

Reference Points A/R Striped Bass



Background

- At the 2013 Winter Meeting the Board tasked the TC with developing stock specific reference points for the Albemarle Sound/Roanoke River (A/R) striped bass stock
- In July the TC reviewed the results of the 2014 North Carolina benchmark A/R stock assessment
- This presentation informs the Board about results from the A/R stock assessment and the TC recommendation on reference points for the A/R stock

Reference Points A/R Striped Bass



Background

- Tagging data continue to suggest minimal mixing between the A/R stock and the Chesapeake Bay, Delaware, and Hudson river stocks
- The A/R striped bass stock is smaller in total abundance and is migratory at older ages compared to the other stocks
- The female maturation schedule for the A/R is different from that used in the coastal assessment
- Due to these facts, age structured assessments of the A/R stock have provided stock specific reference points of F and SSB since 1992
- The current assessment of the A/R stock uses similar methodology as the coastal stock assessment to estimate reference points

Reference Points A/R Striped Bass



TC Recommendation

- Due to the differences in life history of the A/R stock, and the ability to develop stock specific reference points for the A/R stock, the ASMFC Striped Bass TC recommendation to the Board is to use the reference points developed through North Carolina's A/R stock assessments for management.
- The TC will continue to review A/R benchmark stock assessments and make recommendations to the Board as to the appropriateness of each assessment's results for management use.

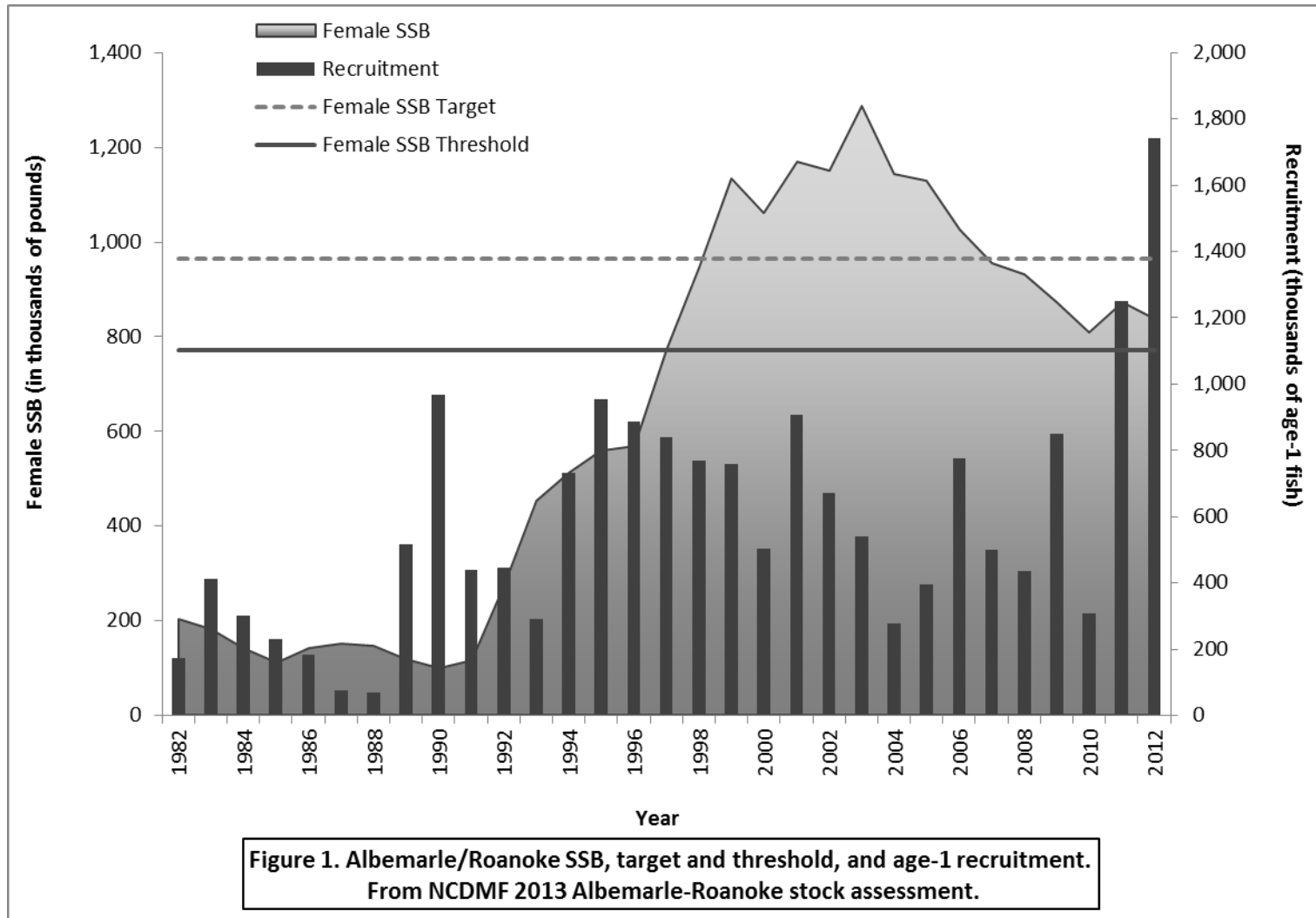
Results 2014 A/R Stock Assessment



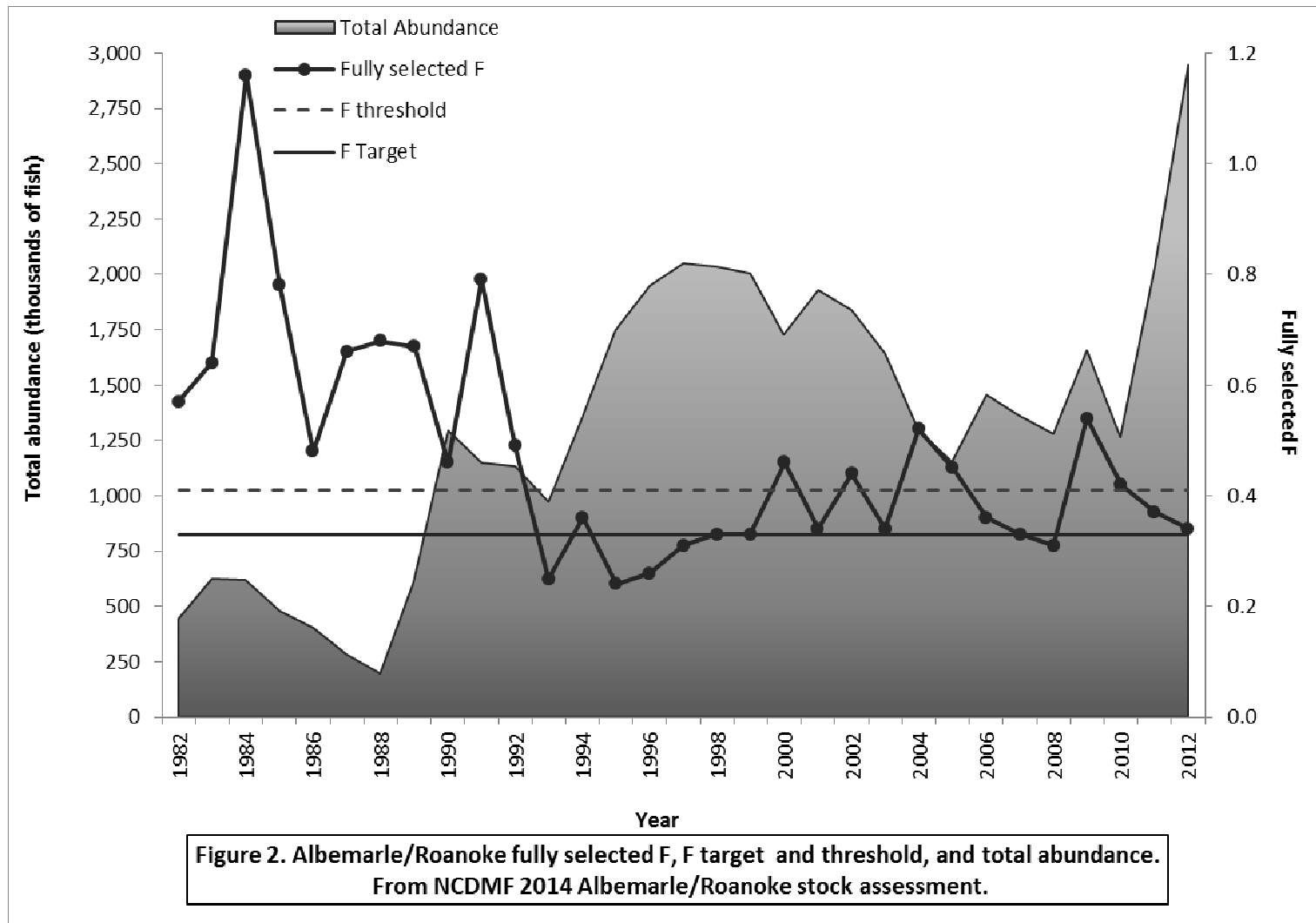
Proposed new reference points and TAL from the 2014 benchmark Albemarle/Roanoke stock assessment.

Reference Point	Fishing Mortality (F)	Spawning Stock Biomass (SSB)	Total Allowable Landings (TAL)
Target	0.33	969,496 lbs.	305,762 lbs.
Threshold	0.41	785,150 lbs.	325,905 lbs.

Results 2014 A/R Stock Assessment



Results 2014 A/R Stock Assessment



Reference Points A/R Striped Bass



Upcoming management of A/R fisheries

- North Carolina's Estuarine Striped Bass FMP has language that states if F is over the F target, mortality will be reduced to bring the F estimate below the target
- The 2012 point estimate of F is above the new F target reference point
- N.C. Marine Fisheries staff will be presenting management options to the N.C. Marine Fisheries Commission designed to bring F below the target with implementation in January 2015



Draft Addendum IV for Public Comment



Striped Bass Management Board

August 5, 2014

Addendum Timeline



- Aug 2014: Consider approval of Draft Addendum for Public Comment
- Aug-Sept 2014: Public comment period
- October 2014: Board Reviews Public Comment
 - Final approval of options and Addendum
- January 2015: Implement Addendum measures

Draft Addendum IV Outline



- Statement of the problem
- Biological Reference points for Striped Bass
- Description of the fishery
- Status of the Stock
- Proposed Fishing Mortality Reference points
- Proposed Recreational Management Options
- Proposed Commercial Management Options
- Compliance Schedule

Statement of the Problem



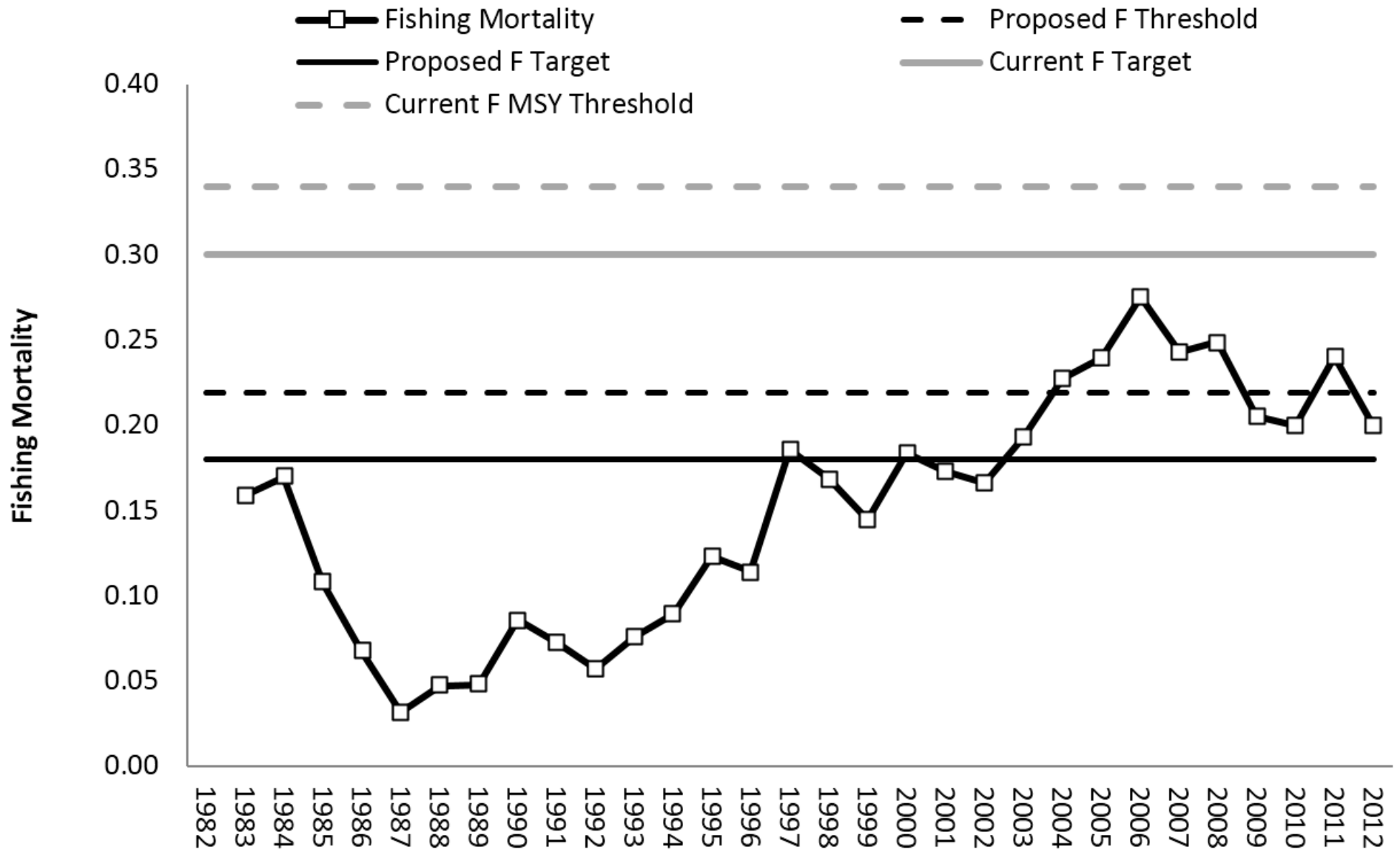
- New Proposed F reference points
- F is currently above new target
- SSB below target since 2006
- a similar downtrend in total harvest
- To address these concerns Draft Addendum IV contains management measures to reduce F to at level at or below the target within one or three years

Biological Reference Points

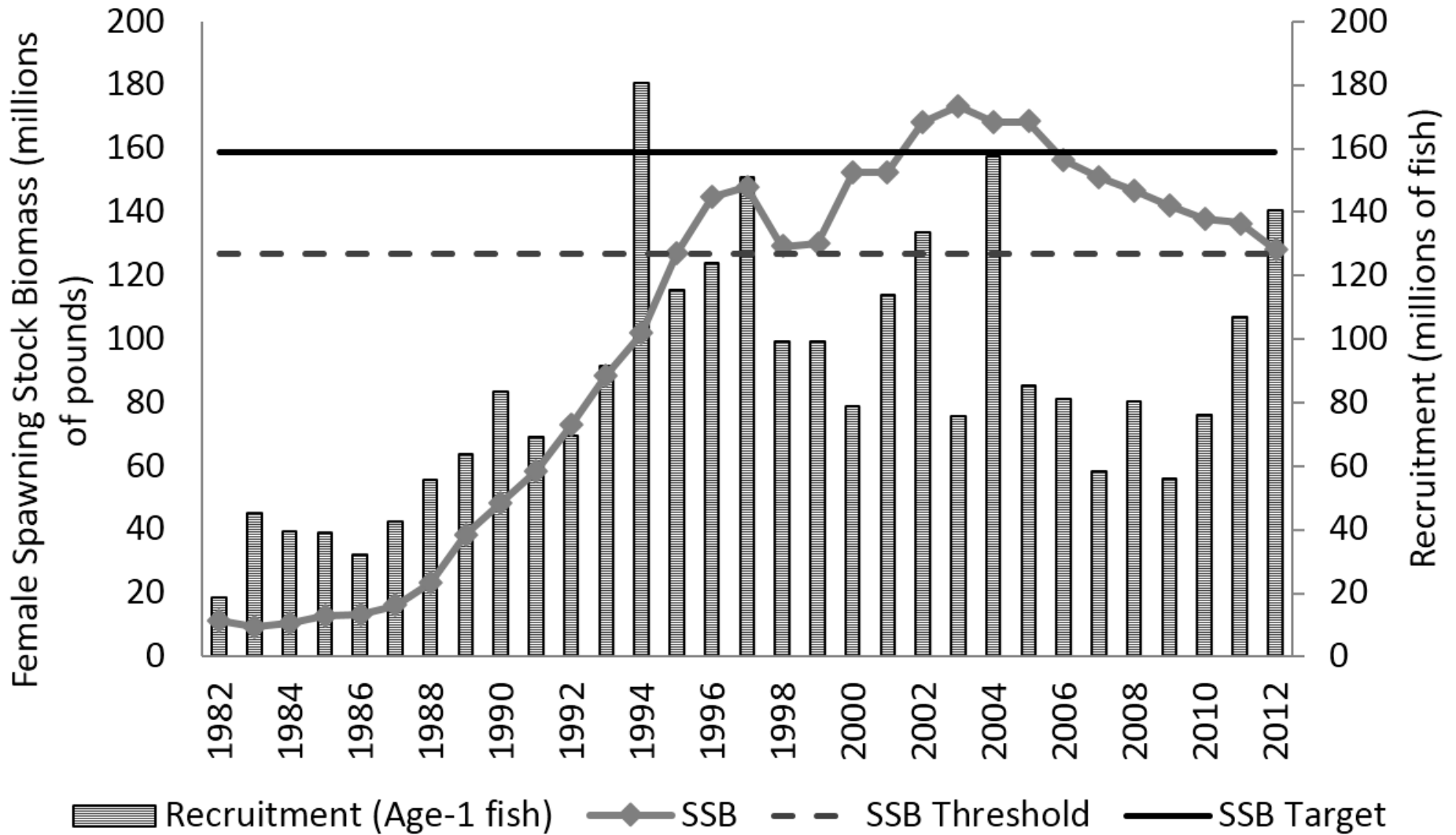


- 1995 SSB level has proven to be a useful reference point for striped bass
- Fishing at F_{msy} does not maintain 1995 SSB
- Benchmark assessment recommended new F reference points that achieve SSB target
- Those reference points were accepted for management use by the Board at its October 2013 meeting.

Proposed Fishing Mortality Reference Points



Spawning Stock Biomass



CB and A/R stock reference points



- CB and A/R stocks have lower F through conservation equivalency since Amendment 5
- Chesapeake Bay
 - Uses quota for management
 - Quota changes with exploitable biomass
 - Not assessed independently (part of coastwide)
- Albemarle Sound/Roanoke River Stock
 - Contributes minimally to migratory stock
 - Data for independent assessment
 - Quota management based on F/SSB targets

Ecosystem Considerations



- Food web relationships should be considered
- As striped bass population increases demand on prey species may impact other species under rebuilding

(Hartman, K.J. 2003)



Source: <http://www.in-fisherman.com/other-fish/temperate-bass/striped-bass/lined-sided-monster-striped-bass/>

Description of the Fishery



- The total coastal commercial harvest from 2003-2013 averaged 2.87 million pounds
- Approximately a 19% underage from allocated coastal quota after accounting for conservation equivalency
- Underage from striped bass game fish status in states
- Migratory striped bass have not been available to NC
- Ches Bay harvest has averaged 4.06 million pounds from 2003-2013.
- AS/RR harvest averaged 165,504 pounds over same timeframe

Description of the Fishery



- The total coastal recreational harvest from 2003-2013 averaged 26.4 million pounds
 - Chesapeake Bay harvest averaged 3.9 million pounds
 - AS/RR harvest averaged 111,598 pounds
- Landings from NY, MA, NJ, and MD account for approximately 74% of annual recreational landings since 2003.

2.5 Proposed F Reference Points



- The document considers F reference points for
 - (1) The Coastwide population
 - CB, Hudson, Delaware
 - (2) Chesapeake Bay Stock
 - (3) Albemarle Sound/Roanoke River Stock

2.5.1 Coastwide Population



- Option A: Status quo

Reference Point	Definition	Value (as estimated in 2011 update)
F_{threshold}	F _{msy}	0.34
F_{target}	TC recommended value more conservative than F _{msy}	0.30

- Option B: 2013 Benchmark Reference Points

Reference Point	Definition	Value (as estimated in 2013 benchmark stock assessment)
F_{threshold}	F associated with achieving the SSB threshold	0.22
F_{target}	F associated with achieving the SSB target	0.18

2.5.2 Chesapeake Bay Stock



- Option A: Status quo
 - F target is 0.27 as established in Amendment 6.
- Option B: Use coastwide population reference points
 - The TC cannot reach consensus on reference points for the CB management area at this time.
 - Coastwide reference points incorporate CB mortality on smaller fish and represent best scientific advice for management

2.5.3 Albemarle/Roanoke Stock



- Option A: Status quo
 - F target is 0.27 as established in Amendment 6.
- Option B: NC will manage the A/R Stock using reference points from the latest NC stock assessment that are accepted by the TC and approved for management use by the Board.

2.5.4 Reference Point Evaluation



- Section 4.1 of Amend 6 contains management triggers to prevent overfishing and ensure the objectives are being achieved.

2.6 Timeline To Reduce to F target



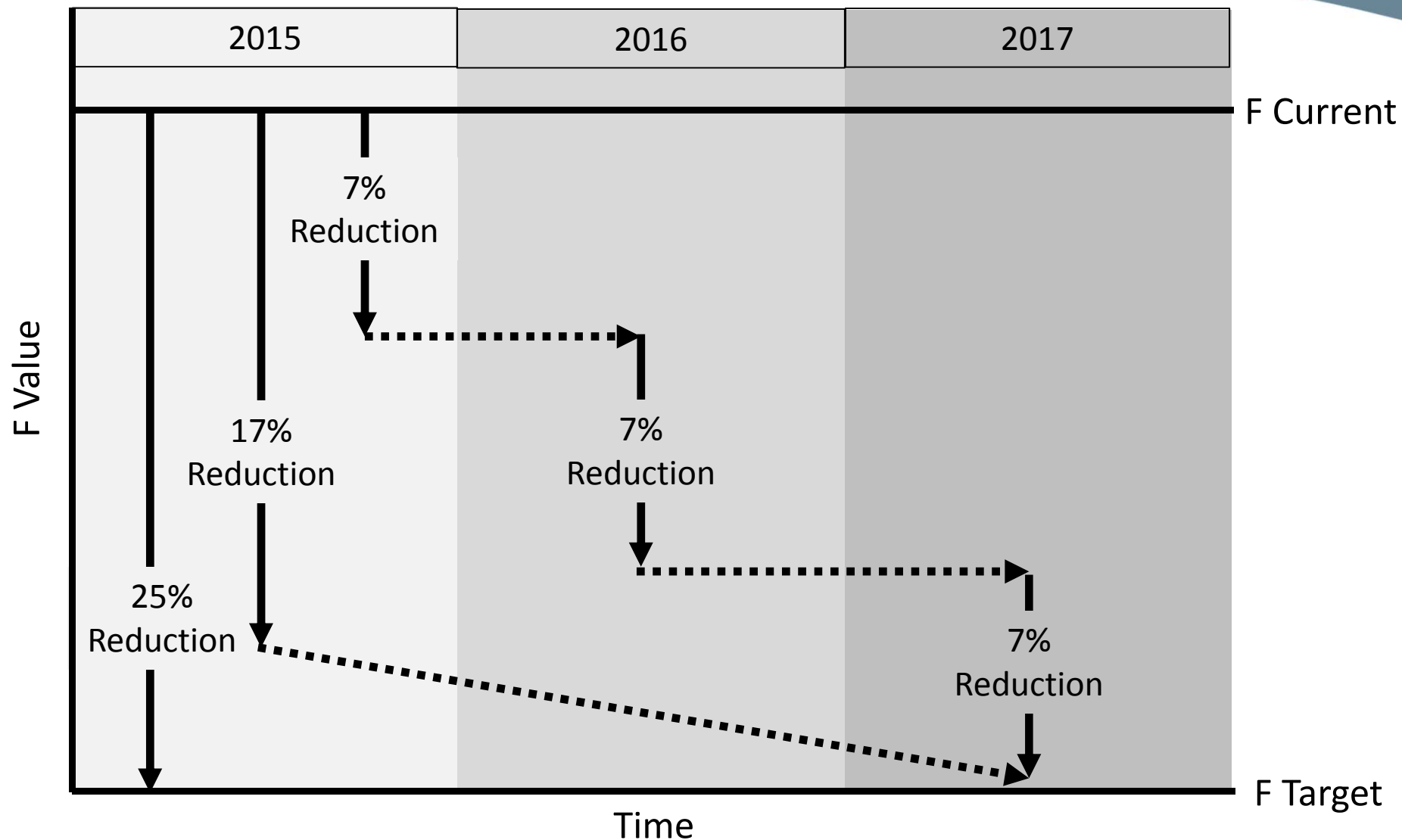
- *If the Management Board determines that the fishing mortality target is exceeded in two consecutive years and the female spawning stock biomass falls below the target within either of those years, the Management Board must adjust the striped bass management program to reduce the fishing mortality rate to a level that is at or below the target within one year.*
- **Option A:** Status quo: One year time frame
- Management Trigger 3 requires reducing F to a level at or below the target within one year.
- **Option B:** Three year time frame.
- Management Trigger 3 will be revised to require reducing F to a level at or below the target within three years instead of within one year.

Harvest Projections



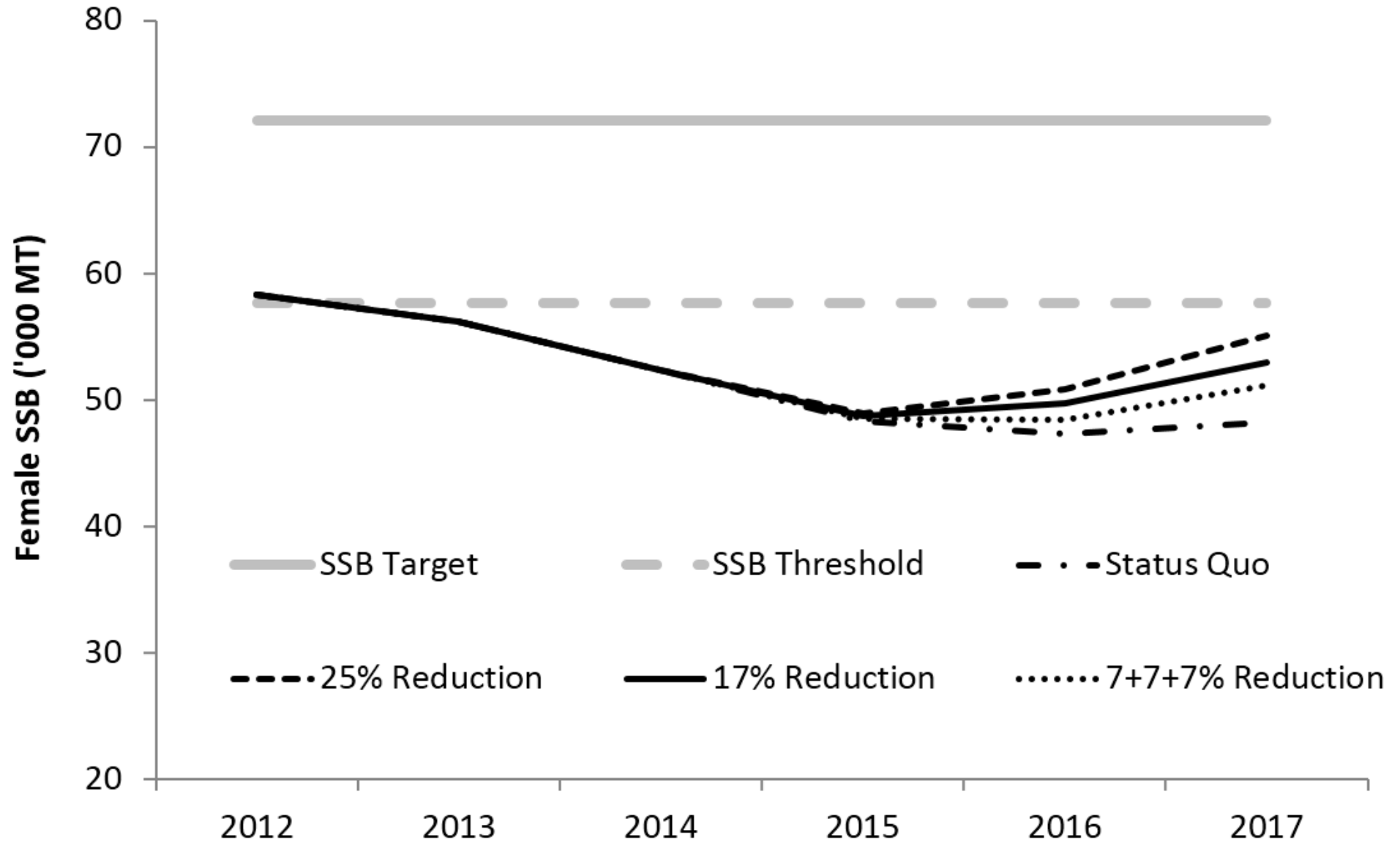
- There are three management scenarios each with 50% probability of achieving F target
- Reduce F to target within one year
 - 25% reduction from 2013 harvest
- Reduce F to target within three years
 - 17% reduction from 2013 harvest
- Reduce F to target within three years (stepwise)
 - 7% reduction for three consecutive years
- Status quo = less than 1% probability of achieving F target

Projections



↓ = Harvest Reduction ...▶ = Elapsed Time

SSB Projections



3.0 Proposed Management Options



- Plan Development Team focused on taking equal relative reductions from both the recreational and commercial fisheries.
- Proposed Recreational Management Options
 - Bag limit change
 - Size limit change
- Proposed Commercial Management Options
 - Adjustments to the Amendment 6 quota allocations

3.0 Proposed Management Program



- Current conservation equivalency in place
- If management changes, all states would need to re-submit conservation equivalency programs for Board approval.
- States may voluntarily implement more conservative management programs

Option A: Status Quo



Option A: Status Quo

- Coastal Recreational Fishery
 - Two fish bag limit and 28 inch minimum size
- Coastal Commercial Fishery
 - Each state will be allocated 100% of the base period (1972-1979) average coastal commercial landings (Section 4.3.2 of Amendment 6).
- Chesapeake Bay
 - Maintain target $F=0.27$ with an 18 inch size limit
- Albemarle Sound/Roanoke River
 - Maintain target $F=0.27$ with an 18 inch size limit

Option B: Reduce F in One Year



Option B: 25% reduction from 2013 harvest to reduce F in one year.

Coastal Recreational Fishery

Option	Bag Limit	Size limit	Trophy fish	% reduction from 2013 harvest
B1	1	28"	n/a	31%
B2	1	28-40"	n/a	26% ³
B3	2	33"	n/a	29%
B4	2	28-34"	n/a	28%
B5	2 (1 slot, 1 trophy)	1 fish 28-34"	1 fish ≥ 36 "	28%
B6	2 (1 slot, 1 trophy)	1 fish 28-36"	1 fish ≥ 38 "	26%
B7	2 (1 slot, 1 trophy)	1 fish 28-37"	1 fish ≥ 40 "	26%

³Reduction estimate limited by data

Option B: Reduce F in One Year



Option B: 25% reduction from 2013 harvest to reduce F in one year.

Chesapeake Bay Recreational Fishery

Option	Bag Limit	Size limit	Trophy fish	% reduction from 2013 harvest
B8	1	18"	n/a	31%
B9	2	21"	n/a	29%
B10	2	18-23"	n/a	26%
B11	2 (1 slot, 1 trophy or 2 slot)	1 or both 18-21"	1 fish $\geq 36"$	29%
B12	Chesapeake Bay Recreational Quota of 2,000,915 pounds (no established bag limit, but a minimum size of 18")			25%

A/R Recreational Fishery

- The State of North Carolina will manage the recreational striped bass fisheries in the Albemarle Sound and Roanoke River based on reference points from the latest North Carolina stock assessment accepted by the Striped Bass Technical Committee and approved for management use by the Board.

Option B: Reduce F in One Year



Coastal Commercial Fishery

- **Option B13:** Takes a 25% reduction from the Amendment 6 quota.
- **Option B14:** Takes a 25% reduction from 2013 total commercial harvest and then allocates the remainder to all the states using the same allocation percentages used in Amendment 6.

THE BOARD SUBCOMMITTEE RECOMMENDS REMOVAL OF OPTION B14.

Option B: Reduce F in One Year



	For Reference	OPTION B13	OPTION B14	For Reference
State	Am6 Quota (lbs)	25% reduction from Am6 Quota (lbs)	25% reduction from total 2013 harvest	2013 Harvest (lbs)
Maine	250*	188	125	0
New Hampshire	5,750*	4,313	2,869	0
Massachusetts	1,159,750	869,813	578,742	1,002,519
Rhode Island	243,625†	182,719	121,574	231,280
Connecticut	23,750*	17,813	11,852	1,479
New York	1,061,060†	795,795	529,493	823,801
New Jersey	321,750**	241,313	160,561	6,096
Delaware	193,447	145,085	96,534	191,424
Maryland	131,560†	98,670	65,651	93,532
Virginia	184,853	138,640	92,246	182,427
North Carolina	480,480	360,360	239,771	0
Coastal Total	3,806,275	2,854,706	1,899,419	2,532,558
% Diff from 2013 harvest	+50	+13	-25	0

Option B: Reduce F in One Year



Chesapeake Bay Commercial Fishery

- **Option B15:** The Chesapeake Bay commercial quota would remain at its 2013 level.

THE BOARD SUBCOMMITTEE RECOMMENDS REMOVAL OF OPTION B15.

- **Option B16:** Takes a 25% reduction from the 2013 commercial quota.

	For Reference	OPTION B15	OPTION B16	For Reference
Chesapeake Bay	Status Quo	2013 Commercial Quota (lbs)	25% reduction from 2013 Quota	2013 Harvest (lbs)
	Maintain F=0.27	3,554,699	2,666,024	3,293,337
% Difference from 2013 harvest	N/A	+8	-19	0

Option B: Reduce F in One Year



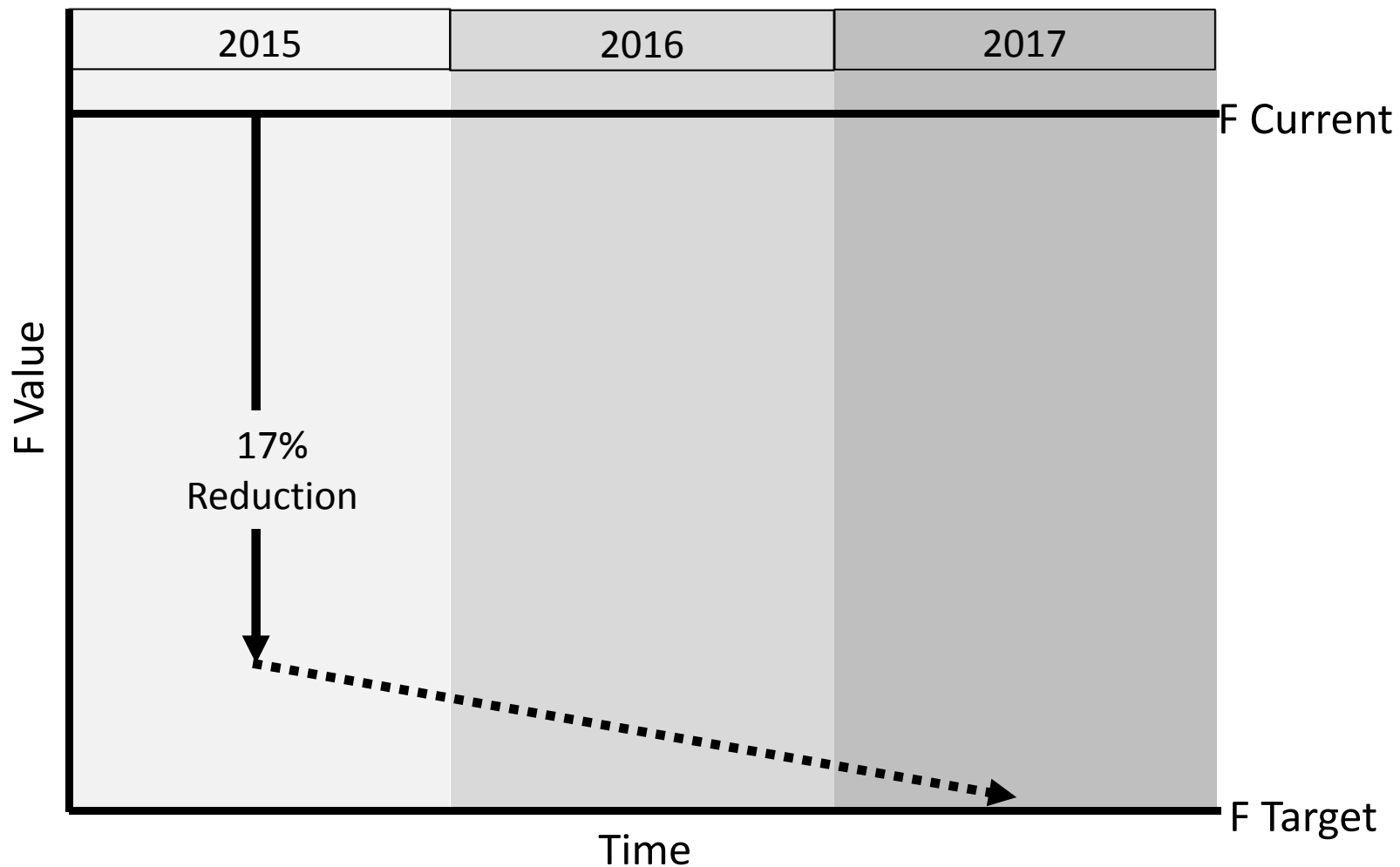
Albemarle Sound/Roanoke River Commercial Fishery

- The State of North Carolina will manage the commercial striped bass fishery in the Albemarle Sound based on reference points from the latest North Carolina stock assessment accepted by the Striped Bass Technical Committee and approved for management use by the Board.

Option C: Reduce F within 3 Years



- Option C: 17% reduction from 2013 total harvest starting in 2015 fishing year. Hold management constant to reduce F in 3 years.



Option C: Reduce F within 3 Years



- **Option C: 17% reduction from 2013 total harvest starting in 2015 fishing year. Hold management constant to reduce F in 3 years.**

Coastal Recreational Fishery

Option	Bag Limit	Size limit	Trophy fish	% reduction from 2013 harvest
C1	2	32"	n/a	21%
C2	2	28-36"	n/a	19%
C3	2 (1 slot, 1 trophy)	1 fish 28-35"	1 fish ≥ 35 "	20% ⁴

⁴Reduction estimate limited by data

Option C: Reduce F within 3 Years



- **Option C: 17% reduction from 2013 total harvest starting in 2015 fishing year. Hold management constant to reduce F in 3 years.**

Chesapeake Bay Recreational Fishery

Option	Bag Limit	Size limit	Trophy fish	% reduction from 2013 harvest
C4	2	20"	n/a	22%
C5	2	18-26"	n/a	18%
C6	2 (1 slot, 1 trophy or 2 slot)	1 or both 18-23"	1 fish \geq 36"	19%
C7	Chesapeake Bay Recreational Quota of 2,214,345 pounds (no established bag limit, but a minimum size of 18")			17%

Albemarle Sound/Roanoke River Recreational Fishery

- The State of North Carolina will manage the recreational striped bass fisheries in the Albemarle Sound and Roanoke River based on reference points from the latest North Carolina stock assessment accepted by the Striped Bass Technical Committee and approved for management use by the Board.

Option C: Reduce F within 3 Years



Coastal Commercial Fishery

- **Option C8:** Takes a 17% reduction from the Amendment 6 quota.
- **Option C9:** Takes a 17% reduction from 2013 total commercial harvest and then allocates the remainder to all the states using the same allocation percentages used in Amendment 6.

THE BOARD SUBCOMMITTEE RECOMMENDS REMOVAL OF OPTION C9.

Option C: Reduce F within 3 Years



	For Reference	OPTION C8	OPTION C9	For Reference
State	Am6 Quota (lbs)	17% reduction from Am6 Quota	17% reduction from total 2013 harvest	2013 Harvest (lbs)
ME	250*	208	138	0
NH	5,750*	4,773	3,175	0
MA	1,159,750	962,593	640,474	1,002,519
RI	243,625†	202,209	134,542	231,280
CT	23,750*	19,713	13,116	1,479
NY	1,061,060†	880,680	585,973	823,801
NJ	321,750**	267,053	177,687	6,096
DE	193,447	160,561	106,832	191,424
MD	131,560†	109,195	72,654	93,532
VA	184,853	153,428	102,085	182,427
NC	480,480	398,798	265,346	0
Total	3,806,275	3,159,208	2,102,023	2,532,558
% Diff 2013	+50	+25	-17	0

Option C: Reduce F within 3 Years



Chesapeake Bay Commercial Fishery

- **Option C10:** The Chesapeake Bay commercial quota would remain at its 2013 level.

THE BOARD SUBCOMMITTEE RECOMMENDS REMOVAL OF OPTION C10.

- **Option C11:** Takes a 17% reduction from the 2013 commercial quota.

	For Reference	OPTION B15	OPTION B16	For Reference
Chesapeake Bay	Status Quo	2013 Commercial Quota (lbs)	17% reduction from 2013 Quota	2013 Harvest (lbs)
	Maintain F=0.27	3,554,699	2,950,400	3,293,337
% Difference from 2013 harvest	N/A	+8	-10	0

Option C: Reduce F within 3 Years



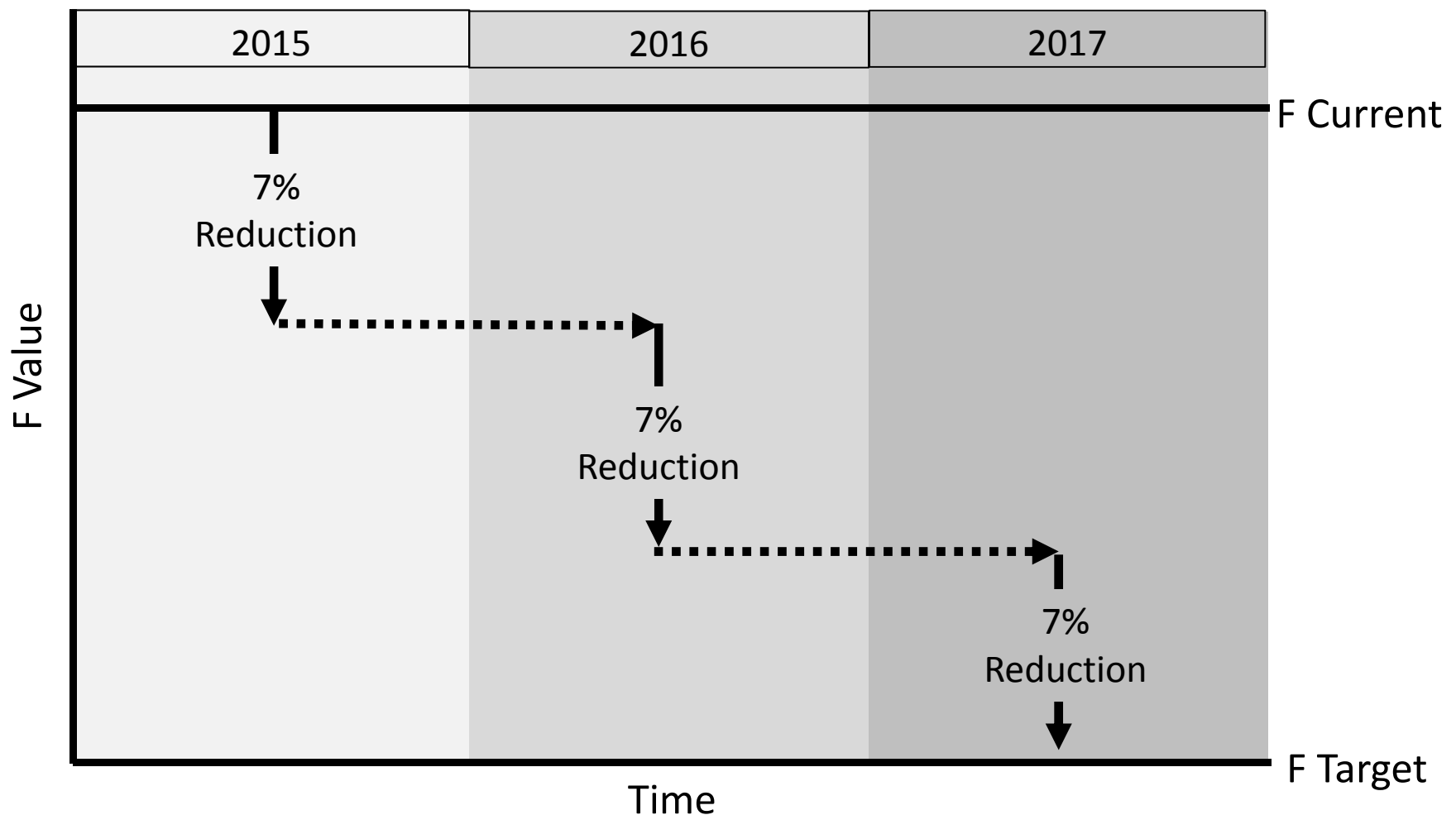
Albemarle Sound/Roanoke River Commercial Fishery

- The State of North Carolina will manage the commercial striped bass fishery in the Albemarle Sound based on reference points from the latest North Carolina stock assessment accepted by the Striped Bass Technical Committee and approved for management use by the Board.

Option D: Reduce F within 3 Years (Stepwise)



Option D: a 20% reduction from 2013 total harvest achieved with a 7% reduction each year for three consecutive years starting in 2015



Option D: Reduce F within 3 Years (Stepwise)



Option D: a 20% reduction from 2013 total harvest achieved with a 7% reduction each year for three consecutive years starting in 2015.

Coastal Recreational Fishery

- Option D1: Size limit changes with corresponding implementation year shown below

Year	Bag Limit	Size limit	Trophy fish	% reduction
2015	2	30"	n/a	Approximately a 21% reduction from 2013 harvest over three years
2016	2	31"	n/a	
2017	2	32"	n/a	

Option D: Reduce F within 3 Years (Stepwise)



Chesapeake Bay Recreational Fishery

- Option D2: size limit changes by year

Year	Bag Limit	Size limit	Trophy fish	% reduction
2015	2	19"	n/a	Approximately a 22% reduction from 2013 harvest over three years
2016	2	20"	n/a	
2017	2	20"	n/a	

- Option D3: size limit changes by year

Year	Bag Limit	Size limit	Trophy fish	% reduction
2015	2	18-35"	n/a	Approximately a 19% reduction from 2013 harvest over three years
2016	2	18-28"	n/a	
2017	2	18-24"	n/a	

- Option D4: quota changes by year

Year	Quota	Size limit	Trophy fish	% reduction
2015	2,481,134	18"	n/a	Approximately a 20% reduction from 2013 harvest over three years
2016	2,307,455	18"	n/a	
2017	2,145,933	18"	n/a	

Option D: Reduce F within 3 Years (Stepwise)



Albemarle Sound/Roanoke River Recreational Fishery

- The State of North Carolina will manage the recreational striped bass fisheries in the Albemarle Sound and Roanoke River based on reference points from the latest North Carolina stock assessment accepted by the Striped Bass Technical Committee and approved for management use by the Board.

Option D: Reduce F within 3 Years (Stepwise)



Coastal Commercial Fishery

- **Option D5:** Takes a sequential 7% reduction from the Amendment 6 quota for three consecutive years.

	OPTION D5	2015	2016	2017
State	For Reference Am6 Quota (lbs)	7% reduction from Am6 Quota (lbs)	7% reduction from 2015 Quota (lbs)	7% reduction from 2016 Quota (lbs)
Maine	250*	233	216	201
New Hampshire	5,750*	5,348	4,973	4,625
Massachusetts	1,159,750	1,078,568	1,003,068	932,853
Rhode Island	243,625†	226,571	210,711	195,961
Connecticut	23,750*	22,088	20,541	19,103
New York	1,061,060†	986,786	917,711	853,471
New Jersey	321,750**	299,228	278,282	258,802
Delaware	193,447	179,906	167,312	155,600
Maryland	131,560†	122,351	113,786	105,821
Virginia	184,853	171,913	159,879	148,688
North Carolina	480,480	446,846	415,567	386,477
Coastal Total	3,806,275	3,539,836	3,292,047	3,061,604
% Diff from 2013 harvest	+50	+40	+30	+21

Option D: Reduce F within 3 Years (Stepwise)



Coastal Commercial Fishery

- **Option D6:** Takes a 7% sequential reduction for three years starting from 2013 total commercial harvest using the same allocations as used in Amendment 6.

THE BOARD SUBCOMMITTEE RECOMMENDS REMOVAL OF OPTION D6.

	OPTION D6	2015	2016	2017
State	For Reference Am6 Quota (lbs)	7% reduction from 2013 Harvest (lbs)	7% reduction from 2015 Quota (lbs)	7% reduction from 2016 Quota (lbs)
Maine	250*	155	144	134
New Hampshire	5,750*	3,558	3,309	3077
Massachusetts	1,159,750	717,640	667,405	620687
Rhode Island	243,625†	150,752	140,200	130386
Connecticut	23,750*	14,696	13,667	12711
New York	1,061,060†	656,572	610,612	567869
New Jersey	321,750**	199,095	185,159	172197
Delaware	193,447	119,703	111,324	103531
Maryland	131,560†	81,408	75,709	70410
Virginia	184,853	114,385	106,378	98931
North Carolina	480,480	297,315	276,503	257148
Coastal Total	3,806,275	2,355,279	2,190,409	2,037,081
% Diff from 2013 harvest	+50	-7	-14	-20

Option D: Reduce F within 3 Years (Stepwise)



Chesapeake Bay Commercial Fishery

- **Option D7:** Takes a 7% sequential reduction from 2013 Chesapeake Bay commercial quota for three consecutive years starting in 2015.

	OPTION D7	2015	2016	2017
Chesapeake Bay	Status Quo	7% reduction from 2013 Quota	7% reduction from 2015 Quota	7% reduction from 2016 Quota
	Maintain F=0.27	3,305,870	3,074,459	2,859,247
% Diff from 2013 harvest	N/A	0	-7	-13

Albemarle Sound/Roanoke River Commercial Fishery

- The State of North Carolina will manage the commercial striped bass fishery in the Albemarle Sound based on reference points from the latest North Carolina stock assessment accepted by the Striped Bass Technical Committee and approved for management use by the Board.

3.1 Commercial Quota Transfers



- Option A: Status quo, no commercial quota transfers
- Option B: Commercial Quota Transfer Provision
 - At any time during the fishing season up to 45 days after the last day of the fishing season.
 - Transfer effective upon receipt by Commission staff of signed letters by donor and receiving states.
 - Transfers do not permanently affect the state-specific shares of the quota
 - State receiving the quota is responsible for overages

3.3.2 Commercial Size Limits



- Option A: Status quo
 - Commercial fishery is constrained by the same size limit regime established for the recreational fishery
- Option B: All areas will maintain a 28 inch minimum size limit for the commercial fishery, except the CB (18 inch minimum), Albemarle Sound (18 inch minimum), and Delaware Bay shad gillnet fishery for Delaware (20 inch minimum).
 - This option only applies if the Board selects to change the size limits for recreational fishery.

4.0 Compliance Schedule



- If approved, states must implement Addendum IV according to the following schedule to be in compliance with the Atlantic Striped Bass ISFMP
- XXXX: States submit implementation plans
- XXXX: Management Board review and approval
- Jan 1, 2015: States implement regulations

5.0 Recommendation for Federal Waters



- If options in section 2.5 or 3.0 are adopted through the addendum process, the Board would consider which options, if any should be recommended to NOAA Fisheries for implementation in the exclusive economic zone.

Questions?





Draft Addendum IV for Public Comment



LEC Report
August 05, 2014

LEC Comments



- Changing regulations in each of 3 years presents greatest enforcement challenge.
- Adds education/outreach effort to enforcement.
- Frequent regulatory changes lower compliance.
- Officers use more “inform/warn” approaches following a new or changed regulation.
- LEC recognizes value of graduated approach for public acceptance and compliance, but believes applying change in one year would maximize compliance and minimize confusion.

LEC Comments



- For recreational fishery, bag/size restrictions preferable to quota management (Chesapeake Bay experience).
- Changing commercial size limits to match recreational limits would possibly minimize confusion and aid compliance, but LEC does not envision a major problem in commercial compliance if they remain different.
- Slot or size limits combined with trophy size allowance complicate enforcement on charter/party boats where filleting on-board is allowed (New Jersey experience).



Draft Addendum IV for Public Comment



Advisory Panel Report
August 5, 2014

AP Comments



- Despite varying opinions, the AP generally felt the description of the fishery was appropriate
- Suggestion to include information on what the reference points were when the stock was rebuilt
- Some AP members were concerned about a move away from using stock specific ref pts for CB
- AP member suggested that a 50% probability of achieving F is low and a larger range should be considered.

AP Comments



- Some AP members suggested more conservative management options
- Some AP members suggested less conservative management options
- Suggestion was made for yearly review of three year timeframe to ensure it is being met
- Some AP members did not like quota options B14, C9 and D6 because the reductions were not equal
- AP felt states should not be punished for managing within their quota
- There was a suggestion to include an option that achieves optimum sustainable yield in three years.