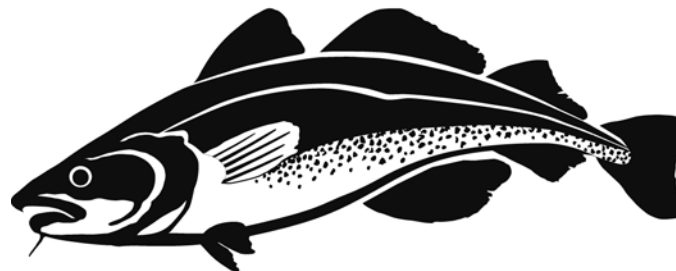


Whelk Minimum Size Management

January 19, 2019
MLA Annual Weekend
Hyannis, MA

January 23, 2019
Hotel 1620
Plymouth, MA

Marine Fisheries
Commonwealth of Massachusetts



Public Hearing

Under the provisions of M.G.L. c. 30A and pursuant to the authority found at M.G.L. c. 130 §§ 2, 17A, 80 and 104, the Division of Marine Fisheries (DMF) and the Marine Fisheries Advisory Commission have scheduled public hearings and a public comment period to accept comment on draft regulatory proposals at 322 CMR 6.00.

Written public comments will be accepted until 5:00 PM on Friday, February 1, 2019. Please address all comments to Director David Pierce. Comments are to be sent by e-mail to marine.fish@state.ma.us or by mail to 251 Causeway Street, Suite 400, Boston, MA 02114.



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Proposal

Establish a 10-year schedule to increase the minimum gauge width for whelks to 3 5/8" where 50% of female whelks are sexually mature. This schedule will implement a series of six 1/8" biennial gauge increases beginning in 2019 and concluding in 2029. In 2019, the minimum gauge width will increase from 2 7/8" to 3".

Proposed Schedule for Whelk Gauge Increases, Corresponding Shell Widths at 50% Retention, and Percent Maturity of Female Whelks at Size

	2019	2021	2023	2025	2027	2029
Chute Gauge Width	3"	3 1/8"	3 1/4"	3 3/8"	3 1/2"	3 5/8"
Shell Width at 50% Retention	3 3/16"	3 5/16"	3 7/16"	3 5/8"	3 3/4"	3 7/8"
Percent Maturity of Female Whelks	0%	0%	0%	5%	20%	50%



Management History - Permitting

- Shellfish Permit
 - Historically required by state law for the commercial possession, landing and sale of any shellfish species regardless of gear type.
 - Shellfish are defined by state law to include whelk species.
- Conch Pot Regulated Fishery Permit Endorsement
 - 1990: Permit required for the setting of conch pot gear in MA waters. New permits issued subject to certain criteria.
 - 1995: Permit became limited entry and subject to renewal only.
 - 1995-1999: Permit transfer rules developed and implemented.
 - 2012: Actively fished threshold for permit transfers set at 5,000 pounds of whelks per year in four out of past five years.
 - 2014: Established as an owner operator fishery to address splitting of endorsements from Coastal Lobster Permits.
- Coastal Access Permit Regulated Fishery Permit Endorsement
 - 1993: Permit required for the use of mobile gear in MA waters. Established as a limited entry permit subject to renewal only.
 - 1993-1995: Permit transfer policies developed and implemented.



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Management History – Minimum Size

- 1992: 2 3/4” minimum size established. Based on input from dealers. Not a biological standard and did not protect spawning stock.
- 2013: Chute gauge and parallel method of measurement introduced. First step towards enhanced minimum size management.
- 2014- 2015: Minimum size increased to 3” through two annual 1/8” adjustments. Additional minimum size increases held back until review of study completed. First steps to increase minimums size to 50% size at maturity.
- 2016: Required whelks be immediately measured and sub-legal animals released upon measurement.
- 2017: Any orientation method of measurement and minimum gauge width concept implemented.
- 2017: Minimum gauge width set at 2 7/8”. 50% retention corresponds to a whelk minimum shell width of 3 1/16”.



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Management History – Conch Pot Rules

- 1992: 200 trap limit implemented for conch pot fishery.
- 1992: December 15 – April 15 closed season established.
- 1998: Trap tag requirement implemented. Maximum number of tags issued set at 220 tags (110% trap limit) and allows for additional tags to be issued in season.
- 2014: Requires trap tags be on gear before gear is set at start of season.
- 2016: Increases max tag allowance to 240 (120% trap limit). If additional tags are needed in season, then old set must be removed and new set ordered and affixed.
- 2017: Prohibits hauling, setting or tending of trap gear between ½ hour after sunset to ½ before sunrise.
- 2017: Late summer haul-out period considered but not implemented.



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Management History – Other Measures

- **Mobile Gear Rules**
 - 2014: 1,000 pound mixed whelk trip limit implemented for draggers.
 - 2017: Late summer spawning closure considered but not implemented.
- **SCUBA – Hand Harvest Limits**
 - 2016: 1 level-filled fish tote mixed whelk limit implemented for hand harvesters
- **Recreational Limits**
 - 2016: 15 mixed whelk limit implemented for recreational harvesters.



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Statement of the Problem

- At current minimum legal size no female whelk are mature
- Life history traits make them especially prone to depletion
- Trawl survey trends – declining
- Rapid escalation of catch and effort
- Truncation of size of commercial catch
- Biomass is declining and below B_{MSY} = Overfished
- Fishing mortality is increasing and above F_{MSY} = Overfishing
- Stock is in poor condition



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Stock Assessment Results for Channeled Whelk in Nantucket Sound

Biomass-Based Management Metrics

Method	Parameter	Value	2016 Estimate	Overfishing Occuring	Stock Overfished
Catch MSY	MSY	1,200,000	1,971,153	Y	
	B _{MSY}	21,900,000	5,726,235		Y
	F _{MSY}	0.07	0.19	Y	
Depletion-Based Stock Reduction Analysis	MSY	1,600,000	1,971,153	Y	
	B _{MSY}	20,800,000	6,178,509		Y
	F _{MSY}	0.09	0.17	Y	
Biomass Dynamics	MSY	1,300,000	1,971,153	Y	
	B _{MSY}	21,400,000	12,157,546		Y
	F _{MSY}	0.06	0.10	Y	

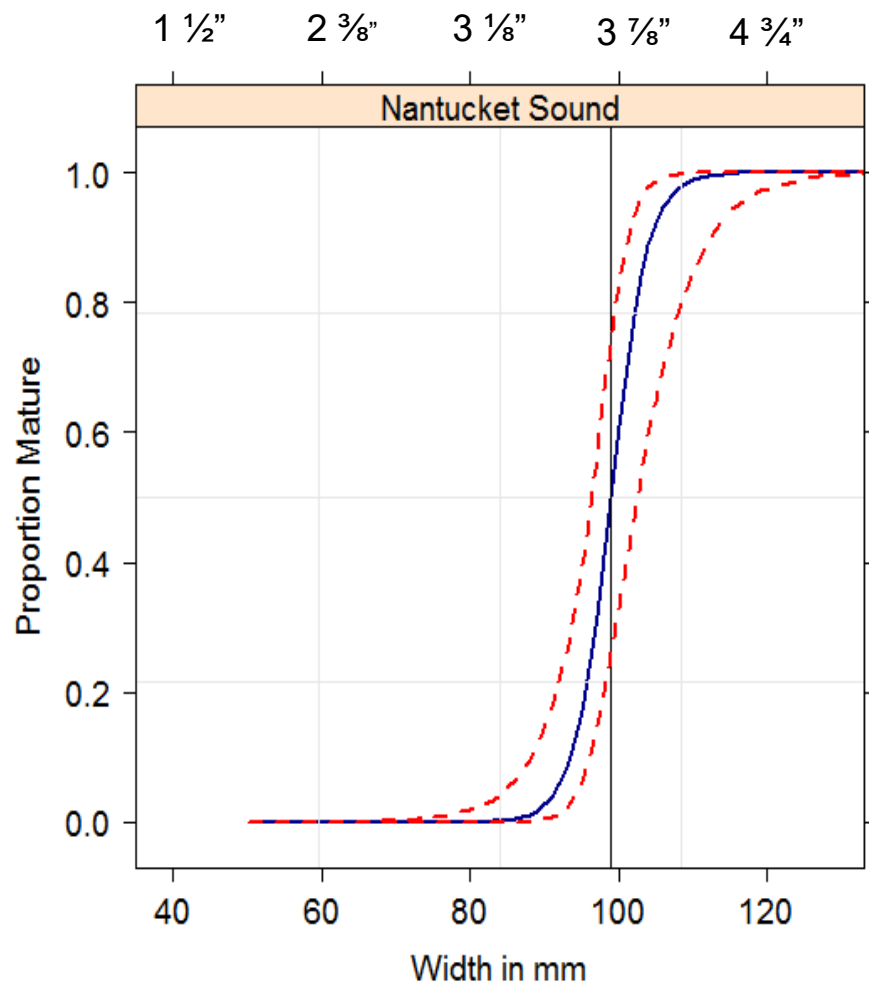
Number-Based (F) Management Metrics

Method	Reference Point	Value
YPR	F _{max}	0.23
	F _{0.10}	0.14
SPR	F _{40%} (FMSY proxy)	0.09

Method	F _{Terminal}	>F _{max}	>F _{0.10}	>F _{40%} (FMSY proxy)
Catch Curve	0.58	Y	Y	Y
Delury	0.60	Y	Y	Y
SCA	0.32	Y	Y	Y



Size at Maturity & Minimum Size



2010-2011 Size at Maturity Study:

- Female whelks do not begin to reach maturity until around 3 5/8"
- 50% females in Nantucket Sound (primary harvest area) are capable of reproducing for the first time at 3 7/8".
- Female whelks from other areas had similar size at maturity results.

2015 Size at Maturity Study: No significant changes to findings in initial 2010-2011 study.

Key Point: Females are not mature at current gauge size and will not be protected until the gauge size is increased to 3 3/8" (5%).



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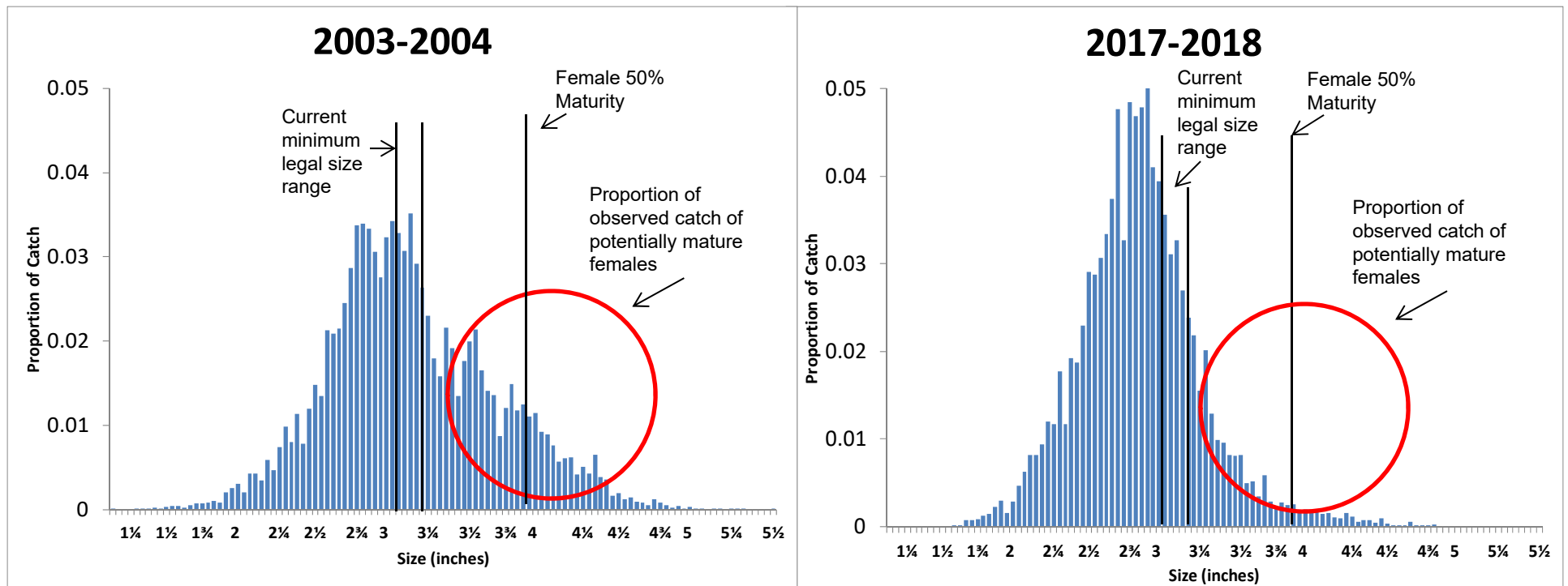
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Proportion of Observed Catch Relative to Minimum Size and Size at Maturity



Source: DMF sea sampling trips aboard commercial conch pot vessels.

Key Concerns:

Truncation of observed catch around minimum size

Reduction of large sexually mature whelk as proportion of catch



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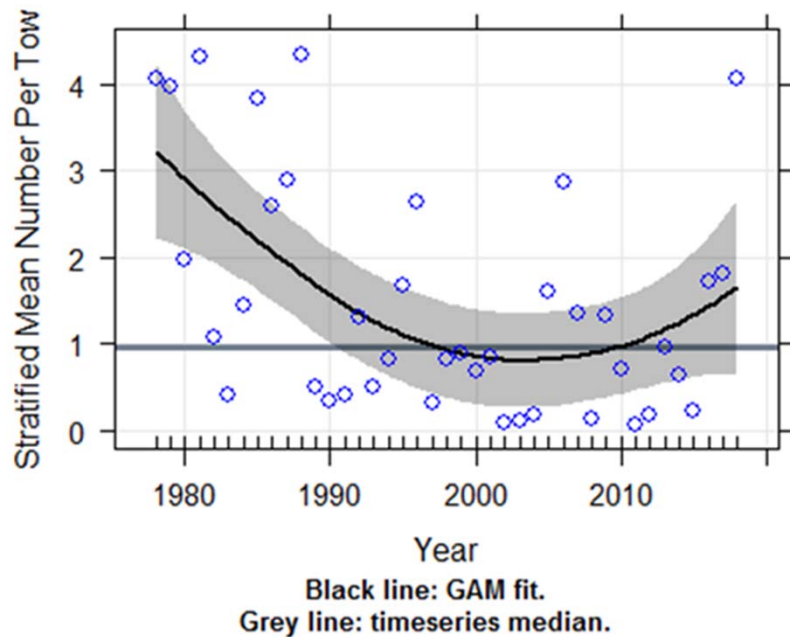
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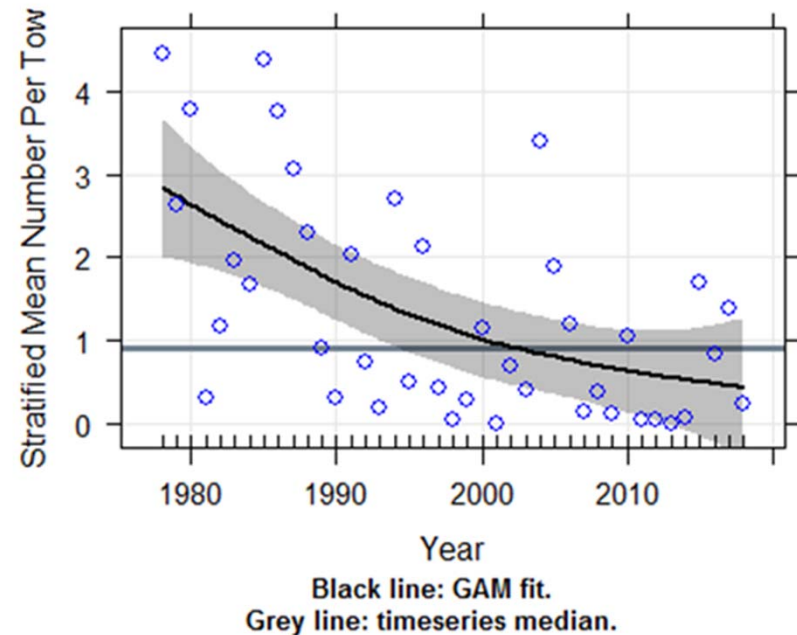


Fishery Independent Data

Channeled Whelk Abundance
MDMF Spring Survey, Regions 1-2
B. Bay/V. Sound/N. Sound/South of MV



Channeled Whelk Abundance
MDMF Fall Survey, Regions 1-2
B. Bay/V. Sound/N. Sound/South of MV



Fishery Profile: License and Landings Trends

License Trends

Year	2010	2011	2012	2013	2014	2015	2016
Issued	151	147	145	144	143	141	139
Fished	78	84	87	90	83	83	82
Did Not Fish	69	57	54	53	58	56	54
Did Not Report	4	6	4	1	2	2	3

2013: introduced gauge and dropped the 5% tolerance

2014: minimum size increased to 2 7/8"

2015: minimum size increased to 3"

2016: No changes

2017: adopted "any orientation" method & enacted a 2 7/8" gauge width ~ minimum size increase to 3 1/16"

2018: No changes

Catch and Value Trends

Year	Live Pounds	Est. Value	Price/lbs.
2005	1,354,821	\$1,454,295	\$1.07
2006	2,420,481	\$3,104,430	\$1.28
2007	2,496,497	\$2,466,229	\$0.99
2008	2,701,409	\$3,212,108	\$1.19
2009	2,847,042	\$3,720,139	\$1.31
2010	2,505,855	\$3,961,252	\$1.58
2011	3,042,868	\$6,117,755	\$2.01
2012	3,649,270	\$6,274,224	\$1.72
2013	2,305,408	\$5,699,013	\$2.47
2014	1,828,855	\$4,818,000	\$2.63
2015	1,698,660	\$4,761,000	\$2.80
2016	1,659,439	\$4,848,500	\$2.92
2017	1,132,393	\$3,357,984	\$2.97
2018*	1,337,037	\$4,291,502	\$3.21

SOURCE: SAFIS Dealer Reports

All landings reported in bushels were converted to whole pounds (includes shell weight), at 1 bushel = 62.8 lbs.

* preliminary data subject to change upon audits



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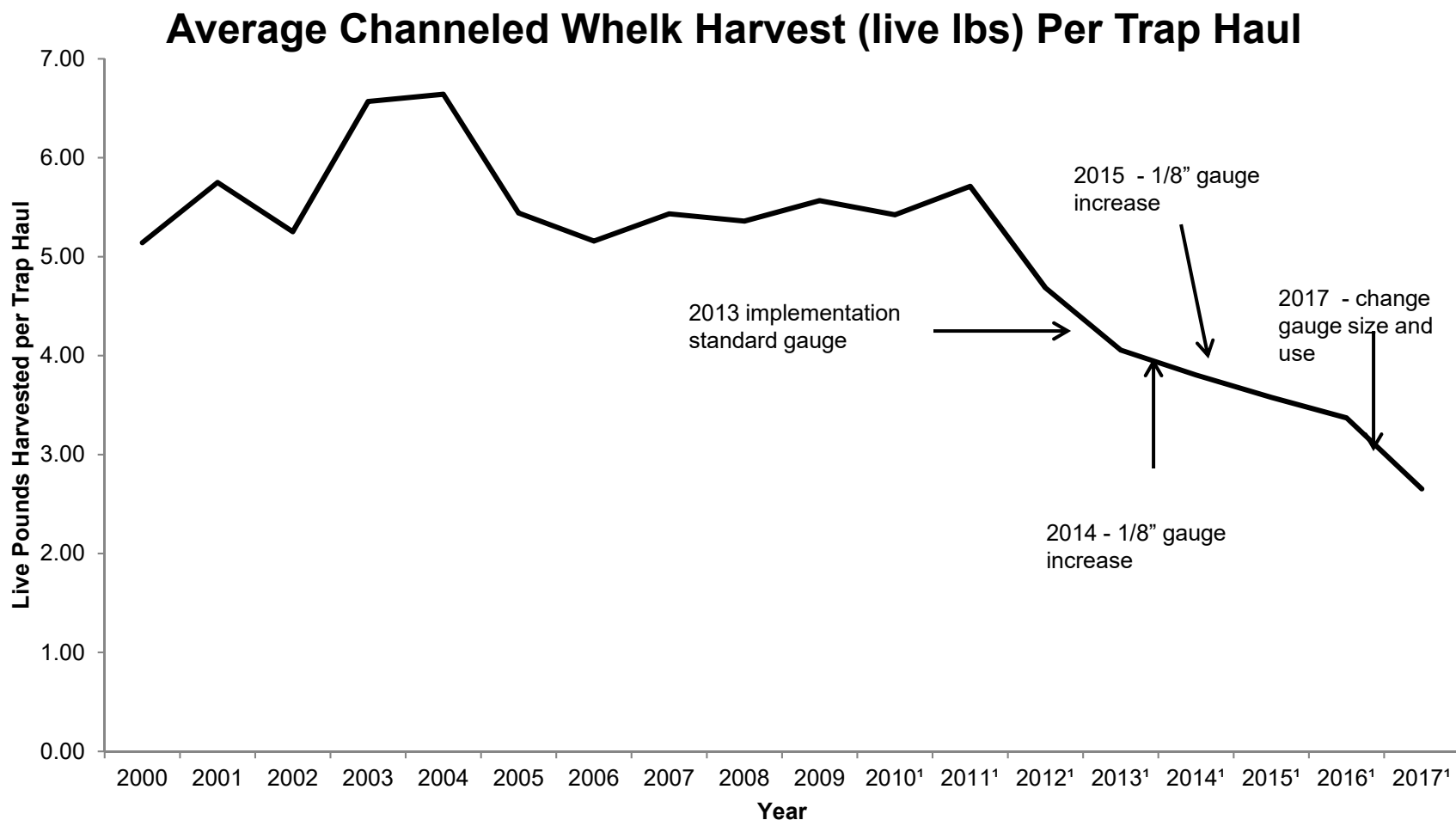
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Fishery Profile: CPUE Trends in Whelk Pot Fishery



Source: Trip Level Reports

*1 ¹Potentially lower due to permit holders not distinguishing between lobster and conch traps (increases effort in denominator)



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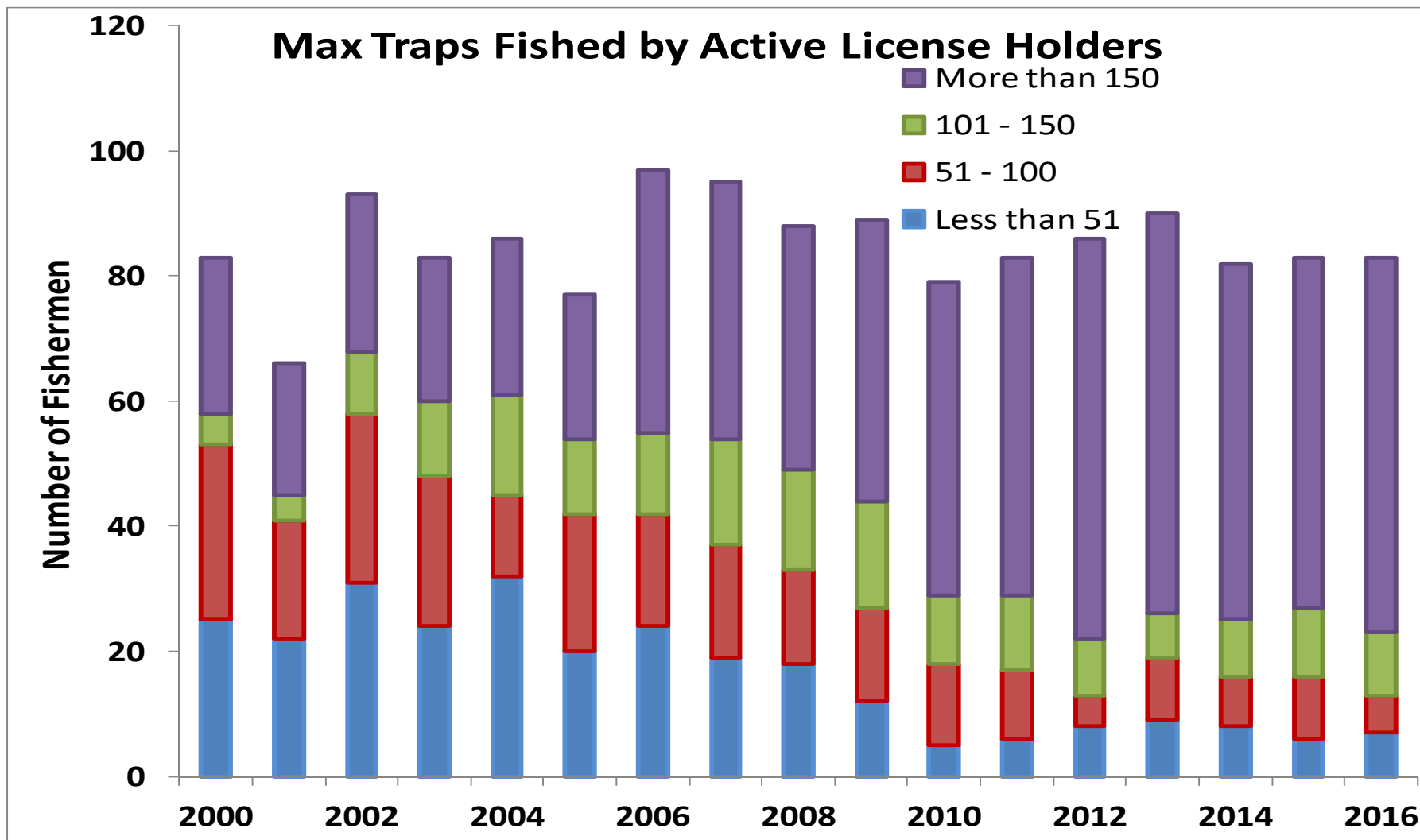
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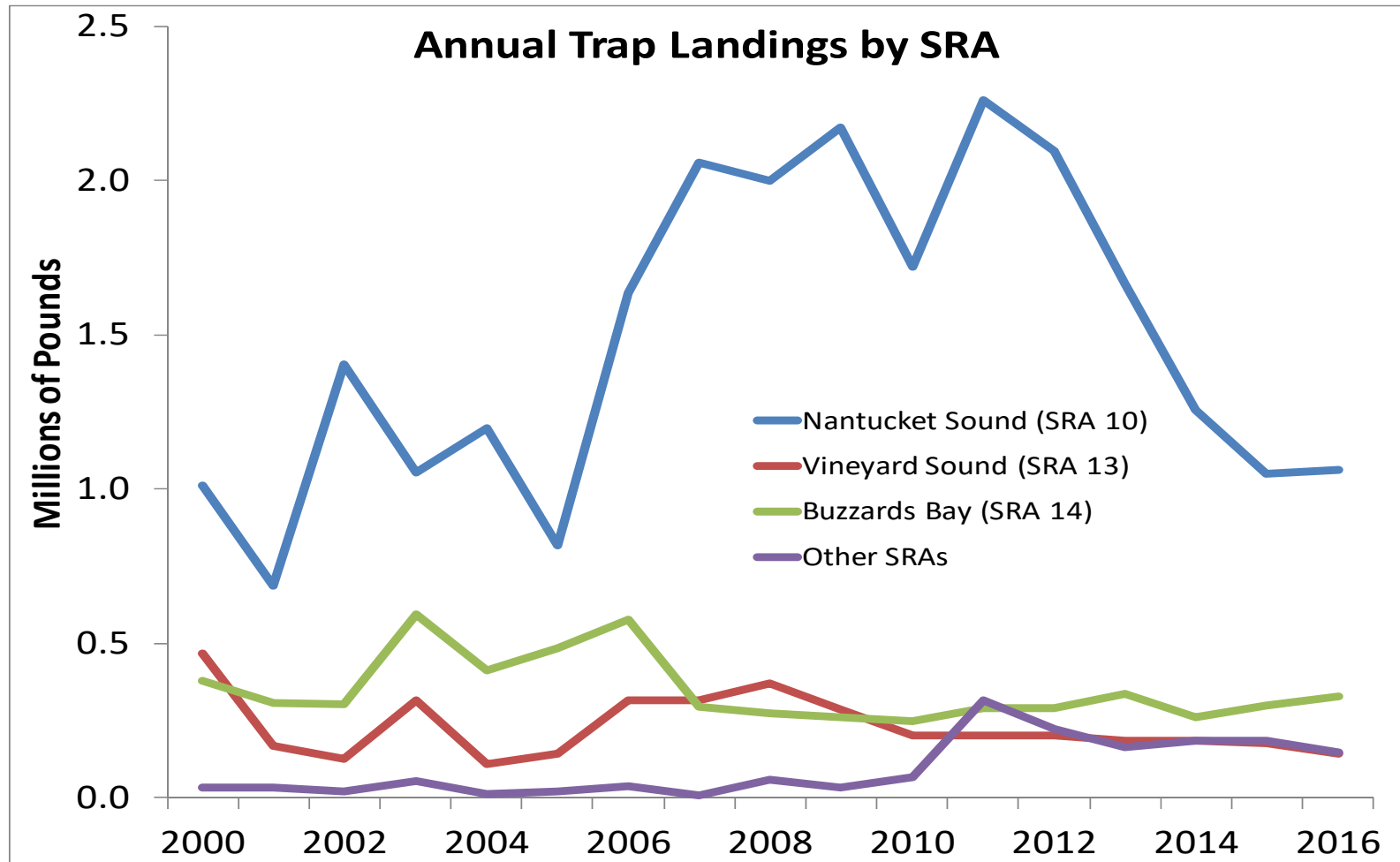
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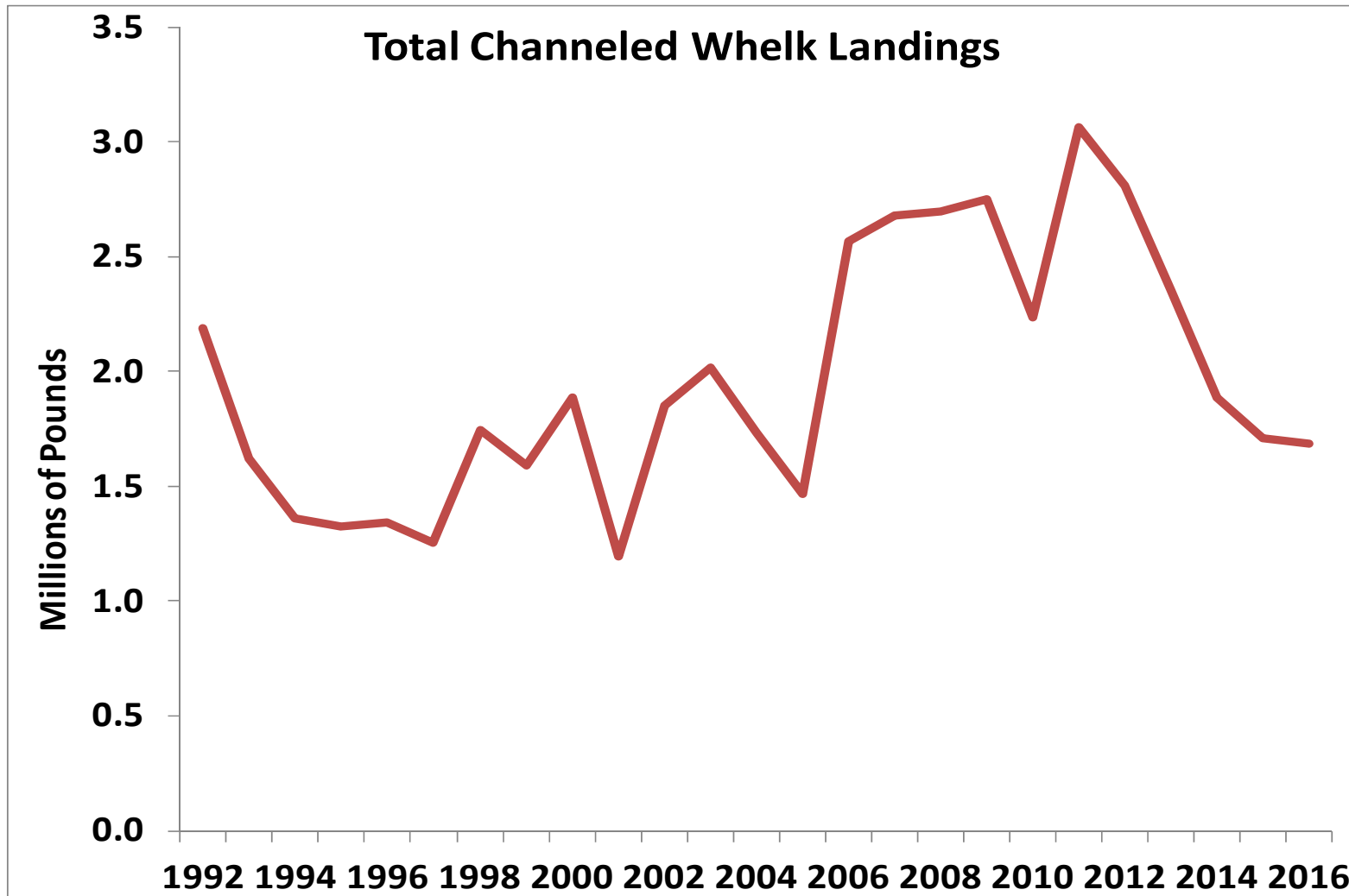
Fishery Profile: Traps Fished Trends



Fishery Profile: Trap Fishery Landing Trends



Fishery Profile: Overall Channeled Whelk Landings Trends



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Comments on Proposed Schedule

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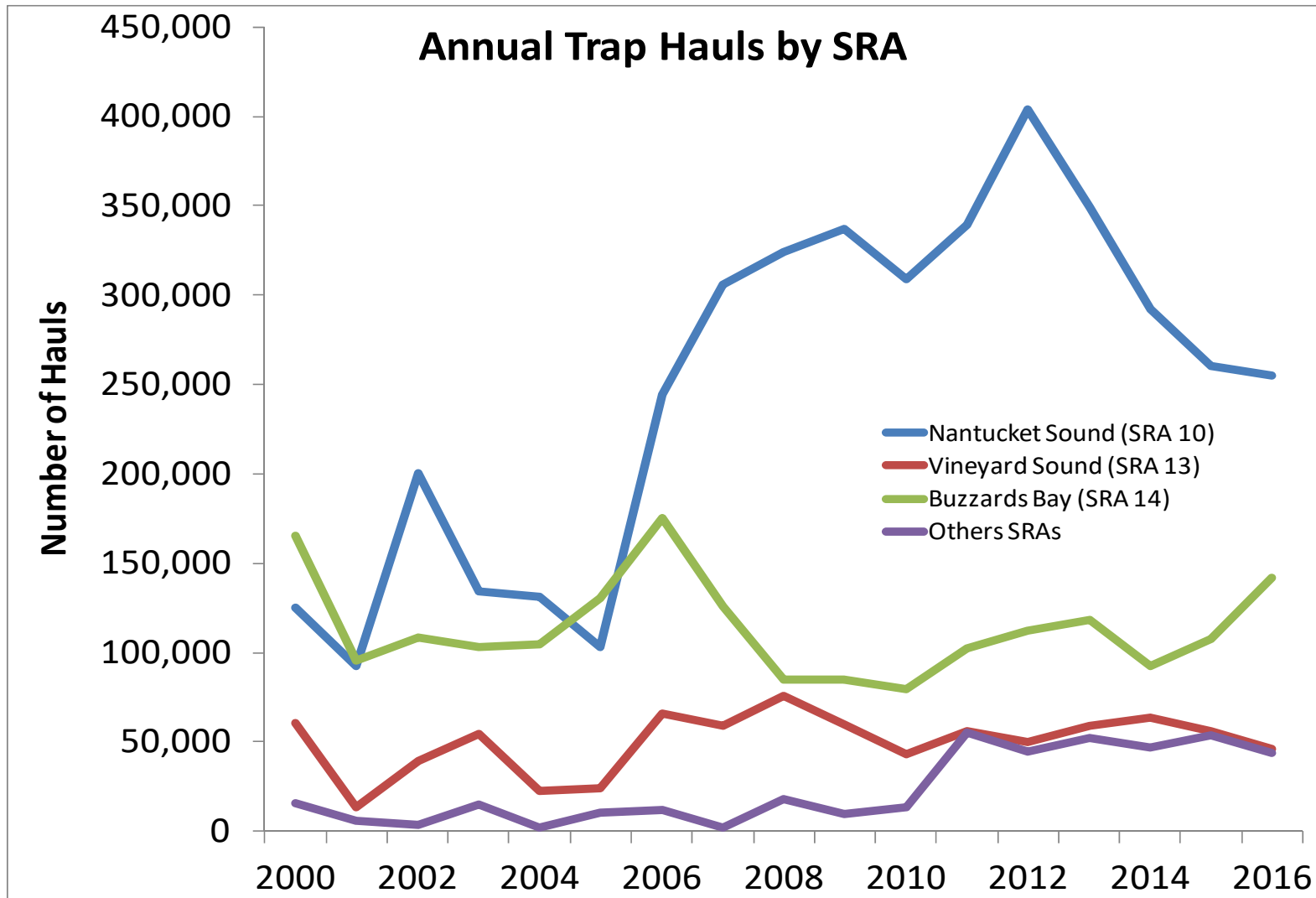
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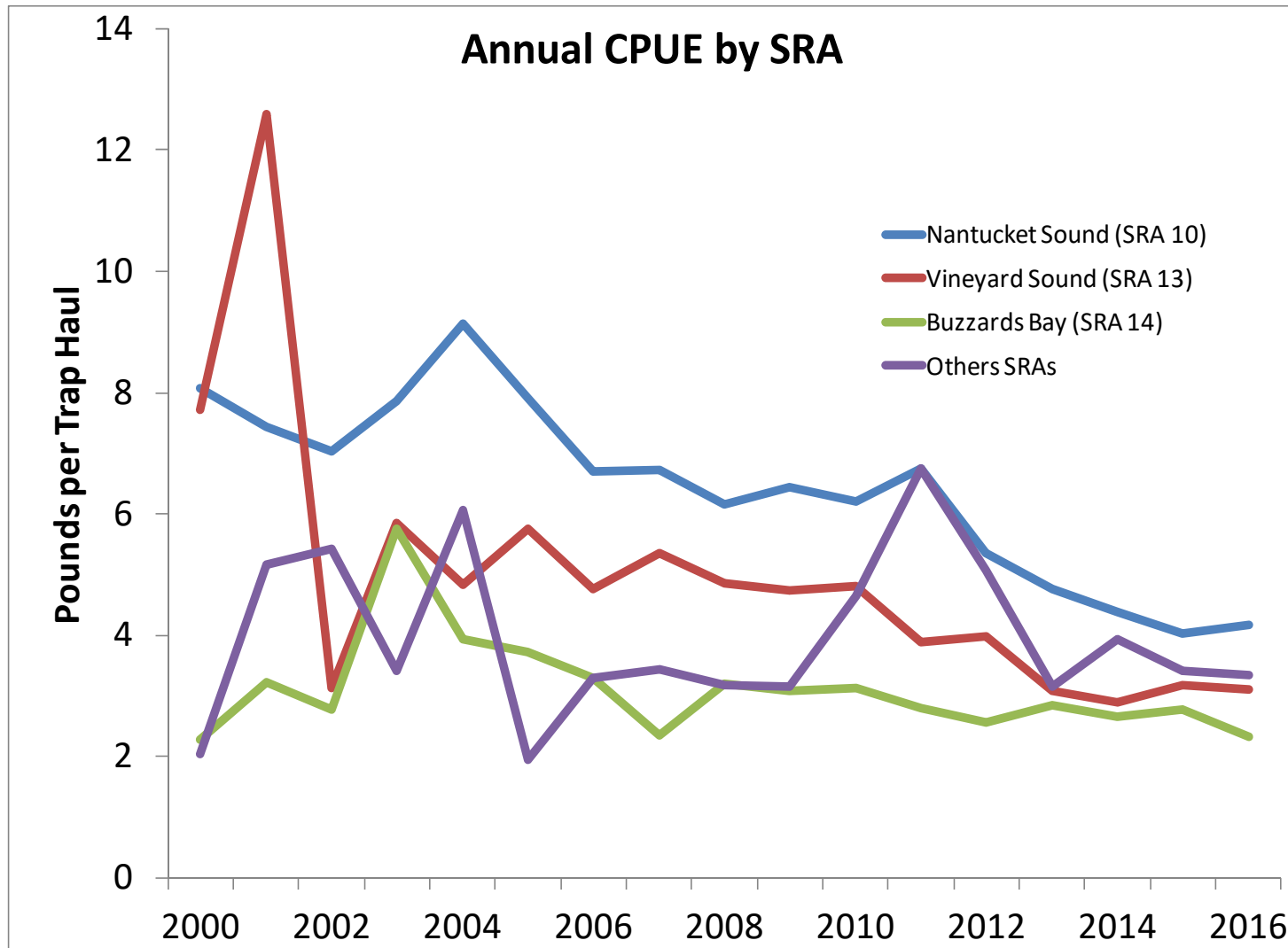
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Fishery Profile



Fishery Profile



Fishery Profile

