

# **Preliminary Evaluation of the Dungeness Crab Trap Limit Program**

**Dungeness Crab Task Force Meeting  
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Ukiah, CA**

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# Dungeness crab trap limit program objectives\*

- Improve the long-term sustainability of the fishery
- Cap the number of crab traps in the ocean that leads to
  - a market glut of crab early in the season
  - increased safety risks due to derby-like fishery
- Reduce the amount of lost/abandoned gear in the water
- Protect California's crab fishery from unfair competition from out-of-state boats that are limited in their own states

*\* excerpted from SB 369 (Evans) bill analysis, 9/2/11*

# Trap limit program evaluation

DCTF Initial Report to the Legislature, January 2015:

*The DCTF is required to evaluate ... and provide the Legislature, Department, and Commission with feedback on the commercial Dungeness crab industry's experiences with the program.*

*The DCTF [felt] more time is needed to evaluate the benefits, challenges, and loopholes associated with the program. ... A number of topics and potential concerns have been raised by ... industry and may be addressed in the January 2017 report to the Legislature, Department, and Commission.*

# Purpose of this presentation

To provide preliminary analysis of available information ***and seek DCTF feedback and input*** to evaluate the trap limit program based on goals and topics identified in SB 369 and DCTF discussions\* including:

1. Access to the fishery
2. Fishing capacity
3. Fishing activity
4. Direct and indirect economic impacts
5. Program operation and effectiveness

*\* as summarized at the October 2015 DCTF meeting*



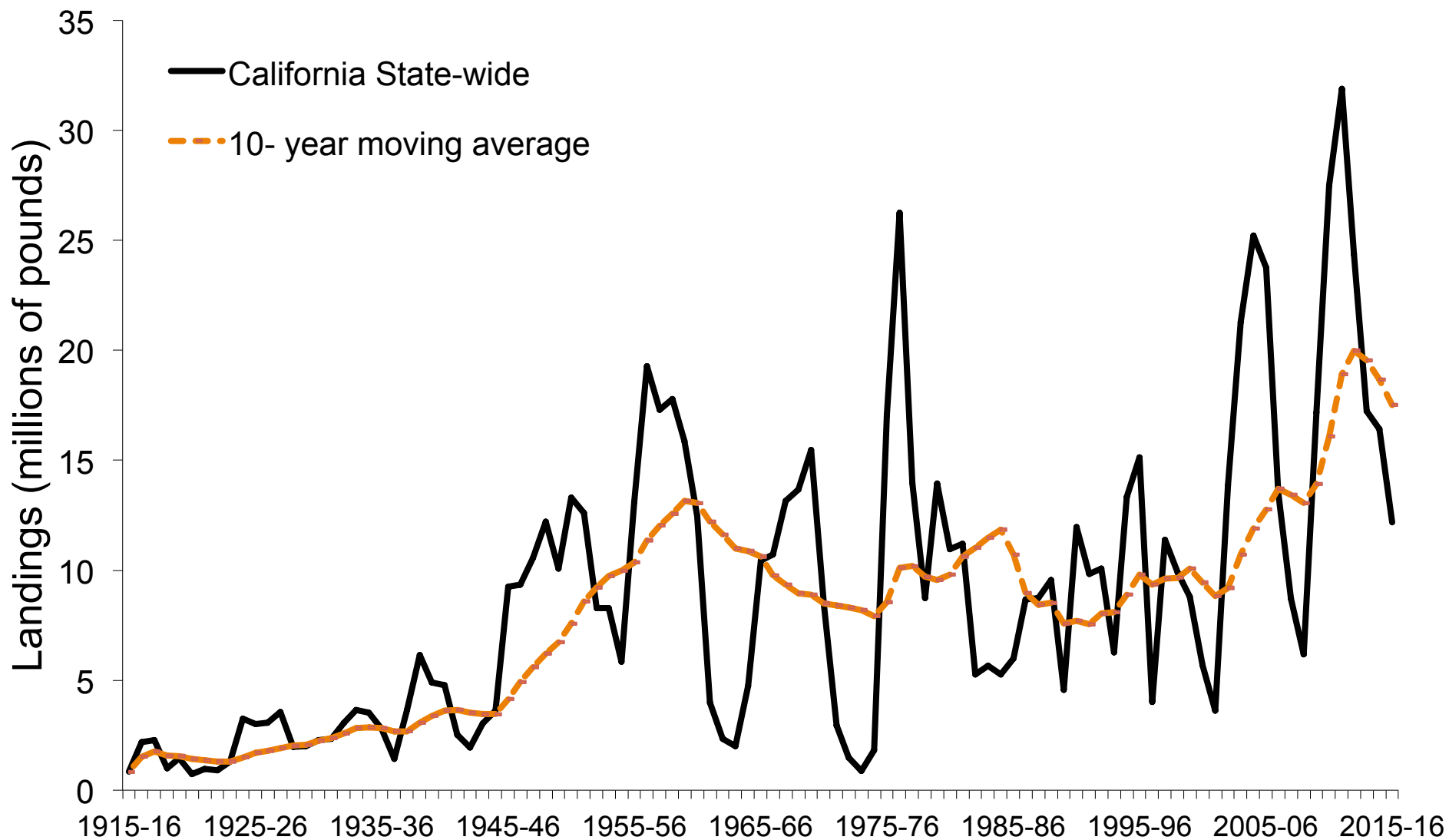
# Methods and caveats

- Data and analysis
- Interpretation of results
- Caveats
  - short time frame
  - many other things affecting fishery
  - limited data

*“The changes we have seen relative to fishing activity could have absolutely nothing to do with the trap program.”*

*The information presented here is intended as a conversation starter.*

## Statewide commercial Dungeness crab fishery landings, by season, 1915-16 through 2015-16



Source: CDFW Data

**Northern**

**Central**

# Dungeness Crab Fishery Management Areas

Crescent City

Trinidad

Eureka

Fort Bragg

Bodega Bay

San Francisco

Half Moon Bay

Monterey

Morro Bay

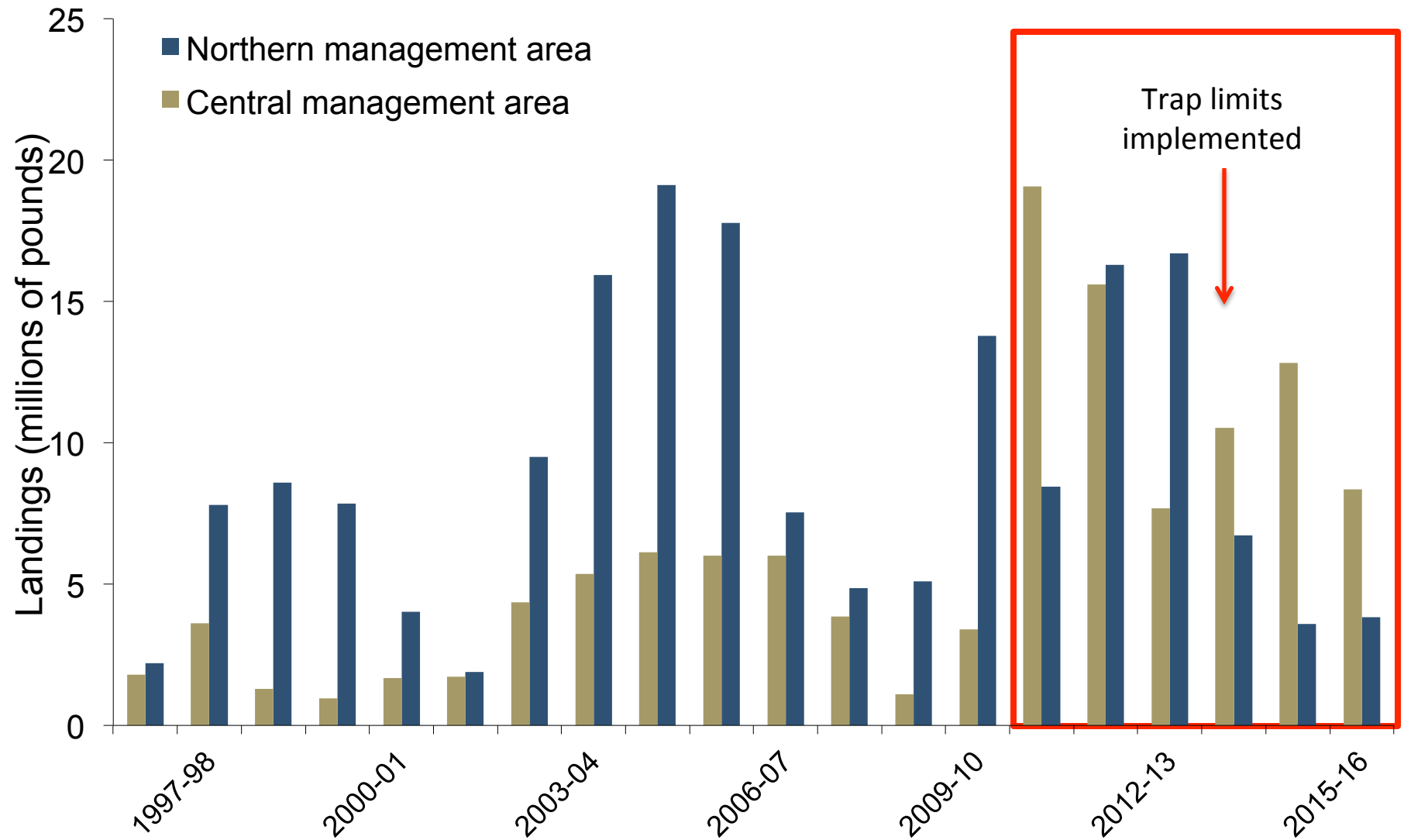
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Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



## Seasonal landings by management area, 1996-97 through 2015-16



# 1. Has ***access to the fishery*** changed since the program was implemented?

- Access = feasibility of entering/participating in the fishery
  - affected by
    - availability of permits
    - costs of fishing operation, license and permit
    - other (social, economic) factors enabling/limiting access
- Financial costs
  - license, permit (*paid to CDFW*)
    - + biennial trap tag fees \$1,875 (Tier 7) - \$3,500 (Tier 1)
  - permitted vessel, gear (*paid to previous owner*)
    - + tier-based trap tags
- Available data indicate:
  - number of permits declined from 578 in 2010-11 to 561 in 2015-16



1. Has ***access to the fishery*** changed since the program was implemented?

If so, *how? why?*

## 2. Has *fishing capacity* changed since the program was implemented?

- Available indicators
  - permits
  - gear: trap tags
  - vessels: length, age
- Permits
  - 17 lost to attrition since 2010-11 season
- Gear
  - Tier upgrades: net gain of <1% of total maximum potential traps (1,325 of 174,050 in 2015-16)
  - Trap tag replacements
    - Within-season: 1% or less of maximum potential traps
    - Biennial: 3-8% of maximum potential traps



- Vessels

- No significant differences in average vessel length pre v. post
- Vessel length ranges widely within tiers
- Average vessel length decreases from Tier 1 through Tier 7

**Vessel length (feet) by tier,  
last 6 seasons**

Tier	Average	Range
1	53	30 - 92
2	47	30 - 78
3	41	24 - 70
4	40	22 - 70
5❖	37	12 - 58
6	35	14 - 76
7❖	34	16 - 71



2. Has ***fishing capacity*** changed since the program was implemented?

If so, *how? why?*

### 3. Has *fishing activity* changed since the program was implemented?

- Participation, effort and catch, over time and space
  - Proportion of permits active in the fishery
  - Landings and ex-vessel value
  - Location
  - Timing

#### Number and proportion of permits that were active and landing days, by season, 2010-11 through 2015-16

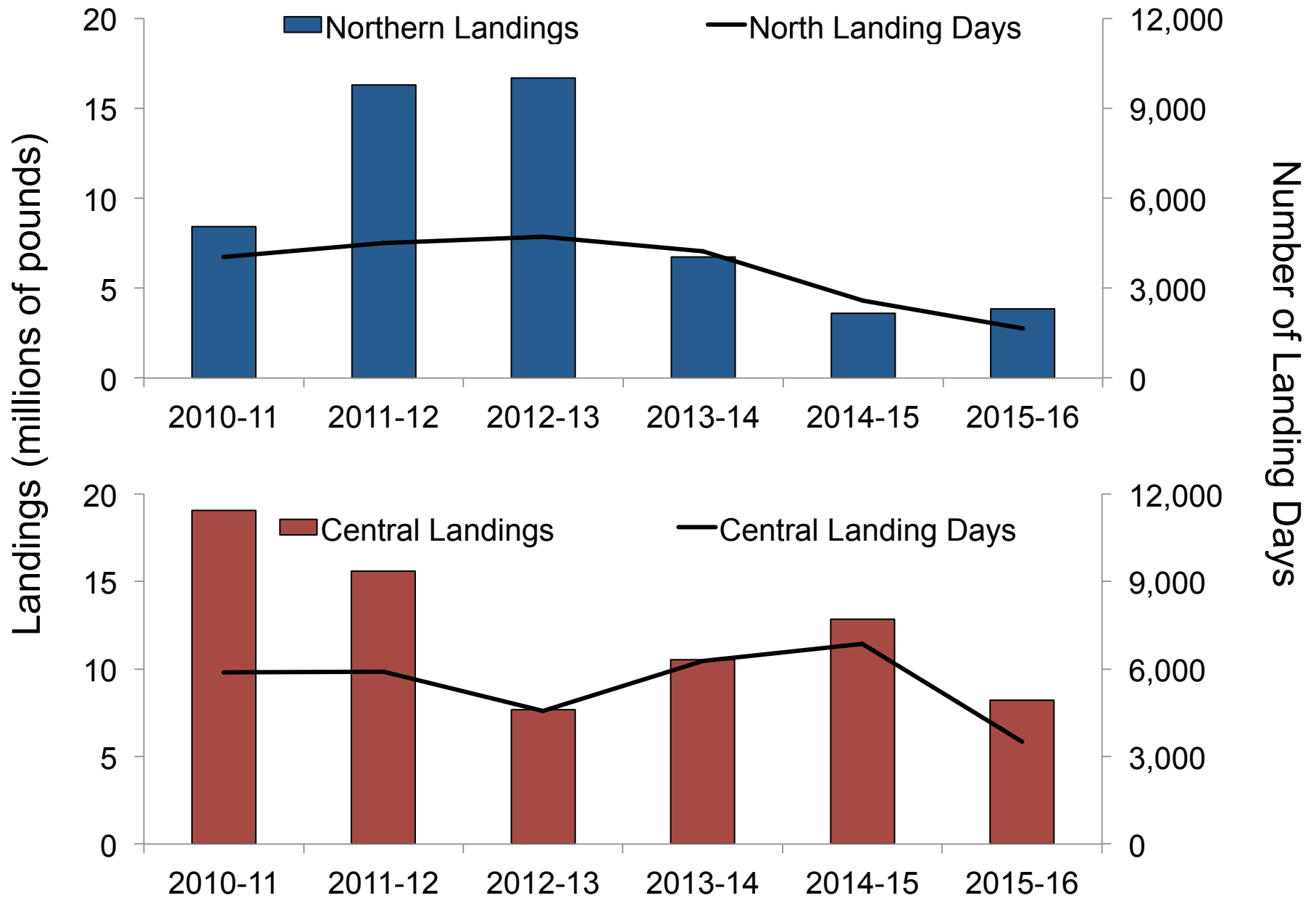
Tier	Pre-Implementation			Post-Implementation		
	2010-11*	2011-12	2012-13	2013-14	2014-15	2015-16
<b>Total Active Permits</b>	412	435	447	453	461	405
<b>Total Permits</b>	578	570	570	568	563	561
<b>% Active</b>	71.3%	76.3%	78.4%	79.8%	81.9%	72.2%
<b>Landing Days</b>	9,936	10,417	9,292	10,497	9,445	5,159

\* includes 2 permits not assigned to a tier that made landings during the 2011-11 season but not in later seasons.

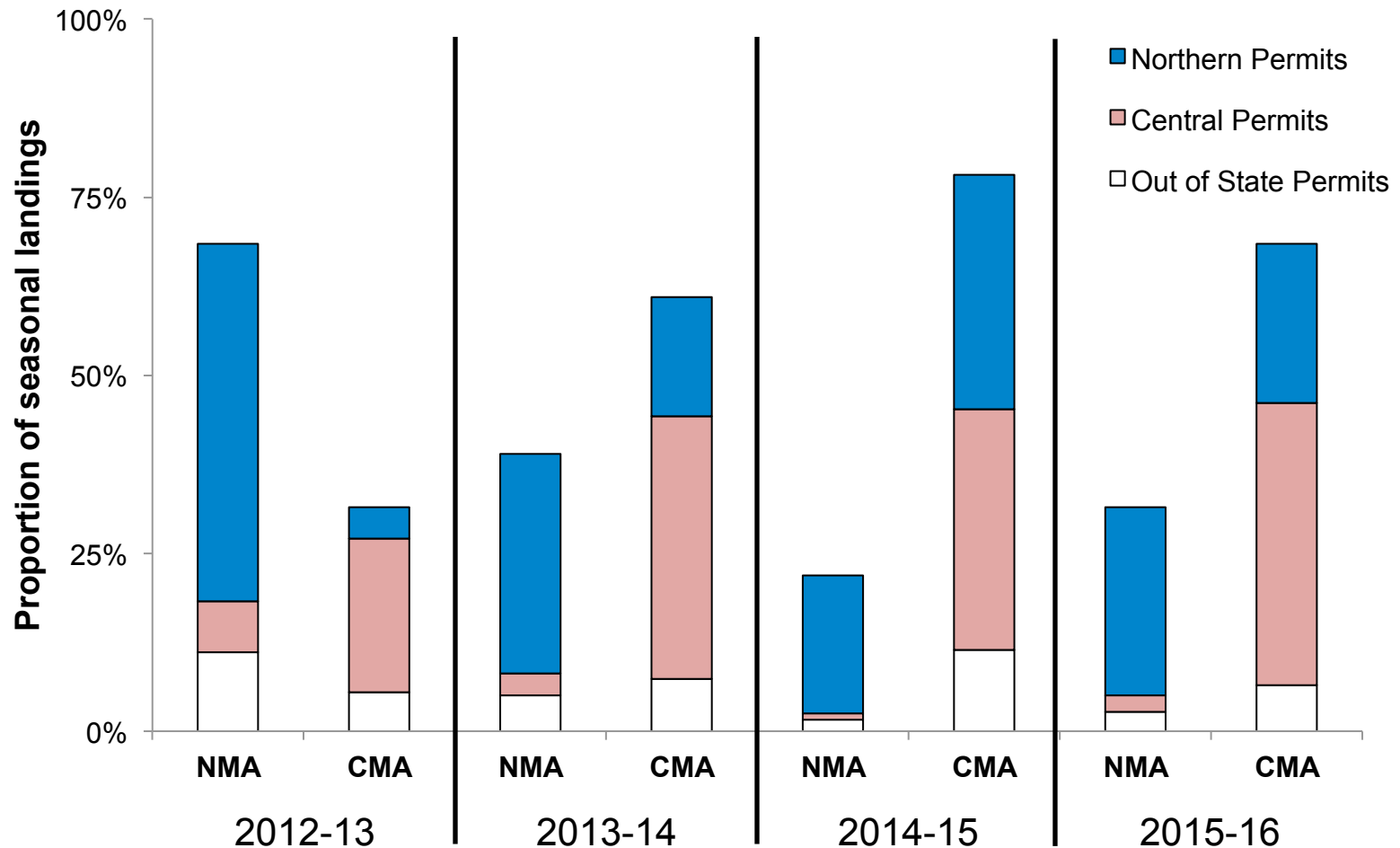


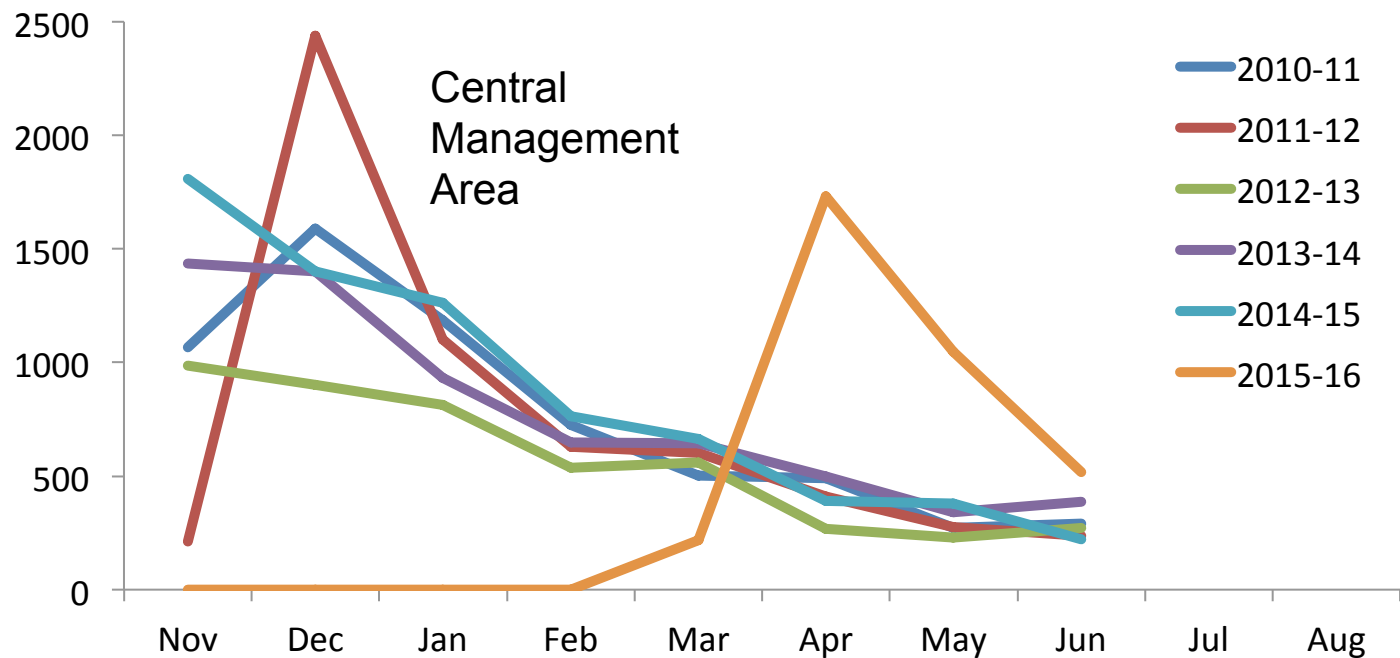
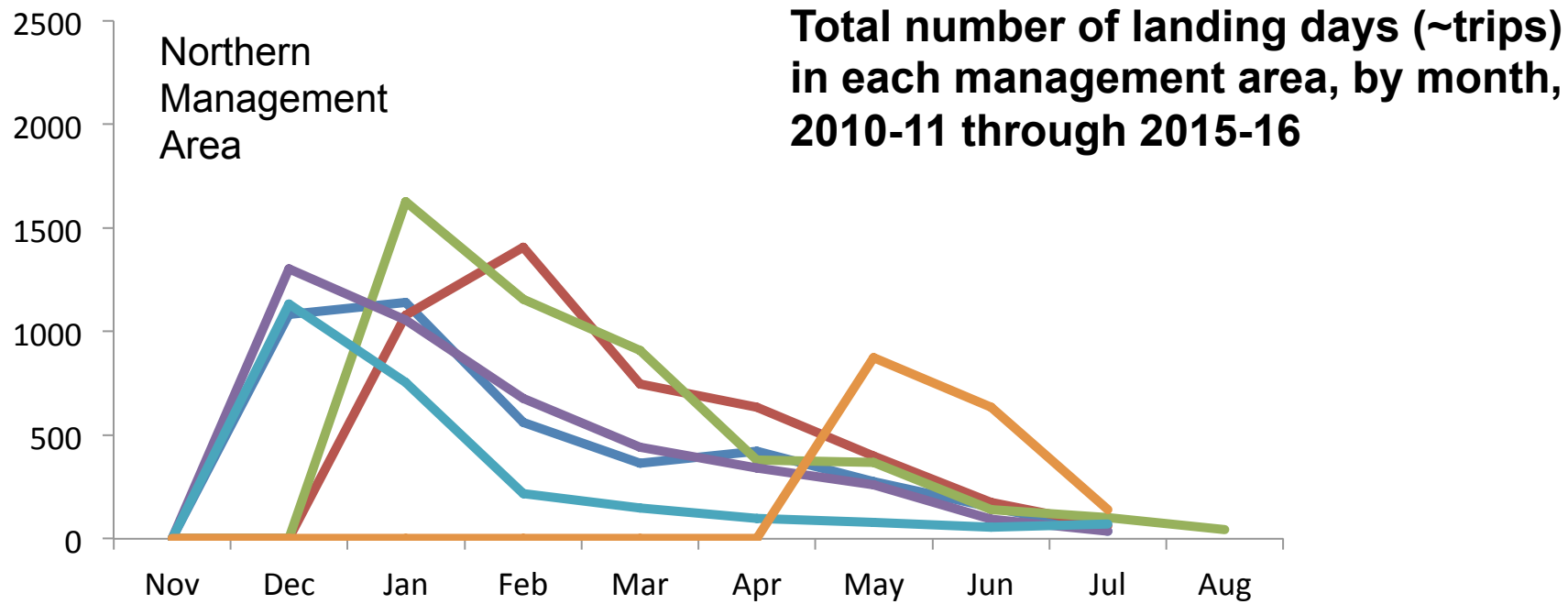
## Seasonal landings of Dungeness crab, 2010-11 through 2015-16

	Landings (million lbs)				
Season	Northern	Central	Statewide	% North	% Central
<b><i>Pre implementation</i></b>					
2010-11	8.4	19.1	<b>27.5</b>	30.7%	<b>69.3%</b>
2011-12	16.3	15.6	<b>31.9</b>	51.1%	48.9%
2012-13	16.7	7.7	24.4	68.5%	31.5%
<b><i>Post implementation</i></b>					
2013-14	6.7	10.5	17.2	39.0%	<b>61.0%</b>
2014-15	3.6	12.8	16.4	21.9%	<b>78.1%</b>
2015-16	3.8	8.3	12.2	31.5%	<b>68.5%</b>

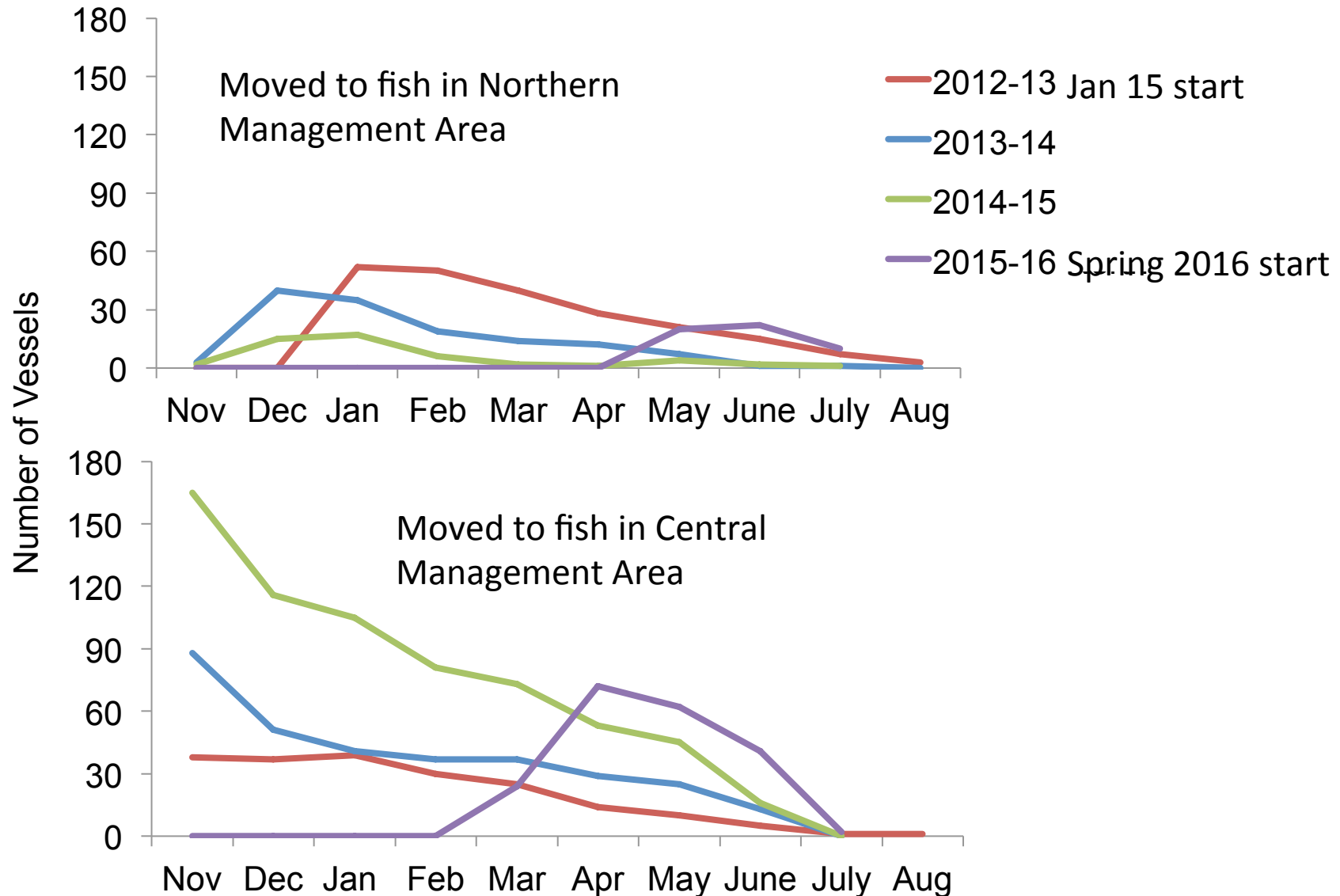


## Proportion of landings (lbs) made in the Northern and Central Management Areas (NMA and CMA) by permit home port area, 2012-13 through 2015-16





# Number of vessels with landings in non-homeport management area each month, by season, 2012-13 through 2015-16





3. Has ***fishing activity*** changed since the program was implemented?

If so, *how? why?*

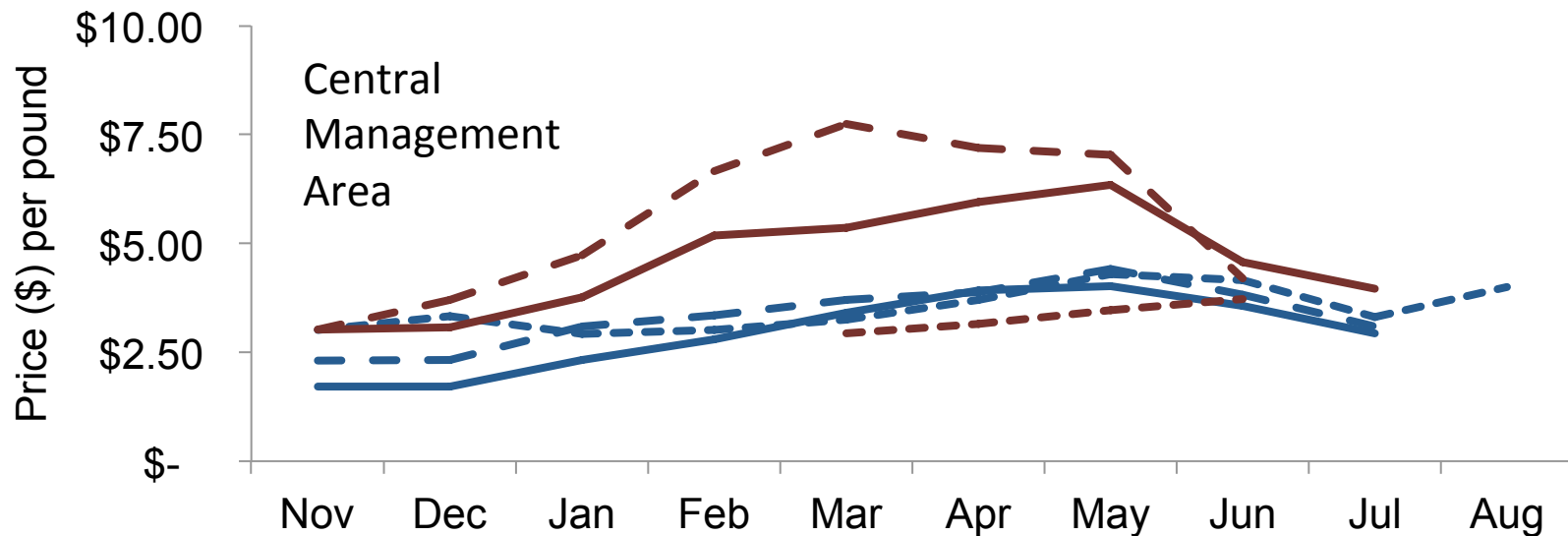
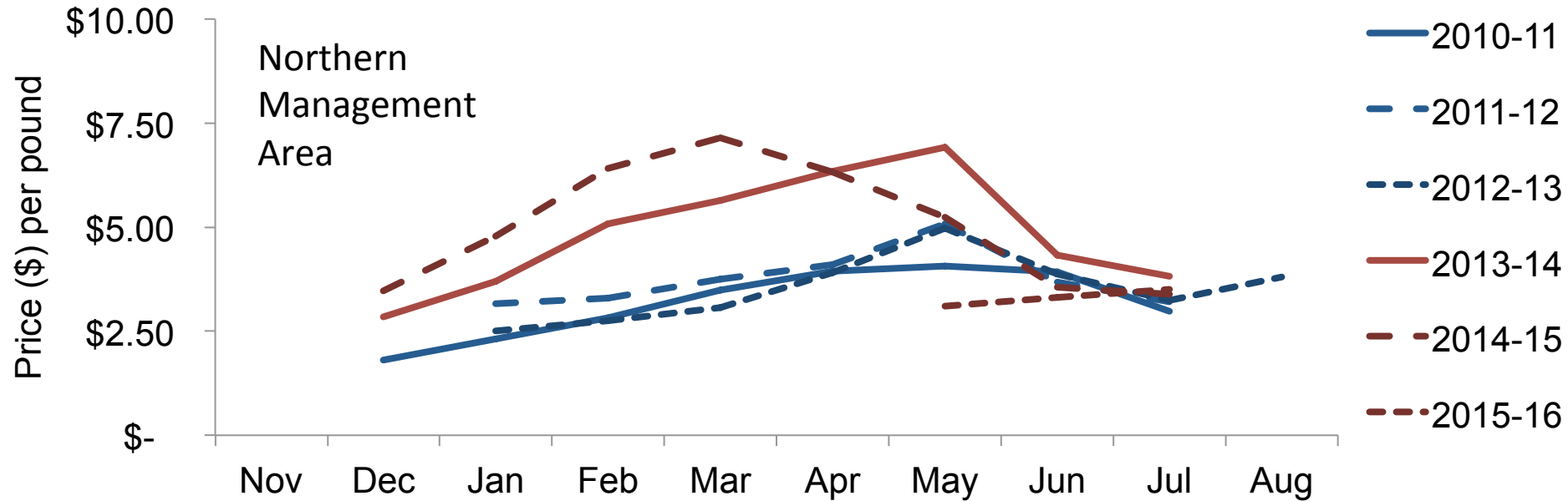
## 4. What have been the *direct and indirect economic impacts* of the program?

- Assessing economic impacts requires data on expenditures and revenues for fishing operations, fishermen, receivers/processors, and support businesses *before and after* an event or change
  - Direct impacts: changes in the fishery, e.g., revenue, jobs
  - Indirect impacts: resulting changes in support-businesses, e.g., revenue, jobs
- Available data
  - landings, landing days (trips), ex-vessel value
  - permits, vessels, fishermen, first receivers, ports

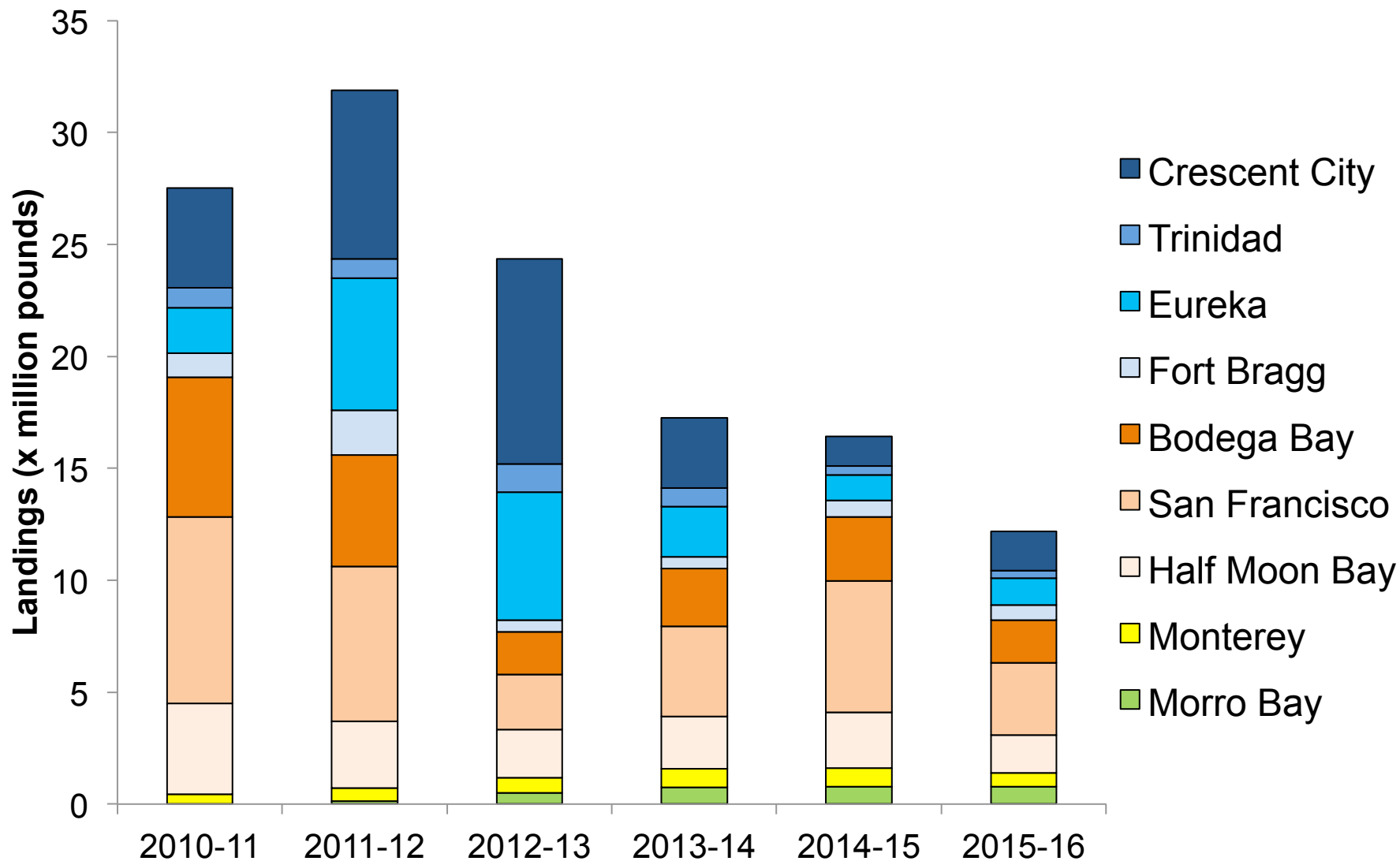
**Total and average per permit seasonal Dungeness crab landings and ex-vessel revenue, 2010-11 through 2015-16**

		Total		Per permit average	
Season	Active permits	Pounds landed (millions)	Ex-vessel revenue (millions)	Pounds landed	Ex-vessel revenue
<b><i>Pre implementation</i></b>					
<b>2010-11</b>	412	<b>27.5</b>	\$56.7	66,748	\$137,621
<b>2011-12</b>	435	<b>31.9</b>	<b>\$95.5</b>	73,333	\$219,540
<b>2012-13</b>	447	24.4	<b>\$69.5</b>	54,586	\$155,481
<b><i>Post implementation</i></b>					
<b>2013-14</b>	453	17.2	\$60.1	37,969	\$132,671
<b>2014-15</b>	461	16.4	\$59.9	35,575	\$129,935
<b>2015-16</b>	405	12.2	\$39.1	30,123	\$96,543

# Average monthly ex-vessel price per pound, by season, 2010-11 through 2015-16



## Proportion of seasonal landings at ports/complexes, 2010-11 through 2015-16





4. What have been the ***direct and indirect economic*** impacts of the program?

## 5. Has the *program operated effectively*?

- Is it flexible, e.g., allowing adjustment after initial allocation?
  - Of 43 appeals, 17 upgraded, 21 not upgraded, 5 withdrawn
  - Change of vessel for a given permit: 37-65 per season since 2010-11
- Are replacement tag procedures working?

Season	# of Permits	Replace- ment Tags Issued	% Traps Fished	% Fleet	# of Permittees Requesting...		
					10% Tags	5-10% Tags	<5% Tags
Within biennial periods							
2013-14	64	1,633	1%	11%	43	7	14
2014-15	44	1,424	<1%	8%	17	21	6
2015-16	24	850	<1%	4%	20	4	0
Between biennial periods							
2013-14	283	11,723	8%	50%	n/a	n/a	n/a
2015-16	172	4,192	3%	31%	n/a	n/a	n/a

# Summary

## *Has the program achieved its goals?*

- Improved the fishery's long-term sustainability?
- Capped the number of traps in the ocean?
- Reduced the market glut of crab early in the season?
- Decreased derby-related safety risks?
- Reduced the amount of lost/abandoned gear?
- Protected California's crab fishery from unfair competition from out-of-state boats?

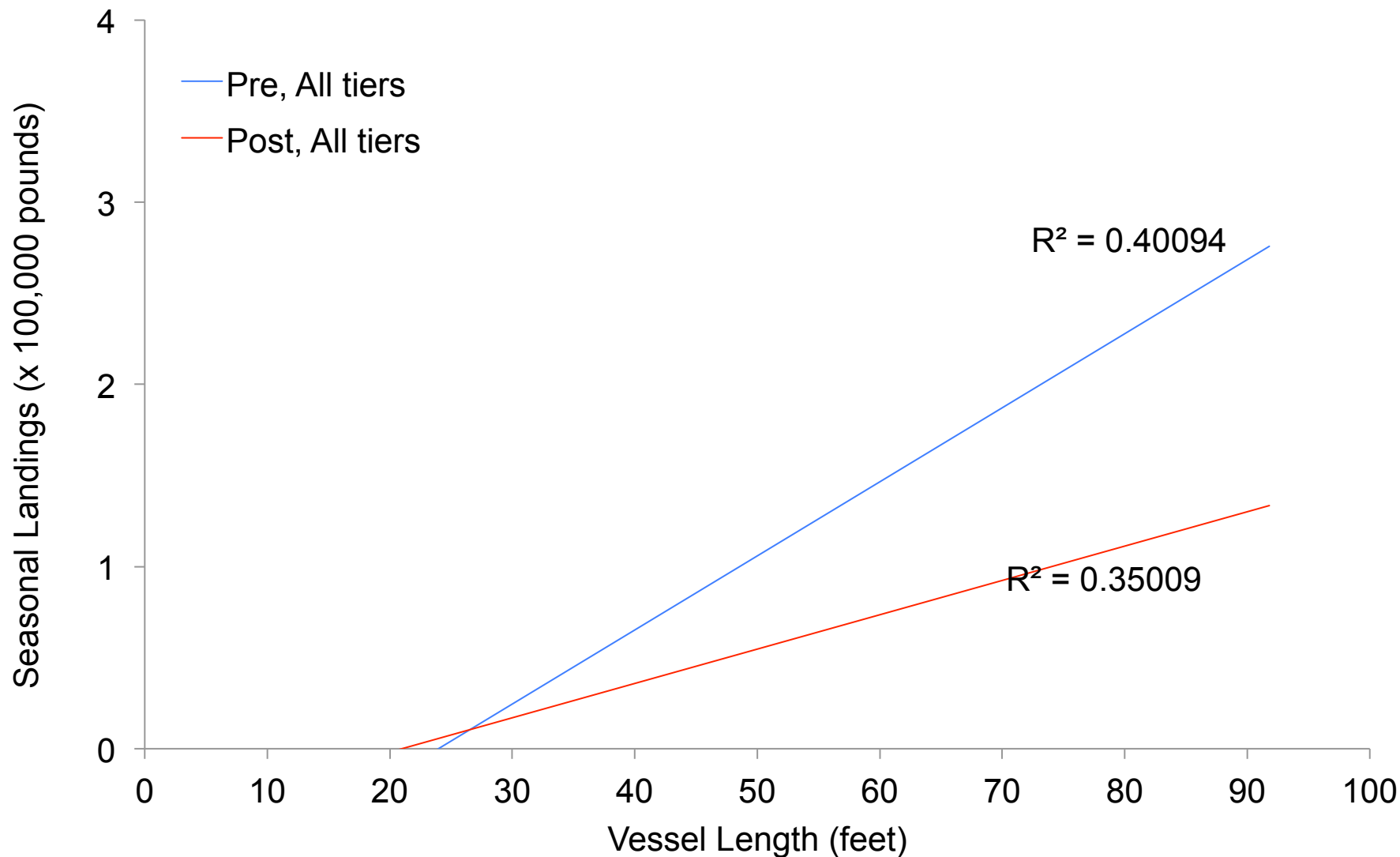
## *Preliminary evaluation*

- The changes seen *may* be related to the program, but also could have little to do with it
  - still very new
  - many factors affect the fishery
  - data on some key measures not available
- Information (presented and discussed) can be used for multiple purposes
- Continue the conversation?

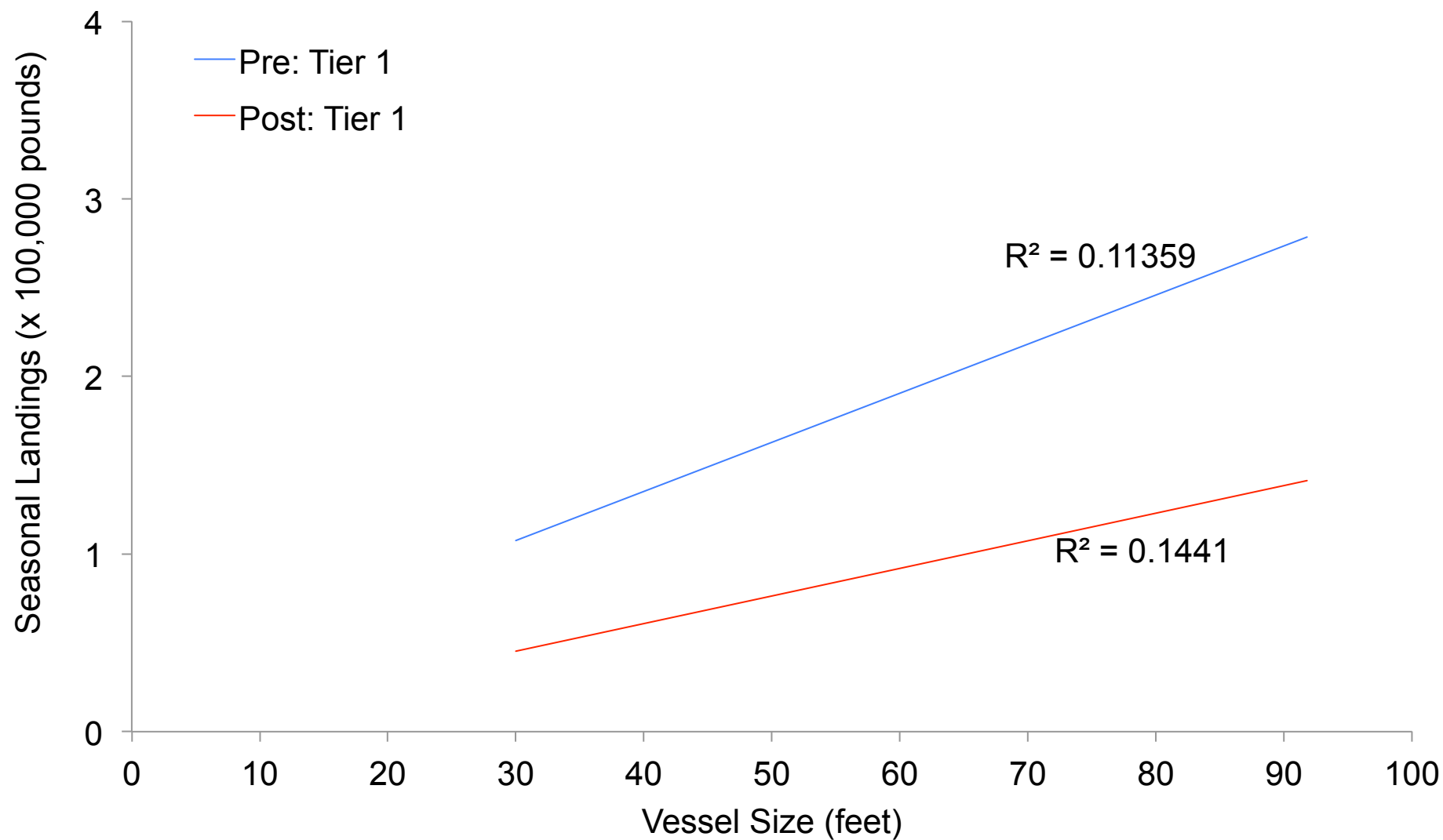


# Supplementary slides

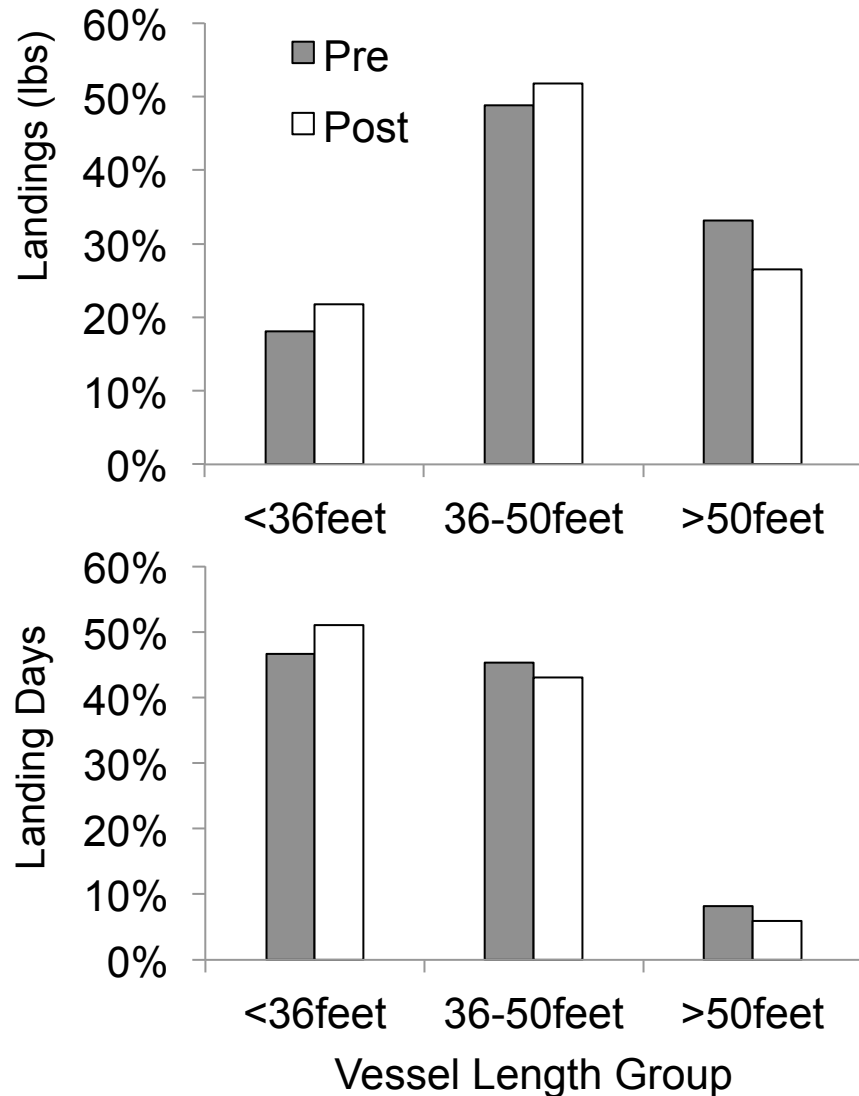
## Seasonal landings v. vessel length, pre and post trap limits



## Tier 1: Seasonal landings v. vessel size, pre & post trap limits



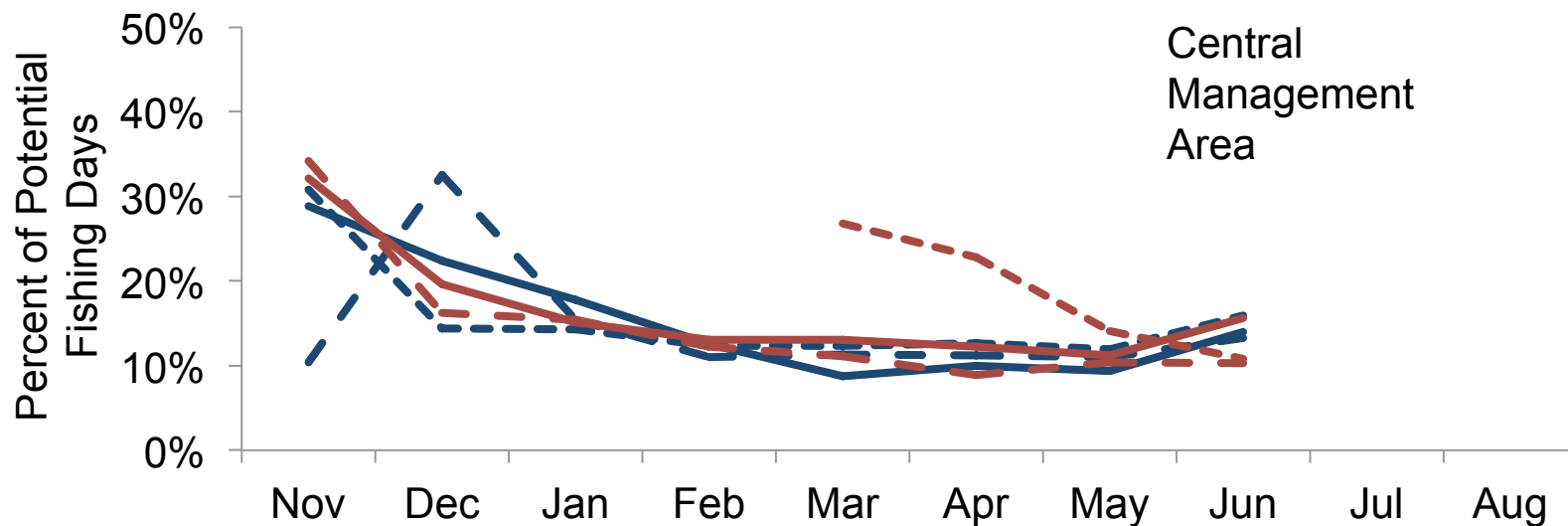
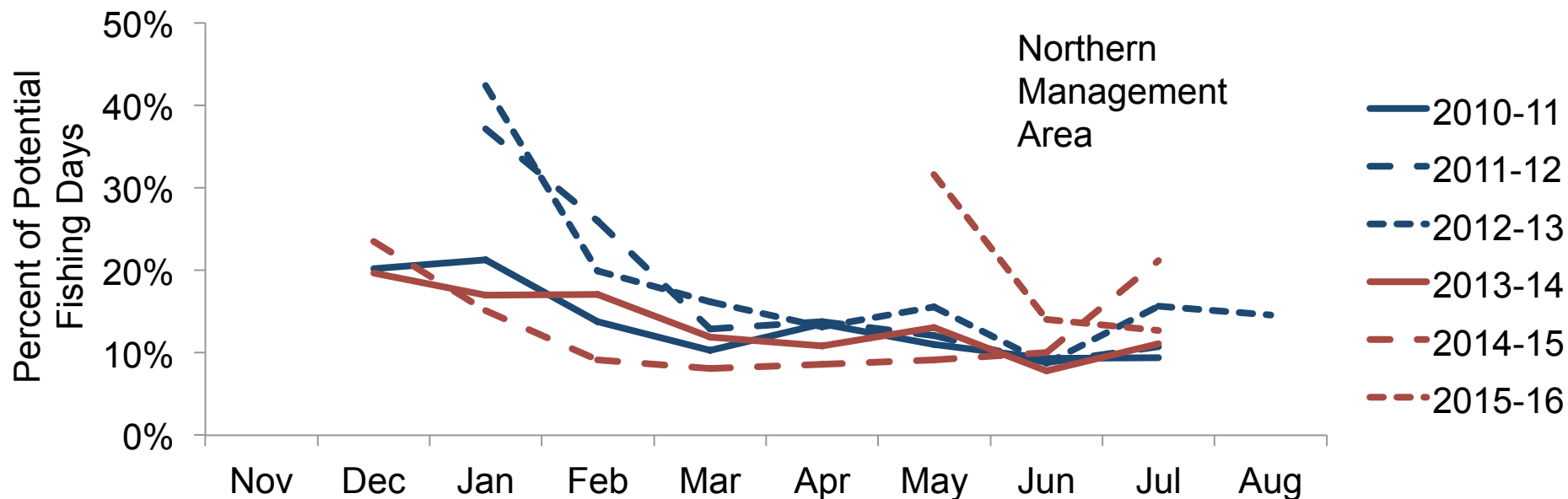
## Proportion of landings (lbs) and landing days (~trips), by vessel length group, pre and post trap limits



- “Small” vessels account for greatest proportion of trips, followed closely by medium vessels
- “Medium” vessels account for the majority of landings (lbs) and just under 50% of active vessels
- “Large” vessels account for moderate landings and the smallest proportion of trips



# Proportion of potential fishing days with landings in each management area, by month, 2010-11 through 2015-16



# TRAP LIMIT PROGRAM

## DEPARTMENT ACCOUNTING

Fiscal Year 2015-16			
Balance As of 6/30/2016		\$ 1,371,000	
Revenue As of 6/30/2016		\$ 61,000	
	PS	OE	Total Exp.
License and Revenue		\$ 44,046	\$ 44,046
Marine Staff	\$ 100,330	\$ 20,352	\$ 120,682
Law Enforcement	\$ 263,955	\$ 234,082	\$ 498,037
<b>Total</b>	<b>\$ 364,285</b>		<b>\$ 662,765</b>

# Revenue generated by the permit, buoy tag, replacement tag and appeal fees

	<b>FY 2012-13*</b>	<b>FY 2013-14</b>	<b>FY 2014-15</b>	<b>2015-16</b>
<b>Revenue by FY</b>	\$481,376	\$1,072,849	\$1,387,194	\$61,143
<b>Total Revenue Collected</b>				<b>\$3,002,562</b>