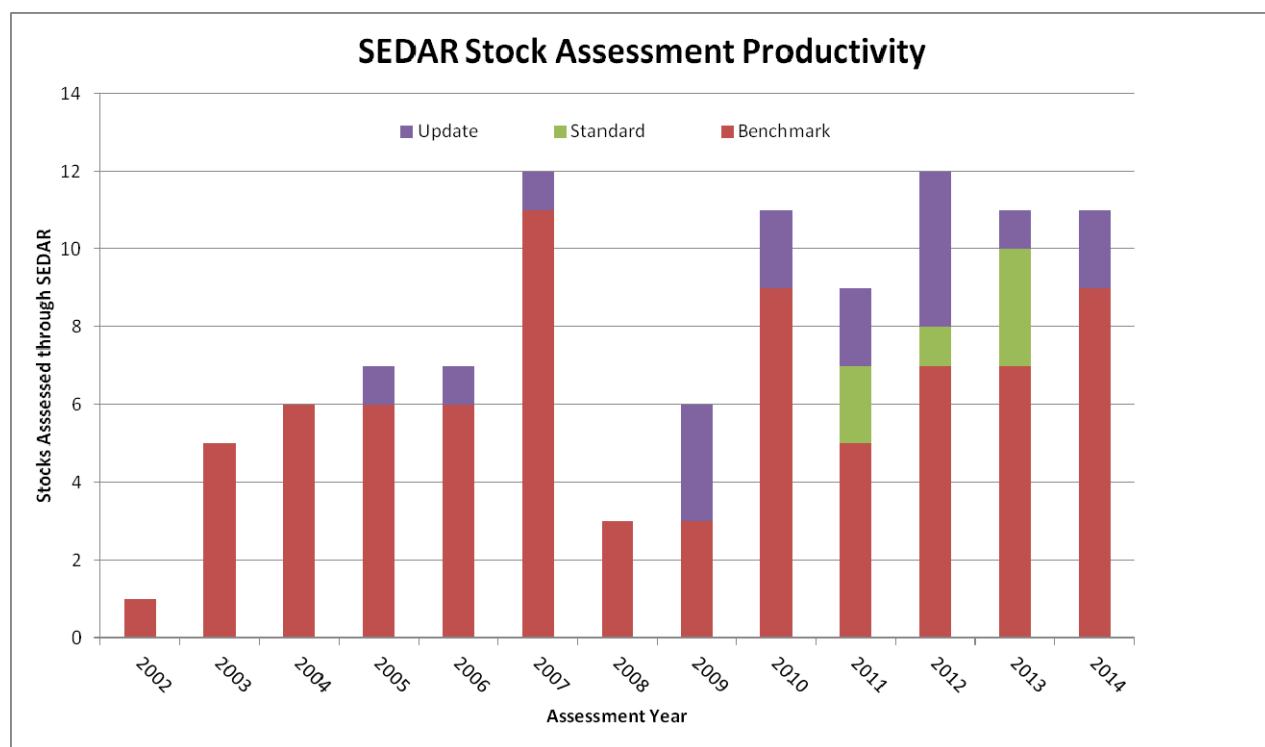


Table 1. SEDAR assessment productivity, 2002-2014.

Stock	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
AG black grouper								X					X	
AG goliath grouper			X						X					
AG hogfish			X									X		
AG King Mackerel			X				X						X	
AG mutton snapper						X					X			
AG spiny lobster				X					X					
AG yellowtail snapper		X								X				
ASFC menhaden		X							X		X		X	
ASMFC Croaker		X							X					
GSMFC menhaden										X		X		
ASMFC red drum								X						
CFMC blue tang											X			
CFMC mutton snapper						X								
CFMC parrotfish										X				
CFMC queen conch						X							X	
CFMC queen snapper										X				
CFMC queen triggerfish											X			
CFMC red hind												X		
CFMC silk snapper										X				
CFMC spiny lobster				X									X	
CFMC yellowfin grouper						X								
CFMC yellowtail snapper				X										
GMFC cobia											X			
GMFC gag grouper					X			X				X		
GMFC gray triggerfish				X						X				
GMFC greater amberjack				X					X			X		
GMFC red grouper					X			X					X	
GMFC red snapper			X					X			X			X
GMFC Spanish mackerel											X			
GMFC tilefish									X					
GMFC vermilion snapper				X						X				
GMFC Yellowedge grouper									X					
SAFMC black sea bass		X		X						X		X		
SAFMC blueline tilefish												X		
SAFMC cobia											X			
SAFMC gag grouper					X								X	
SAFMC gray triggerfish												X		
SAFMC greater amberjack						X								
SAFMC red grouper								X						
SAFMC red porgy	X				X						X		X	
SAFMC red snapper						X			X				X	
SAFMC snowy grouper			X									X		
SAFMC Spanish mackerel							X				X			
SAFMC tilefish			X							X				
SAFMC vermilion snapper		X				X	X				X			
shark, blacktip					X						X			
shark, blacknose						X			X					
shark, bonnethead						X						X		
shark, dusky									X					
shark, finetooth						X							X	
shark, large coastal complex					X									
shark, sandbar					X				X					
shark, sharpnose Atl						X						X		
shark, small coastal complex						X								
shark, smooth dogfish													X	
TOTALS	1	5	6	7	7	12	3	6	11	9	12	11	11	TBD

"AG" refers to stocks managed jointly by the South Atlantic and Gulf Councils.

Figure 1 shows the increase in productivity over time. Also noticeable, and worthy of explanation, is a productivity spike in 2007 followed by a decline in 2008. The 2007 increase is primarily due to two SEDAR projects that assessed a large number of stocks: SEDAR14, which assessed three Caribbean stocks; and SEDAR 13, which assessed four species and a species complex of small coastal sharks. The drop in 2008 is due to one of the stocks being king mackerel, which was allotted additional resources at the time, and to scheduling that carried some 2007 projects over into early 2008. Issues such as these will lead to variation in the year to year output, so it can be more informative to look at the overall trend through time. From this perspective, productivity quickly rose to around six stocks per year from 2004 to 2009 before increasing to around 11 stocks where it now remains. Increased productivity was made possible by additional funding of both the SEDAR program and the SEFSC stock assessment program supported by stock assessment improvement efforts of NOAA.

Despite efforts and successes in increasing overall assessment productivity, many unassessed stocks remain in the region and often assessment ages, or the interval between subsequent assessments of a stock, approach levels that are considered excessive by agency standards. Assessment age was measured as the number of years elapsed between the last assessment of a stock and 2014. For stocks assessed multiple times, the interval between each subsequent assessment was measured to give an indication of the average assessment age for the stock. The average age of SEDAR assessments, across all stocks for stocks that have been assessed more than once, is 4.85 years (Table 2).

The 'assessed' columns in Table 2 show the time that elapsed between the first and second, second and third, and third and fourth assessments of that stock. The average interval between the first and second assessment is 4 years. Encouragingly, as shown in Figure 2, just over 70% of the current SEDAR assessments are 4 years old or less. This is due to devoting recent efforts to update and standard assessments, and new benchmarks of stocks assessed previously. Interestingly, there is a spike at age 7 that corresponds to the assessment output spike 7 years ago in 2007.

Assessment age is 5 years or greater for 15 stocks. Some of these are priorities for coming years, while others may be unlikely candidates for future consideration due to issues identified in their first assessment. Five of these are Caribbean stocks for which initial benchmarks proved largely uninformative due to a lack of data. Also included are the large coastal and small coastal shark complexes, which will probably not be assessed as complexes in the future, being instead assessed as individual species in response to peer review comments. The remainders are stocks which Councils would like assessed, but have been delayed due to other pressing priorities in the continuing struggle to allocate scarce assessment resources.

Through 2014 the SEDAR program will provide assessments for 55 stocks, including 2 stock complexes (large and small coastal sharks). If 55 stocks represents a reasonable approximation of the universe of stocks for which assessments are desired, the current average output of 11 assessments per year will provide an average assessment age of 5 years. Average assessment age will increase by one to two years as additional stocks are brought into the rotation, such as the approximately 15 unassessed stocks discussed repeatedly during prior Steering Committee schedule deliberations. Also adding to increased average assessment age is the need to assess some stocks frequently, such as Gulf red snapper and gag grouper, and South Atlantic black sea bass and vermilion snapper.

While most of the assessments provided through SEDAR are prepared by the SEFSC, acknowledgement is due to other partners who contribute. The interstate Commission partners have contributed nine assessments of menhaden, croaker and drum. This includes analytical support from SEFSC in the case of six assessments of menhaden. The FL FWCC is a regular contributor of assessments that are reviewed through SEDAR, with twelve assessments prepared by FWCC included in this evaluation. Moreover, in recent years the FWCC has prepared both benchmarks and regular updates of some important regional stocks that support considerable landings, such as spiny lobster and yellowtail snapper.

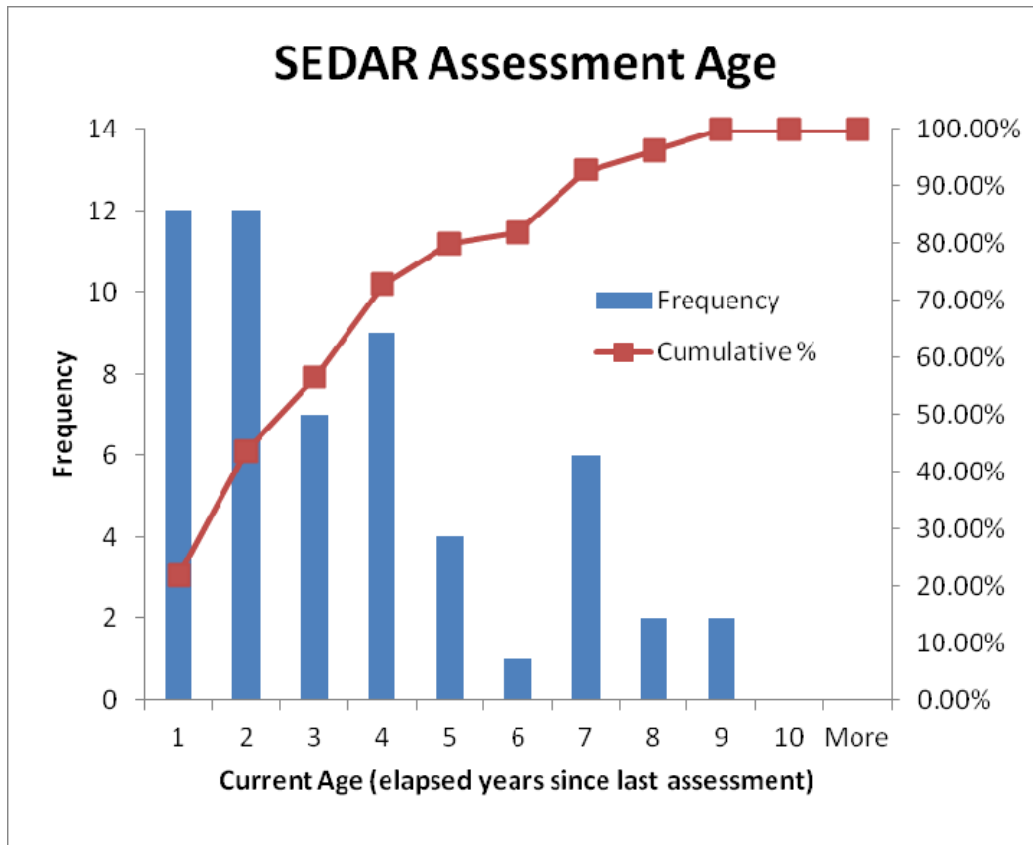


Figure 2. Frequency distribution for age of current SEDAR assessments

Table 2. Frequency of assessments and intervals between assessments for stocks assessed by SEDAR. "Age" is the interval between assessments of the stock, evaluated at 2014.

Average Assessment Age	assessed 3 <sup>rd</sup> to 4 <sup>th</sup>	assessed 2 <sup>nd</sup> to 3 <sup>rd</sup>	assessed 1 <sup>st</sup> to 2 <sup>nd</sup>	Current Age	Times Assessed	Stock
5			5	5	2	AG black grouper
6			6	4	2	AG goliath grouper
9			9	1	2	AG hogfish
5		6	4	6	3	AG King Mackerel
5			5	2	2	AG mutton snapper
5			5	4	2	AG spiny lobster
8			8	3	2	AG yellowtail snapper
3.7	2	2	7	2	4	ASMFC menhaden
7			7	4	2	ASMFC Croaker
2			2	1	2	GSMFC menhaden
				5	1	ASMFC red drum
				2	1	CFMC blue tang
				7	1	CFMC mutton snapper
				3	1	CFMC parrotfish
7			7	7	2	CFMC queen conch
				3	1	CFMC queen snapper
				2	1	CFMC queen triggerfish
				1	1	CFMC red hind
				3	1	CFMC silk snapper
9			9	9	2	CFMC spiny lobster
				7	1	CFMC yellowfin grouper
				9	1	CFMC yellowtail snapper
				2	1	GMFMC cobia
3.5		4	3	1	3	GMFMC gag grouper
6			6	3	2	GMFMC gray triggerfish
4		3	5	1	3	GMFMC greater amberjack
4		5	3	5	3	GMFMC red grouper
3.7	3	3	5	2	4	GMFMC red snapper
				2	1	GMFMC Spanish mackerel
				4	1	GMFMC tilefish
6			6	3	2	GMFMC vermilion snapper
				4	1	GMFMC Yellowedge grouper
3.3	2	6	2	1	4	SAFMC black sea bass
				1	1	SAFMC blueline tilefish
				2	1	SAFMC cobia
8			8	8	2	SAFMC gag grouper
				1	1	SAFMC gray triggerfish
				7	1	SAFMC greater amberjack
				5	1	SAFMC red grouper
4	2	6	4	2	4	SAFMC red porgy
3.5		4	3	4	3	SAFMC red snapper
9			9	1	2	SAFMC snowy grouper
4			4	2	2	SAFMC Spanish mackerel
7			7	3	2	SAFMC tilefish
3	4	1	4	2	4	SAFMC vermilion snapper
6			6	2	2	shark, black tip
3			3	4	2	shark, blacknose
6			6	1	2	shark, bonnethead
				4	1	shark, dusky
7			7	7	2	shark, finetooth
				8	1	shark, large coastal complex
4			4	4	2	shark, sandbar
6			6	1	2	shark, sharpnose Atl
				7	1	shark, small coastal complex
				0	1	shark, smooth dogfish
4.85	2.60	4.00	5.47	3.53		AVERAGES