

Discussion Paper:

Participation in the Norton Sound Red King Crab Fishery¹

June 2014

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In October 2013, the Council received public testimony during staff tasking from a participant of the Norton Sound Red king crab (NSRKC) fishery. The testimony requested that the Council take action to discourage over-capitalization of this fishery. Specifically, the testimony asked the Council to consider requiring LLP licenses for vessel 32 feet (ft) length overall (LOA) and under, as well as applying a recency requirement for the existing pool of LLP licenses. The testimony suggested that at least one reported NSRKC landing in the past five years would be required in order to maintain a license.

The Council chose to address this issue at the June 2014 meeting held in Nome, in order to allow stakeholders from Norton Sound surrounding region a chance to provide additional public input. Council members expressed the utility of a baseline description of the fishery to augment stakeholder input. Therefore this discussion paper is meant to serve as reference; describing the characteristic of the stock, the fishery, harvest levels and participation over time.

DESCRIPTION OF THE STOCK

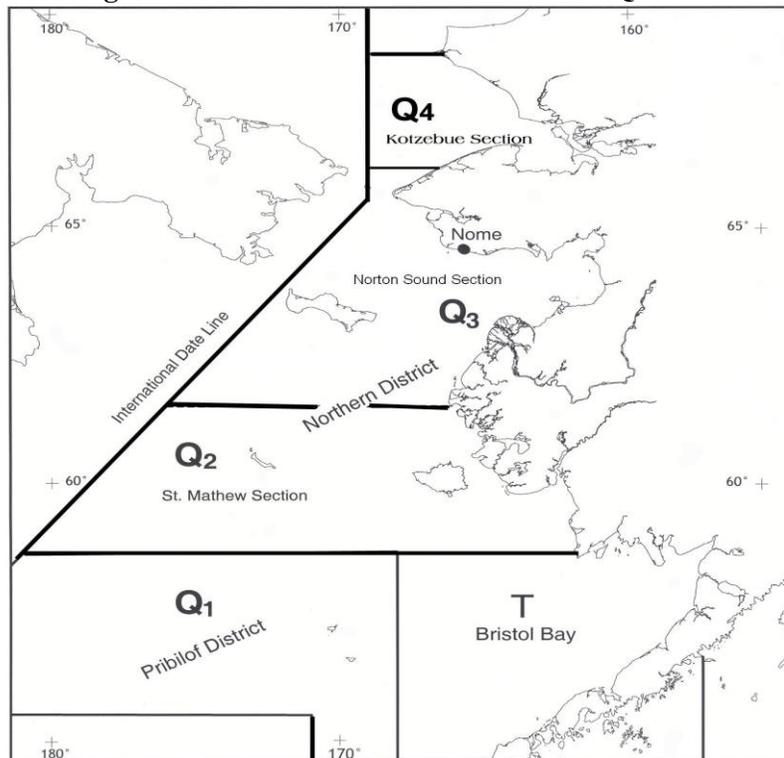
King crab in the Norton Sound section includes some red (*Paralithodes camtschaticus*), blue (*Paralithodes platypus*), and the more recently documented Hanasaki king crab (“spiny king crab” *Paralithodes brevipes*). Red king crab is by far the most abundant crab species in the Norton Sound Section, and is the primary target of subsistence and commercial fisheries in Norton Sound. Blue king crab are much less abundant, and their distribution is limited to the western portion of the section in the Bering Strait and Saint Lawrence Island area. Abundance information for blue crab is extremely difficult to assess due to strong currents and bottom topography. Commercial and subsistence blue king crab harvests are allowed by regulation; however, there is no management plan for blue king crab because of a lack of data and limited harvests (Kent & Bell 2013). Similarly, the spiny king crab was first documented in the region in 2003 and recent evidence suggests that this species may be establishing a population in

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Norton Sound. Spiny king crab were added as a species of king crab to State regulations in 2014 and incidental harvest is low. This discussion paper will focus specifically on the red king crab resource.

The NSRKC management area exists in the Norton Sound Section (Q3) and Kotzebue Sections (Q4) of the Bering Sea as illustrated in Figure 1. Q3 contains all waters in Statistical Area Q north of the latitude of Cape Romanzolf (61° 49' N latitude), east of the International Dateline, and south of latitude 66° N (Menard et al. 2012). The Kotzebue Section lies immediately north of the Norton Sound Section and includes Kotzebue Sound. Commercial fisheries have not regularly occurred in the Kotzebue Section, consequently this discussion will focus on the fisheries of the Norton Sound Section.

Figure 1. King crab fishing districts and section of Statistical Area Q



DESCRIPTION OF THE NSRKC FISHERY

The NSRKC stock supports subsistence fisheries, as well as winter and summer commercial fisheries. Subsistence harvesters need to obtain a state permit before fishing and record daily effort. There is no size limit for crab in the subsistence fishery. Typically, subsistence crabbing occurs in waters ten fathoms or less in depth and most commonly during the winter through nearshore ice. Summer subsistence crab harvest has been monitored since 2004, and since then, has only accounted for an average of 712 crabs per year (Hamazaki & Zheng 2013). In the last several decades, the use of hand lines for subsistence fishing has diminished in favor of pot gear for a more efficiently harvest (Schwarz et al. 1984). The overall average subsistence crab harvest during the most recent 5-year period (2009–2013) was 6,694 crab; 18% above the 1977–1998 average.²

² See Kent and Bell (2013) for more detailed description of the subsistence activity.

A winter commercial fishery in Norton Sound Section occurs from November 15 through May 15. It is generally prosecuted by drilling and setting pots or using hand lines through nearshore ice; thus it is not dependent on vessels. Participants of the winter fishery are required to hold state permits. With the exception of the 1977/1978, 1993/1994, and 1994/1995 seasons, a small number of permit holders have accounted for the majority of the winter commercial crab harvest between 1978 and 2011³. During the 2011/2012 and 2012/2013 winter seasons, near record levels of participation in the winter fishery were observed. In 2011/2012, deliveries were made by 35 of 41 registered permit holders, harvesting 9,157 crab, which at the time was second highest harvest on record (Kent & Bell 2013). During the following winter season, 26 permit holders harvested greater than 22,600 crab (approximately 60,000 pounds). This was 135% above the previous record of 9,625 crab taken during the 1977/1978 winter (Kent & Bell 2013). Participants cited the very stable ice coverage near Nome as one of the principle factors in the abundant harvest. This ice coverage during the winter of 2012/2013, and consequently the productive winter harvest, was not achieved uniformly throughout the Norton Sound section (Dischner 2013).

A large-vessel summer commercial crab fishery existed in the Norton Sound Section from 1977 through 1993.⁴ In March 1993, the Alaska Board of Fisheries (BOF) limited participation in the fishery to small vessels. Then on June 27, 1994, the Norton Sound commercial crab fishery became the only federal managed fishery to be designated ‘super-exclusive’ by the Bering Sea/ Aleutian Islands (BSAI) King and Tanner crab Fishery Management Plan (FMP). This designation means that any vessel participating in the NSRKC fishery is barred from participating in any other federally managed king crab fishery that year. This management strategy fundamentally changed the way the NSRKC fishery was prosecuted. The one or two large ‘distant-water’ vessels that had previously participated in the NSRKC fishery were replaced with a number of smaller local vessels primarily home-ported in Nome and the Yukon Delta region (Kent and Bell 2013). The motivation for this management was primarily due to the localized nature of the crab stock and the potential to positively impact employment and the economies of the communities in the Norton Sound area.

Several other management strategies were directly significant to the NSRKC fishery over the next two decades. Two of the Community Development Quota (CDQ) groups, Norton Sound Economic Development Corporation (NSED) and Yukon Delta Fisheries Development Association (YDFDA), were allocated a portion of the summer harvest in 1998; however, no CDQ harvest occurred until the 2000 season (Hamazaki & Zheng 2013). Beginning January 1, 2000 a license limitation program (LLP) crab license was required for those vessels wishing to participate in the NSRKC fishery.⁵ An LLP limits the number of vessels able to participate in the fishery, but does not limit individual catch. Hence, the NSRKC stock is one of only two crab fisheries in the BSAI still prosecuted as a derby-style fishery (Harrington & Fina 2004). In 2005, when the BSAI crab rationalization program was implemented, it did not include NSRKC fishery. The ‘super-exclusive’ designation of the NSRKC fishery had already been considered an effective management tool for this region.

³ For qualitative evidence, see Kent and Bell (2013).

⁴ No summer fishery occurred in 1991 due to lack of staff to manage the fishery (Hamazaki & Zheng 2013).

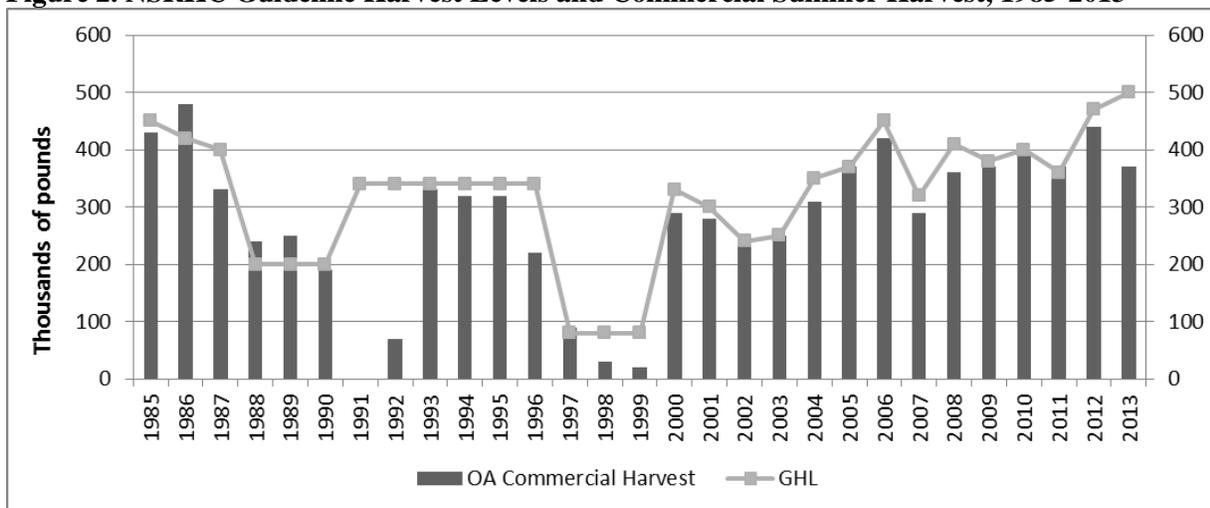
⁵ 50 CFR § 679.4(k)(1)(ii)

Year	Notable historical management changes
1976	The abundance survey started
1977	Large vessel commercial fisheries began
1991	Fishery closed due to staff constraints
1994	Super exclusive designation into effect. The end of large vessel commercial fishery operation. Participation limited to small boats. The majority of commercial fishery subsequently shifted to east of 164°W line.
1998	Community Development Quota (CDQ) allocation into effect
1999	Guideline Harvest Limit (GHL) into effect
2000	North Pacific License Limitation Program (LLP) into effect.
2002	Change in closed water boundaries
2005	Commercially accepted legal crab size changed from \approx 4-3/4 inch CW to \approx 5 inch CW
2006	The Statistical area Q3 section expanded
2008	Start date of the open access fishery changed from July 1 to after June 15 by emergency order. Pot configuration requirement: at least 4 escape rings ($>$ 4½ inch diameter) per pot located within one mesh of the bottom of the pot, or at least ½ of the vertical surface of a square pot or sloping side-wall surface of a conical or pyramid pot with mesh size $>$ 6½ inches.
2012	Board of Fisheries adopted a revised GHL

Source: Hamazaki & Zheng 2013

Excluding the 2012/13 boom harvest in the winter fishery, the summer fishery generally accounts for more than 90% of total NSRKC harvest (Hamazaki & Zheng 2013). Since 1997, the NSRKC commercial fishing stock has been managed jointly by the state and federal government through a Guideline Harvest Level (GHL). The summer GHL has generally risen over the last decade, with the 2013 GHL set at highest level since 1981: half of a million pounds.⁶ Commercial harvests during the most recent 5-year period (2009–2013) averaged 420,000 pounds (open access and CDQ) for 29 active state permits, which are 52% and 44% increases from the 1982–2008 average harvest and vessel participation levels, respectively (Kent & Bell 2013).

Figure 2. NSRKC Guideline Harvest Levels and Commercial Summer Harvest, 1985-2013



Source: Hamazaki & Zheng 2013

⁶ Appendix A includes the full dataset for summer GHL versus summer harvest between 1977 and 2013.

DESCRIPTION OF PARTICIPATION

Based on historical use, 62 LLP licenses have been available for NSRKC participants⁷ since the onset of the federal crab LLP in 2000. These crab licenses were issued based on at least one documented harvest of red or blue king crab in the Norton Sound area between the start of 1993 and the end of 1994. The licenses were issued with an endorsement to participate in the Norton Sound red and blue king crab fishery and with a Maximum Length Overall (MLOA) restriction. The MLOA indicates the largest vessel that the licenses may be used on; hence an LLP license with a 60 ft MLOA could be used on any vessel less than or equal to 60 ft.

During the development of the crab LLP, federal regulations granted an exemption to all vessels less than or equal to 32 ft LOA in the BSAI.⁸ Of the 62 licenses originally issued, seven are registered with a MLOA of 32 ft. Issuing this LLP license was likely an eligibility formality that resulted from these small vessels' historical participation in the NSRKC fishery over the control years.

The original assignment of LLP licenses for Norton Sound did not depend on any type of local residency status, yet because of the fishery's 'super-exclusive' designation, limited regional processors, and effort it would take for non-local vessels to reach the Norton Sound region, the crab fishery was comprised of more local participants. Table 1 demonstrates one measurement of local participation by illustrating the number of the LLP licenses that are registered to an individual or entity with an address located inside the Norton Sound region. In 2013, there were 38 LLP licenses, out of 62 that were registered to an address in Norton Sound. This metric provides a basis to begin to understand the regional distribution of LLP licenses; however, it is important to note that the license-registered address does not always indicate residency or home port of the license user necessarily. Additionally there is a small vessel fleet (vessels that do not exceed 32 ft LOA), that is not fully represented in the count of licenses. This fleet is also likely composed of both local participants and some participants from outside the region.

⁷ RAM records indicate that there may have been up to 65 at the onset of the program; however, there have been 62 licenses registered with RAM consistently since 2004.

⁸ CFR 50 § 679.4(k)(2)(ii).

Table 1. Distribution of Crab LLP licenses endorsed to participate in NSRKC fishery by license holder’s registered city, 2013

Registered City	Count of licenses
ALAKANUK	4
ANCHORAGE	5
EMMONAK	1
HOMER	1
JUNEAU	1
KODIAK	1
NAKNEK	1
OUTSIDE OF ALASKA	8
SAINT PAUL ISLAND	1
SEWARD	1
WASILLA	1
Total Outside Norton Sound Region	24
GOLOVIN	1
KOTLIK	2
NOME	18
SHAKTOOLIK	3
UNALAKLEET	12
WHITE MOUNTAIN	1
Total Inside Norton Sound Region	38
Grand Total	62

Source: NOAA Restricted Access Management, 2013

Public testimony asked the Council for an LLP receny action, eliminating licenses that had been latent for five or more years. Stakeholders may be concerned with the impact on the crab stock and the crab market should all latent license holders suddenly chose to reenter the fishery in the same year. Table 2 demonstrates the extent of latent license holders in a five year period.⁹ Specifically, between 2008 and 2012 only six unique licenses were used on vessels greater than 32 ft. Within those five years, one license was used by two vessels and two vessels registered multiple licenses when they landed a harvest. Despite the current exemption for vessels 32 ft and under, some of the licenses with a MLOA of greater than 32 ft were used for vessels less than 32 ft LOA. Consequently, a total of 24 of the 62 unique licenses were on vessels that made a landing in the NSRKC fishery over the last five years.

⁹ Appendix B illustrates the full dataset of active licenses and corresponding vessels compared to the 62 available licenses.

Table 2. Count of active licenses and vessels participating in the NSRKC fishery 2008-2012

Vessel LOA (ft)	2008-2012 Count of unique	
	Licenses	Vessels
20		1
24		1
28	1	1
29		1
30	1	5
31	3	3
32	13	20
≤ 32 ft LOA total	18	32
34	1	1
40	1	2
42	3	2
51	1	1
>32 ft LOA total	6	6
Grand total	24	38
Total harvest (lbs)	2,086,881	

Source: ADF&G Fish Ticket, NOAA Restricted Access Management compiled by AKFIN

Public testimony also requested the removal of the regulations exempting vessels that do not exceed 32 ft LOA from holding a federal crab LLP license. The concern was raised that a sudden increase in the small vessel fleet could also suddenly impact the stock and the market for NSRKC. Table 3 demonstrates the change in a small vessel fleet prosecuting the NSRKC fishery in the last five years. It illustrates that the fleet has increased by ten vessels between 2008 and 2013 and that these vessels were responsible for an average of 71% of the harvest.

Table 3. Count of less than or equal to 32 foot LOA vessels participating in the NSRKC fishery

Vessel LOA (ft)	Count of unique vessels					
	2008	2009	2010	2011	2012	2013
20	1					
24			1	1	1	
28	1	1	1	1	1	2
29				1	1	2
30	4	5	4	4	4	5
31	1	1	3	3	2	2
32	11	11	10	10	15	17
≤ 32 ft LOA total	18	18	19	20	24	28
Crab harvested (lbs)	298,678	287,703	269,421	293,278	336,210	265,372
Percent of total harvest	76%	72%	65%	73%	71%	68%

Source: ADF&G Fish Tickets

REFERENCES

- Dischner, M. Jun 13, 2013. Norton Sound winter red king crab fishery sets records. Alaska Journal of Commerce, Anchorage.
- Hamazaki, T. and J. Zheng. 2013. Norton Sound Red King Crab Stock Assessment for the fishing year 2014, in Stock Assessment and Fishery Evaluation Report (SAFE) for the King and Tanner Crab Fisheries of the Bering Sea and Aleutian Islands Regions. North Pacific Fishery Management Council, Anchorage.
- Harrington, G. and M. Fina. 2004. Final Environmental Impact Statement for Bering Sea and Aleutian Islands Crab Fisheries. National Oceanic and Atmospheric Administration, National Marine Fisheries Services, Juneau.
- Kent, Scott M. and Jenefer Bell. 2014. Norton Sound section shellfish, 2013; a report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Fishery Management Report No. 14-09, Anchorage.
- Menard, J., J. Soong, S. Kent, and A. Brown. 2013. 2012 Annual management report Norton Sound-Port Clarence Area, and Arctic-Kotzebue. Alaska Department of Fish and Game, Fishery Management Report No. 13-28, Anchorage.
- Schwarz, L., C. Lean, J. Dinnocenzo, B. Bigler., S. Merkouris, M. Wyatt, and J. Stien. 1984. Annual Management Report 1983, Norton Sound-Port Clarence-Kotzebue. Alaska Department of Fish and Game, Division of Commercial Fisheries, Annual Management Report Norton Sound.

APPENDIX A. Historical summer commercial red king crab fishery performance, Norton Sound Section, Eastern Bering Sea, 1977-2013

Year	Dates	Guideline Harvest Level (lbs) ^b	Commercial Harvest (lbs) ^{a, b}		Total Number of Pots		Total Ex-vessel Price/lb	Total Fishery Value (millions \$)
			Open Access	CDQ	Registered	Pulls		
1977	^c	^c	0.52		^c	5,457	0.75	0.23
1978	6/07-8/15	3	2.09		^c	10,817	0.95	1.9
1979	7/15-7/31	3	2.93		^c	34,773	0.75	1.88
1980	7/15-7/31	1	1.19		^c	11,199	0.75	0.89
1981	7/15-8/22	2.5	1.38		^c	33,745	0.85	1.17
1982	8/09-9/01	0.5	0.23		^c	11,230	2	0.41
1983	8/01-8/05	0.3	0.37		3,583	11,195	1.5	0.54
1984	8/01-8/15	0.4	0.39		1,245	9,706	1.02	0.4
1985	8/01-8/23	0.45	0.43		1,116	13,209	1	0.43
1986	8/01-8/25 ^d	0.42	0.48		578	4,284	1.25	0.6
1987	8/01-8/12	0.4	0.33		1,430	10,258	1.5	0.49
1988	8/01-8/11	0.2	0.24		360	2,350	^c	^c
1989	8/01-8/04	0.2	0.25		2,555	5,149	3	0.74
1990	8/01-8/05	0.2	0.19		1,388	3,172	^c	^c
1991		0.34	No summer fishery					
1992	8/01-8/03	0.34	0.07		2,635	5,746	1.75	0.13
1993	7/01-8/28 ^e	0.34	0.33		560	7,063	1.28	0.43
1994	7/01-7/31	0.34	0.32		1,360	11,729	2.02	0.65
1995	7/01-9/05	0.34	0.32		1,900	18,782	2.87	0.93
1996	7/01-9/03 ^f	0.34	0.22		1,640	10,453	2.29	0.52
1997	7/01-8/13 ^g	0.08	0.09		520	2,982	1.98	0.18
1998	7/01-9/03 ^h	0.08	0.03	0	360	1,639	1.47	0.04
1999	7/01-9/04 ⁱ	0.08	0.02	0	360	1,630	3.08	0.07
2000	7/01- 9/29 ^j	0.33	0.29	0.01	560	6,345	2.32	0.72
2001	7/01- 9/09 ^k	0.3	0.28	0	1,200	11,918	2.34	0.67
2002	6/15-9/03 ^l	0.24	0.24	0.01	1,120	6,491	2.81	0.73
2003	6/15-8/24 ^m	0.25	0.25	0.01	960	8,494	3.09	0.82
2004	6/15-8/08 ⁿ	0.35	0.31	0.03	1,120	8,066	3.12	1.06
2005	6/15-8/27 ^o	0.37	0.37	0.03	1,320	8,867	3.14	1.26
2006	6/15-8/22 ⁿ	0.45	0.42	0.03	1,120	8,867	2.26	1.02
2007	6/15-8/17 ⁿ	0.32	0.29	0.02	1,200	9,118	2.49	0.75
2008	6/23-9/03 ^p	0.41	0.36	0.03	920	8,721	3.2	1.23
2009	6/15-9/20 ^q	0.38	0.37	0.03	920	11,934	3.17	1.23
2010	6/28-8/24 ^r	0.4	0.39	0.03	1,040	9,698	3.73	1.53
2011	6/28-7/30 ^s	0.36	0.37	0.03	1,040	6,808	5.23	2.02
2012	6/29-9/08 ^t	0.47	0.44	0.03	1,200	10,041	5.41	2.56
2013	7/03-9/14 ^u	0.5	0.37	0.02	1,420	15,058	5.63	2.17

Source: Kent and Bell, 2013

Note: Blank cells indicate that information is unavailable.

^a Deadloss included in total.

^b Millions of pounds.

^c Information not available.

^d Fishing actually began 8/12.

^e Fishing actually began 7/8.

^f Fishing began 7/9 due to fishermen strike.

- ^g First delivery was made 7/10.
- ^h First delivery was made 7/16.
- ⁱ The season was extended 24 hours due to bad weather.
- ^j Open access (OA) closed 8/29. CDQ opened 9/1-9/29.
- ^k OA closed 9/1. CDQ opened from 9/1-9/9.
- ^l OA opened 7/1-8/6. CDQ opened 6/15-6/28 and 8/9-9/3.
- ^m OA opened 7/1-8/13. CDQ opened 6/15-6/28 and 8/15-8/24.
- ⁿ CDQ opened 6/15-6/28. OA opened 7/1 to the end date.
- ^o OA opened 7/1-8/15. CDQ opened 6/15-6/28 and 8/17-8/27.
- ^p OA opened 6/23-8/18. CDQ opened 8/17-9/3.
- ^q CDQ opened 6/15-7/28. OA opened 6/15
- ^r CDQ opened 6/28-7/16. OA opened 7/1
- ^s CDQ opened 6/28-7/8. OA opened 6/28
- ^t CDQ opened 6/29. OA opened 6/29-8/11.
- ^u CDQ and OA opened and closed at same time

APPENDIX B. Count of active licenses out of 62 and count of vessels participating in the NSRKC fishery 2008-2013

Vessel LOA (ft)	2008, Count of unique		2009, Count of unique		2010, Count of unique		2011, Count of unique		2012, Count of unique		2013, Count of unique		2008-2013 Count of unique	
	Licenses	Vessels	Licenses	Vessels										
20		1												1
24						1		1		1				1
28	1	1	1	1	1	1	1	1	1	1	1	2	1	2
29									1		1		2	2
30	1	4	1	5	1	4	1	4	1	4	2	5	2	6
31	1	1	1	1	3	3	3	3	2	2	2	2	3	3
32	8	11	8	11	7	10	8	10	10	15	14	17	17	21
≤ 32 ft LOA total	11	18	11	18	12	19	13	20	14	24	19	28	23	36
34	1	1	1	1	1	1	1	1	1	1	1	1	1	1
40	1	2	1	2	1	1	1	1	1	1	1	1	1	2
42	1	1	1	1	1	1	2	1	4	2	4	2	4	2
51			1	1	1	1	1	1	1	1	1	1	1	1
>32 ft LOA total	3	4	4	5	4	4	5	4	7	5	7	5	7	6
Grand total	14	22	15	23	16	23	18	24	21	29	26	33	30	42
Total harvest (lbs)	395,135		397,595		417,310		400,846		475,995		391,882		2,478,763	

Source: ADF&G Fish Ticket, NOAA Restricted Access Management compiled by AKFIN

Note: One LLP license may be used on more than one vessel in a given fishing year. Conversely, one vessel may have fished with more than one license in one year.