



SABLEFISH AFTER THE IFQ PROGRAM:

**AN INTERNATIONAL ECONOMIC
MARKET MODEL**

Stephanie Warpinski

OUTLINE

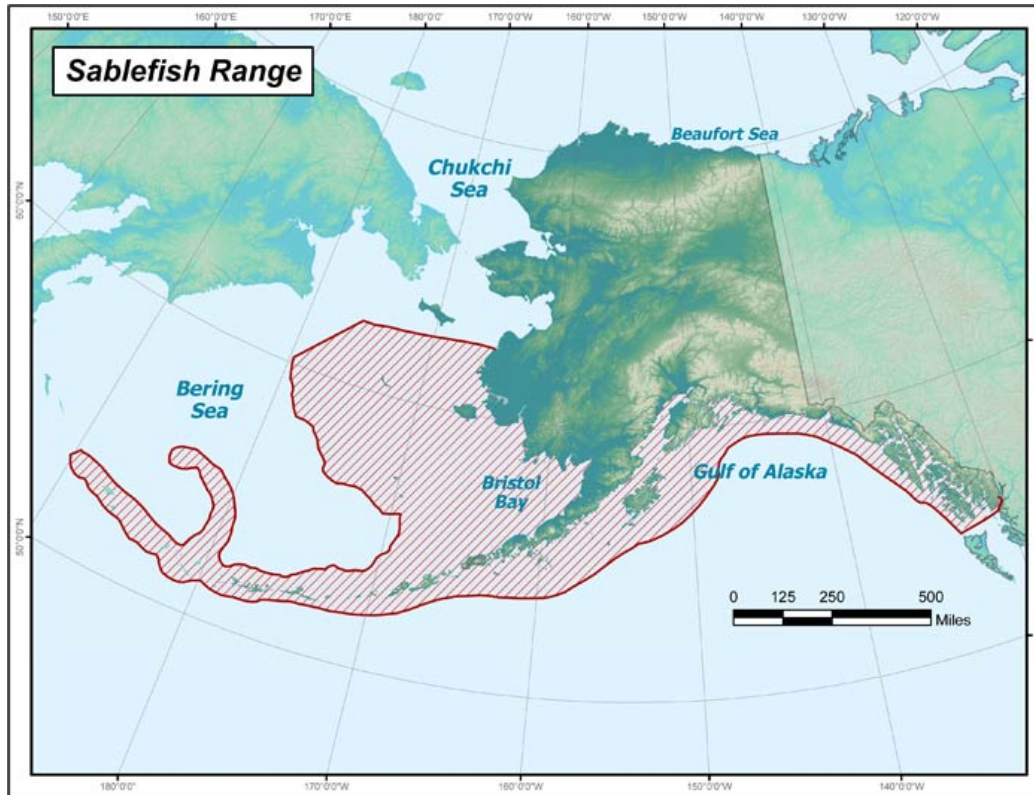
- Sablefish Introduction
- Research Objectives
- An Econometric Model of Sablefish
 - Introduction & Brief Model Specification
- Market Model Simulations
 - Discussion and Results
- Conclusion and Further Research Topics

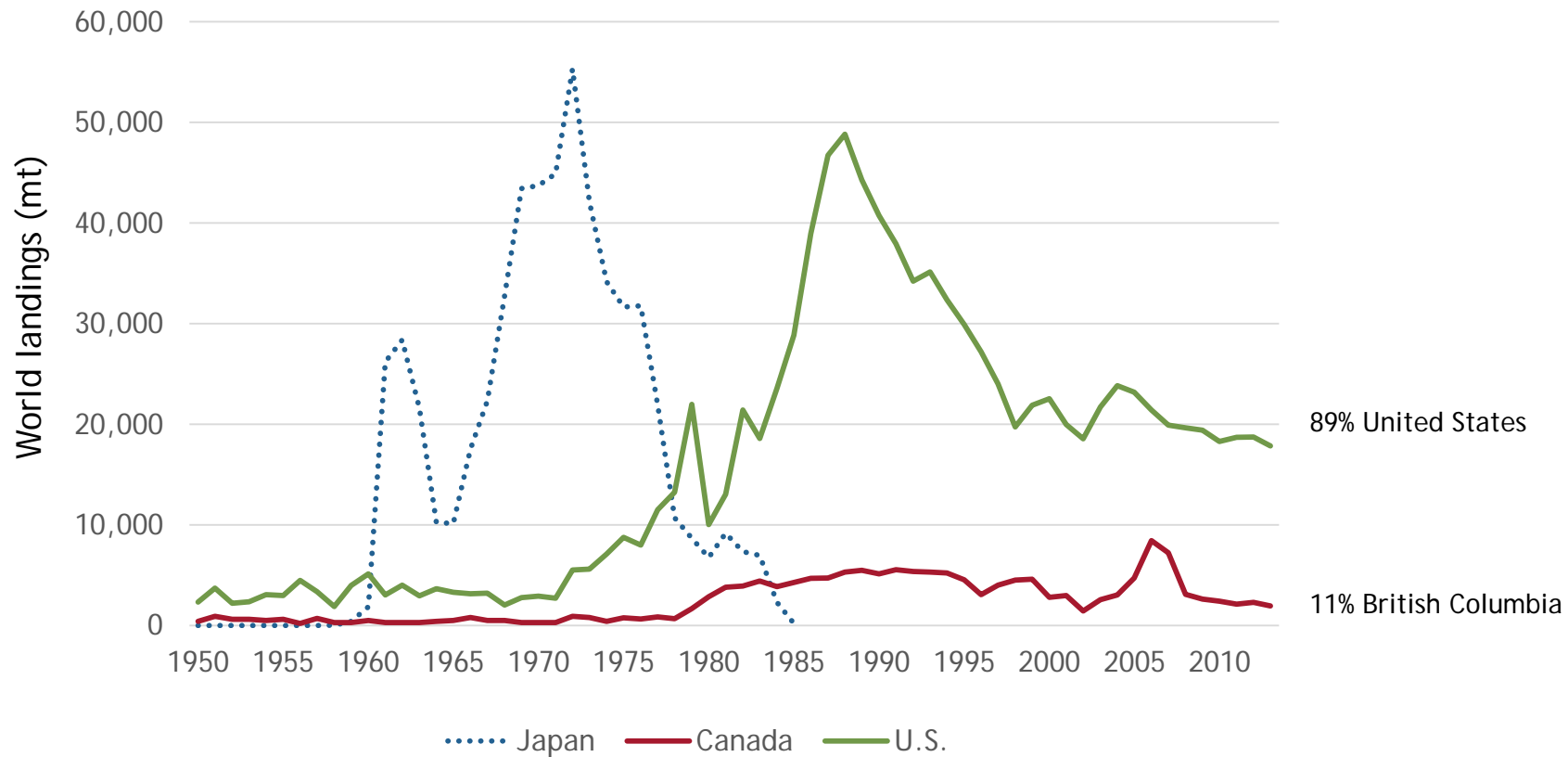


INTRODUCTION

BLACK COD OR SABLEFISH?

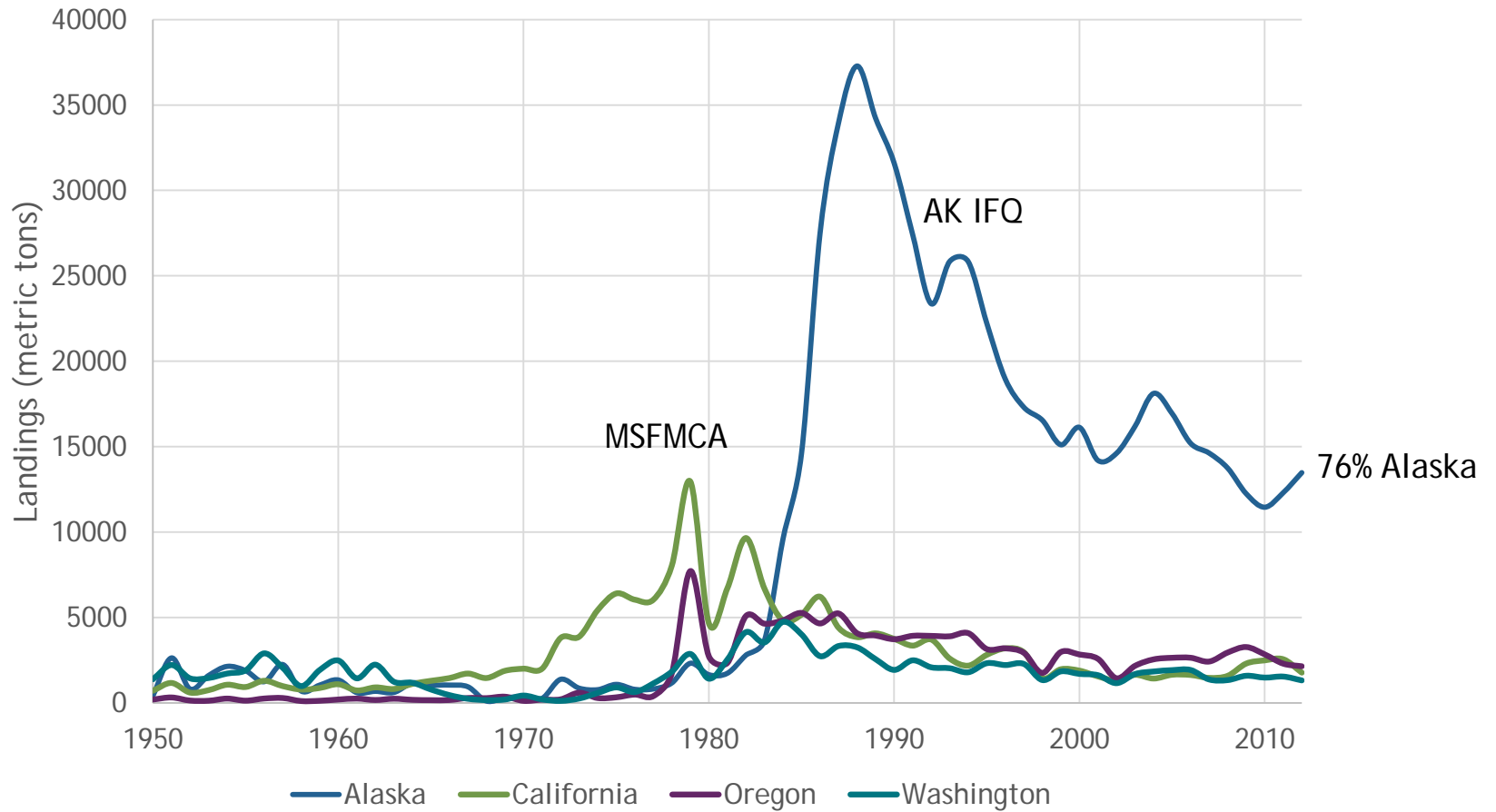
ANAPLOPOMA FIMBRIA





NOAA Office of Science and Technology. National Marine Fisheries Service. *Commercial Fisheries Statistics 2014.*

ANNUAL WORLD LANDINGS



NOAA Office of Science and Technology. National Marine Fisheries Service. *Commercial Fisheries Statistics 2014.*

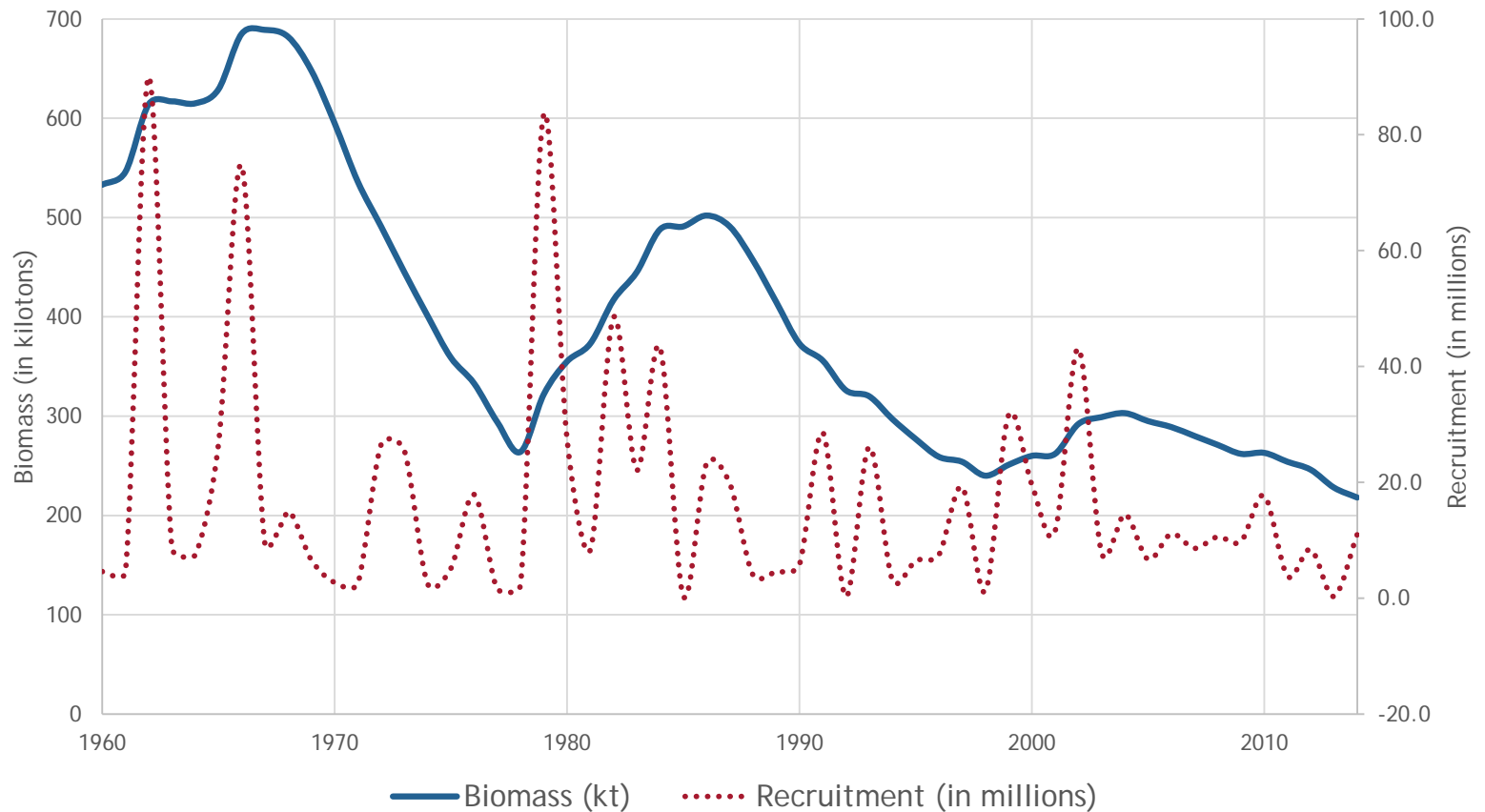
ANNUAL U.S. LANDINGS

EXVESSEL PRICE COMPARISON FOR GROUND FISH IN ALASKA

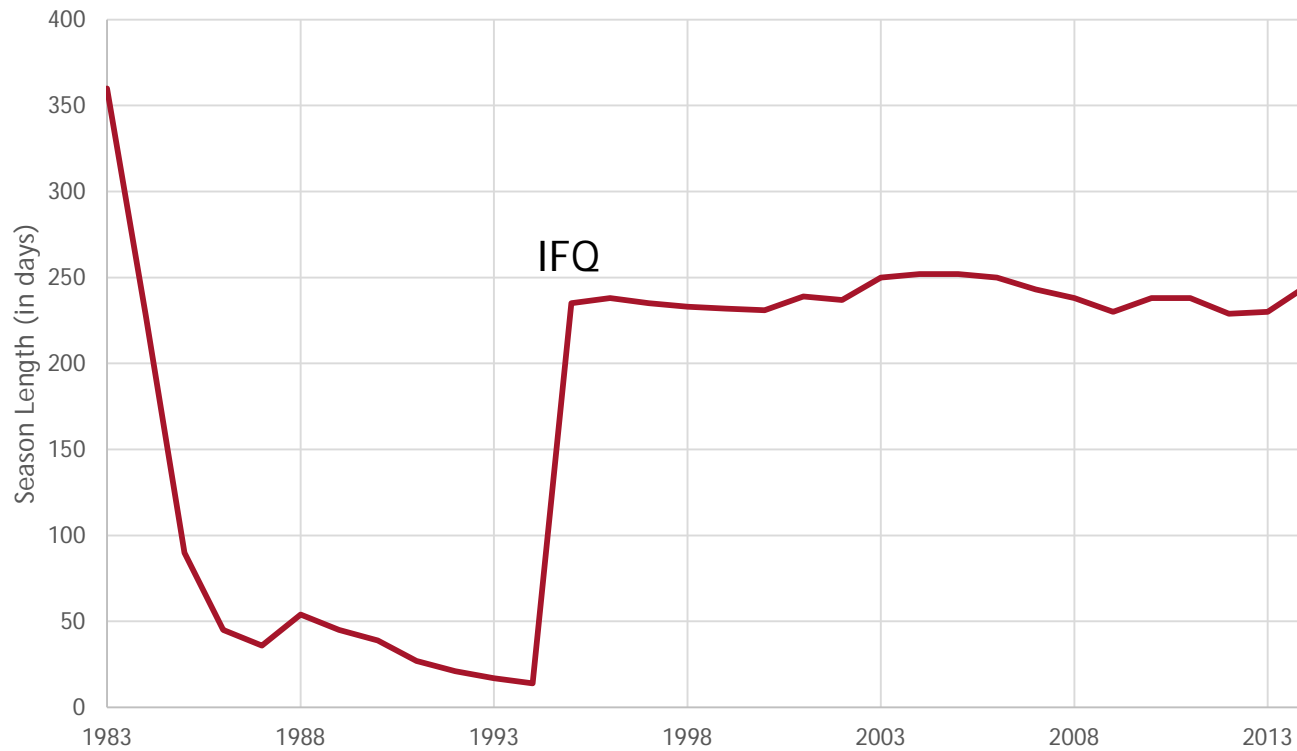
Fish	Sablefish	Pacific Cod	Rockfish	Pollock	Atka Mackerel
\$/lb	\$3.10	\$0.25	\$0.22	\$0.15	\$0.33
Exvessel Value (millions)	\$90.9	\$167	\$27.1	\$455.8	\$16.9

Data from SAFE Groundfish Report 2013, NMFS

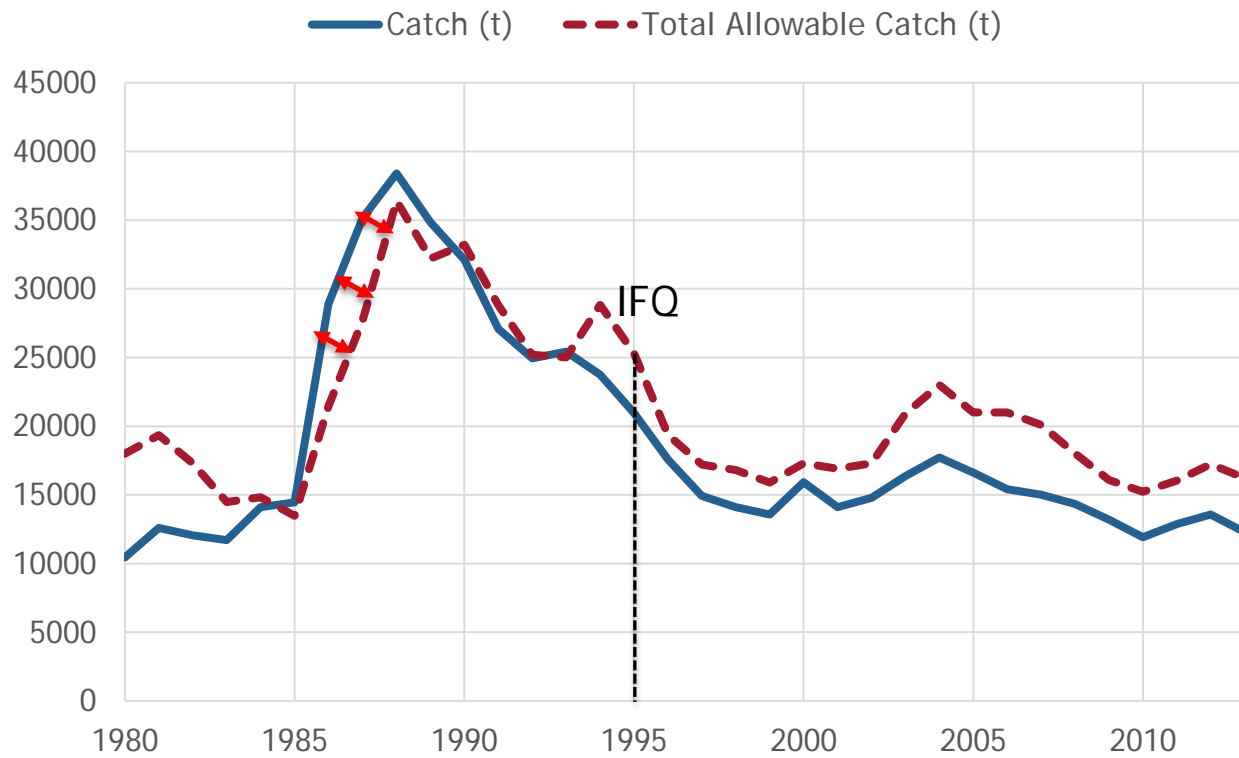
RECRUITMENT AND BIOMASS



AVERAGE SEASON LENGTH (IN DAYS) FOR ALASKA SABLEFISH



TOTAL ALLOWABLE CATCH



RESEARCH OBJECTIVES

Model simulations will be employed to examine the effects to exvessel price and revenue of:

1. Changes in sablefish production
2. Season elongation through the IFQ program
3. Changes in the Japanese economy and exchange rates

MODEL SPECIFICATION

- Focus is on Alaska sablefish exvessel price formation.
- Strong relationship between Alaska's landings and exvessel prices and Japan's import demand, and paying premium for larger fish.

The behavioral equations are:

- (1) the Japanese import demand for sablefish from the United States
- (2) the allocation of Alaska sablefish harvest to Japan
- (3) the exvessel derived demand for Alaska sablefish

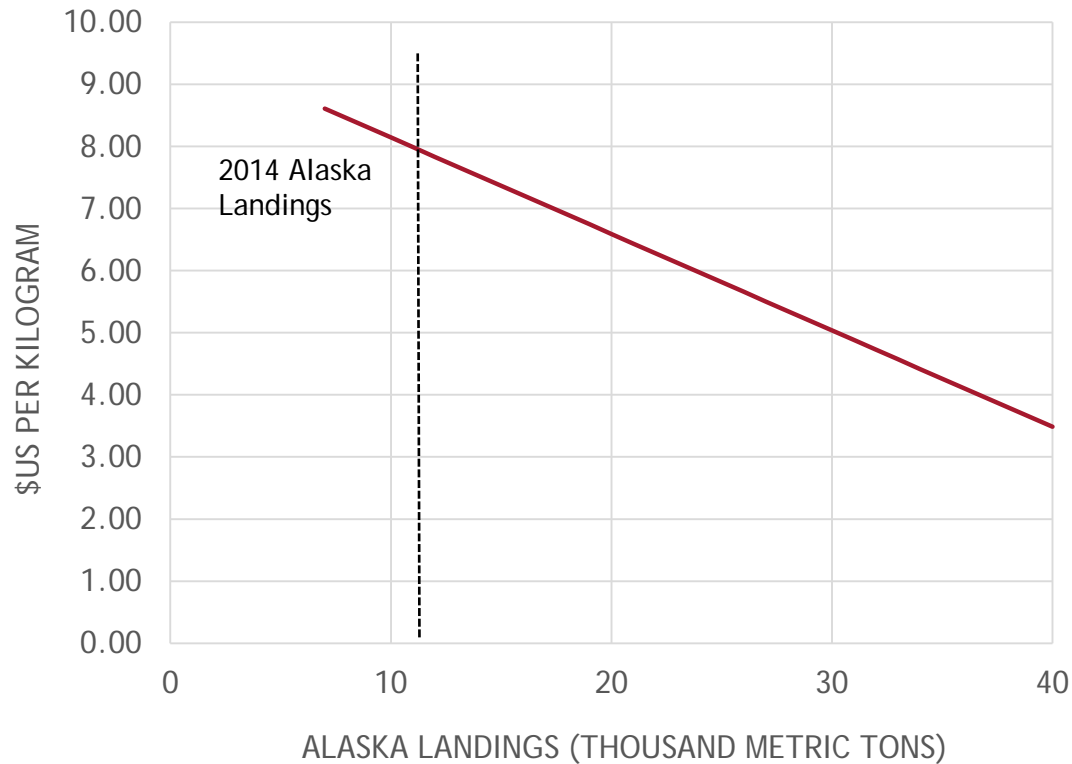
The market clearing identities are:

- (4) real import price in Japan
- (5) Japanese per-capita consumption for sablefish

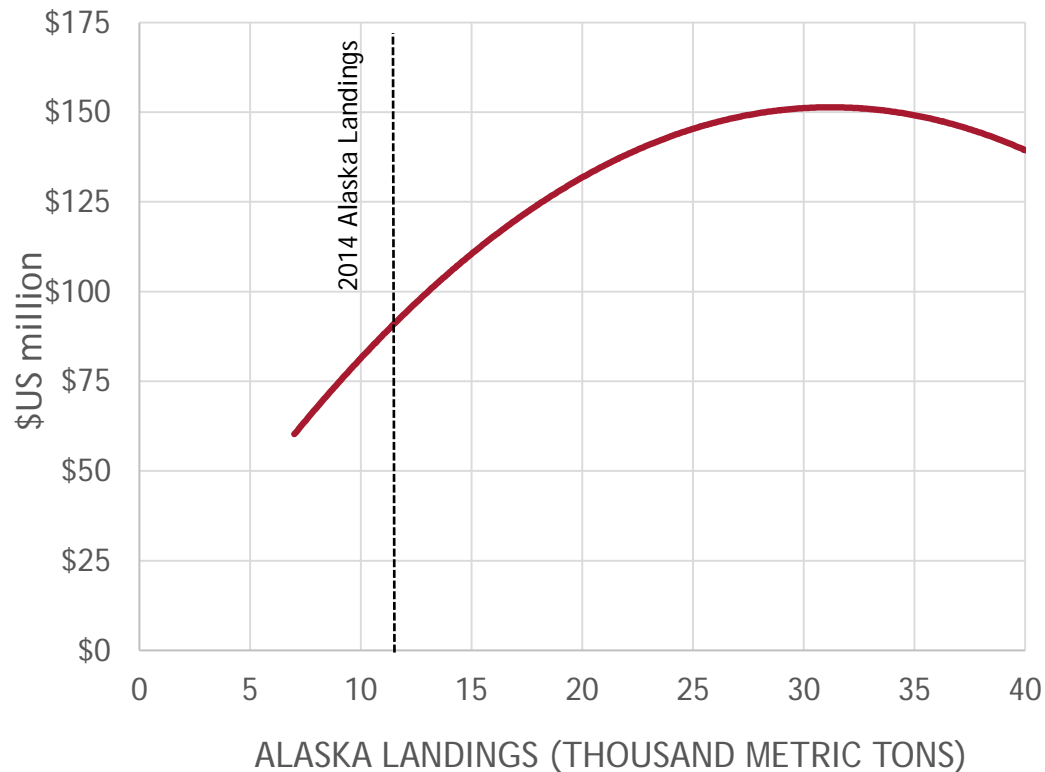
A scenic landscape featuring a large body of water, a small boat, and green mountains under a blue sky with white clouds. The text "MARKET MODEL SIMULATIONS" is overlaid in the center of the image.

MARKET MODEL SIMULATIONS

SIMULATED 2014 ALASKA EXVESSEL PRICE CHANGES FOR INCREASED (DECREASED) CATCH LEVELS



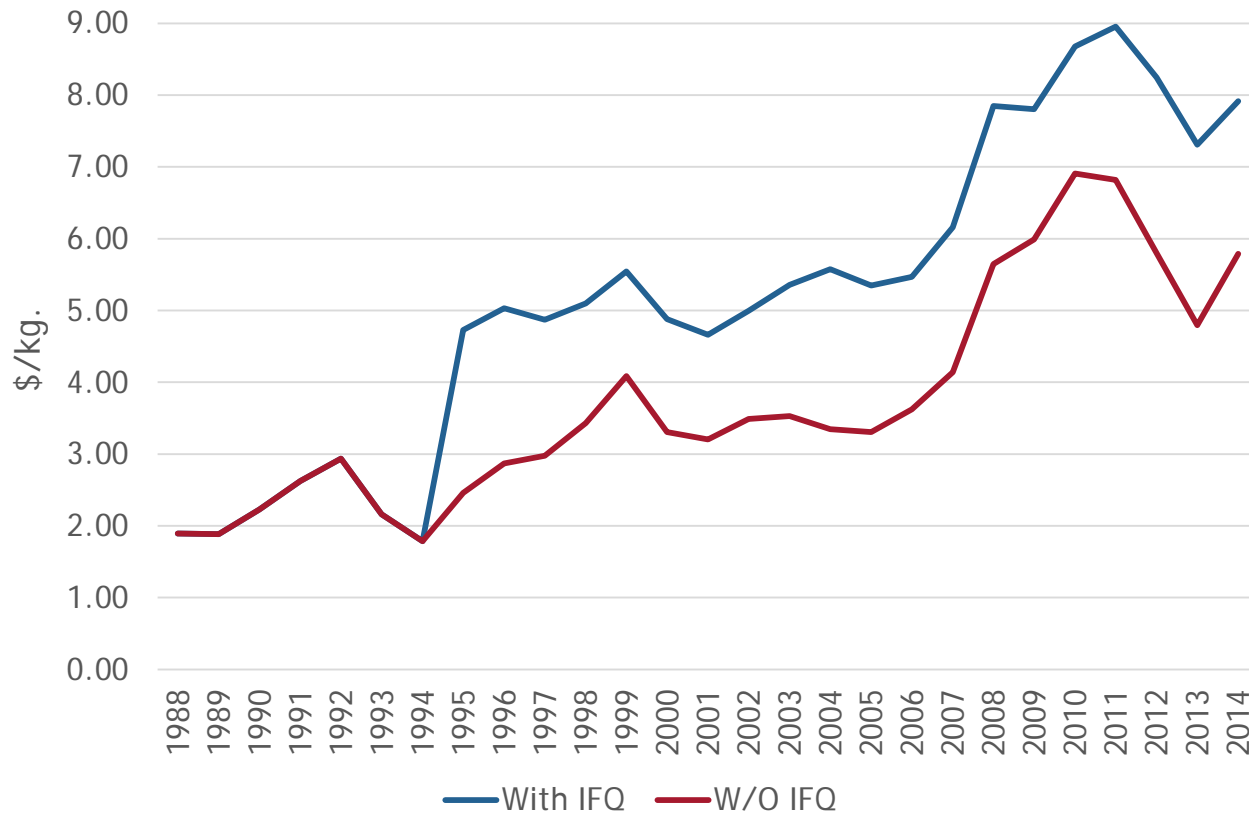
SIMULATED 2014 ALASKA EXVESSEL REVENUE CHANGES FOR INCREASED (DECREASED) CATCH LEVELS



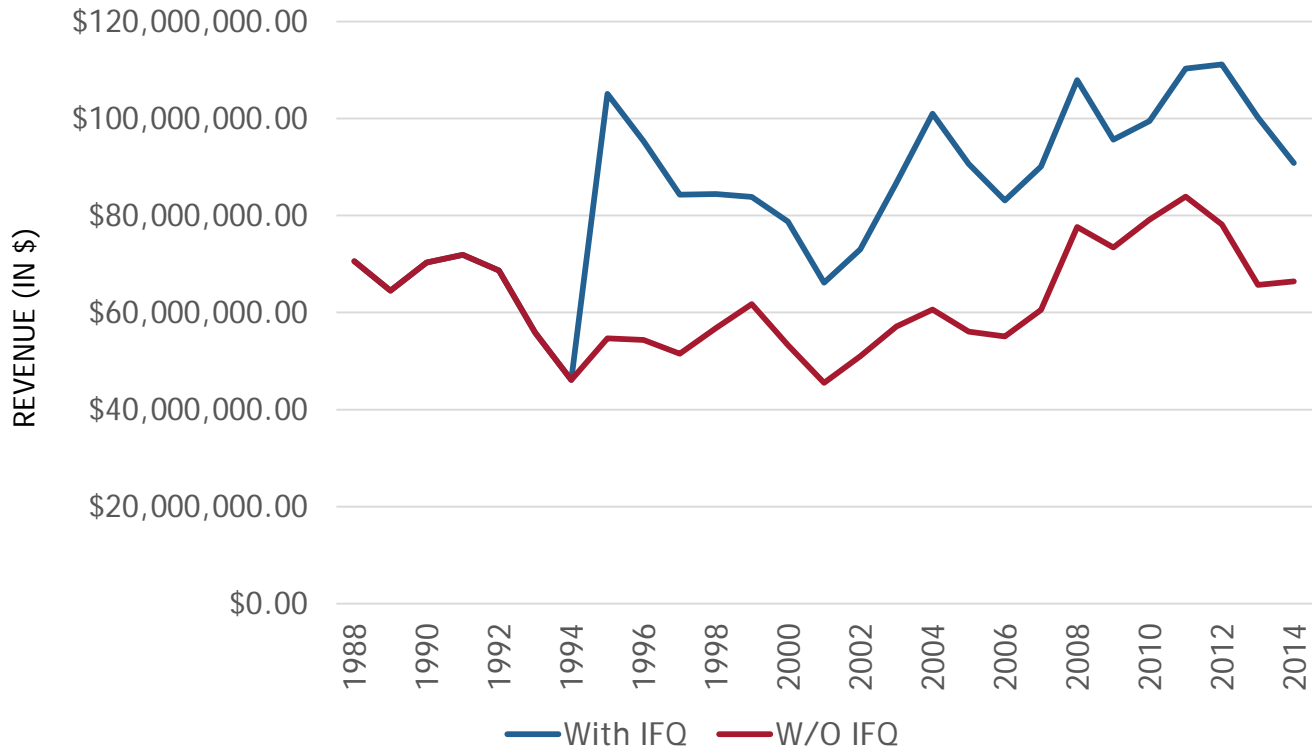
SIMULATED SABLEFISH 2014 ANNUAL EXVESSEL PRICES AND REVENUES

	Alaska exvessel price (\$/kg)	Exvessel revenue (\$ U.S. million)
With IFQ Program	7.91	90,823,231
Without IFQ Program	5.79	66,424,841
Predicted change due to Alaska IFQ program	+2.12	24,398,389
Predicted increases due to Alaska IFQ program (%)	36.7%	36.7%

SIMULATED SABLEFISH 2014 ANNUAL REAL EXVESSEL PRICES (BASE YEAR 2014) WITH AND WITHOUT IFQ IMPLEMENTATION



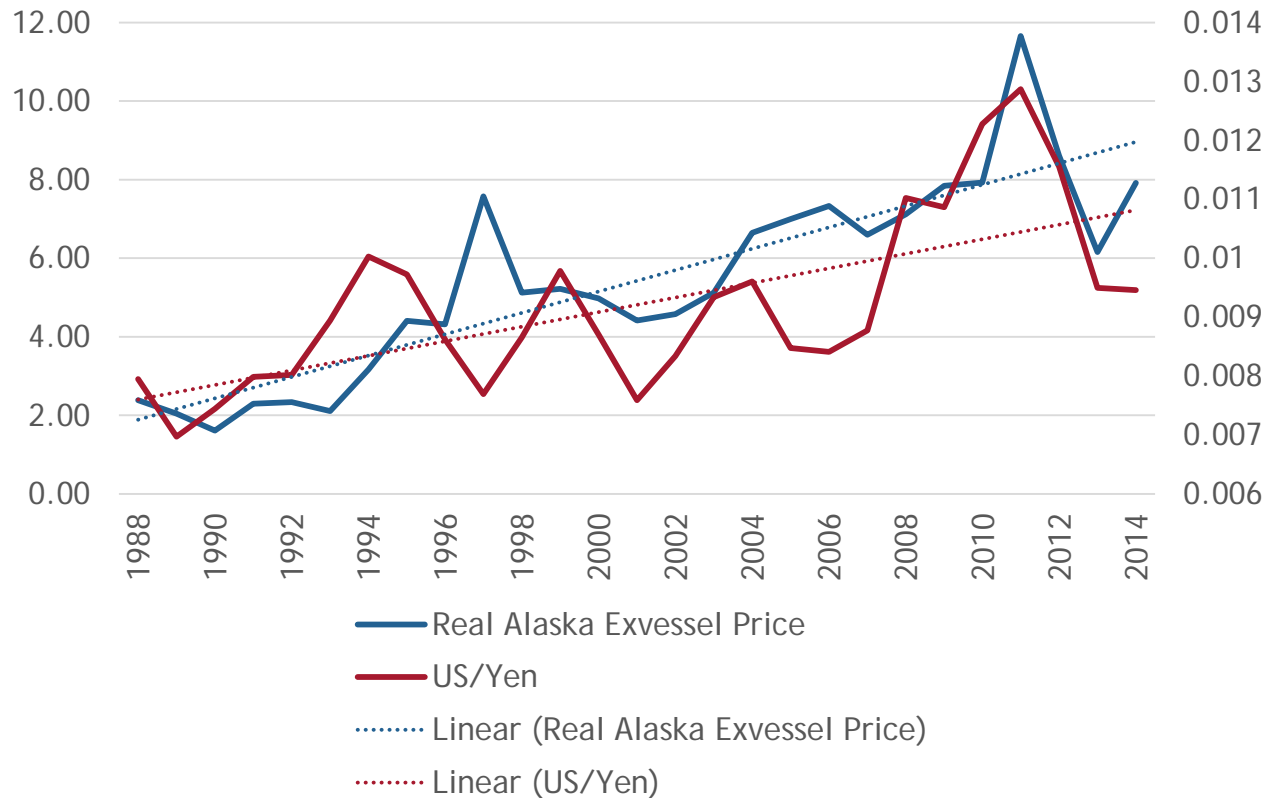
SIMULATED SABLEFISH 2014 ANNUAL REAL EXVESSEL REVENUES (BASE YEAR 2014) WITH AND WITHOUT IFQ IMPLEMENTATION



SIMULATED EFFECTS OF EXCHANGES RATES (\$/¥) ON 2014 EXVESSEL PRICE

Exchange Rate (% of 2014 value)	Alaska exvessel price (\$/kg.)	Percentage Change From Base
75%	6.27	-20.8%
80%	6.60	-16.6%
85%	6.93	-12.5%
90%	7.26	-8.3%
95%	7.58	-4.2%
100%	7.91	0.0%
105%	8.24	4.2%
110%	8.57	8.3%
115%	8.90	12.5%
120%	9.23	16.6%
125%	9.56	20.8%

SIMULATED EFFECTS OF EXCHANGES RATES (\$/¥) ON 2014 EXVESSEL PRICE



SIMULATED EFFECTS OF CHANGES IN JAPANESE INCOME ON THE 2014 EXVESSEL PRICES

Japan Consumption Expenditure (% of 2014 value)	Alaska exvessel price (\$/kg.)	Percentage Change From Base
75%	6.54	-17.3%
80%	6.82	-13.8%
85%	7.10	-10.3%
90%	7.37	-6.8%
95%	7.65	-3.4%
100%	7.91	0.0%
105%	8.18	3.4%
110%	8.44	6.7%
115%	8.71	10.0%
120%	8.97	13.3%
125%	9.22	16.5%

DISCUSSION AND RESULTS

- Total Revenues and Optimal Static Harvest Levels
 - High inter-annual recruitment variation
 - Low 2014 landings have less sensitive exvessel prices
 - No flooding markets
- Individual Fishing Quotas
 - 14 days in 1994 to over 8 months in 2014
 - Real exvessel revenue increased by 30% over modeled period
- Sensitivity to Changes in Japanese Economy
 - Strong yen in 2011 coincided with high exvessel price
 - When yen and consumer expenditures increase by 5%, exvessel prices increase by 4.2% and 3.4% respectively.

FURTHER RESEARCH

- Bioeconomic Model
- Cost structure development
- Integration of developing markets
- IFQ share prices



QUESTIONS OR COMMENTS?

skwarpinski@alaska.edu