

Can a Buyback Program Succeed in the EPO Tuna Fishery

A presentation by Marcus Hartley
President, Northern Economics, Inc.

July 18, 2018



Introduction

- The original project was funded by the World Bank under Agreement #TF018235 in a study directed by the World Wildlife Fund (WWF)
- Northern Economics, Inc. (NEI) of Anchorage Alaska, U.S.A. was the primary consultant
- Marcus L. Hartley, President of NEI is the principal investigator
- Dr. Sanitago Bucaram (now with Inter-American Development Bank) was the Technical Advisor
- Ideas and opinions presented here are Mr. Hartley's and do not necessarily represent the policies of the World Bank, the World Wildlife Fund, or the Inter-American Tropical Tuna Commission.



Alternatives to Address Excess Capacity in the Eastern Pacific Purse Seine Tuna Fishery

Final Report

April 2018

Outline of Presentation

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- Existing Conditions in the Fishery

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- Assessment of Outcomes Under a Vessel Buyback

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- Assessment of Outcomes Under a Vessel Buyback
- Optimization of the Vessel Buyback

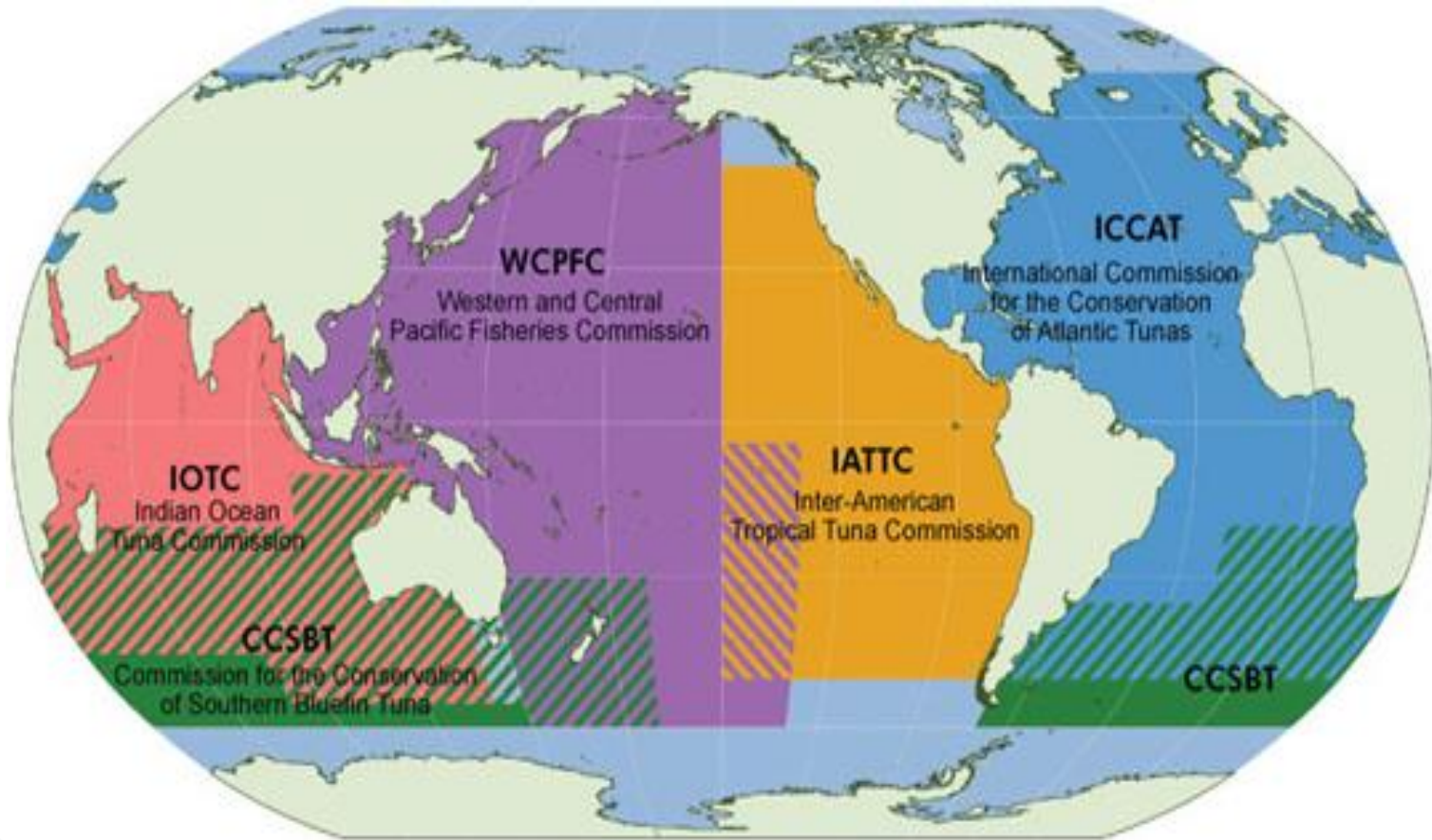
The EPO Purse Seine Fishery

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The EPO Purse Seine Fishery

- Managed by the Inter-American Tropical Tuna Commission (IATTC)

IATTC and other Regional Fishery Management Organization (RFMOs)



The Fishery

- The purse seine fishery by the Inter-American
- Characterized as high
- Too many vessels
- Data and Definitions
- Existing Conditions
- Estimated Costs of
- Assessment of a V

The EPO Purse Seine Fishery

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- IATTC operates on a consensus basis with 21 member states.

IATTC Member States

IATTC Member States (21)

Belize	Canada	China
Chinese Taipei	Colombia	Costa Rica
Ecuador	El Salvador	European Union
France	Guatemala	Japan
Kiribati	Korea	Mexico
Nicaragua	Panama	Peru
United States	Vanuatu	Venezuela

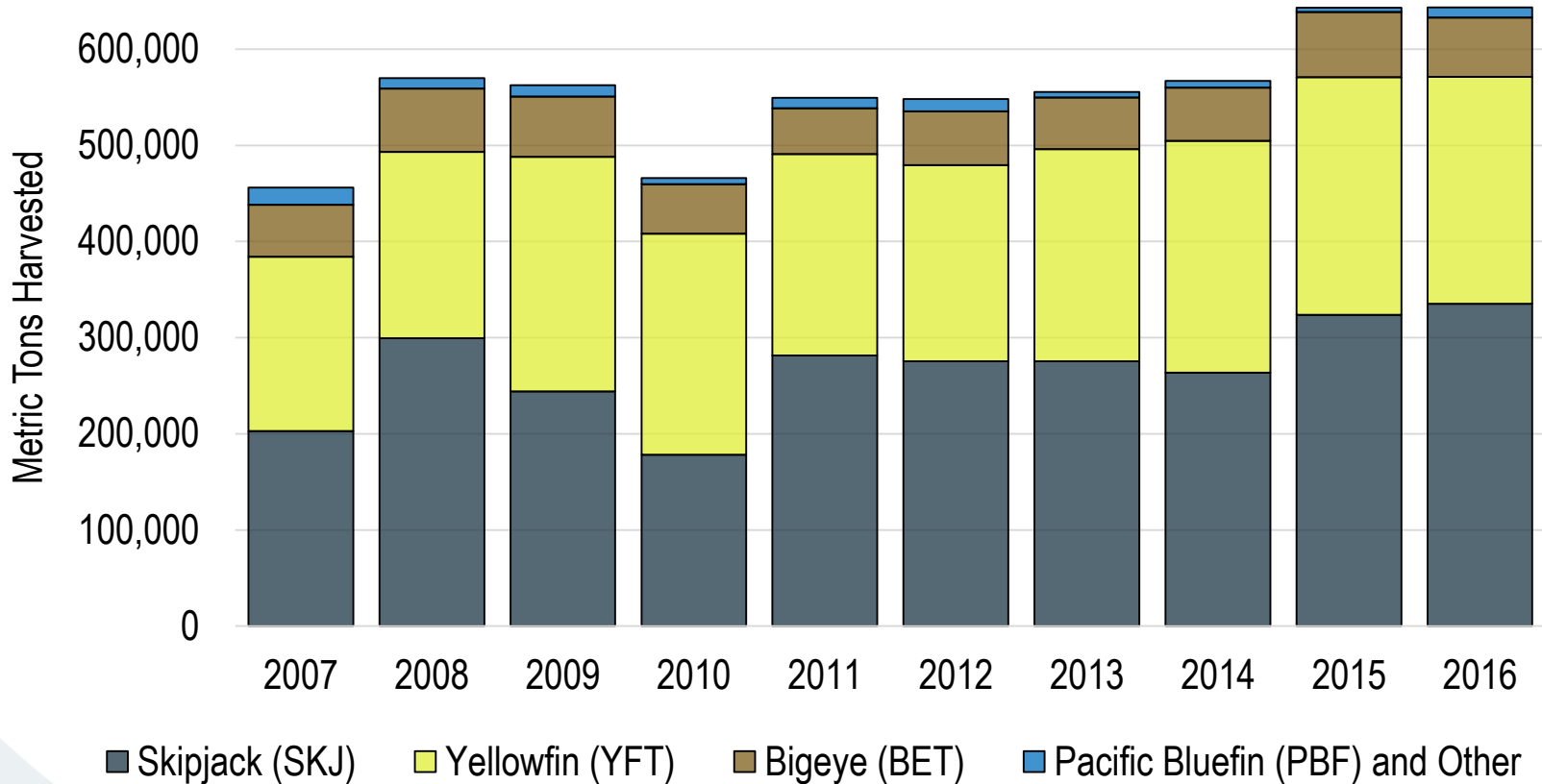
Cooperating Non-Members (5)

Bolivia	Chile	Honduras
Indonesia	Liberia	

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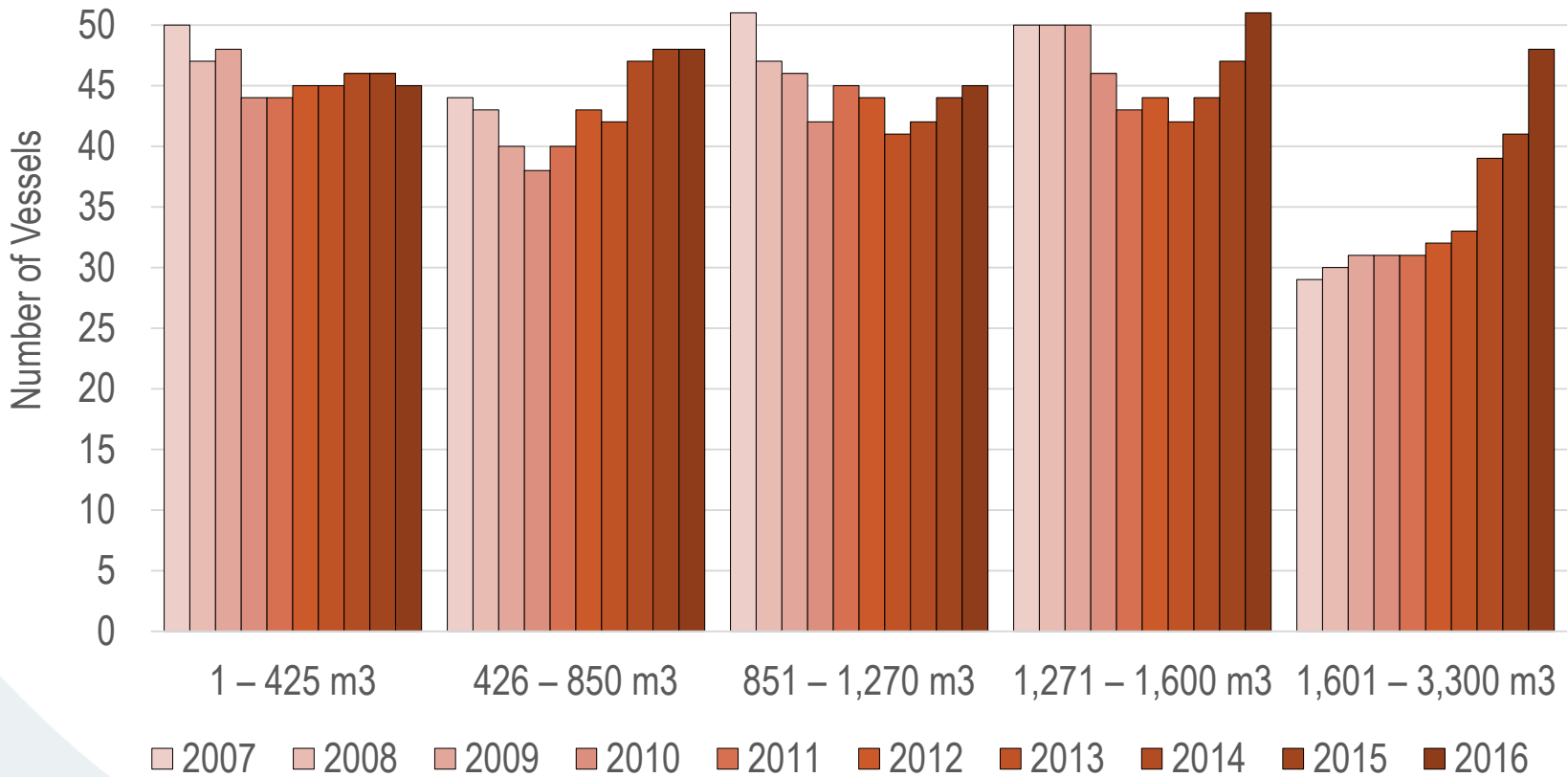
Catch by Species in the EPO Purse Seine Fishery



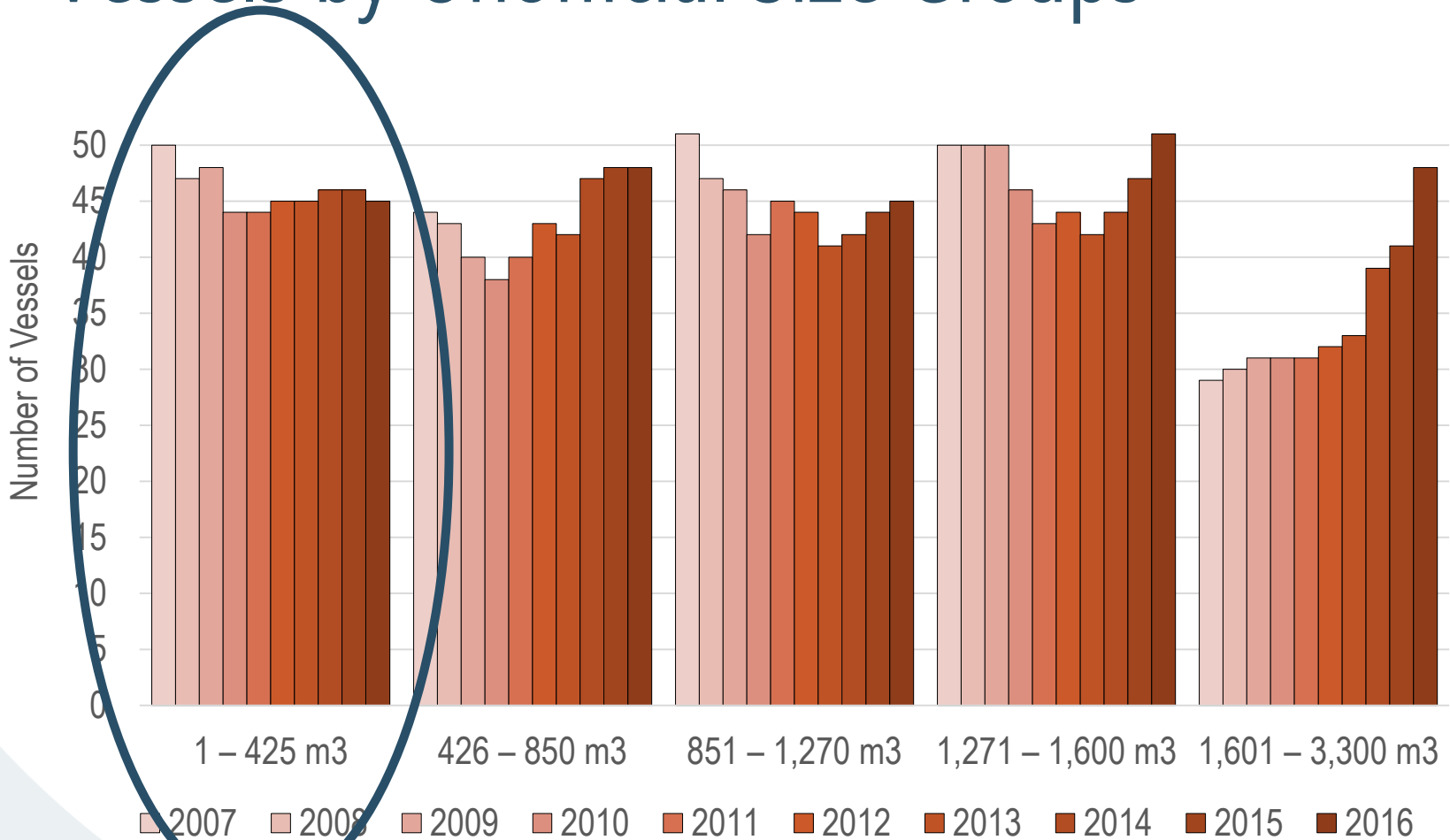
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Distribution of Purse Seine Vessels by Unofficial Size Groups

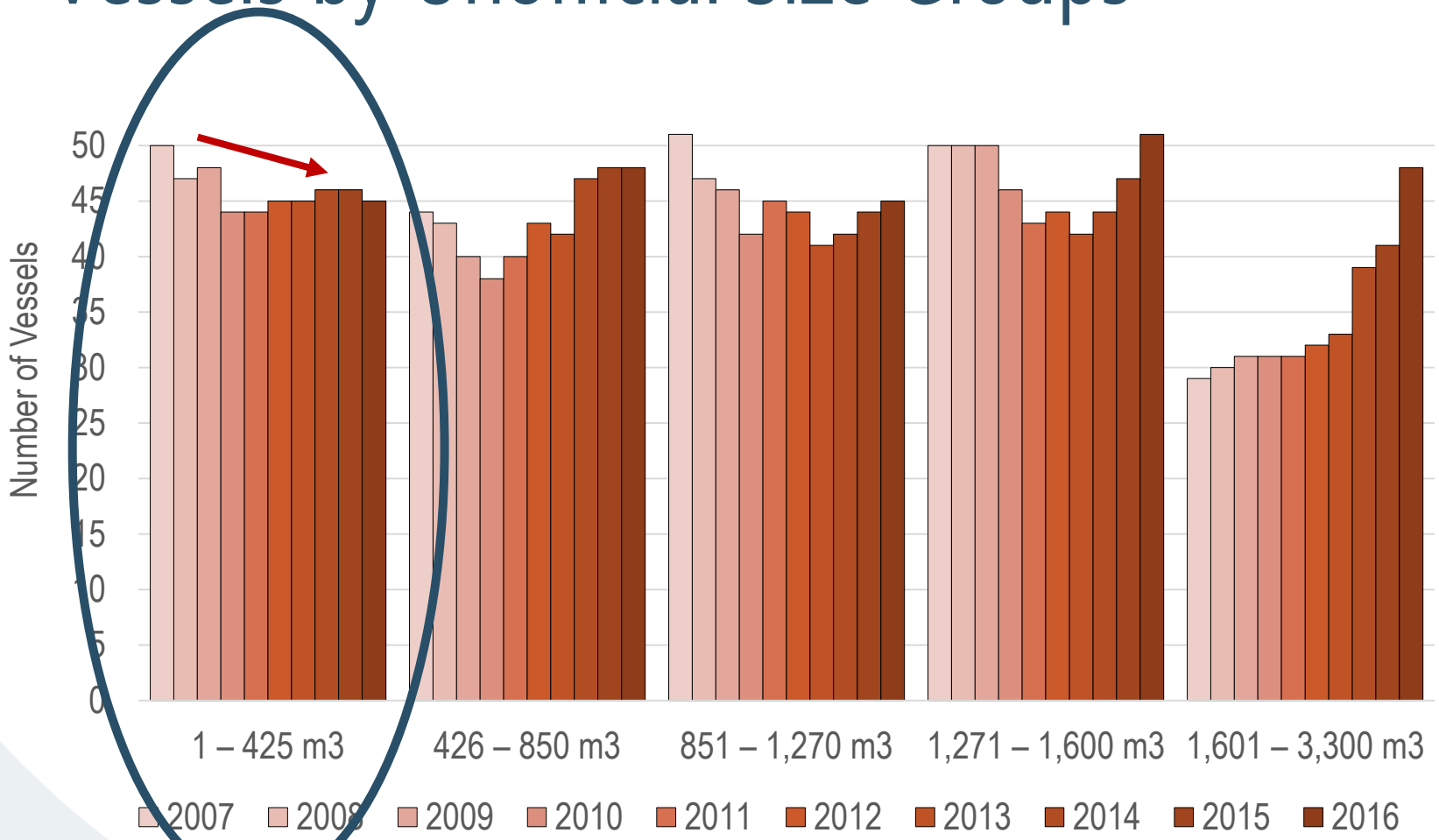


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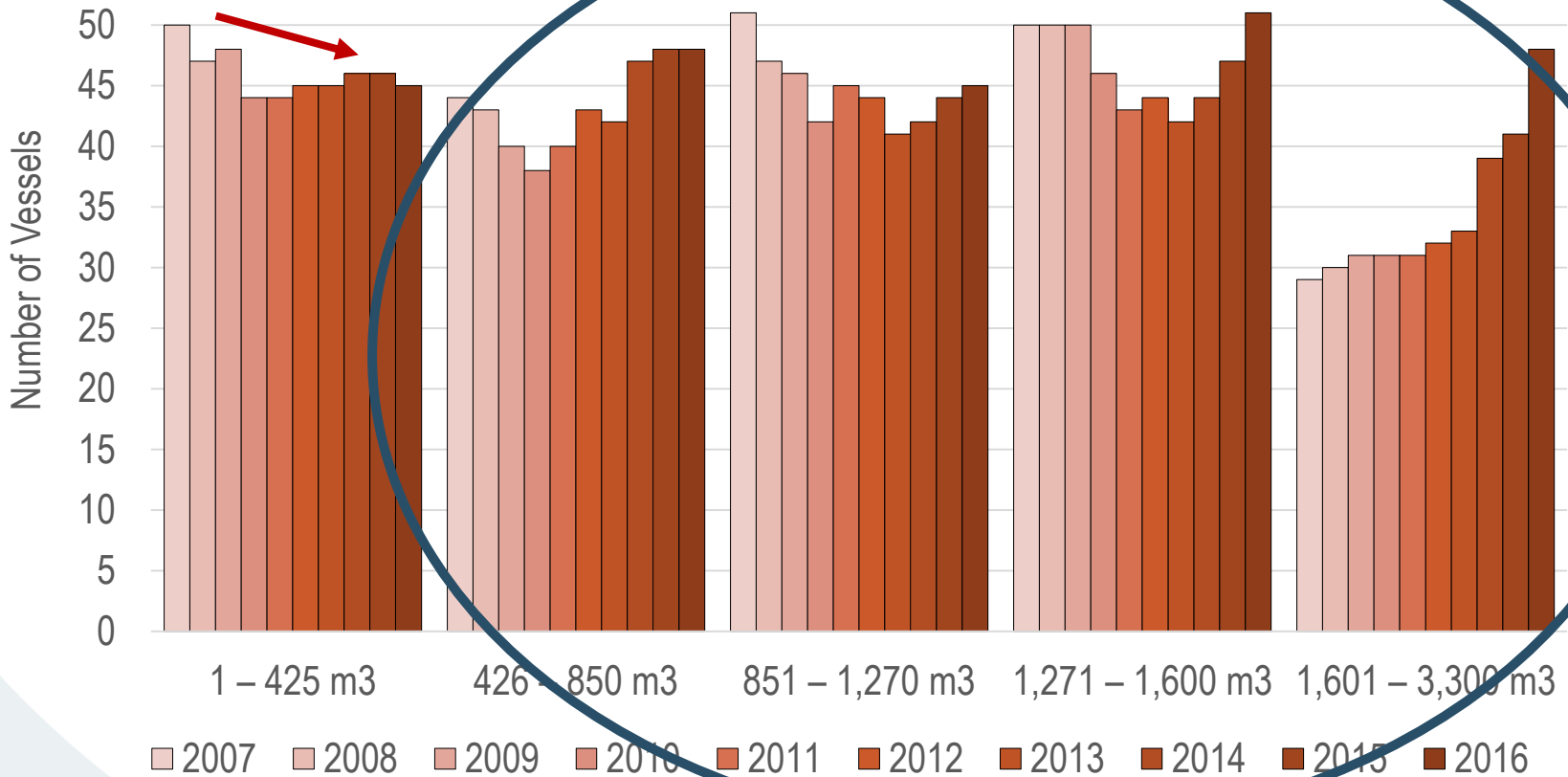
Classes 1, 2, 3, 4, & 5

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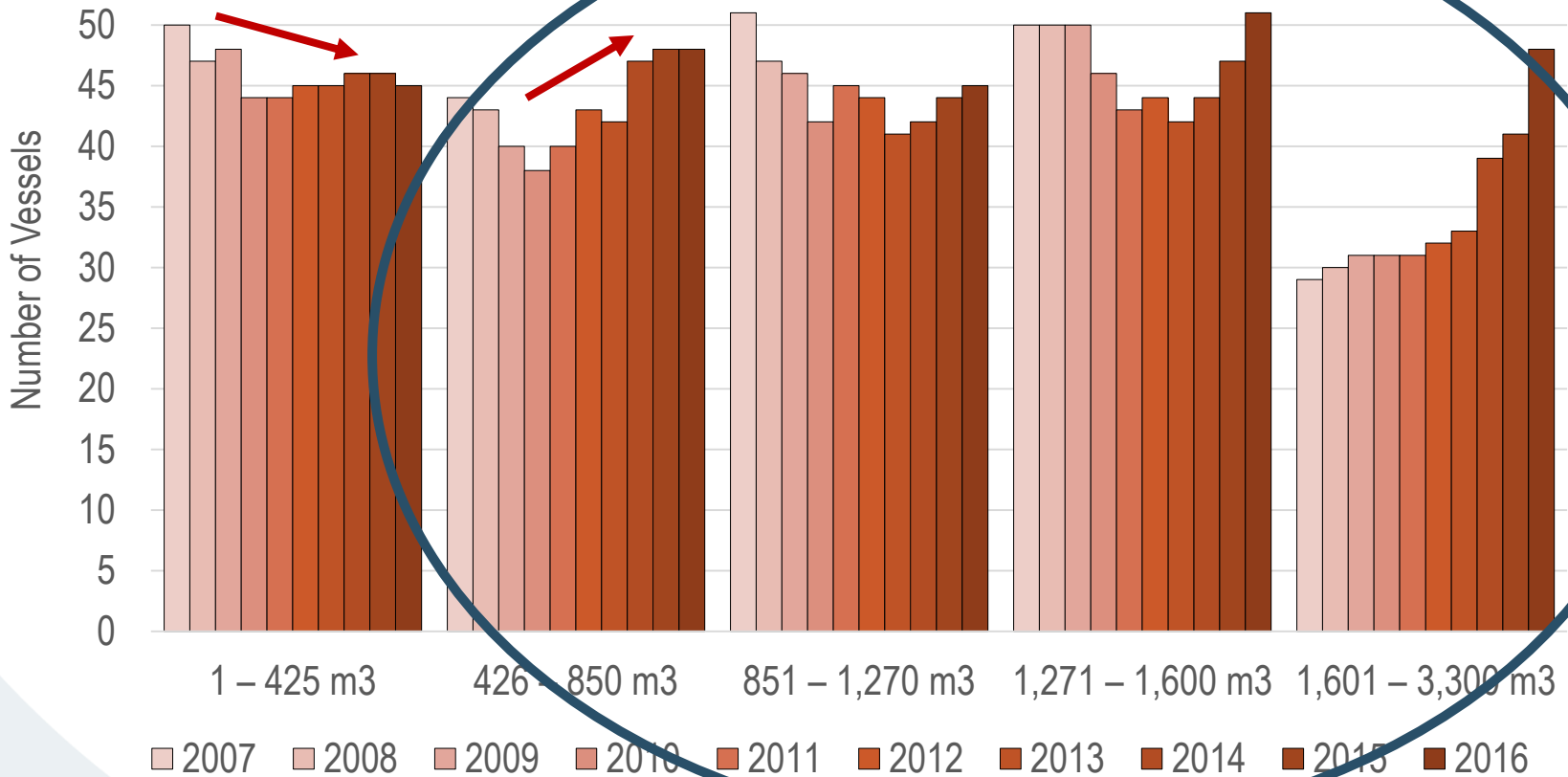
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Class 6

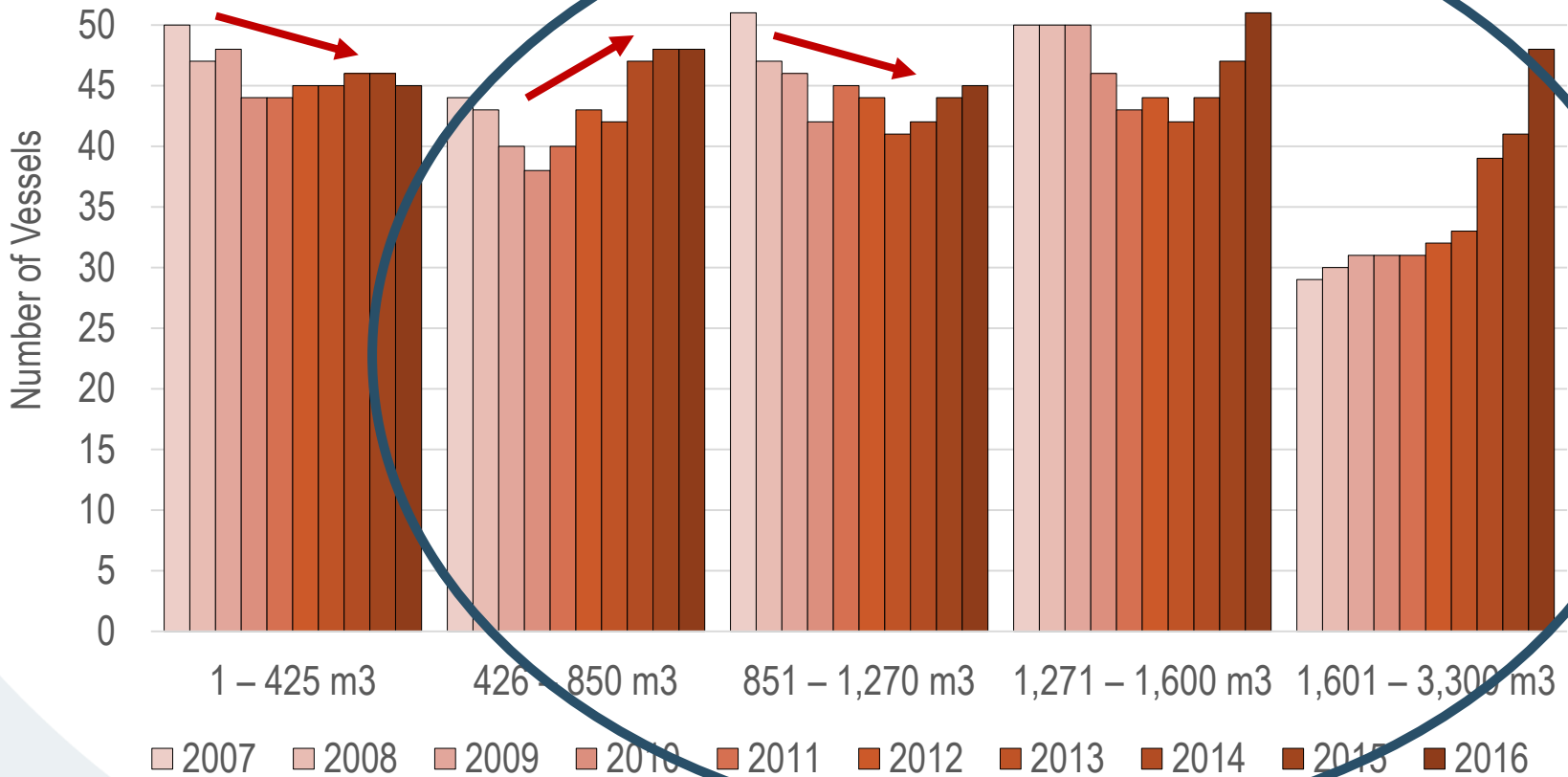
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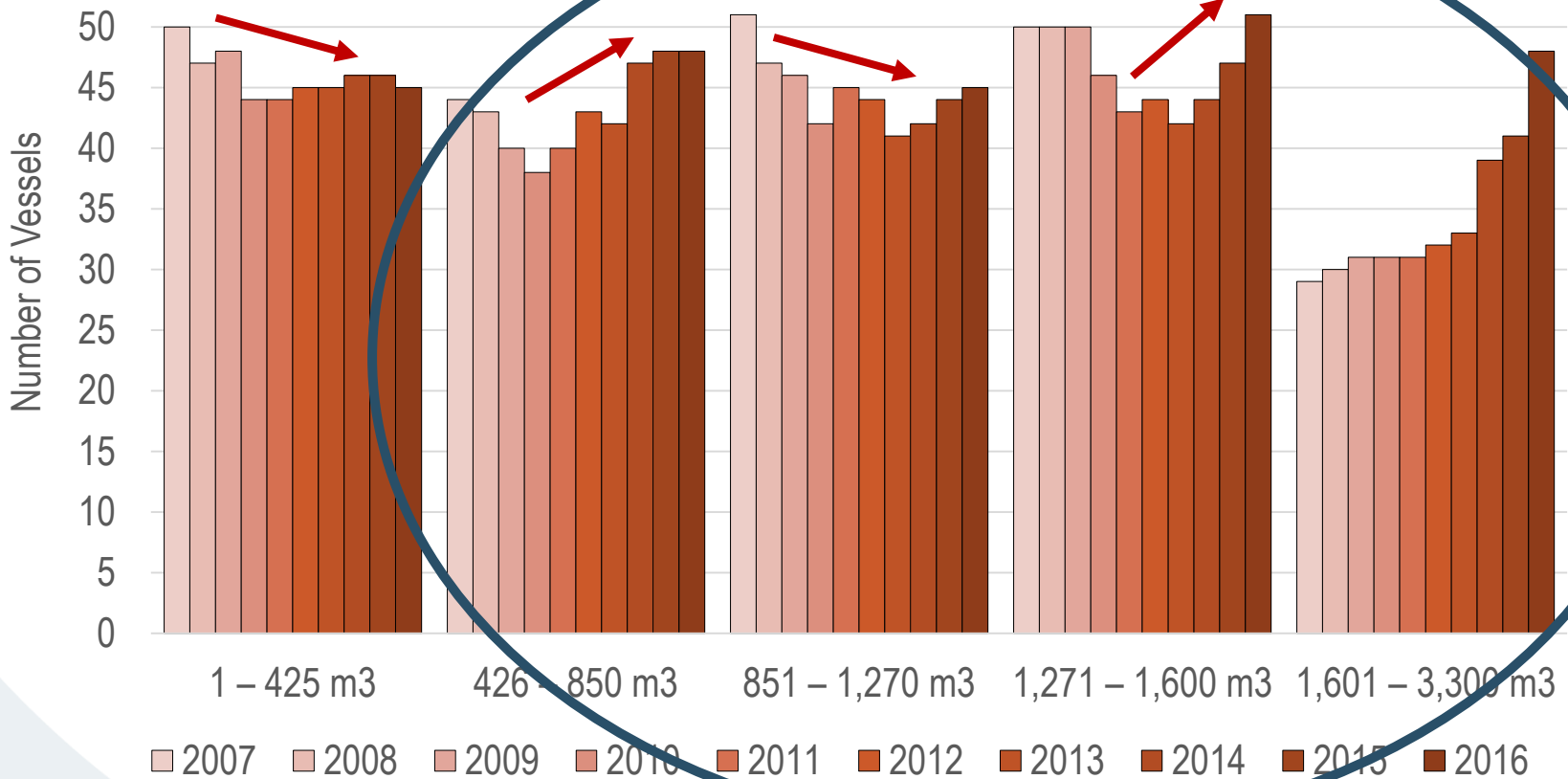
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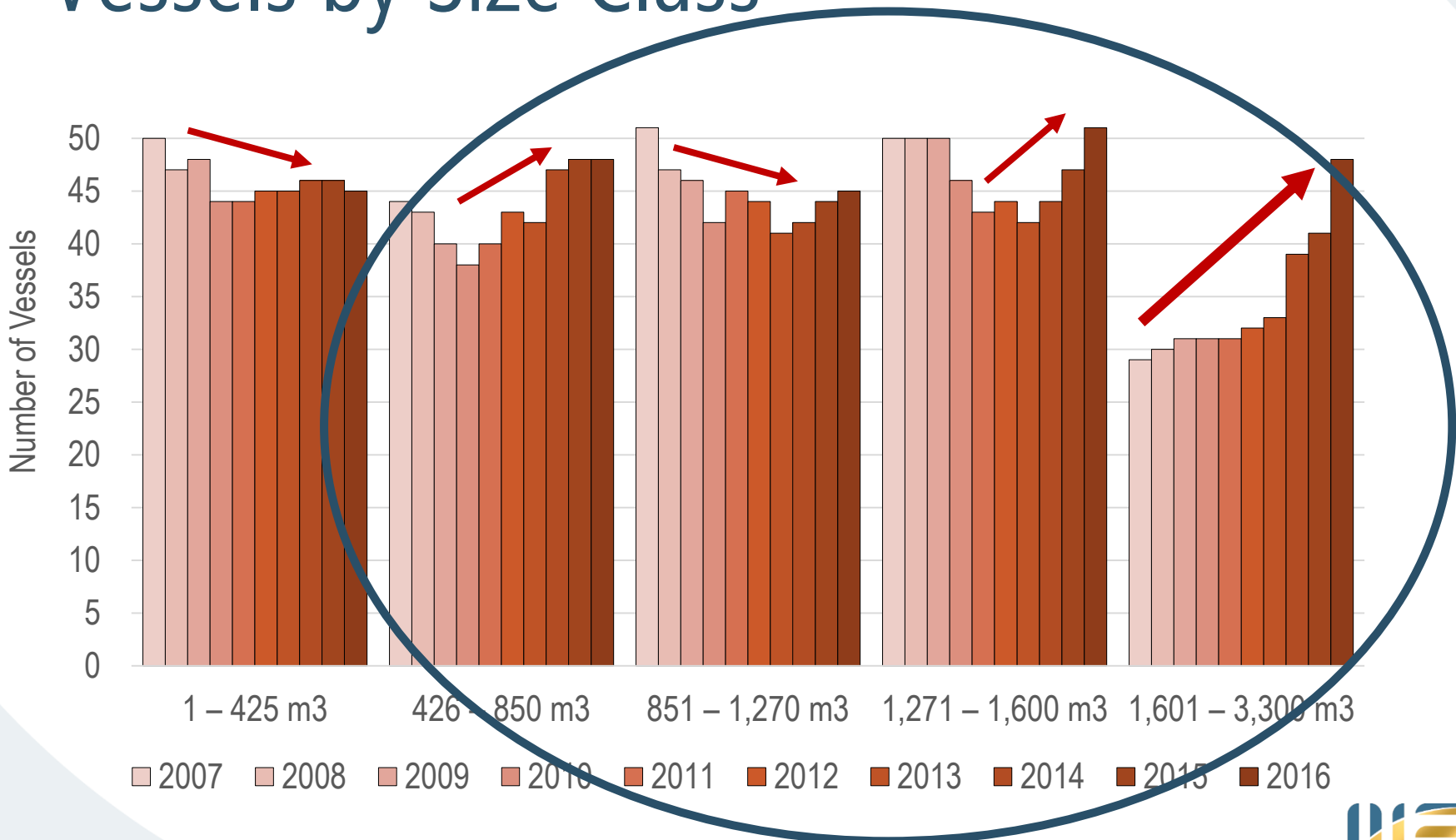
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- Closure periods are used to limit harvests rather than annual catch limits

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- 2018: Closure periods expanded to 72 days with exemptions

The EPO Purse Seine Fishery:

The EPO Purse Seine Fishery: A two-for-one special

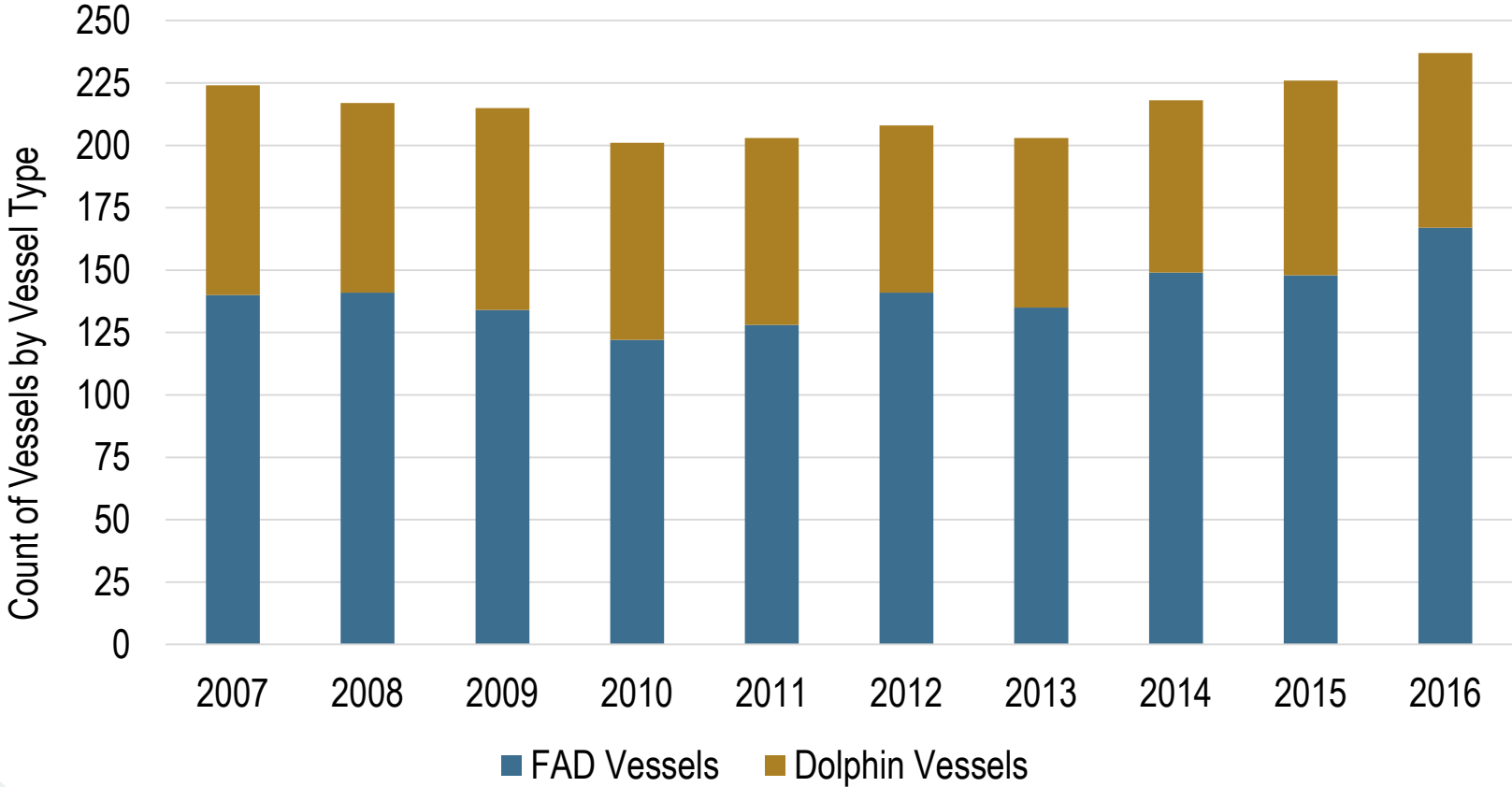
The EPO Purse Seine Fishery: A two-for-one special

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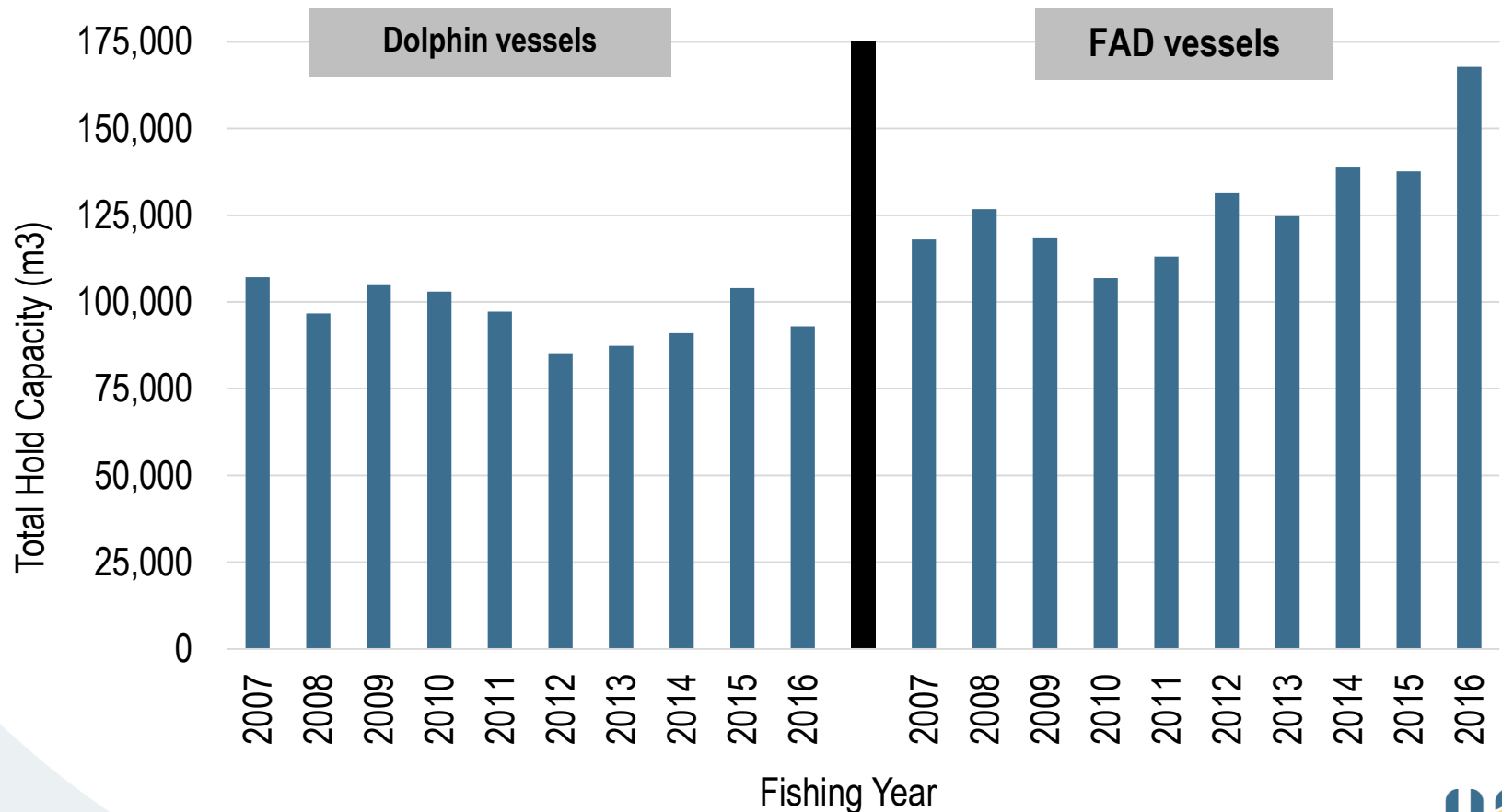
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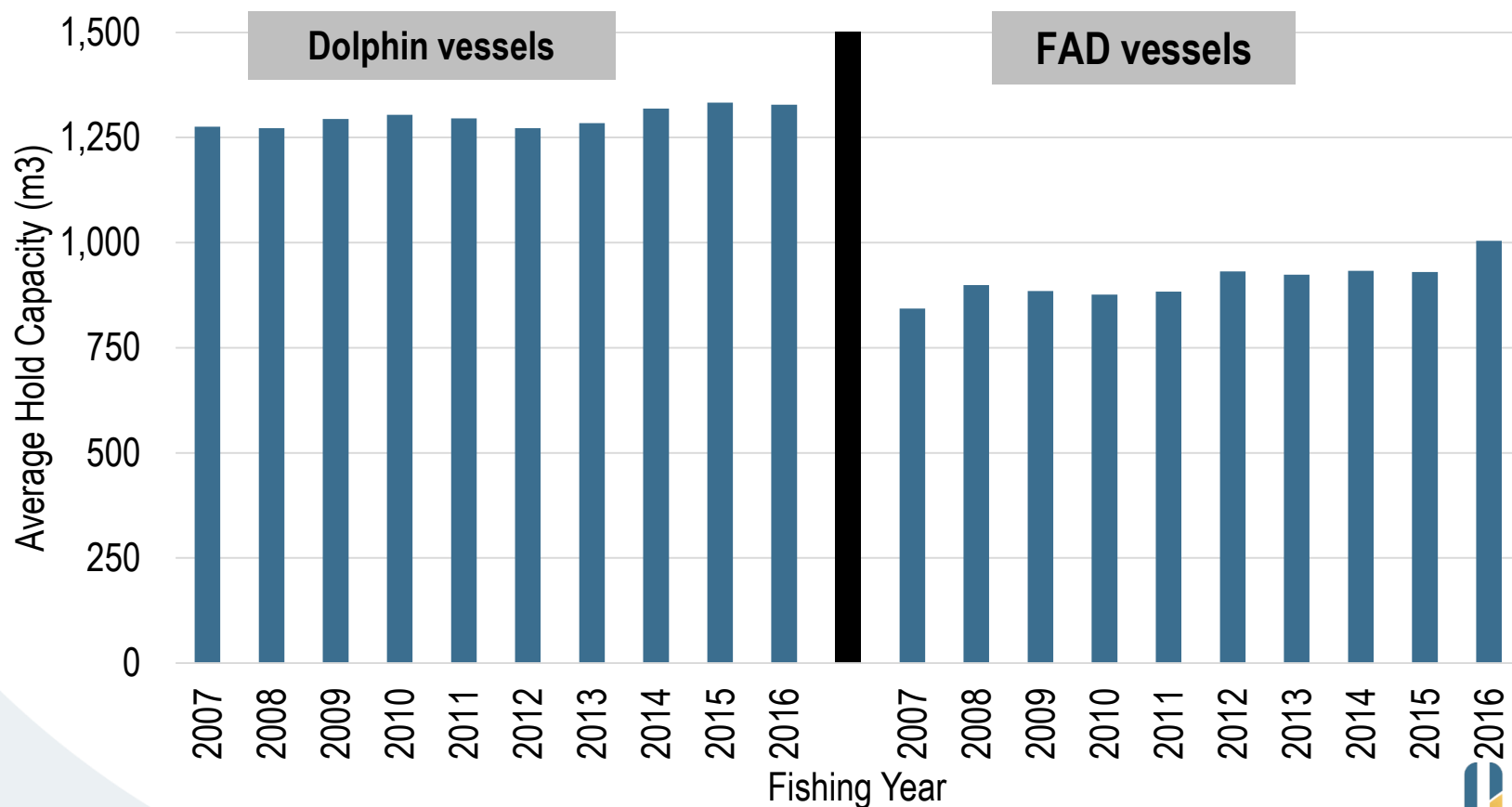
Vessel Counts by Vessels Type



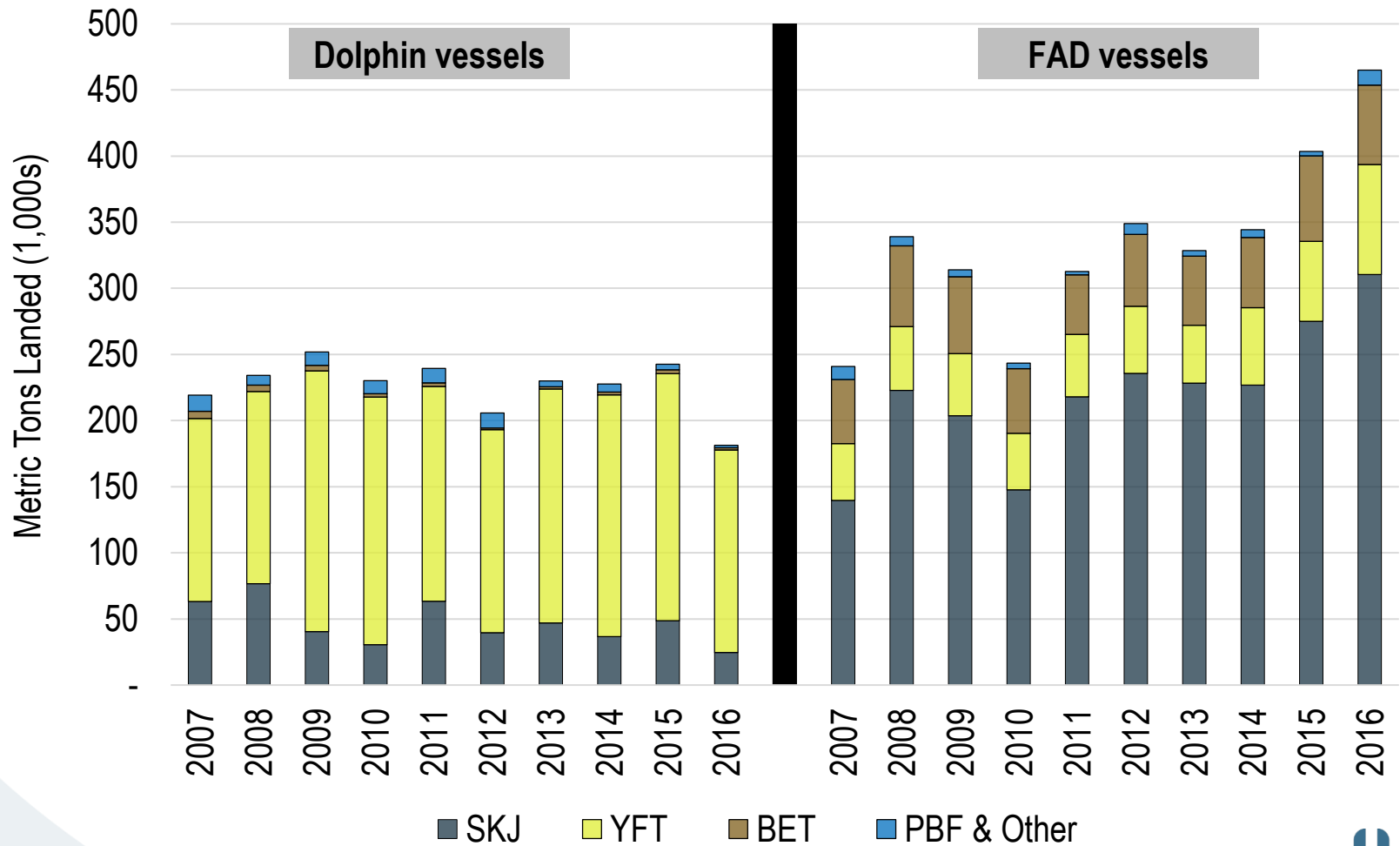
Total Capacity by Vessel Type



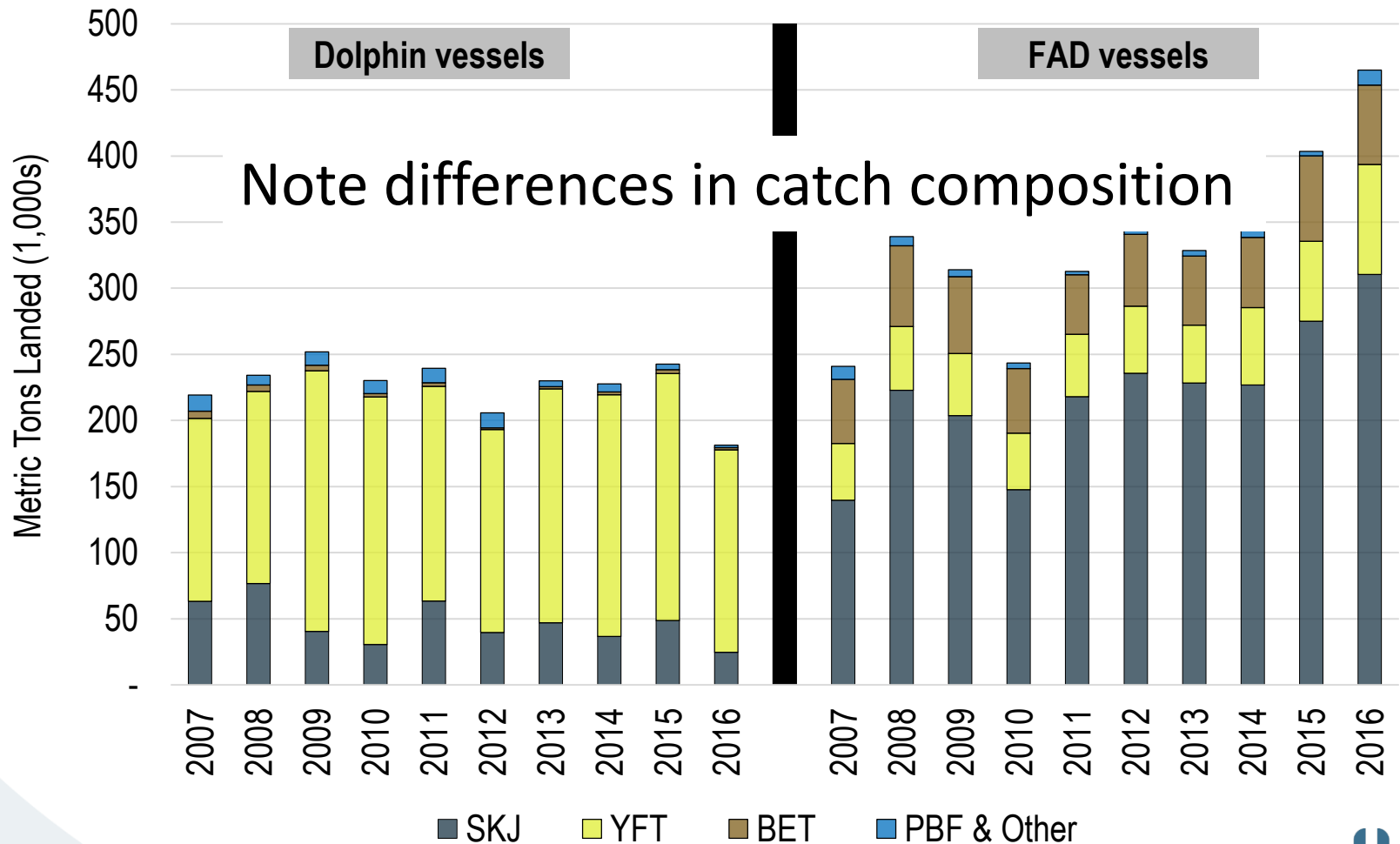
Average Vessel Capacity (m³) by Vessel Type



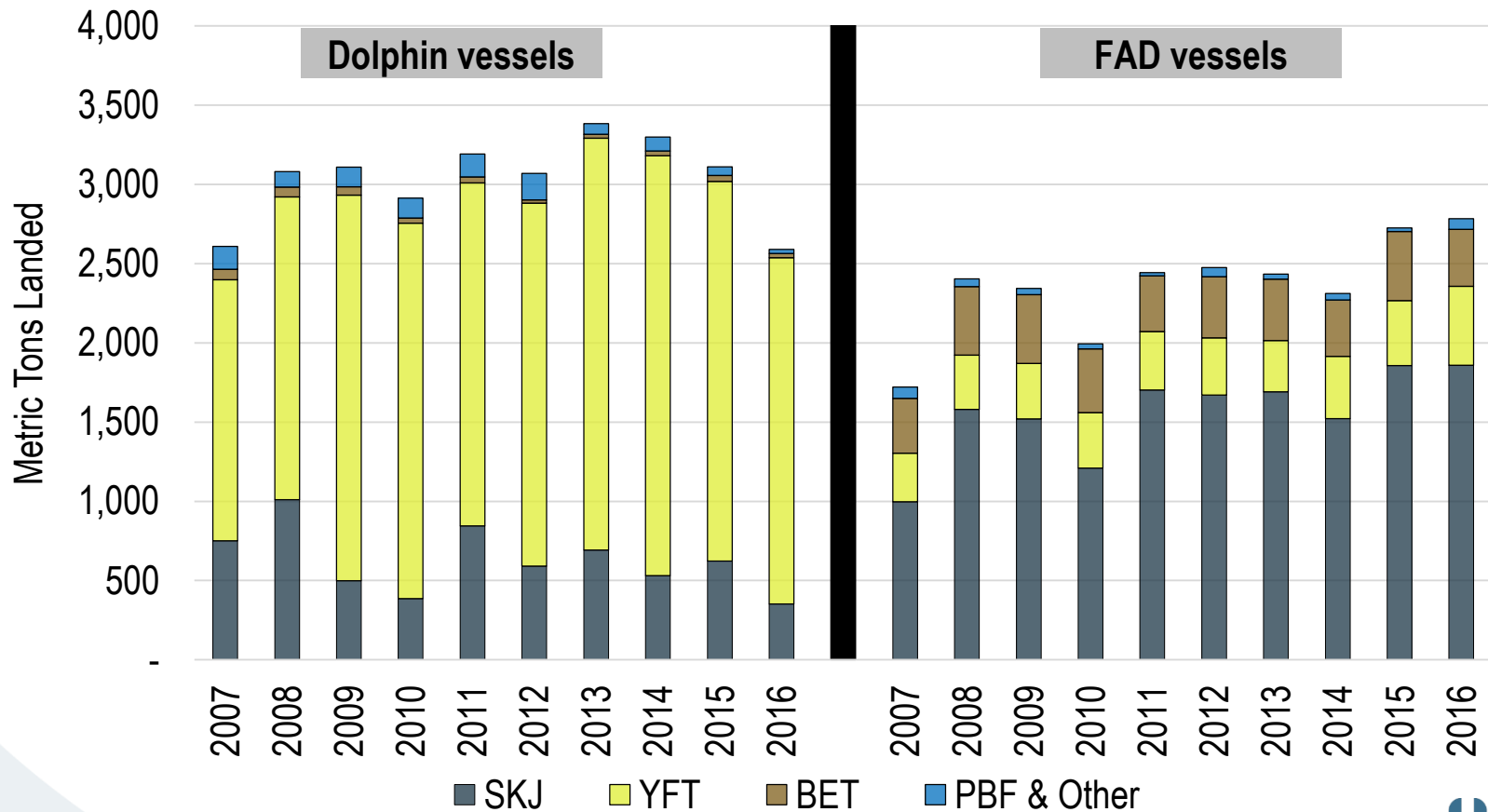
Harvest by Species and Vessel Type



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Average Catch Per Vessel by Species and Type



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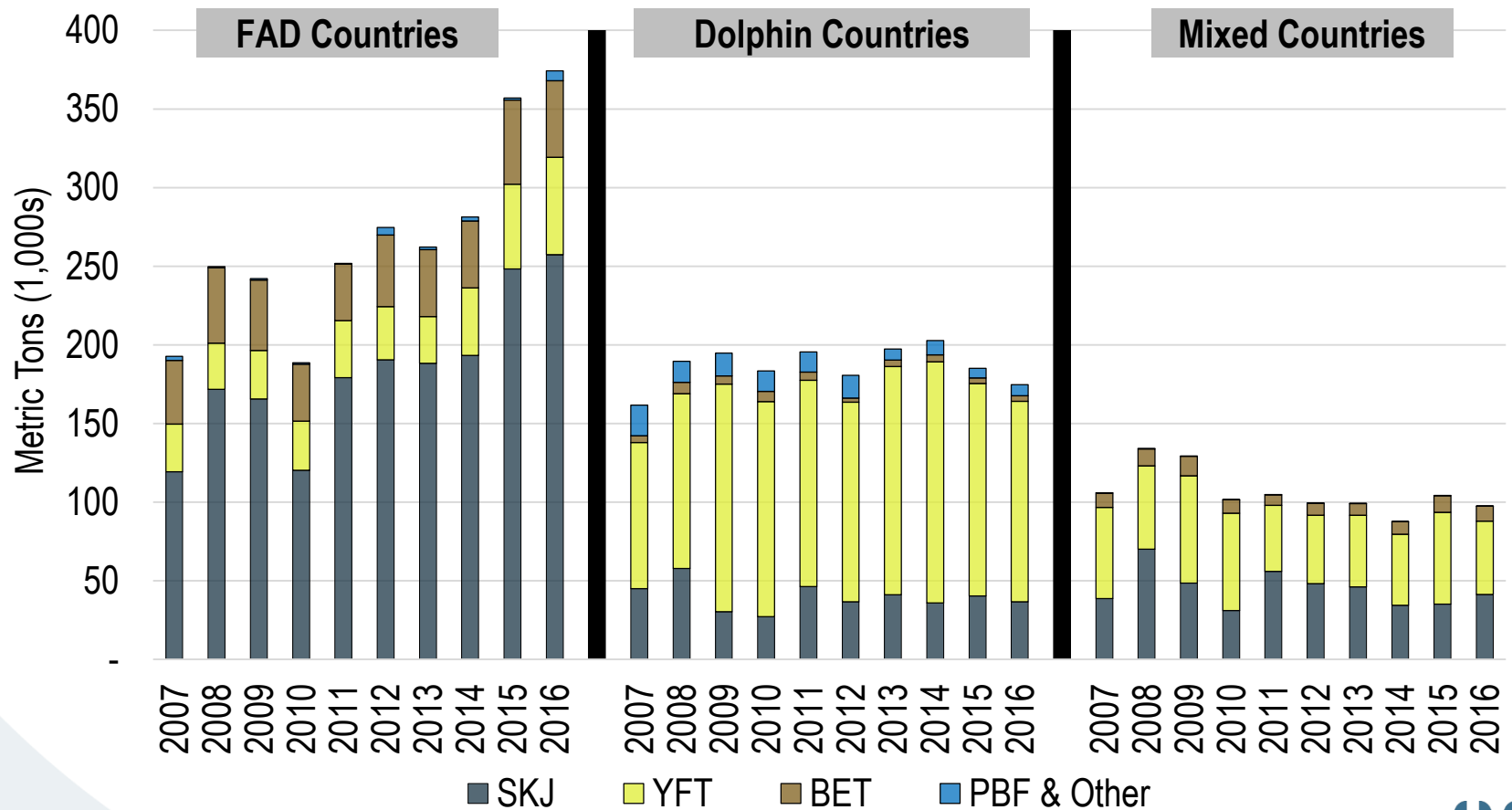
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 - Mexico, Venezuela, El Salvador
- Mixed Countries:
 - Columbia, Panama and Nicaragua

Catch by Country Type



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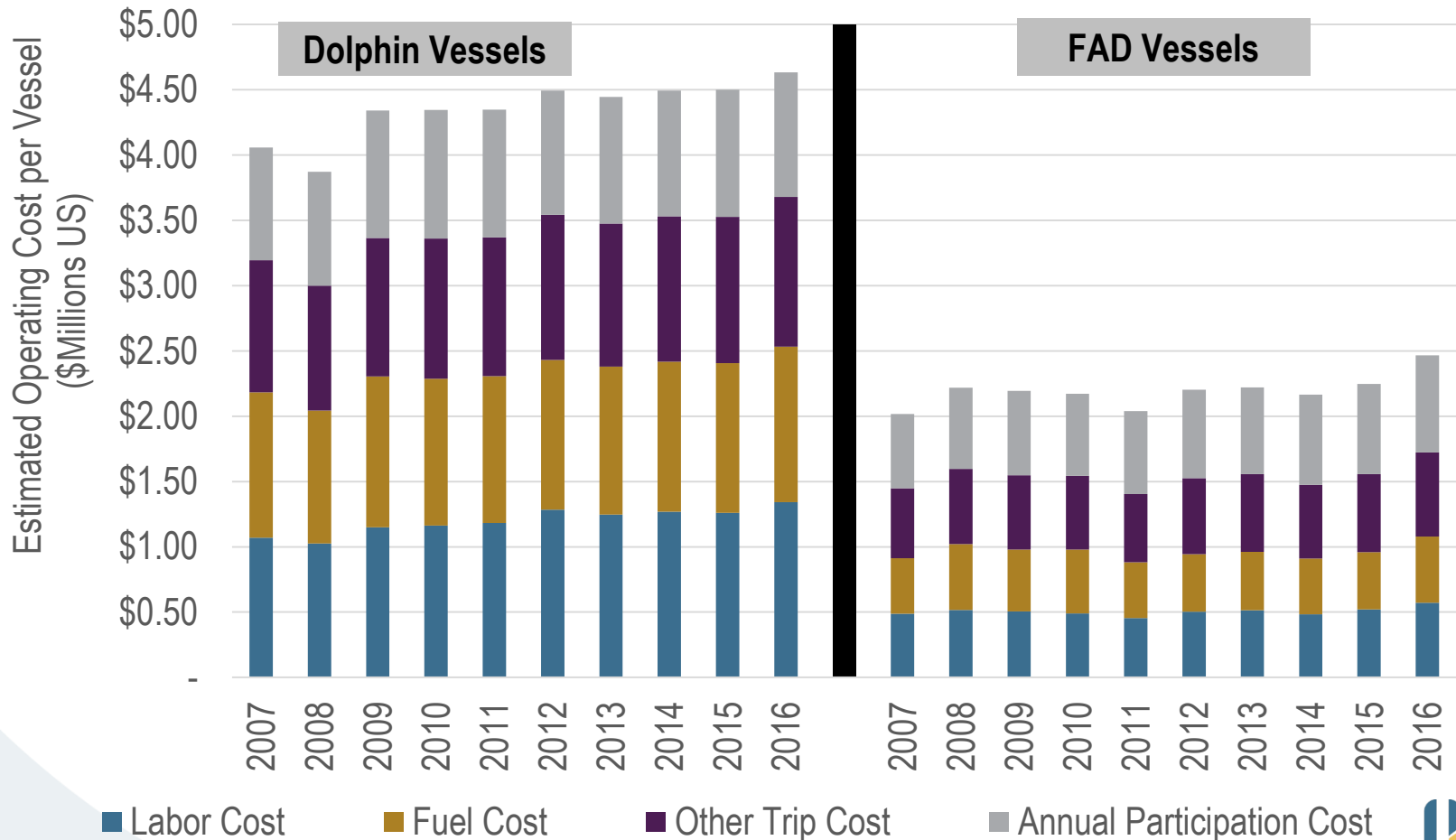
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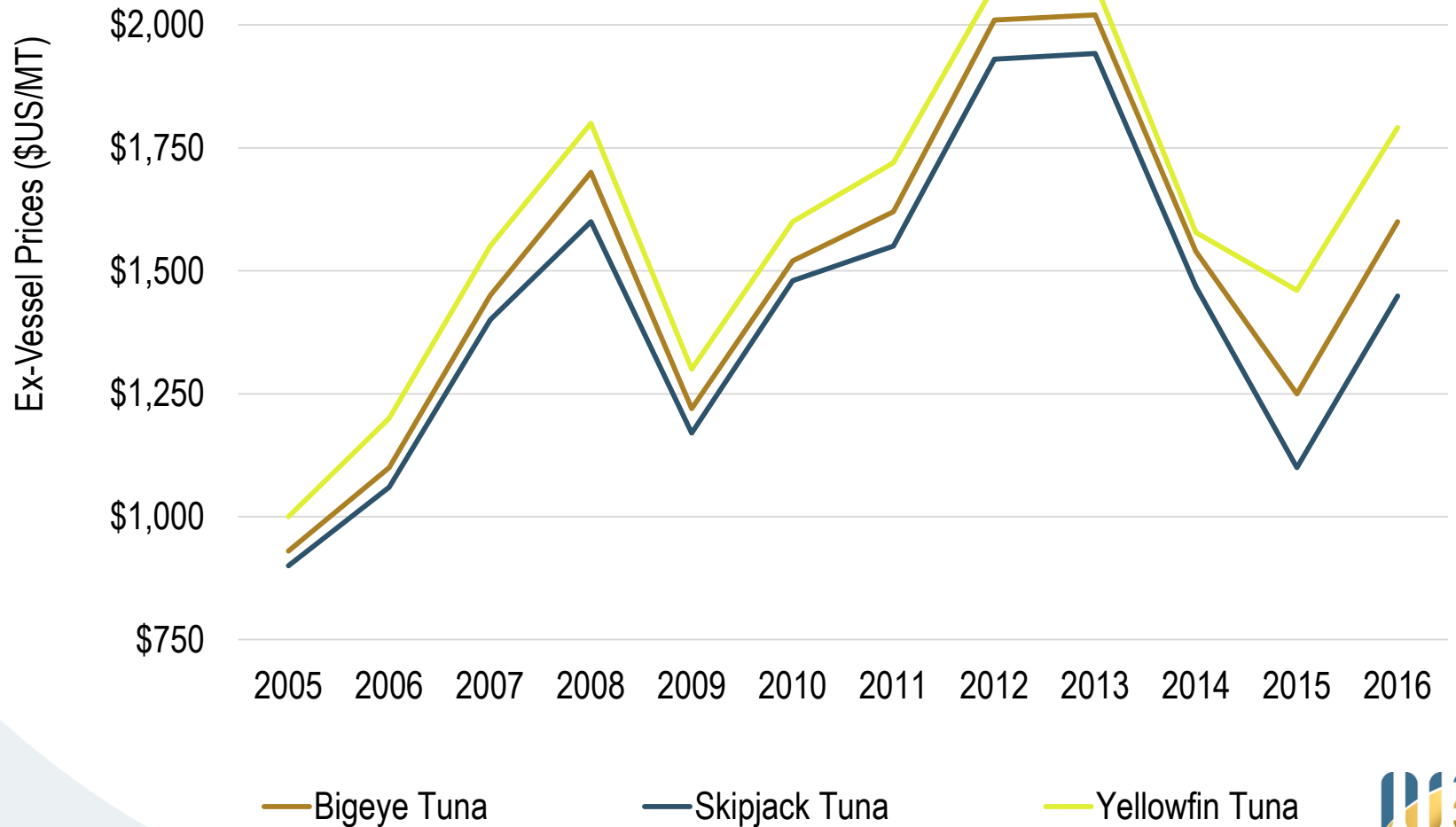
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- Costs calculated per m³ and applied to individual vessels

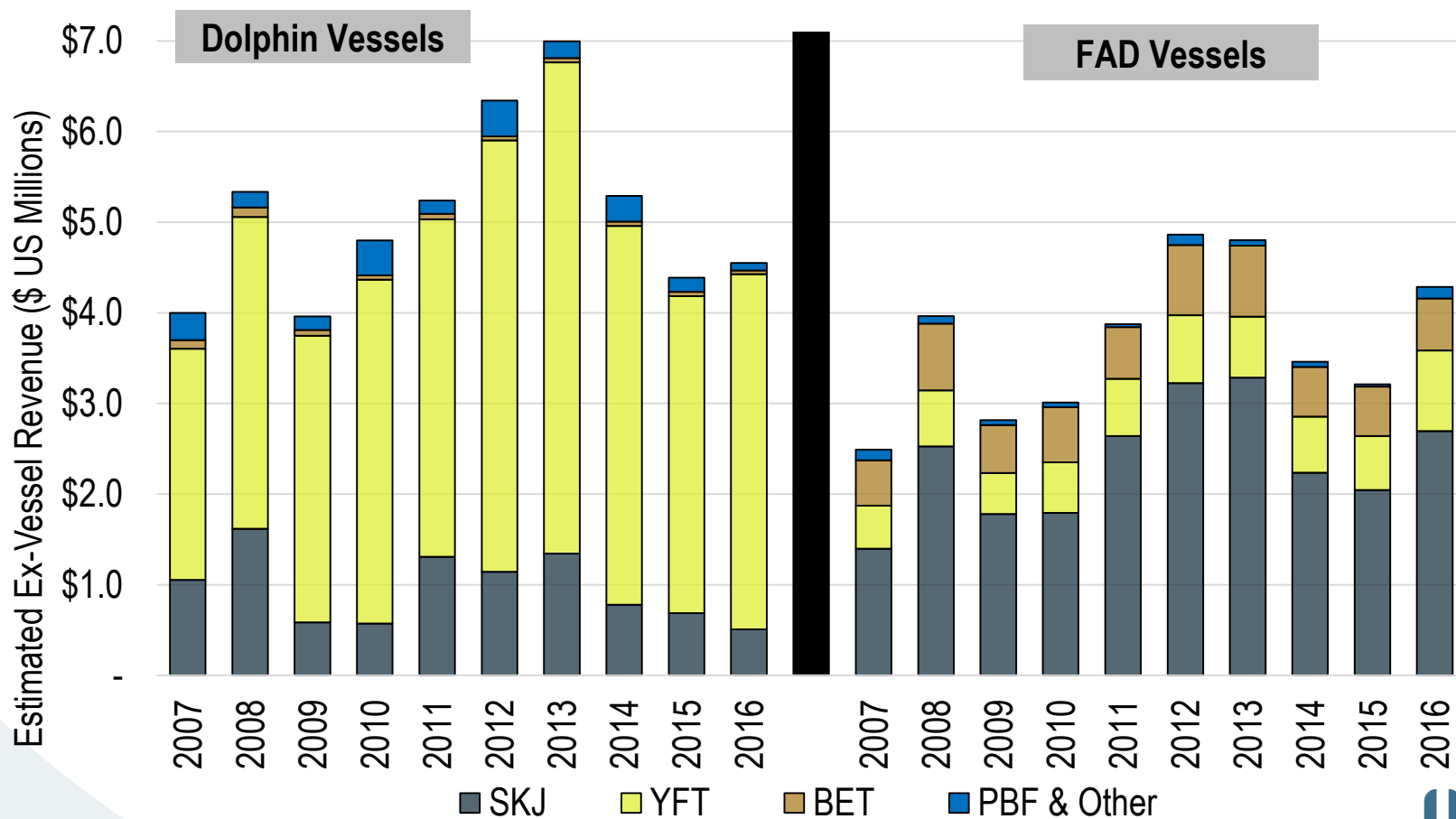
Average Operating Costs per Vessel



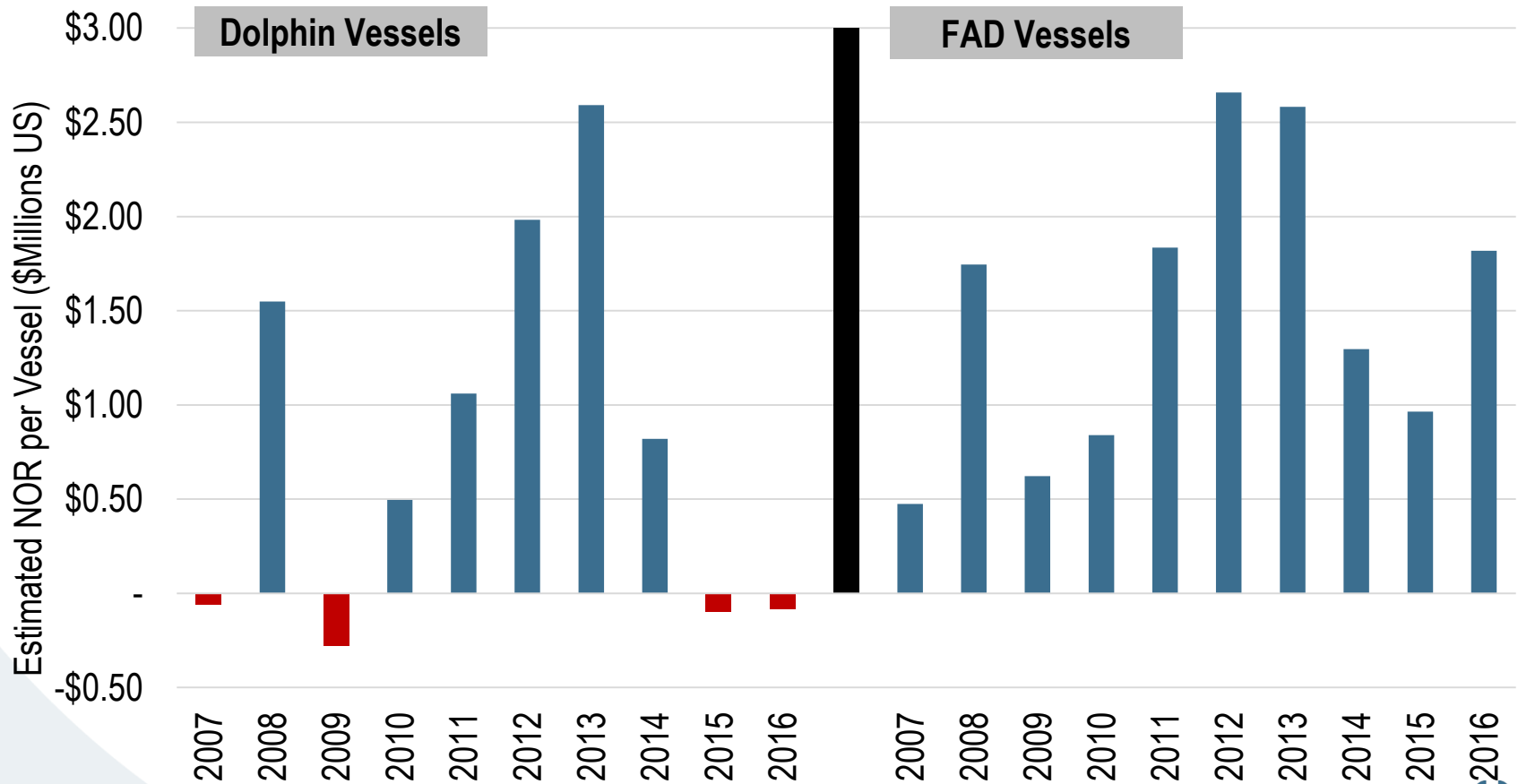
Tuna Prices (nominal)



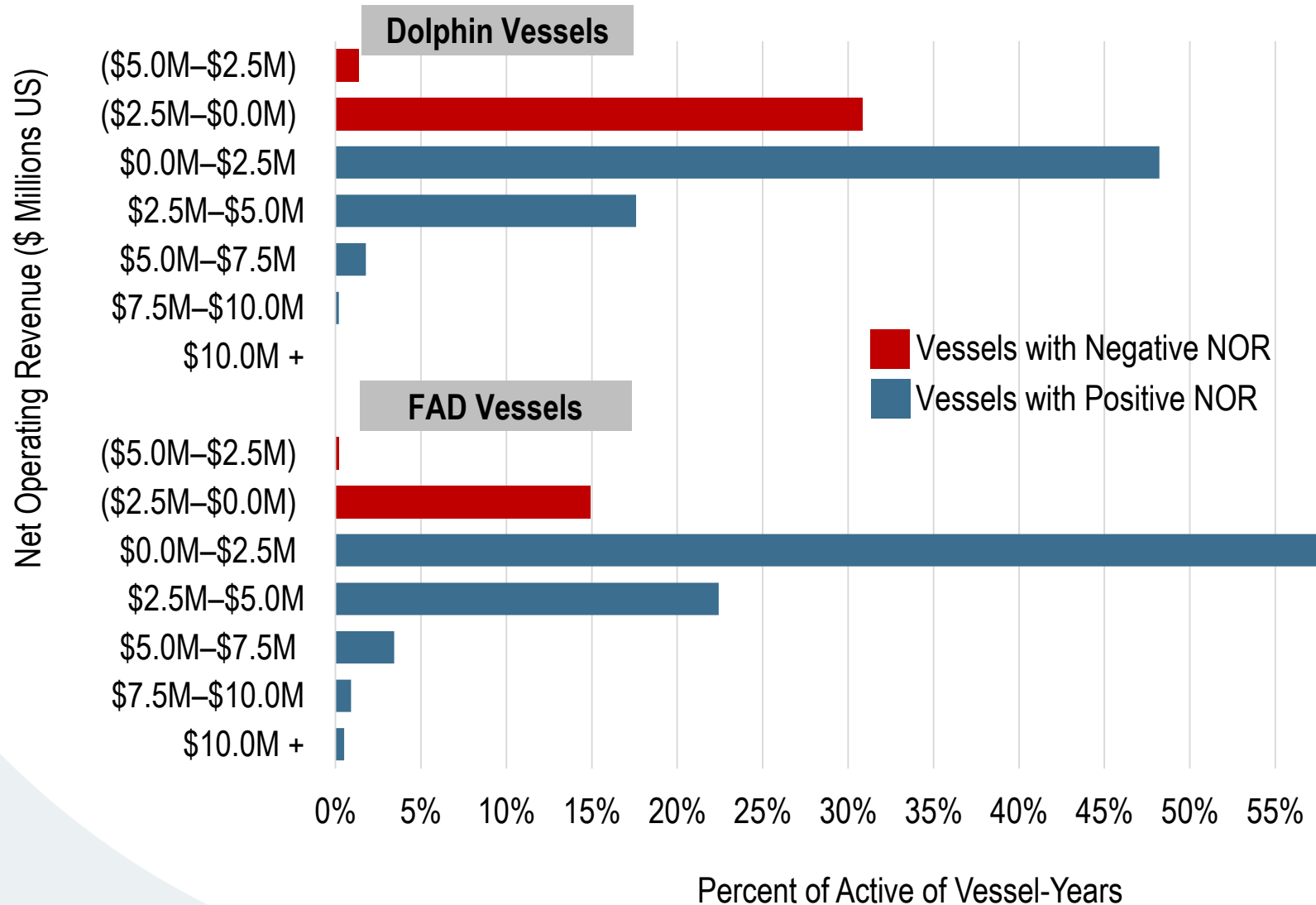
Average Revenue per Vessel



Net Operating Revenue (NOR): Average per Vessel by Year



Distribution of NOR by Vessel-Year



Dolphin Vessels v FAD Vessels

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Alternatives Addressed in the Paper

The full document included a series of alternatives designed to reduce capacity including:

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- 5) An Individual Vessel Quota Program
- 6) Annual limits on the harvest of small BET and YFT

A Vessel Buyback Program

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 - What will it cost?

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- Grants from NGOs or national fisheries organizations could reduce costs.

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 - Bid Price = max of PVFE or Minimum Bid

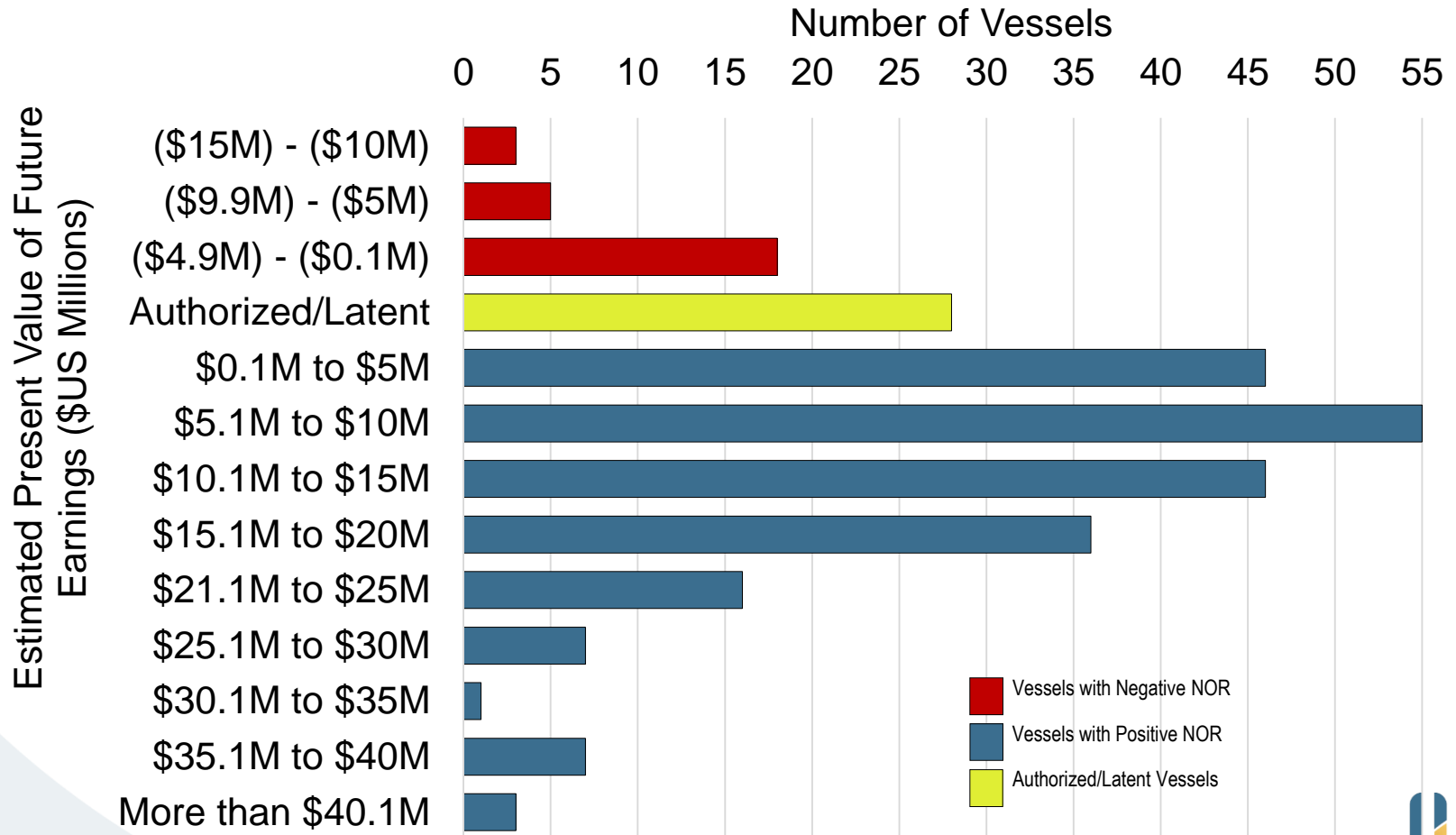
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Distribution of PVFEs of 271 EPO Purse Seine Vessels



Estimation of Harvest Potential of Remaining Fleet

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- Closure period reduction = Catch foregone by exiting vessels ÷ Catch per day of the remaining fleet.

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- The number of vessels needed to be removed to keep bigeye harvests at sustainable levels is relatively high

Buyback that Eliminates Closure Periods assuming a \$2million Minimum Bid

Total Buyback Cost is \$215 Million

	FAD Vessels	Dolphin Vessels
Remove Enough Capacity to Completely Eliminate Closure Days		
Number of Vessels Removed	28	36
Number of Active Vessels Remaining	129	50
Vessel Capacity Removed (m3)	44,627	51,813
Vessel Capacity Remaining (m3)	109,358	63,829
Average Capacity (m3) per Remaining Vessel	848	1,277
Revenues and NOR After the Buyback but Accounting for the Cost of the Buyback		
Estimated Total Vessel Revenue as a % of SQ Revenue	105.7%	76.4%
Estimated Revenue per Active Vessel as a % of SQ	120.8%	120.9%
Net Operating Revenue Gain per Active Vessel from additional harvests due to closure period reductions	\$462,358	\$350,301
Fleetwide Average Buyback Fees and Dolphin Vessel NOR After Deducting Fleetwide Average Buyback Fees		
Default Average Payment per Active Vessel (All Types)	\$96,185	\$141,610
NOR Gains per Active Vessel After Deducting Average Buyback Fee	\$366,173	\$208,691
Ratio of Annual NOR gains Less Fee to Annual Fee	3.81	1.47

Notes:

- 1) All 28 latent vessels are removed (at \$2 million each). A total 92 vessels are out with 110,618 m³.
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NOR Gains per Active Vessel After Deducting Average Buyback Fee	\$366,173	\$208,691
Ratio of Annual NOR gains Less Fee to Annual Fee	3.81	1.47

Notes:

- 1) All 28 latent vessels are removed (at \$2 million each). A total 92 vessels are out with 110,618 m³.
- 2) Assumes a 20-year buyback loan at 10% interest per year is repaid with an annual payment calculated as a percentage tax on ex-vessel value.

Buyback that Eliminates Closure Periods assuming a \$2million Minimum Bid

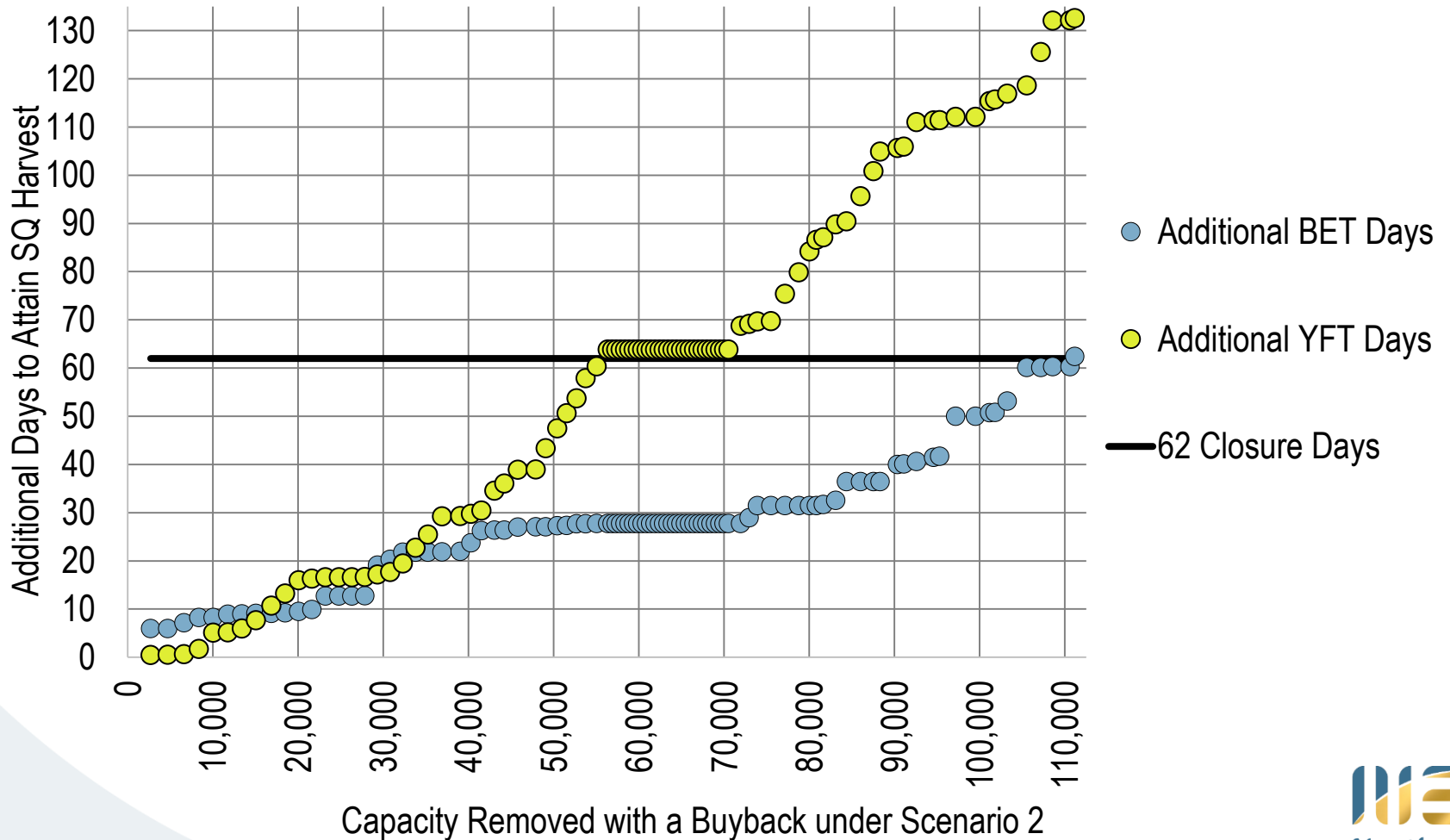
Total Buyback Cost is \$215 Million

	FAD Vessels	Dolphin Vessels
Remove Enough Capacity to Completely Eliminate Closure Days		
Number of Vessels Removed	28	36
Number of Active Vessels Remaining	129	50
Vessel Capacity Removed (m3)	44,627	51,813
Vessel Capacity Remaining (m3)	109,358	63,829
Average Capacity (m3) per Remaining Vessel	848	1,277
Revenues and NOR After the Buyback but Accounting for the Cost of the Buyback		
Estimated Total Vessel Revenue as a % of SQ Revenue	105.7%	76.4%
Estimated Revenue per Active Vessel as a % of SQ	120.8%	120.9%
Net Operating Revenue Gain per Active Vessel from additional harvests due to closure period reductions	\$462,358	\$350,301
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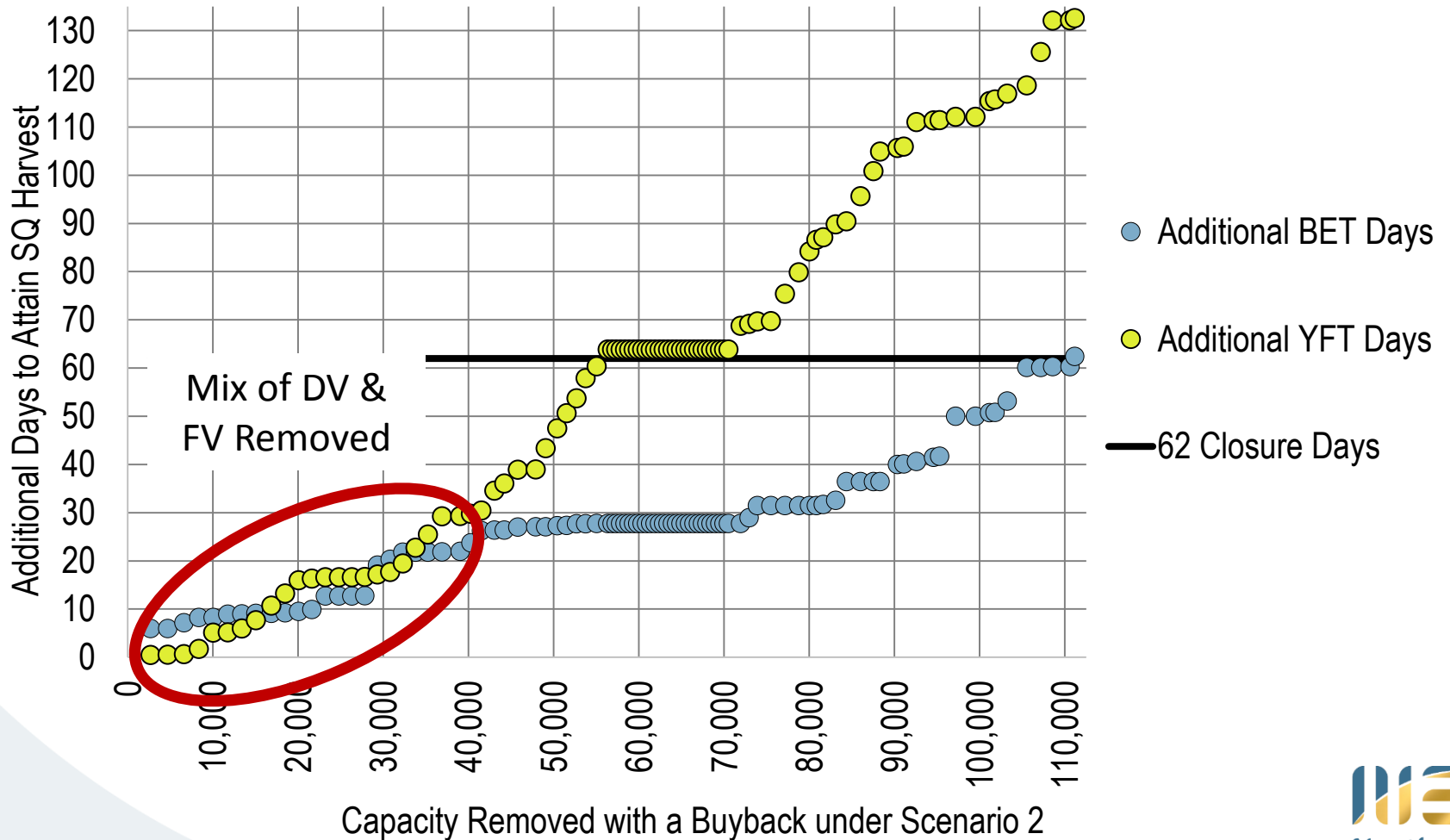
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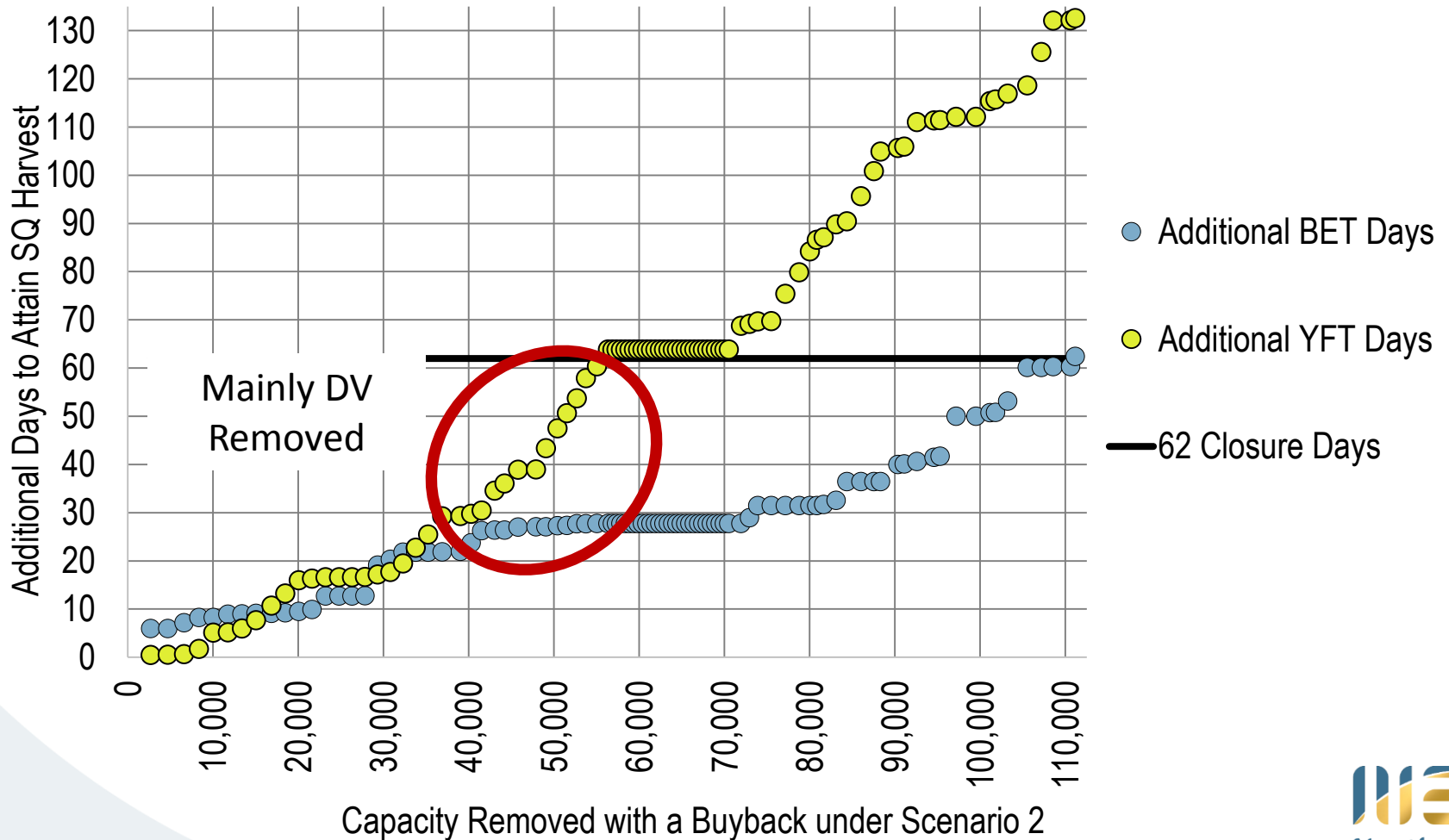
Additional Harvest Days by Species



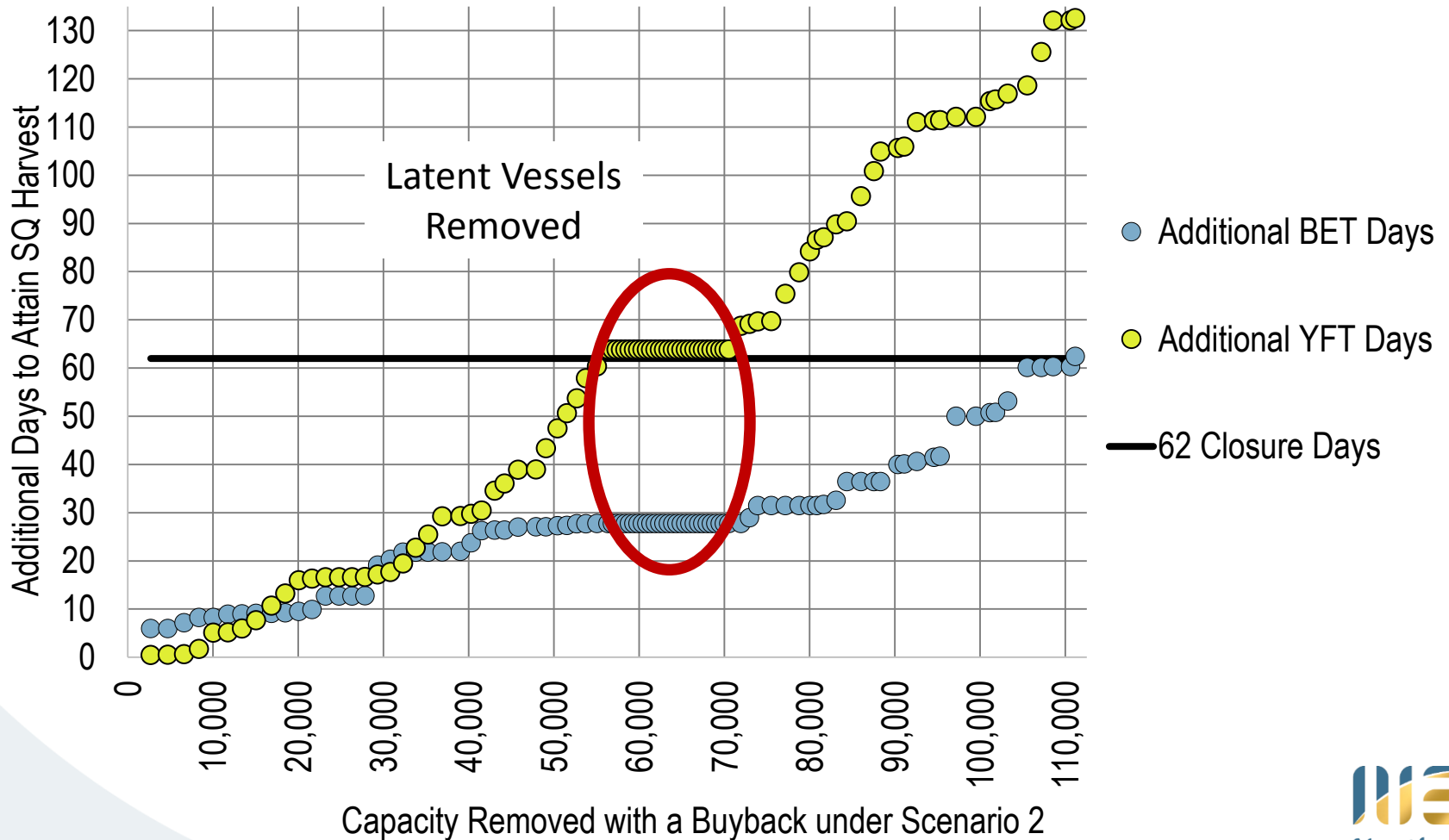
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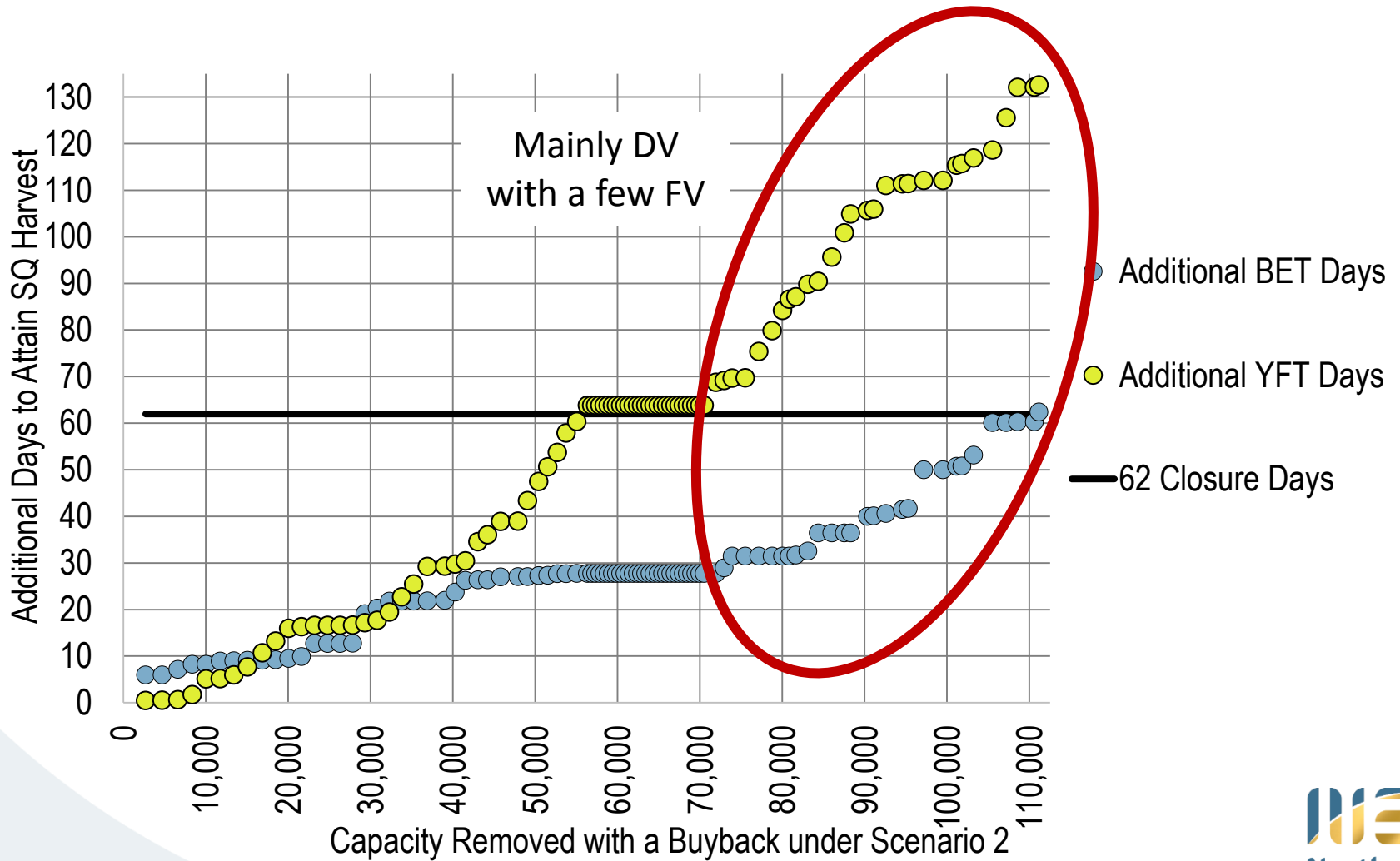
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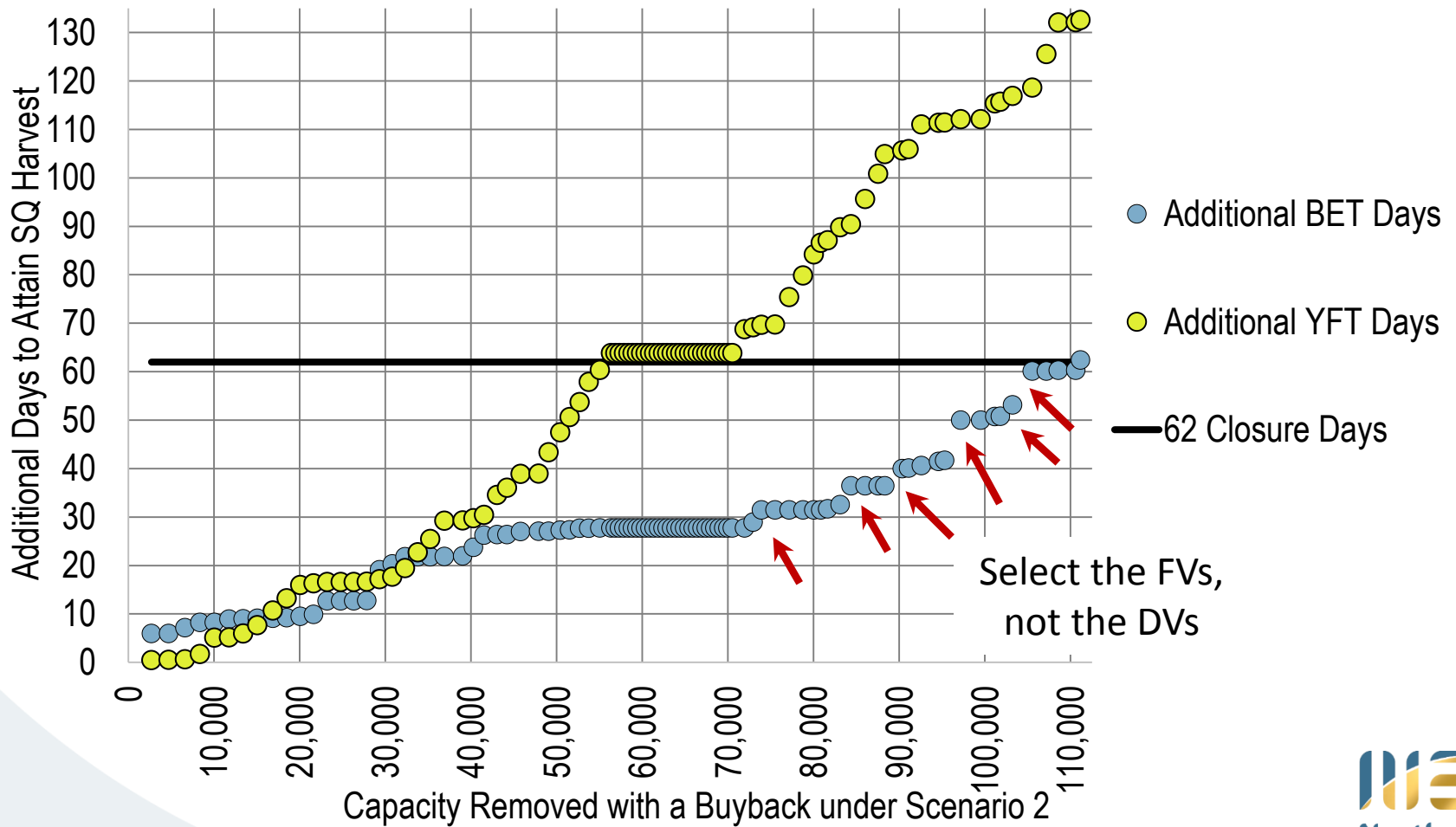
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- Optimization could reduce the cost of the buyback by more than \$40 million—a 20 percent reduction.

Thank you for your Attention

- NEI is happy to answer any questions you have
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