

Bering Sea Fisheries Research Foundation Summary of BSFRF Research

2005 - 2014

Cooperative Research
Between Government & Industry
Scott Goodman (Sep 16, 2014)



BSFRF Mission / Goal

Our mission is to work in a productive manner with fellow stakeholders, federal and state agency partners, independent researchers, and the public in ongoing collaborative scientific research.

The goal of our work is to assist in determining and developing the best scientific approach for gathering information for management of the Bering Sea fisheries. Our belief is that better research will result in better management, insuring that these fisheries will be protected and preserved while at the same time producing sustainable yields.

Research Needs & Priorities

- **Cooperative agreements – NMFS/ADF&G/BSFRF – the basis for BSFRF research activities.**
- **NMFS survey net selectivity for Bering Sea crab**
 - **Gear – crab specific survey trawls**
 - **Methods – higher sampling density/shorter tows**
- **Peer review of research**
 - **Tri-partite workshop hosted by BSFRF**
- **Crab growth studies**
 - **Spring Bering Sea pre-molt collection charters**
- **Crab handling mortality studies**
 - **Support for agency lead research during fishing seasons**
- **Implementation - research results used for management**

Research Completed to Date

- Snow crab – 2004 Seawolf survey with 83-112 tickler chain
- BBRKC – 2005 American Eagle survey with *Nephrops* trawl
- 2006 – science team expands – more involvement at CPT/SSC
- BBRKC – 2007/08 Am.Eagle full surveys with new gear package
- Generic crab model – 2009, development of model begins
- Peer workshop – 2009, tripartite workshop hosted by BSFRF
- Snow crab – 2009 Am.Eagle index/selectivity surveys
- Tanner crab – 2009/10 legal size limit research funded
- Snow crab – 2010 Am.Eagle selectivity survey, side-by-side
- Snow crab – 2010 tagging, archival tags purchased
- Snow crab – 2011 spring survey for pre-molt crab, growth study
- BBRKC – 2011 inshore Bristol Bay selectivity/index survey, year 1
- Tanner crab – 2012 spring survey for pre-molt crab, growth study
- BBRKC – 2012 inshore Bristol Bay selectivity/index survey, year 2
- Tanner crab – 2012 selectivity/index survey (east), year 1
- BBRKC – 2013 selectivity survey, side-by-side with NMFS, year 1
- BBRKC – 2013 pre-recruit survey with two charter vessels, year 1

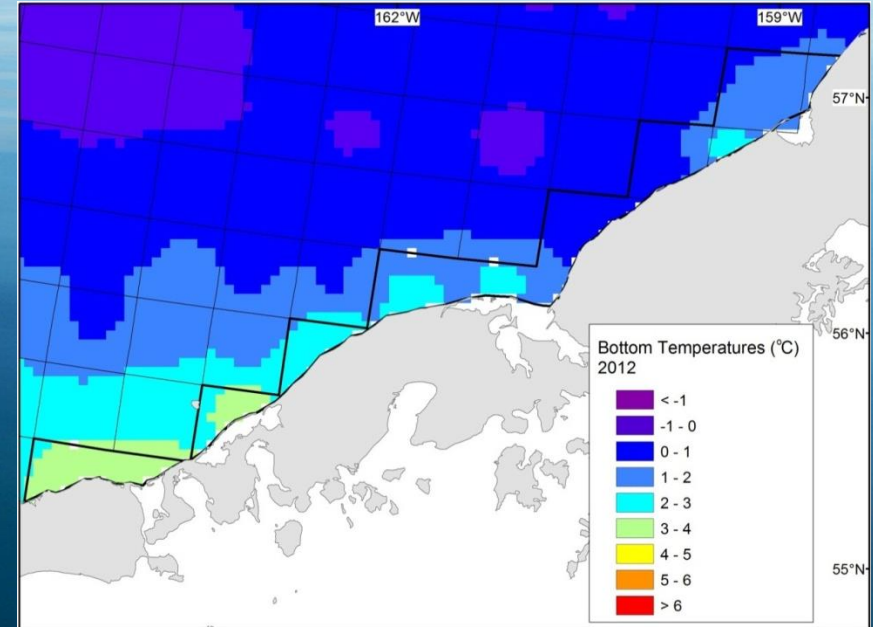
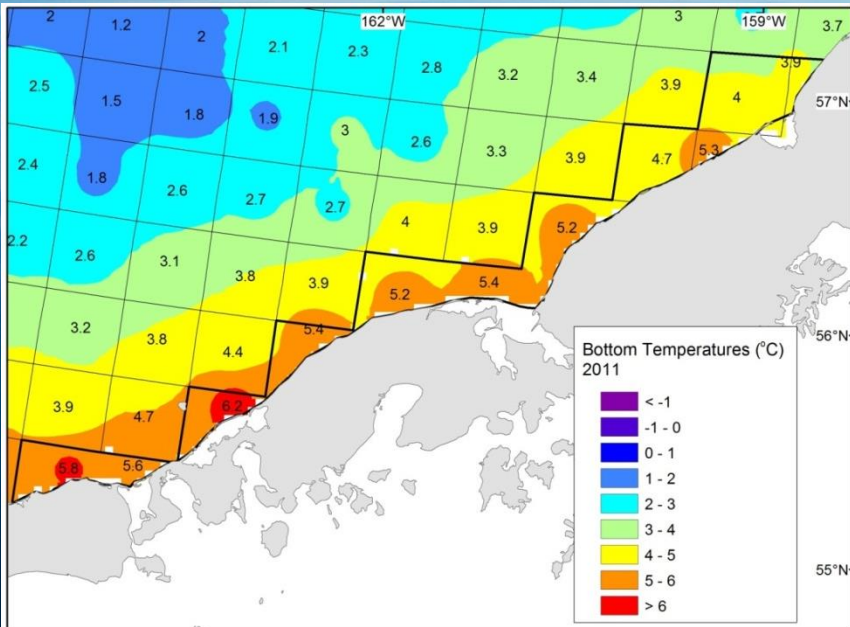
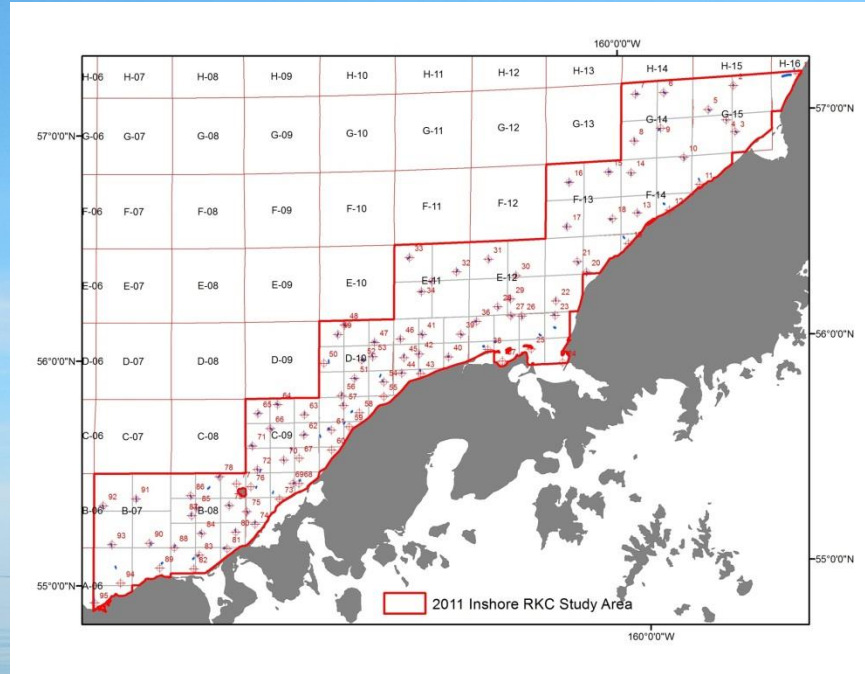
Inshore Bristol Bay Red King Crab Surveys, 2011-12

- Uncertainty about BBRKC distribution and densities in inshore survey area
- BSFRF chartered *F/V American Eagle* 2011 and *Half Moon Bay* in 2012
- 2011 results were influenced by warmer inshore area during cold year
- 2012 results showed higher densities in inshore area in more severe cold year
- Results from two years together was intended to support extension of standard survey into nearshore area in cold years to address cold year inshore distribution



- Results suggested RKC and other crab selectivity may be temperature dependent

Inshore Bristol Bay Red King Crab Surveys, 2011-12



Inshore Bristol Bay Red King Crab Surveys, 2011-12

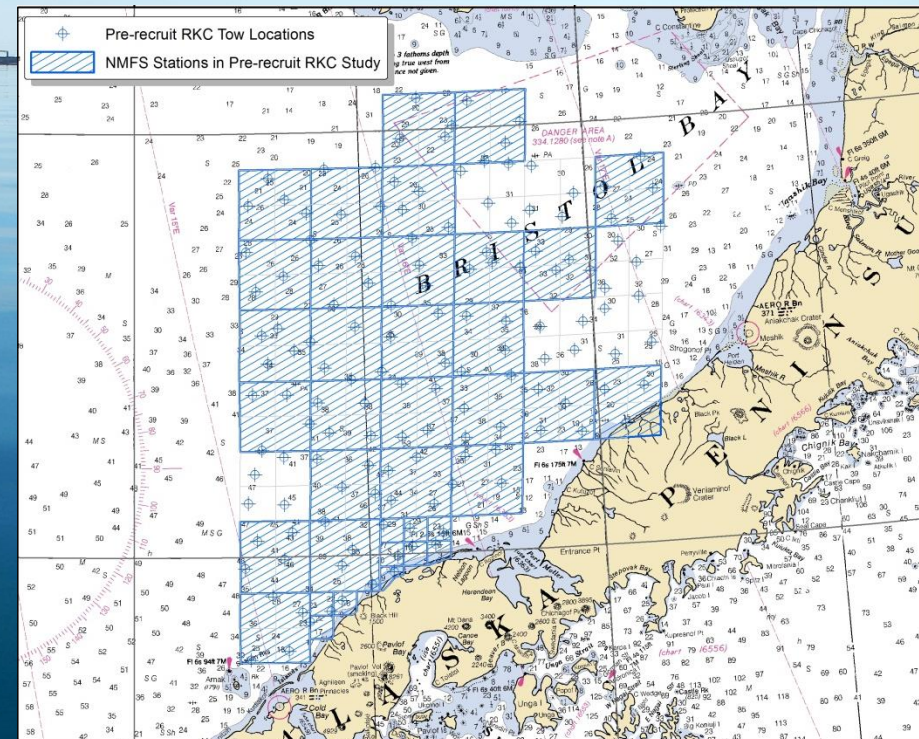
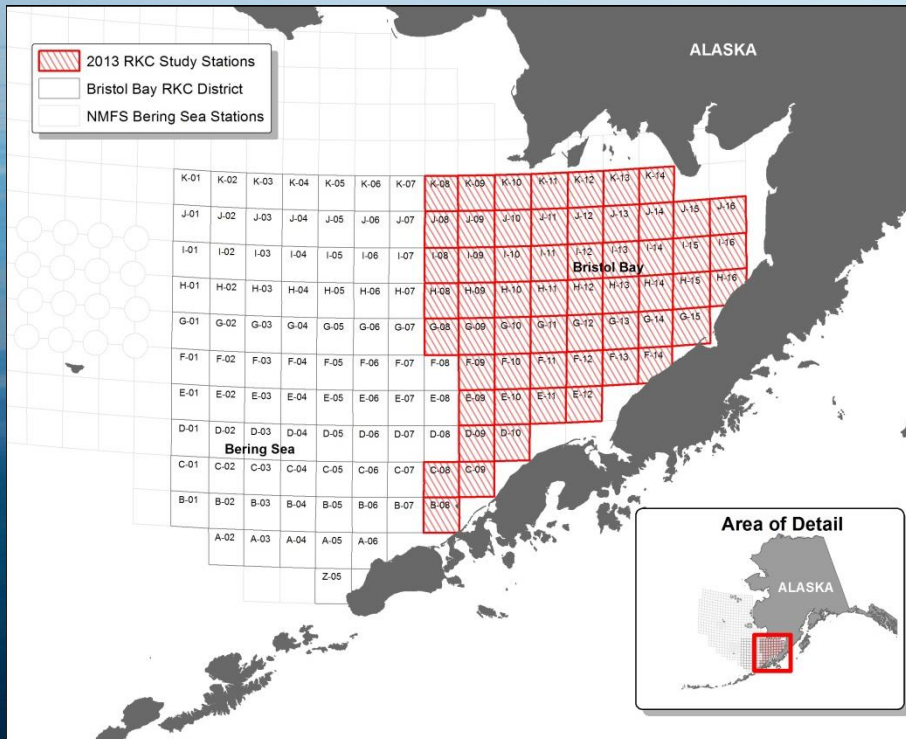
RKC Size Sex	2011 - Abundance (millions)				2012 - Abundance (millions)			
	BSFRF		NMFS		BSFRF		NMFS	
	Pt. Est.	±95% CI	Pt. Est.	±95% CI	Pt. Est.	±95% CI	Pt. Est.	±95% CI
Large Males	5.789	52.7%	1.122	69.9%	7.609	38.2%	4.010	72.0%
Mature Males	6.910	49.8%	2.001	62.8%	9.534	32.9%	5.479	61.2%
Mature Females	7.403	35.8%	4.174	69.5%	18.168	45.3%	12.119	90.2%



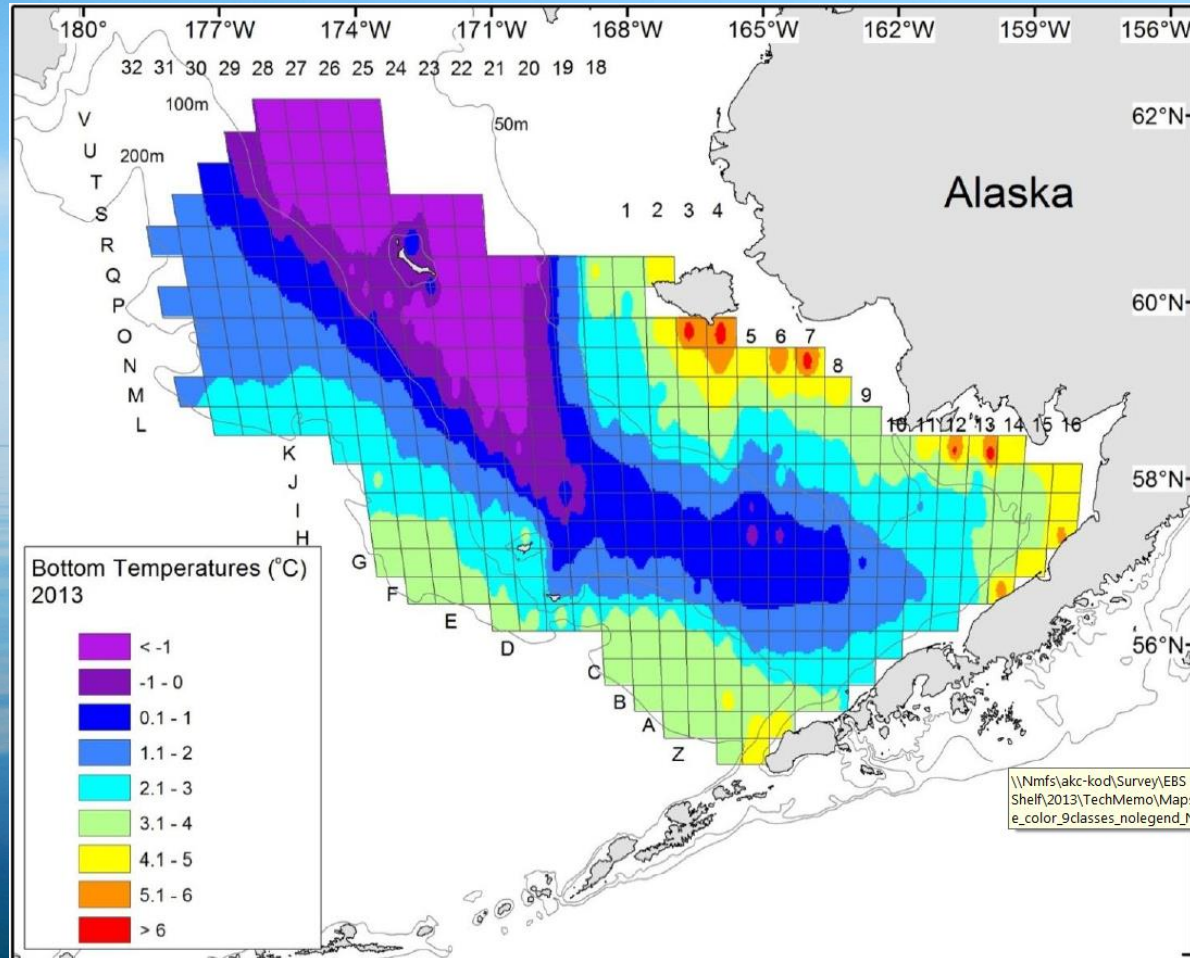
2013-14 Bristol Bay Red King Crab Research

2 Surveys for Selectivity & Pre-recruit Abundance & Distribution

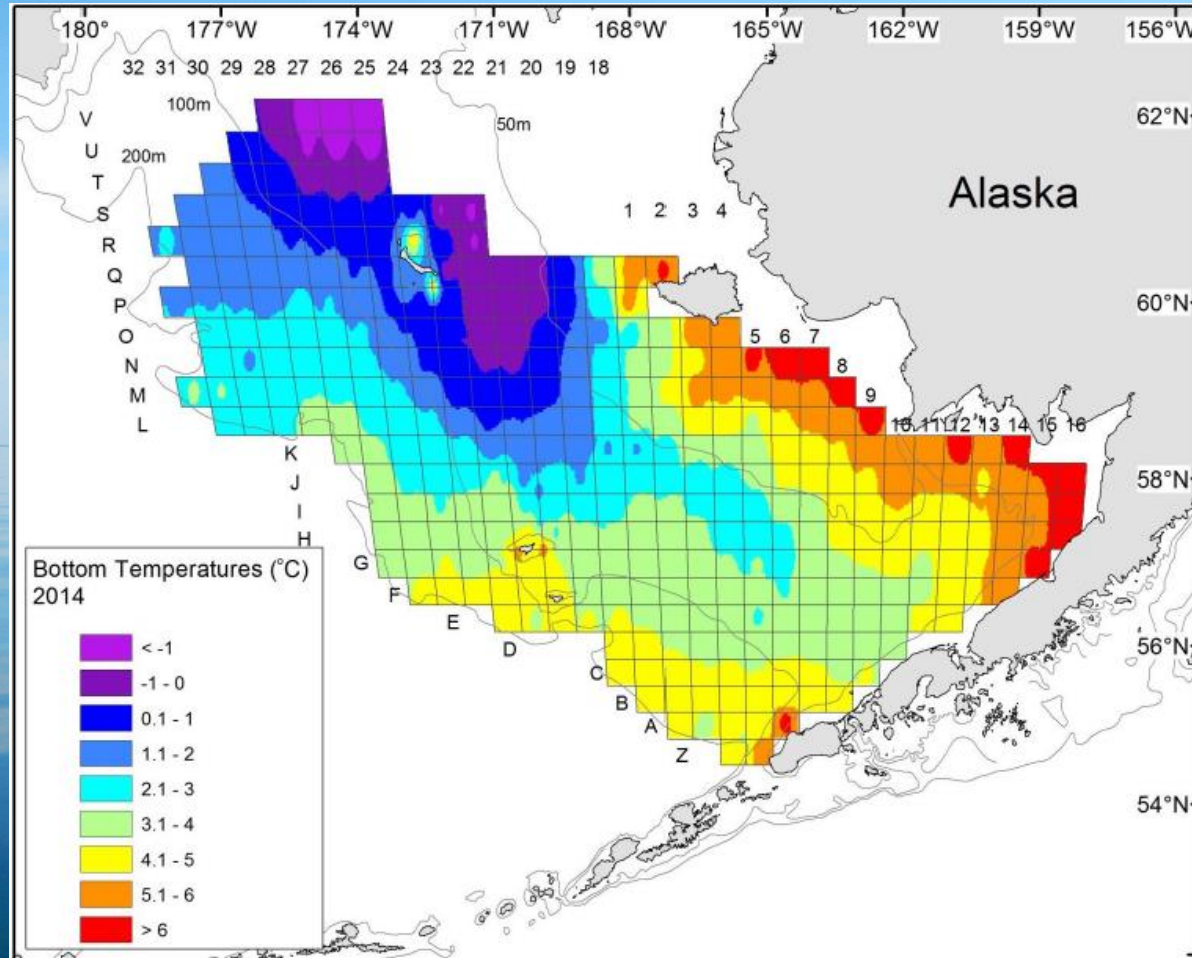
- Multi-year plans 2013, 2014 and beyond
- Quantify efficiency of NMFS trawl for BBRKC
- BBRKC pre-recruit survey



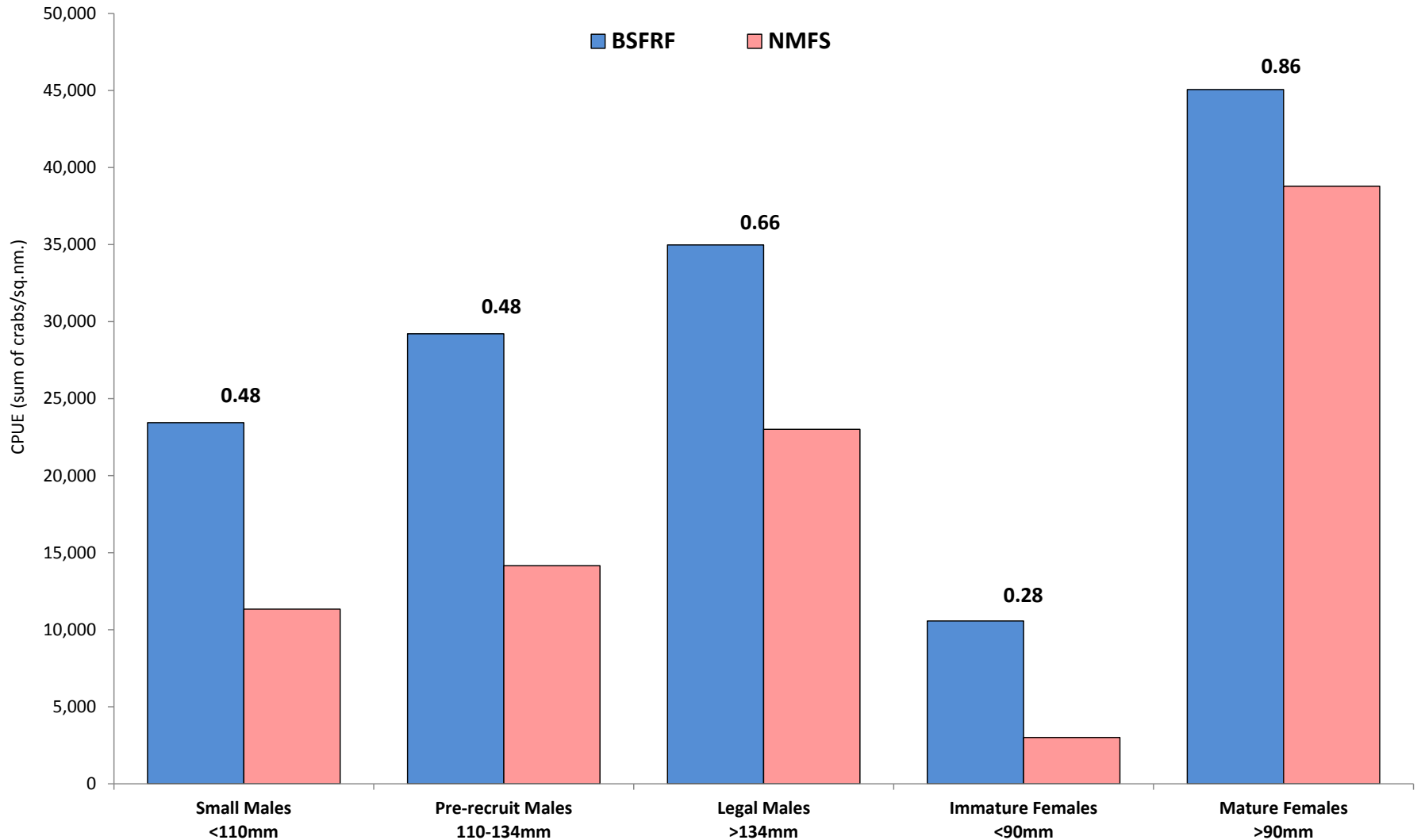
2013 Bristol Bay Red King Crab Research



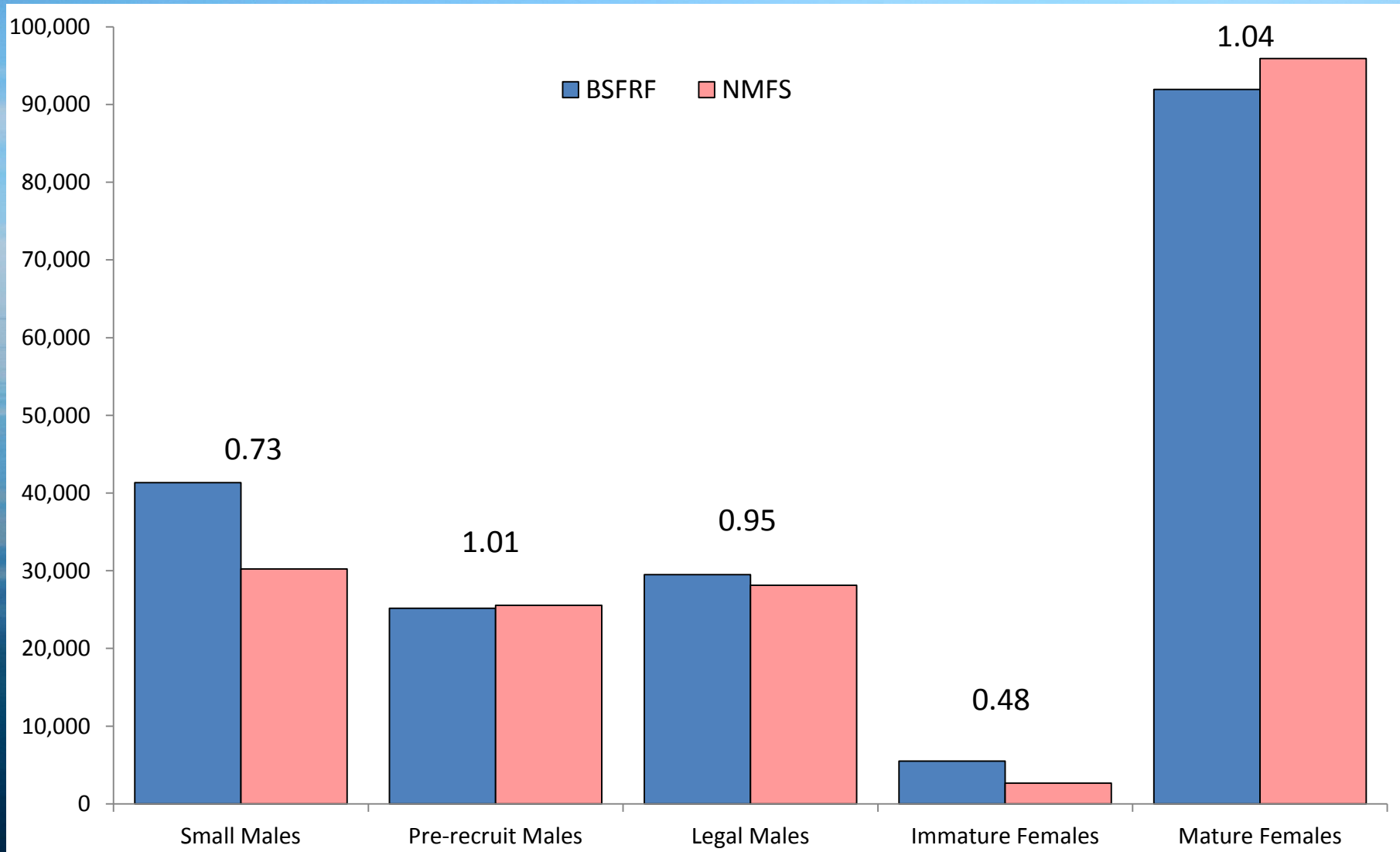
2014 Bristol Bay Red King Crab Research



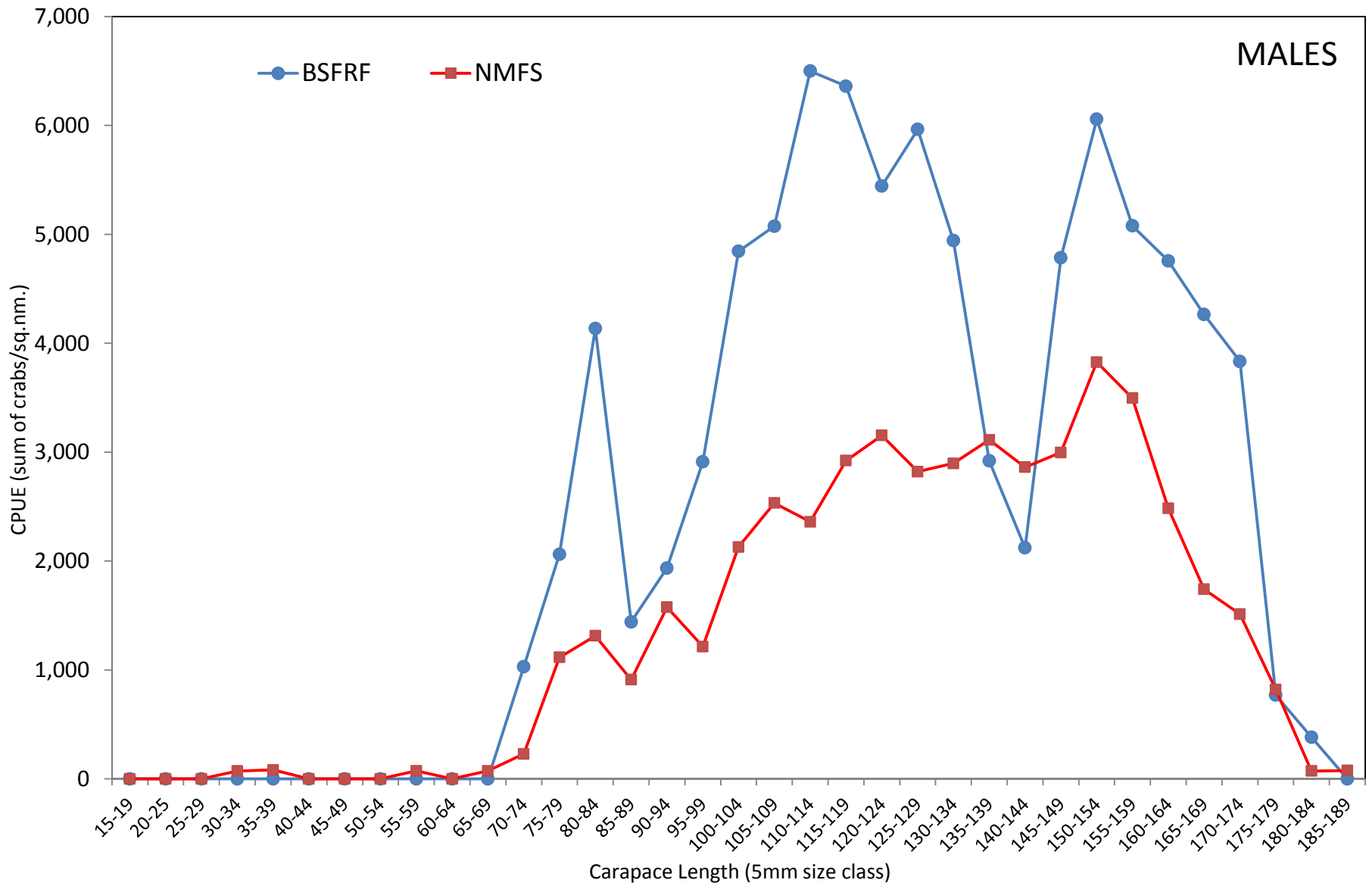
2013 Bristol Bay Red King Crab Selectivity Survey



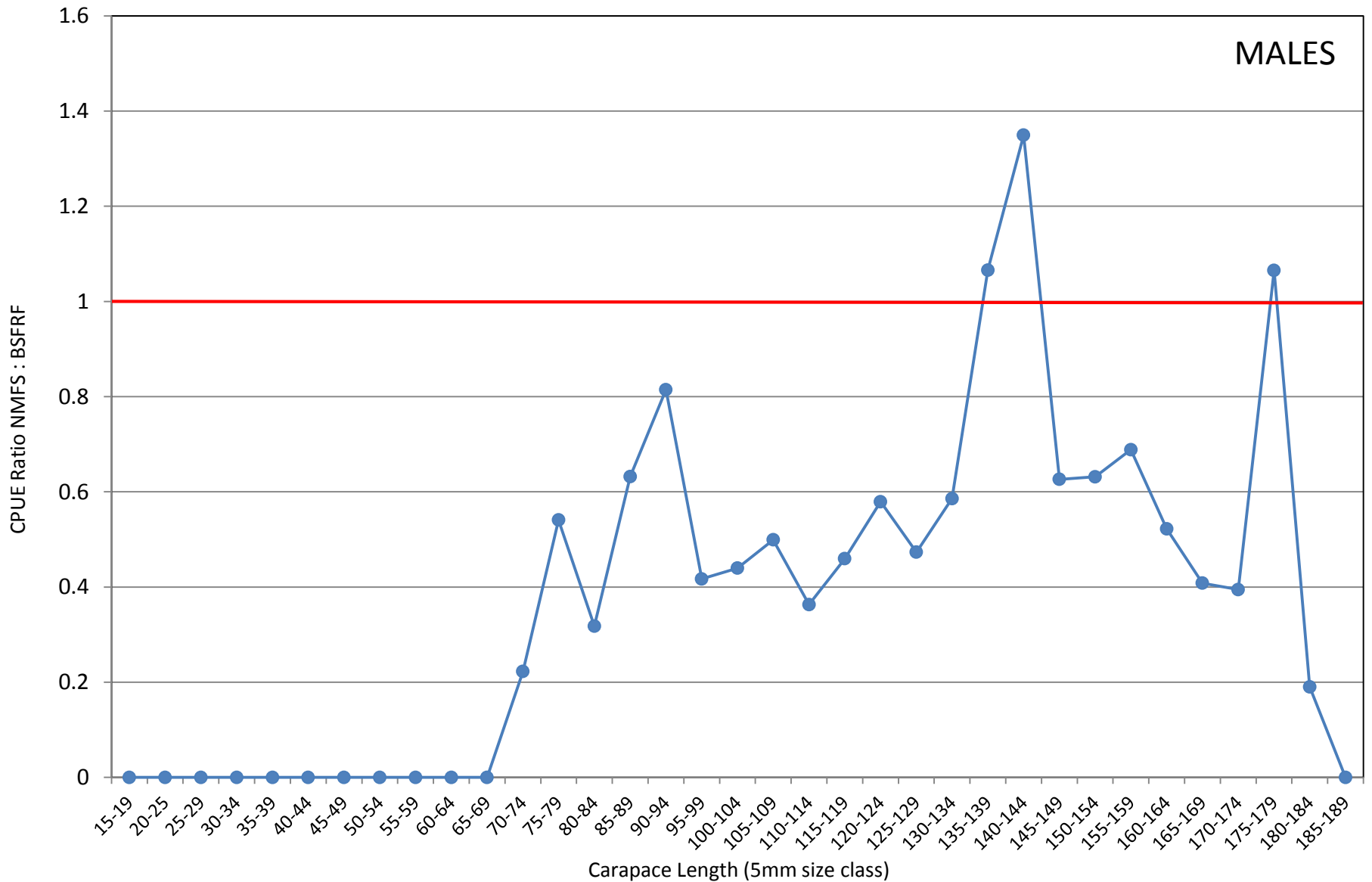
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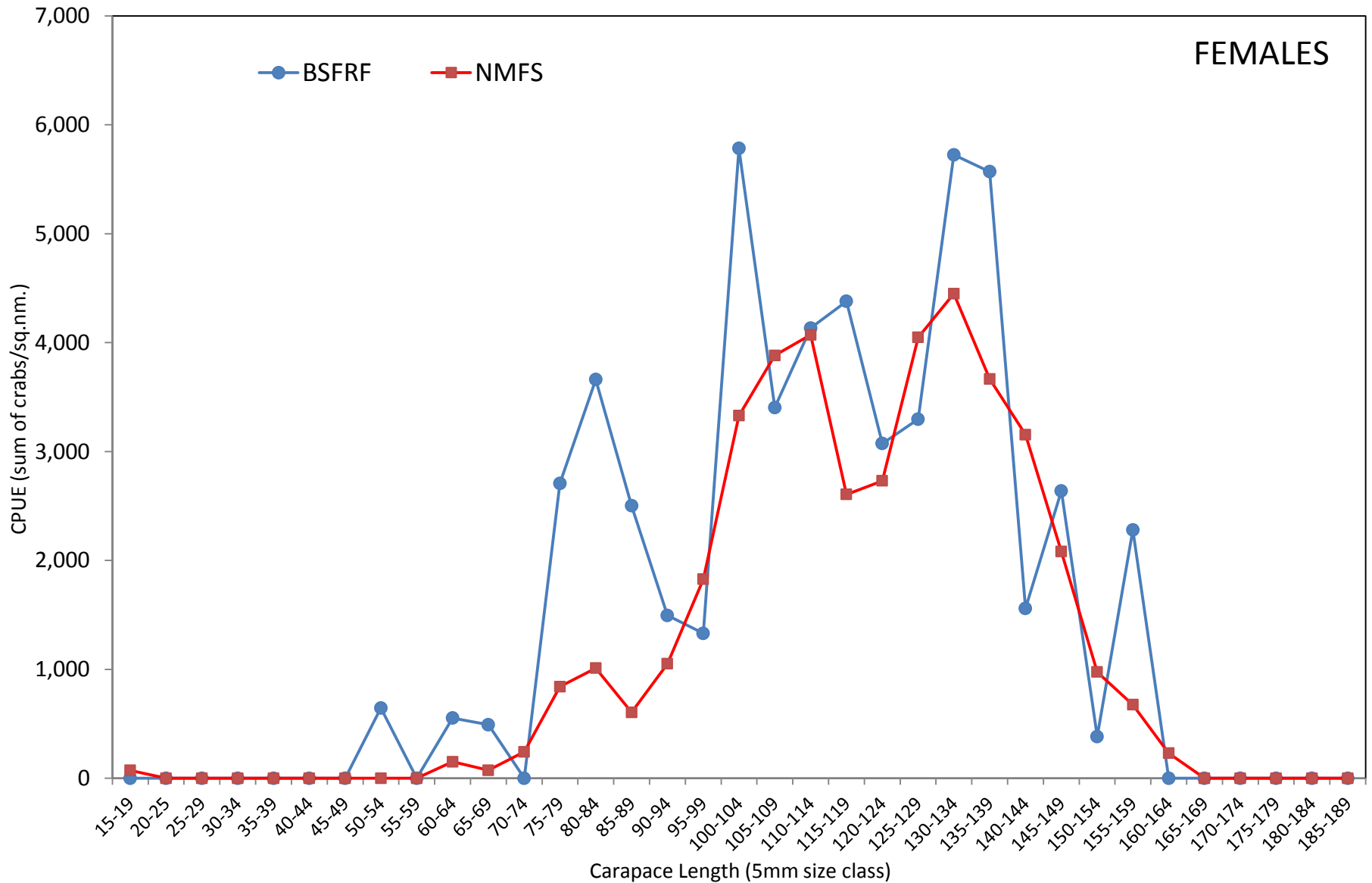
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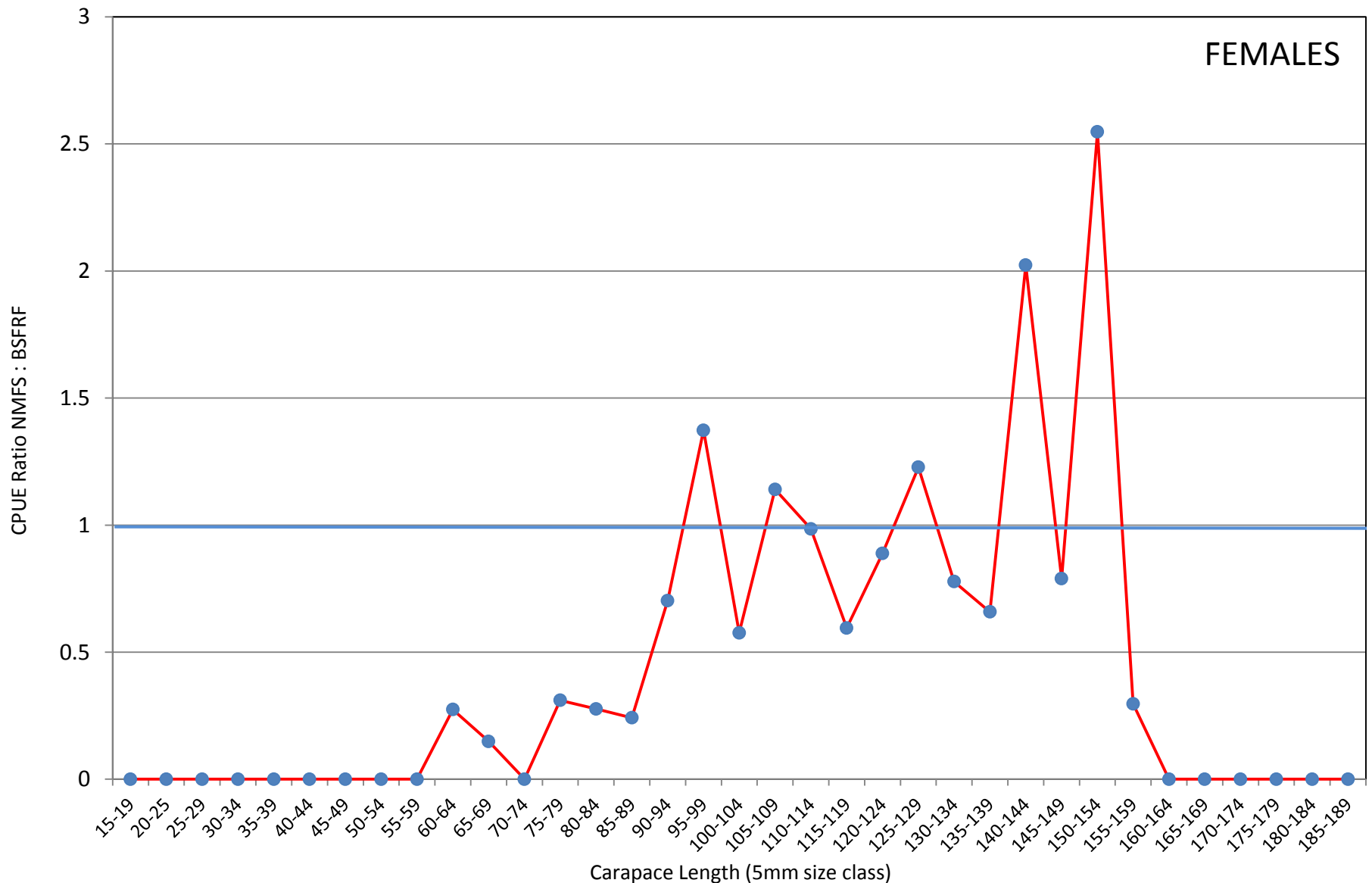
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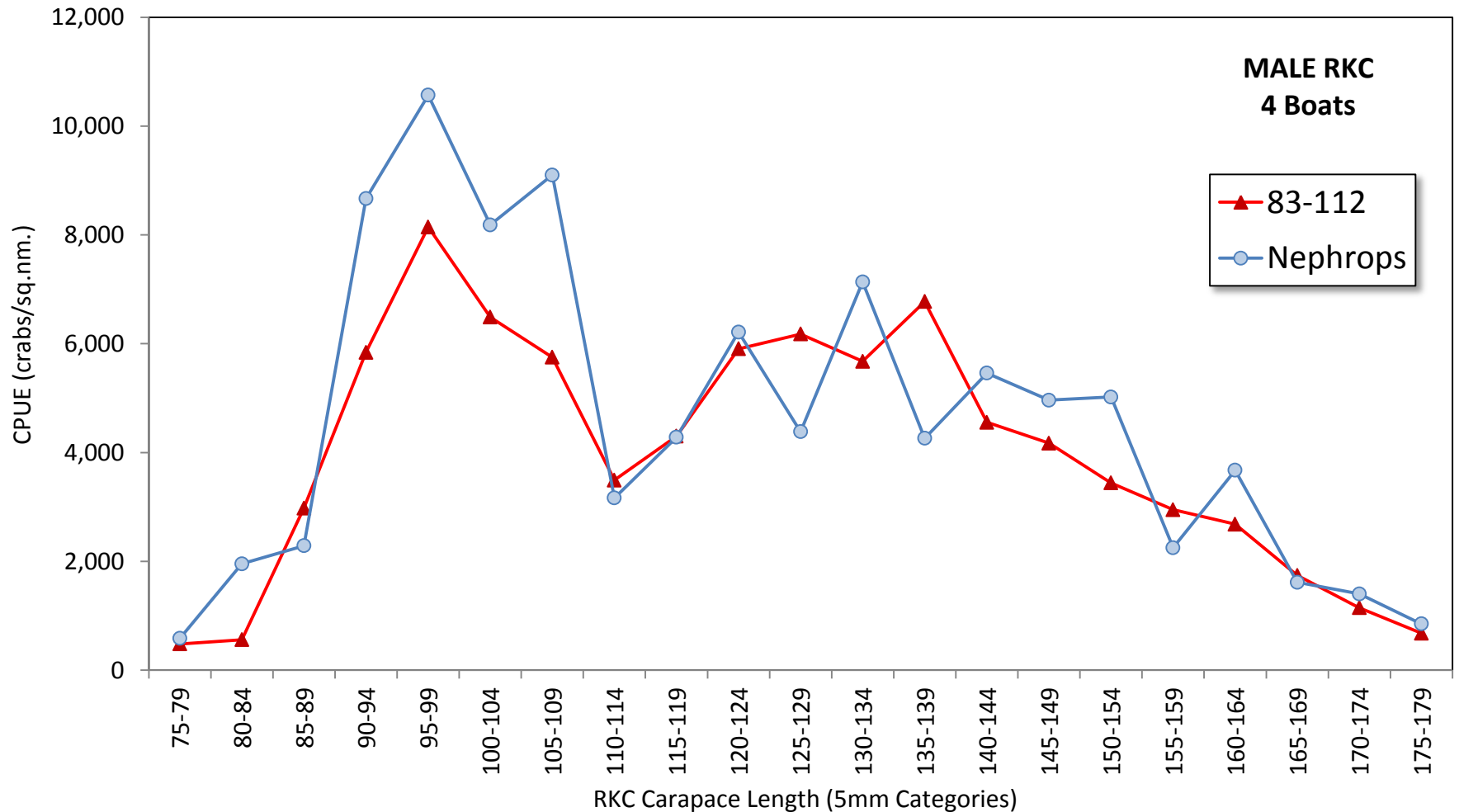
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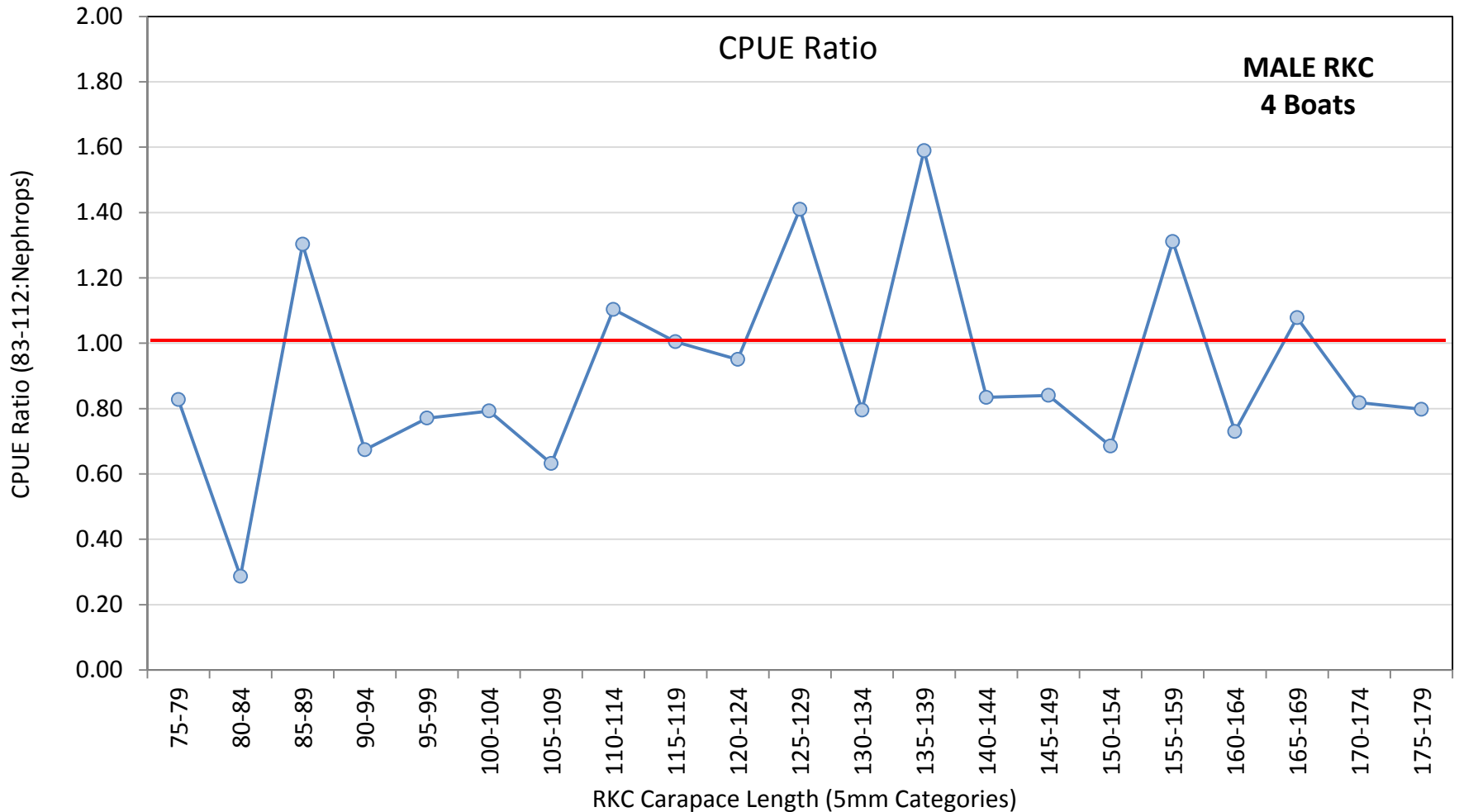
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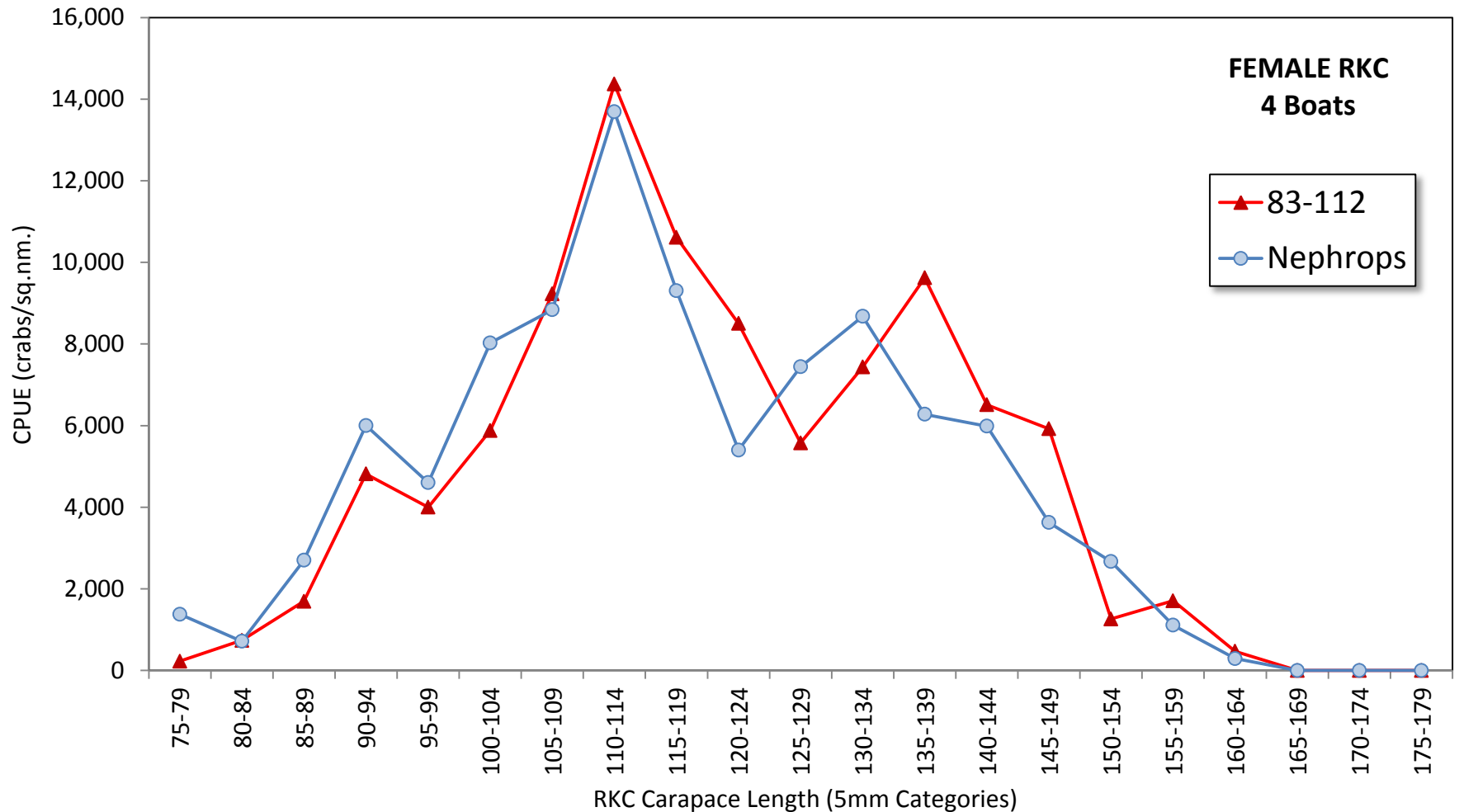
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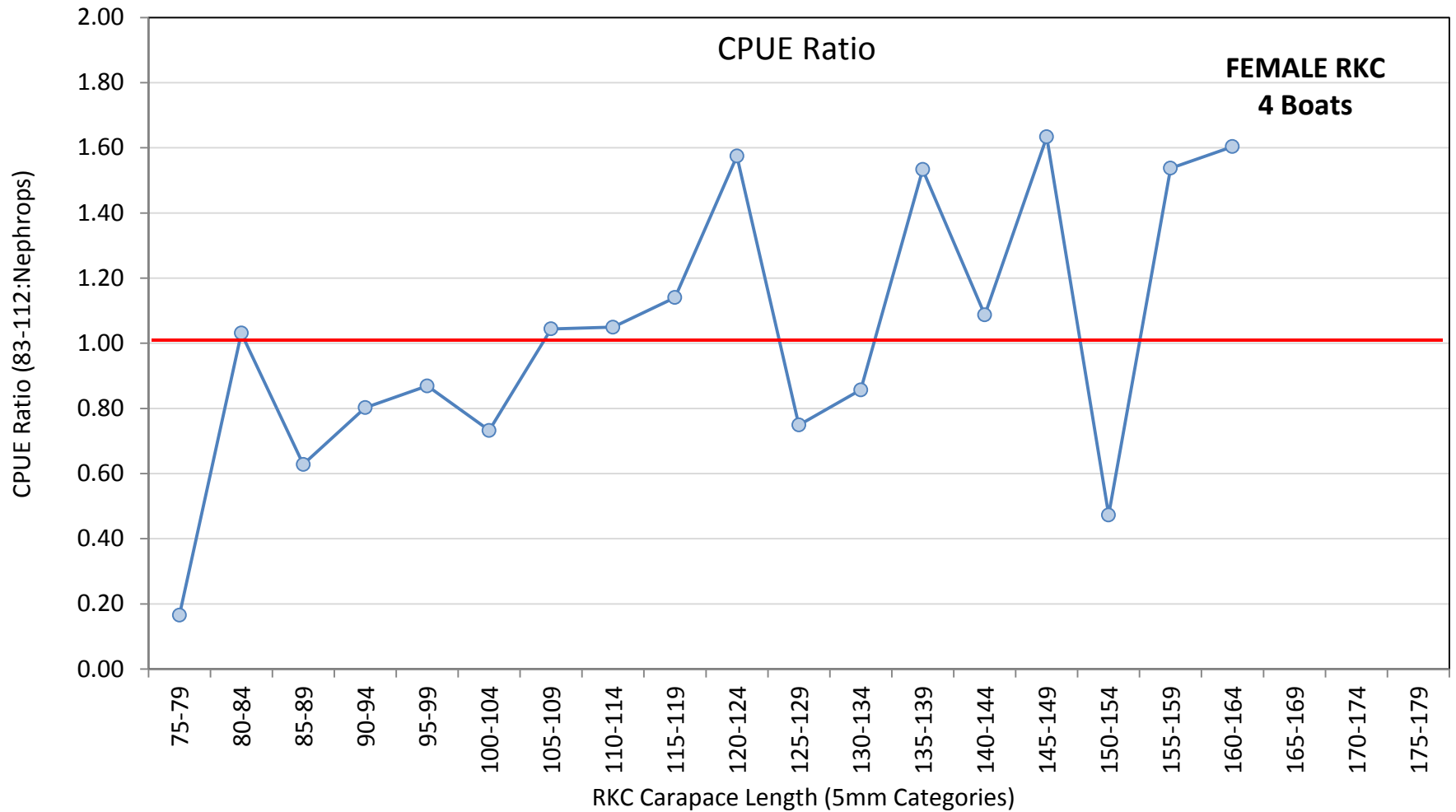
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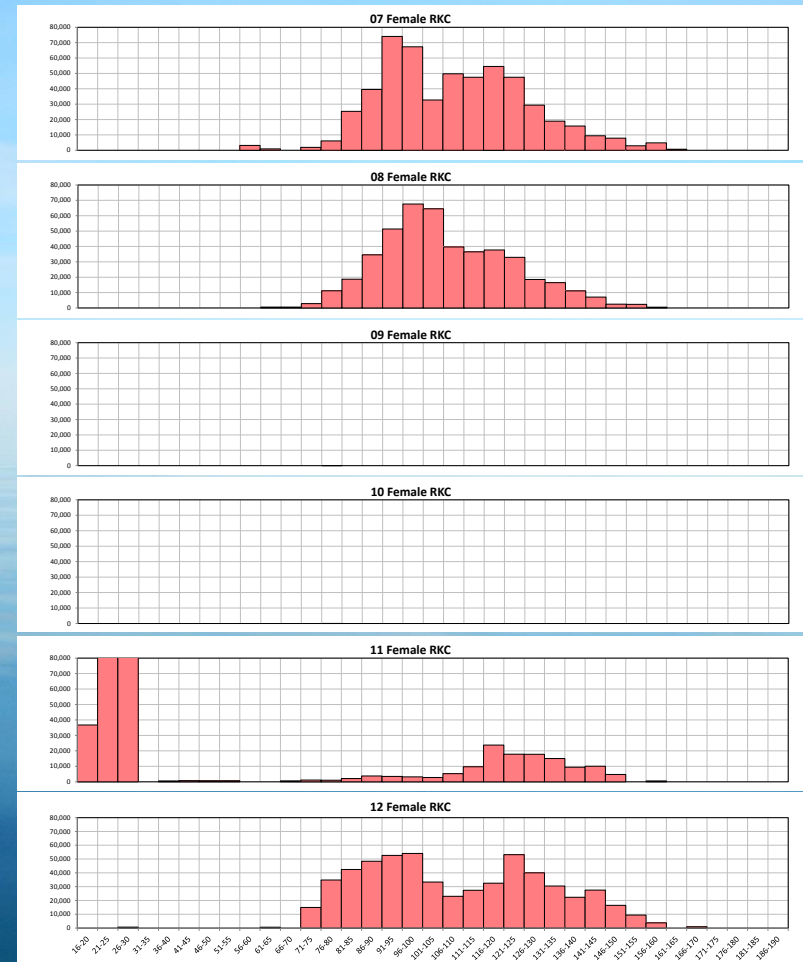
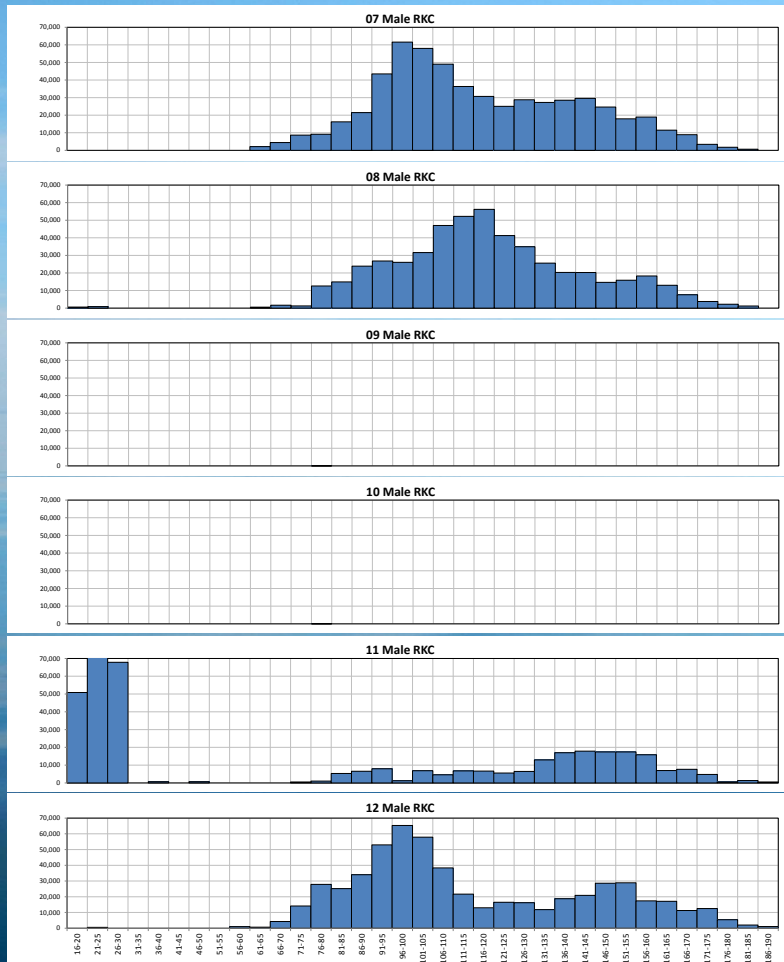
2014 Bristol Bay Red King Crab Selectivity Survey



2014 Bristol Bay Red King Crab Selectivity Survey



2014 Bristol Bay Red King Crab Pre-recruit Survey



2013 Bristol Bay Red King Crab Pre-recruit Survey

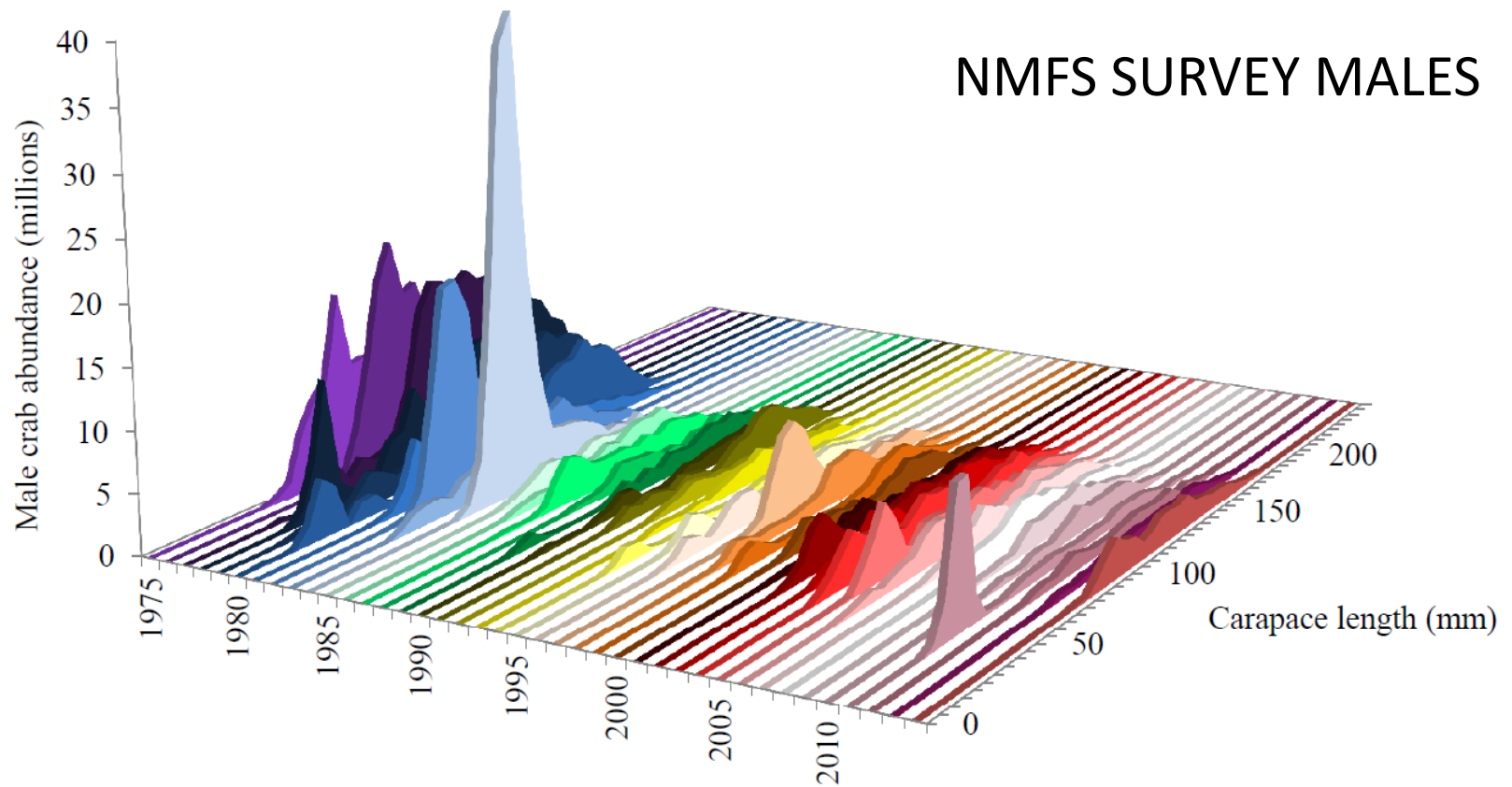


Figure 21. Historical size frequency by 5 mm length classes of Bristol Bay District male red king crab (*Paralithodes camtschaticus*), 1975 to 2014.

2013 Bristol Bay Red King Crab Pre-recruit Survey

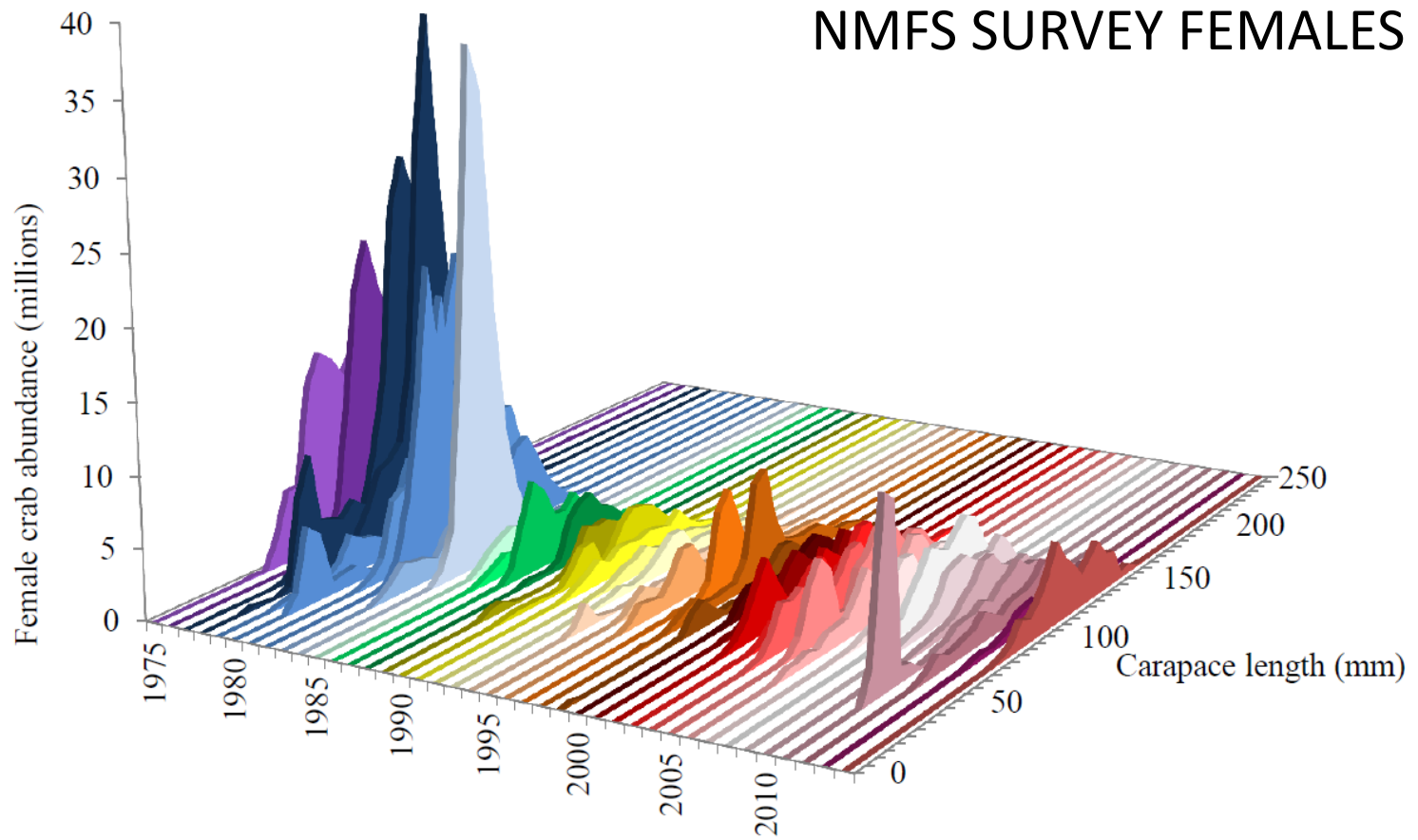
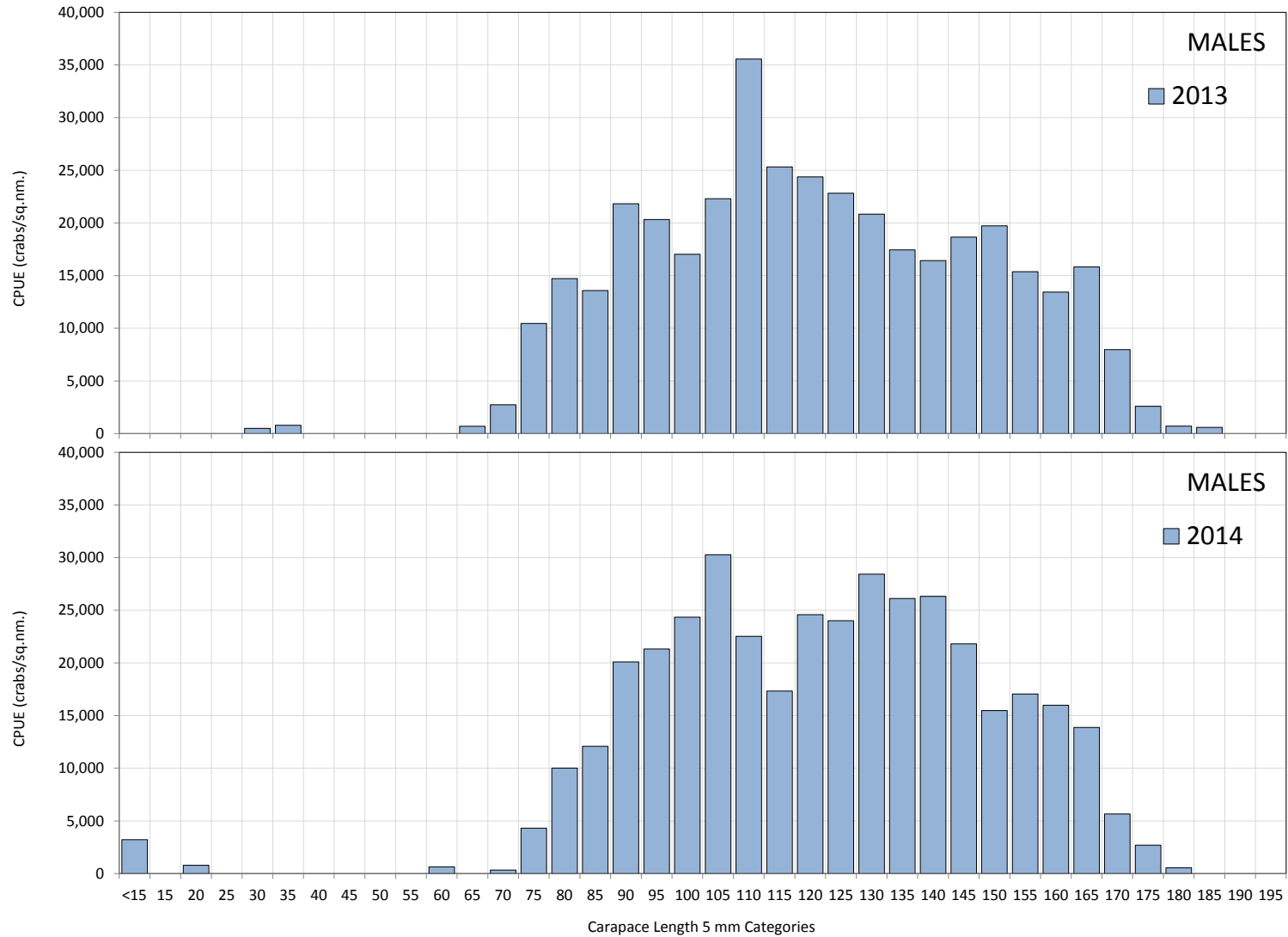
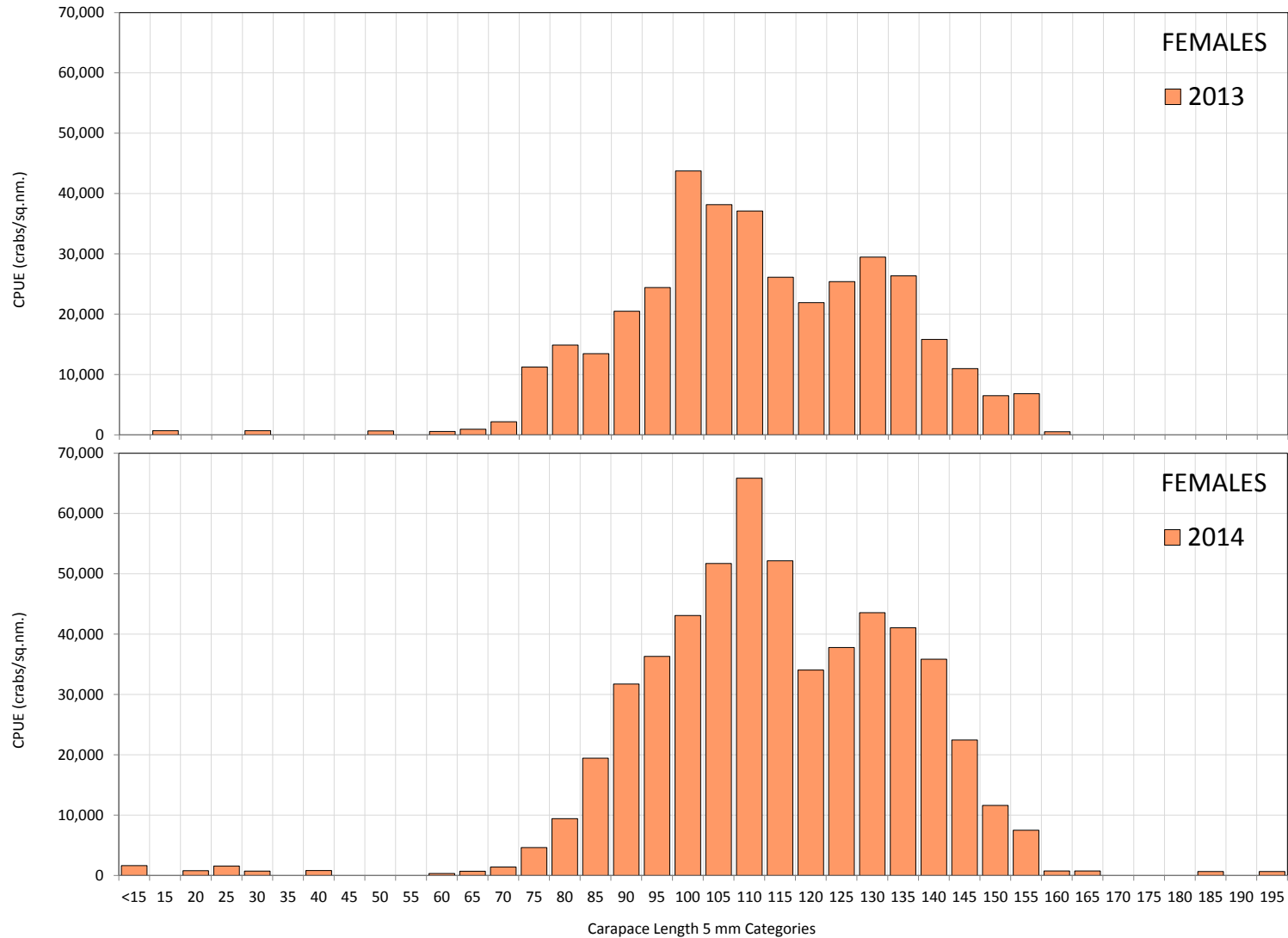


Figure 22. Historical size frequency by 5 mm length classes of Bristol Bay District female red king crab (*Paralithodes camtschaticus*), 1975 to 2014.

2013-14 BBRKC Pre-recruit Survey - LF



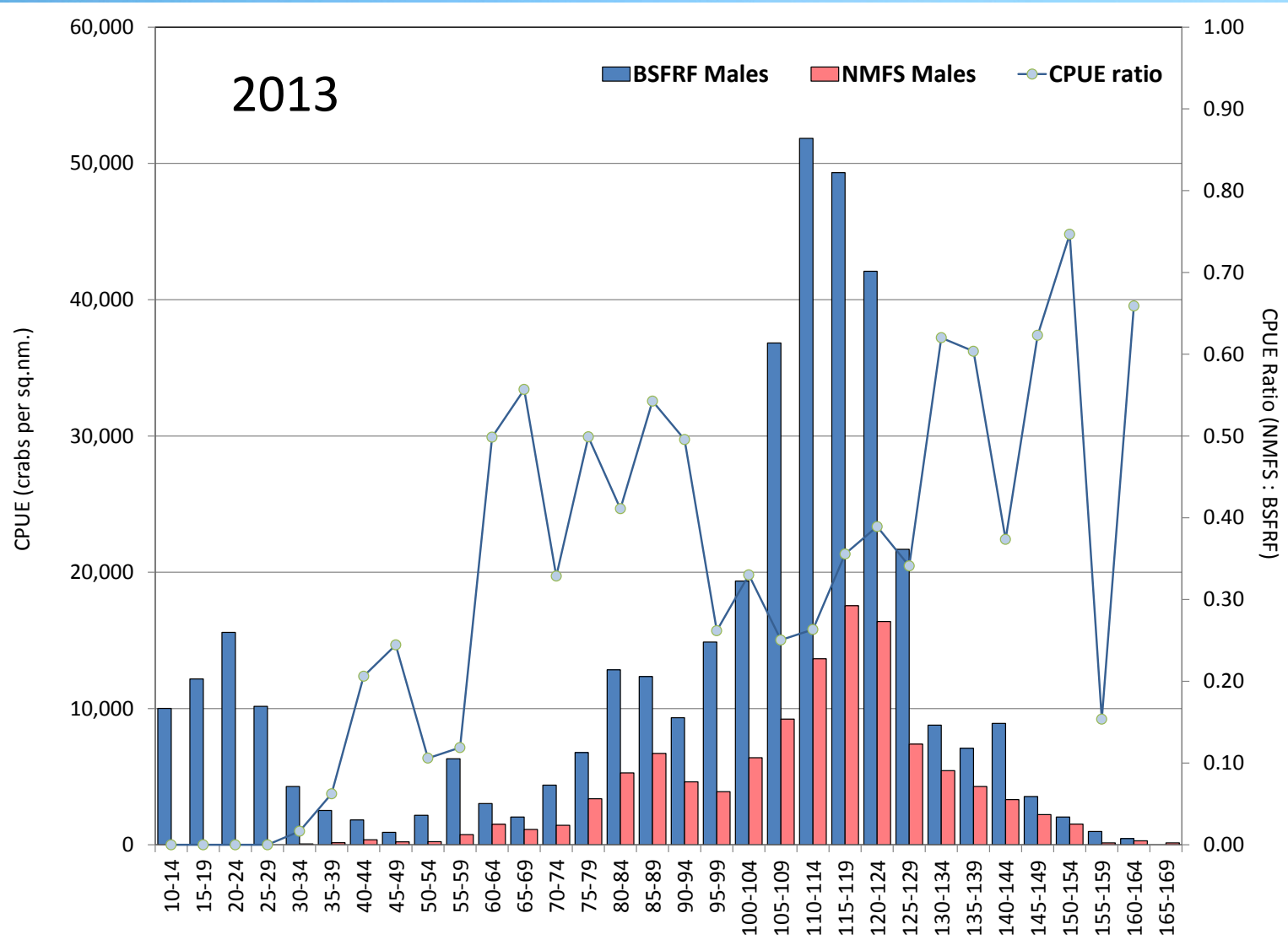
2013-14 BBRKC Pre-recruit Survey - LF



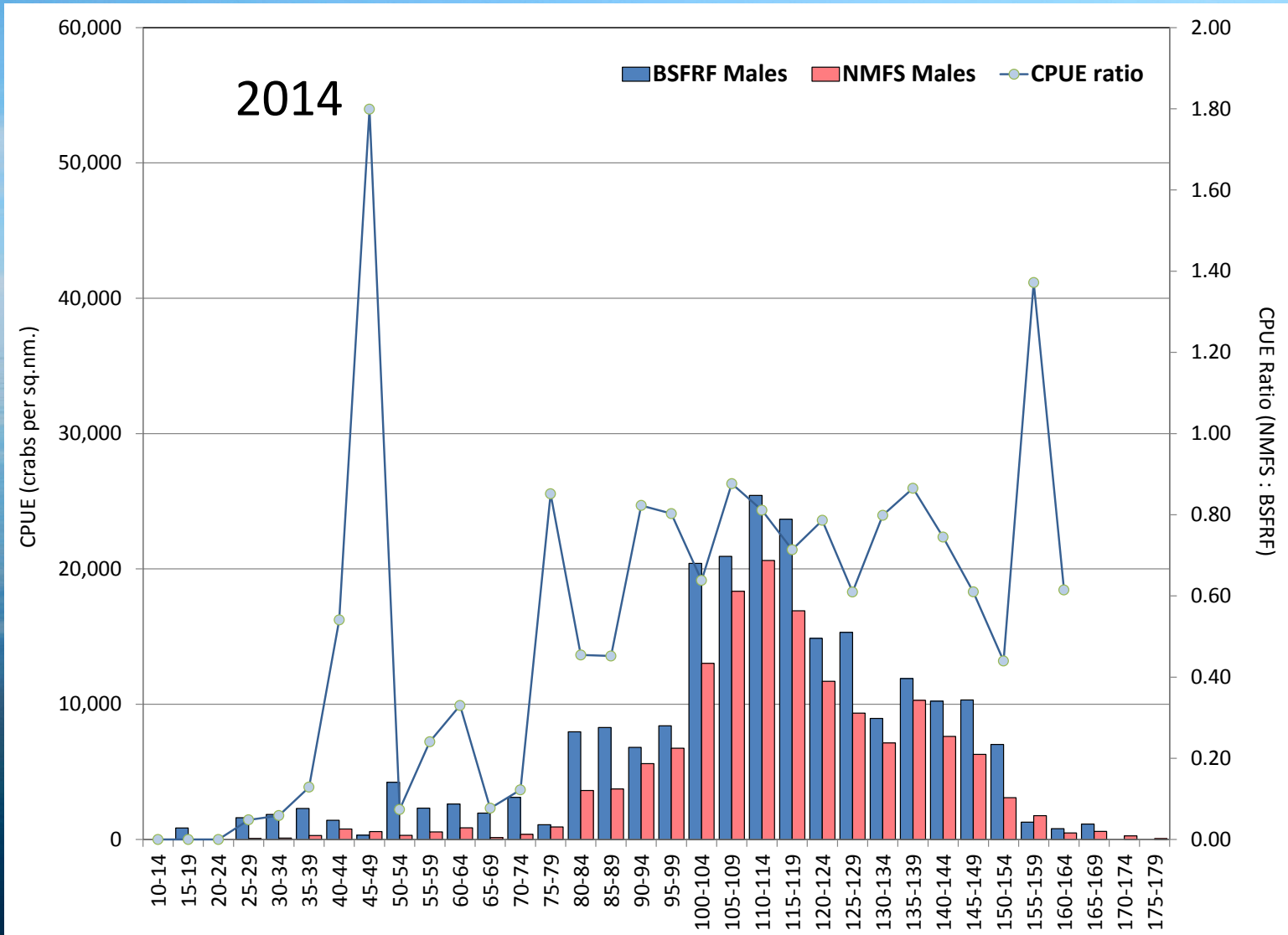
2013-14 Tanner Crab Selectivity (collected during RKC surveys)



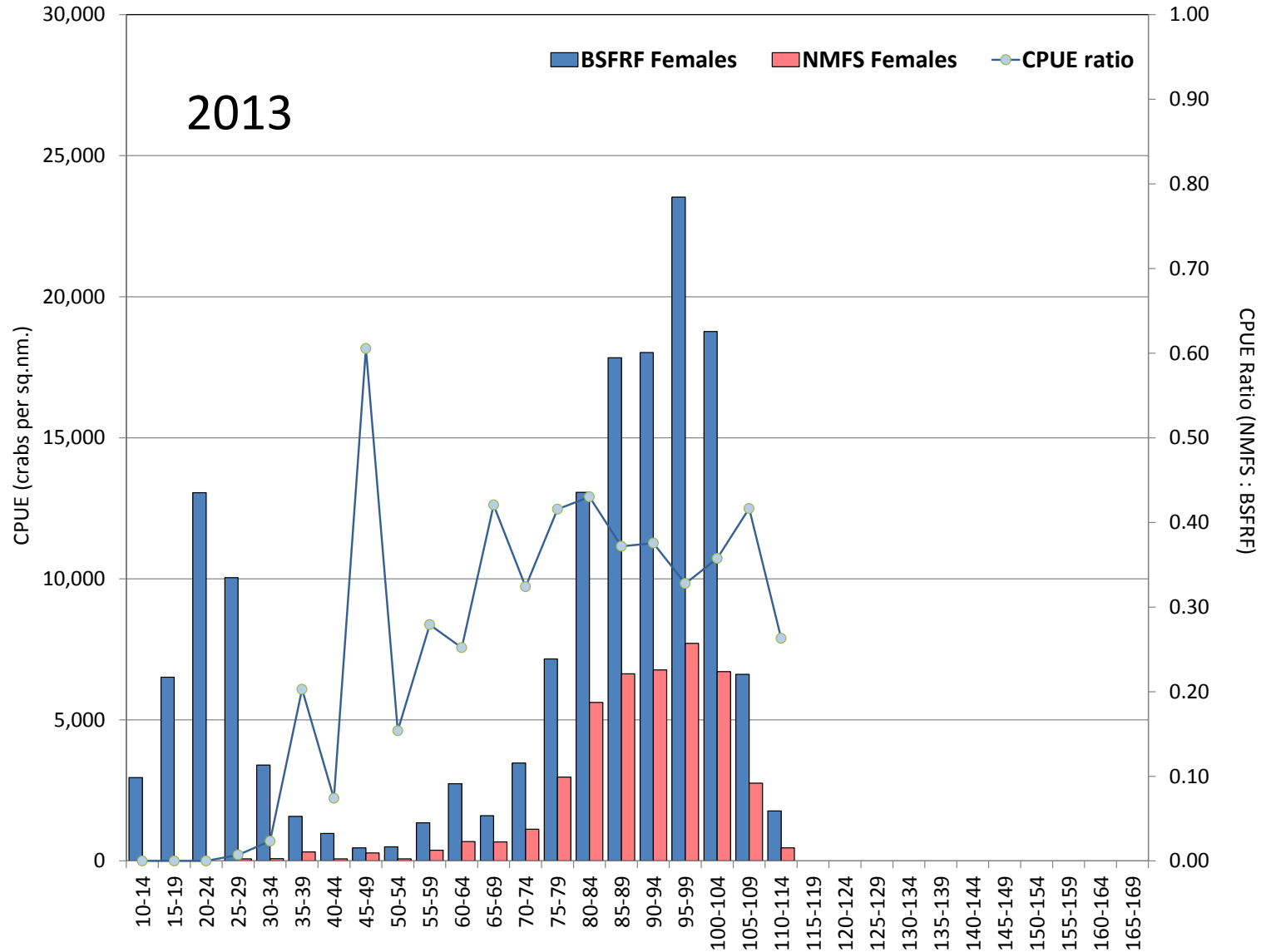
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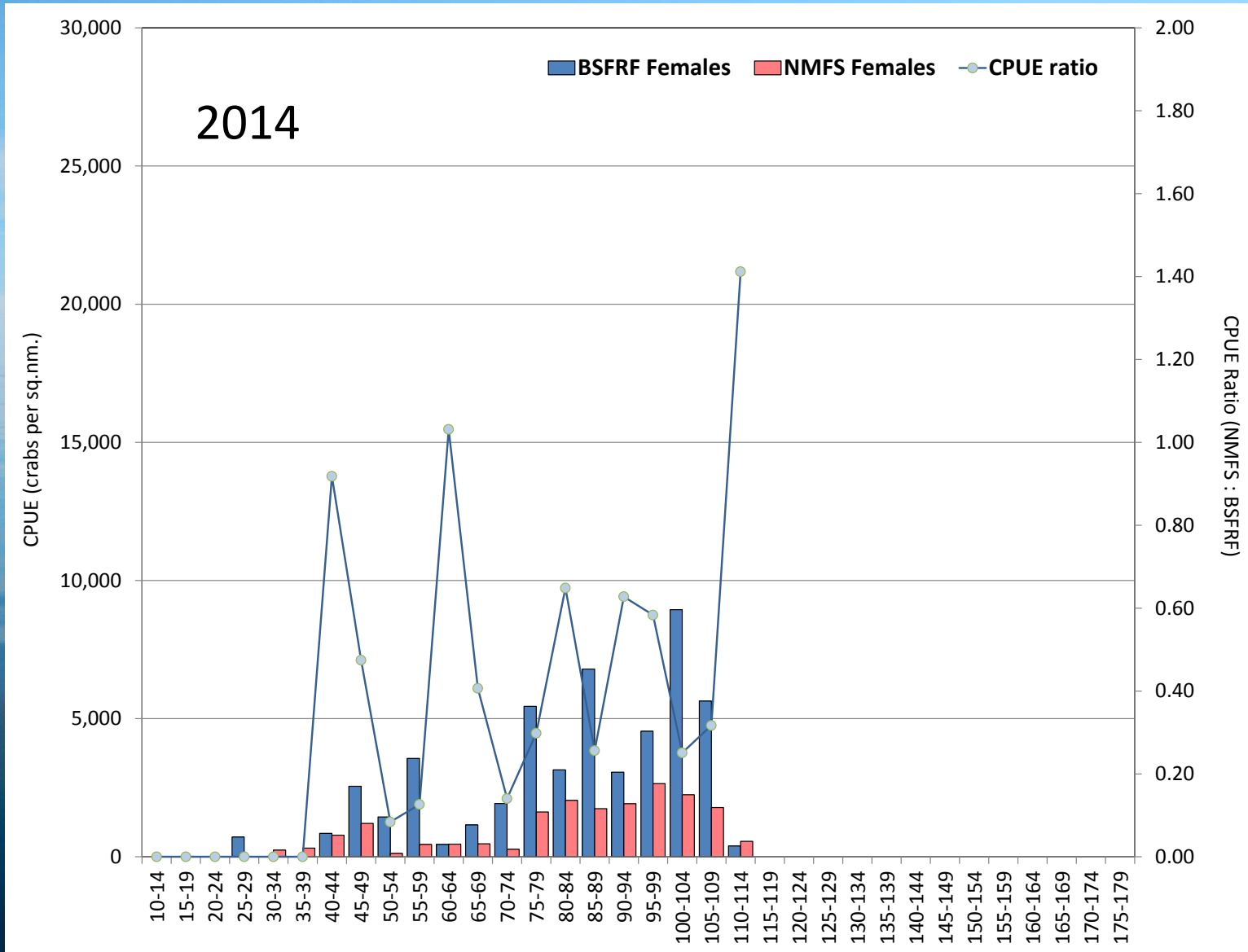
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