




Castlemain

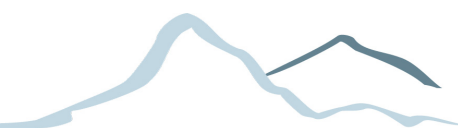
Analysis of commercial fishing licence, quota, and vessel values

Prepared for Fisheries and Oceans
Canada, Pacific region

As at December 31, 2019

Contents

Introduction.....	3
Summary: year ending December 31, 2019	4
Rates of return – leasing.....	11
Methodology.....	13
SALMON- Salmon seine (AS)	16
SALMON - Salmon gillnet (AG)	20
SALMON – Salmon troll (AT).....	24
PELAGICS - Roe herring seine (HS).....	28
PELAGICS - Roe herring gillnet (HG).....	32
PELAGICS – Tuna (USA 68).....	36
PELAGICS - Sardine (ZS).....	38
GROUNDFISH – Halibut (L)	40
GROUNDFISH – Sablefish (K).....	45
GROUNDFISH – Groundfish trawl (T).....	50
GROUNDFISH - Rockfish hook and line (ZN).....	55
GROUNDFISH – Lingcod and dogfish.....	59
SHELLFISH - Prawn trap (W).....	60
SHELLFISH - Crab (R).....	64
SHELLFISH – Shrimp trawl (S).....	68
SHELLFISH - Geoduck (G).....	72
SHELLFISH – Sea cucumber (ZD)	77
SHELLFISH – Red sea urchin (ZC).....	81
SHELLFISH – Green sea urchin (ZA)	85
SHELLFISH - Euphausiid (ZF)	89
Schedule II species (C).....	92



Introduction

On an annual basis, with few exceptions over the last two decades, the Aboriginal Programs Division at Fisheries and Oceans Canada (DFO) has undertaken a licence and quota valuation study to determine valuations for commercial fishing licences and quota operating in the Pacific commercial fishery.

The information gathered by DFO over the last 20 years of studies has been used for a wide variety of purposes including:

- Informing licence retirement and reallocation programs
- Estimation of potential treaty impacts on the commercial fishery
- Gauging and analyzing the economic health of the pacific fishing industry
- Developing policies around First Nations participation in the fishery and licence redistribution
- Estimating the impacts of policy decisions on the pacific fishery

Continuity in the methodology is important so that changes in values can be viewed in relation to changes in the fishery in general.

This year's report contains an assessment of commercial fishing licence and quota values between January 1, 2019 and December 31, 2019.

Where possible, the valuations in this report are based on individual market transactions. Where no or few markets transactions could be uncovered, anecdotal information may have been used; and, where no information could be uncovered, values from the 2018 study were used. In short, this report is the contractor's best effort to summarize imprecise data into an existing time series of values.

Each valuation has a confidence level of the valuation, ranging from low to high. This is an attempt to qualify the contractor's professional opinion with regards to the accuracy of the valuation and is based on the number of individual transactions that were recorded, the quality of the information, and anecdotal information.

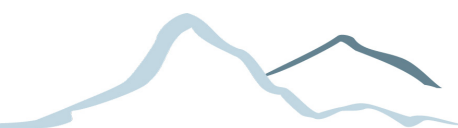
All valuations in this report are presented as nominal values and have not been adjusted for inflation.

Summary: year ending December 31, 2019

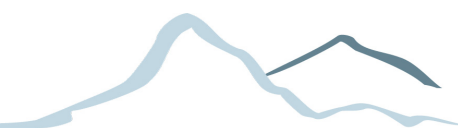
The following table summarizes the market capitalization of pacific commercial fishing licences and quota at December 31, 2019:

Fish grouping	Fishery	Licence description	No. of licences	Average licence value (\$)	Aggregate licence value (\$)	Aggregate quota value (\$)	Average quota value (\$/lb)	Total licence and quota value (\$)
Salmon	Salmon seine	AS	209	\$530,000	\$110,290,000	n/a	n/a	\$110,290,000
	Salmon gillnet	AG	801	\$56,000	\$44,428,000	n/a	n/a	\$44,428,000
	Salmon troll	AT	335	\$167,000	\$55,735,000	n/a	n/a	\$55,735,000
Pelagics	Herring – roe herring seine	HS	241	\$90,000	\$21,488,000	n/a	n/a	\$21,488,000
	Herring – roe herring gillnet	HG	987	\$37,000	\$33,591,000	n/a	n/a	\$33,591,000
	Herring – spawn on kelp ¹	J	n/a	n/a	n/a	n/a	n/a	n/a
	Tuna	USA 68	45	\$250,000	\$11,250,000	n/a	n/a	\$11,250,000
	Sardine	ZS	25	n/a	n/a	n/a	n/a	n/a
Groundfish	Halibut	L	341	\$33,000	\$11,253,000	468,805,000	93	\$480,058,000
	Sablefish	K	41	\$400,000	\$16,400,000	444,646,000	87	\$461,046,000
	Groundfish trawl	T	135	\$41,000	\$5,535,000	249,396,000	1.70 (uncut) 0.20 (hake)	\$254,931,000
	Rockfish inside	ZN	52	\$30,000	\$1,560,000	n/a	n/a	\$1,560,000
	Rockfish outside	ZN	157	\$280,000	\$43,960,000	n/a	n/a	\$43,960,000
	Lingcod hook and line	n/a	n/a	n/a	n/a	\$37,271,520	15	\$37,271,520
	Dogfish hook and line	n/a	n/a	n/a	n/a	\$2,266,681	.12	\$2,266,681
Shellfish	Prawn	W	186	\$804,000	\$149,544,000	n/a	n/a	\$149,544,000

¹ J licences are non-transferable and have therefore not been evaluated as part of this study.

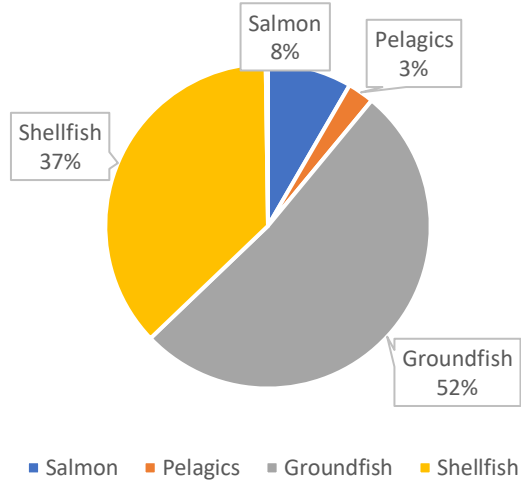


	Crab	R	188	\$1,100,000	\$206,800,000	n/a	n/a	\$206,800,000
	Shrimp	S	207	\$42,000	\$8,694,000	n/a	n/a	\$8,694,000
	Geoduck	G	50	\$250,000	\$12,500,000	\$407,000,000	\$814,000	\$419,500,000
	Sea cucumber	ZD	84	\$1,400,000	\$117,600,000	n/a	n/a	\$117,600,000
	Red sea urchin	ZC	80	\$270,000	\$21,600,000	n/a	n/a	\$21,600,000
	Green sea urchin	ZA	48	\$100,000	\$4,800,000	n/a	n/a	\$4,800,000
	Euphausiid	ZF	16	\$40,000	\$640,000	n/a	n/a	\$640,000
Schedule II	Schedule II species	C	311	\$19,000	\$5,909,000	n/a	n/a	\$5,909,000



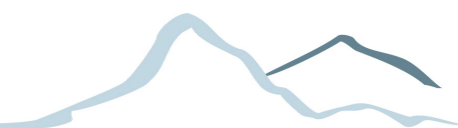
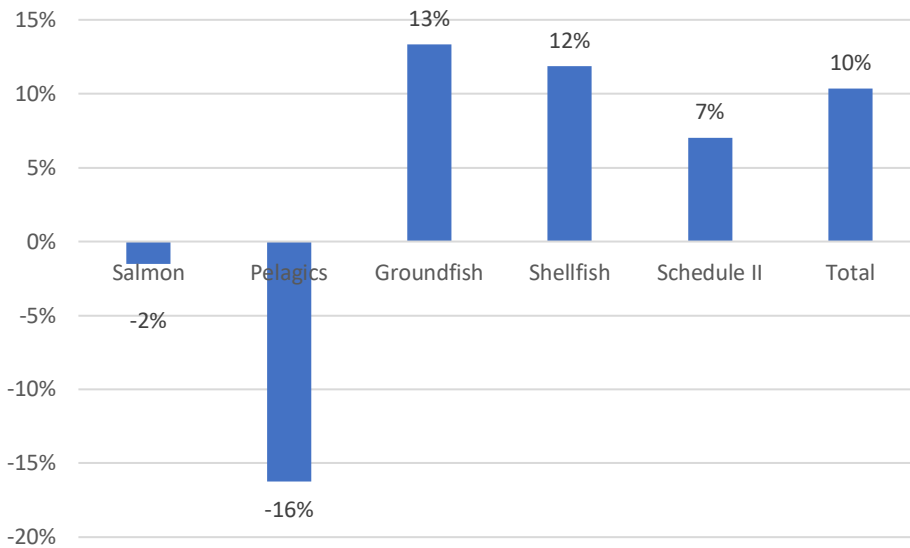
2019 Market value by fishery grouping

Market capitalization by fish grouping



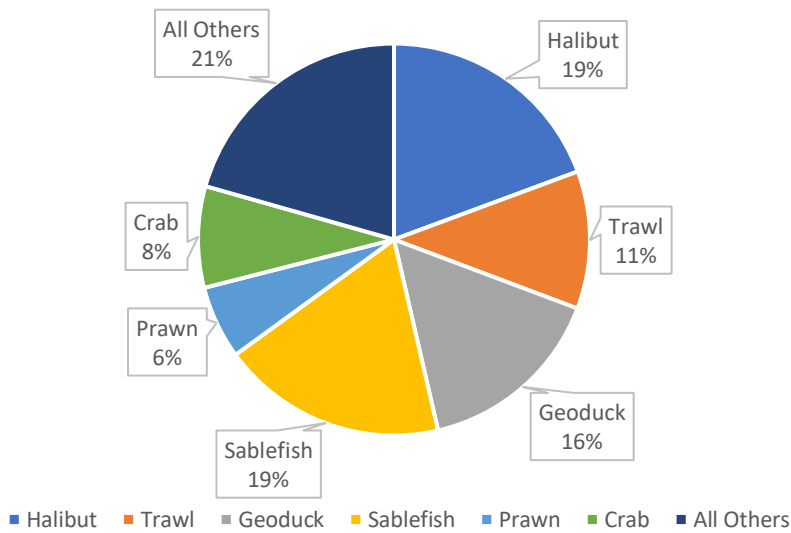
Percentage change in market value by fishery grouping, 2019 vs. 2018

Compared to 2018, total market capitalization increased by 10% in 2019.



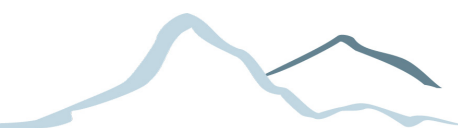
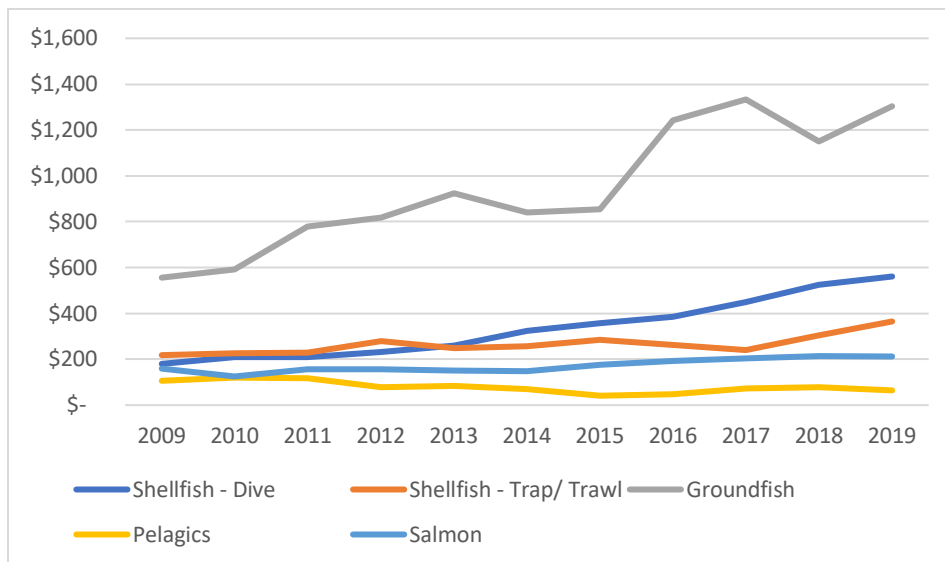
Top six fisheries relative to overall licence and quota values (\$ millions)

As shown in the chart below, the six fisheries with the largest aggregate licence and quota valuations account for 79% of total value, while the remaining 18 fisheries make up 21%.



Aggregate licence and quota value (\$ millions) by major fishery groupings

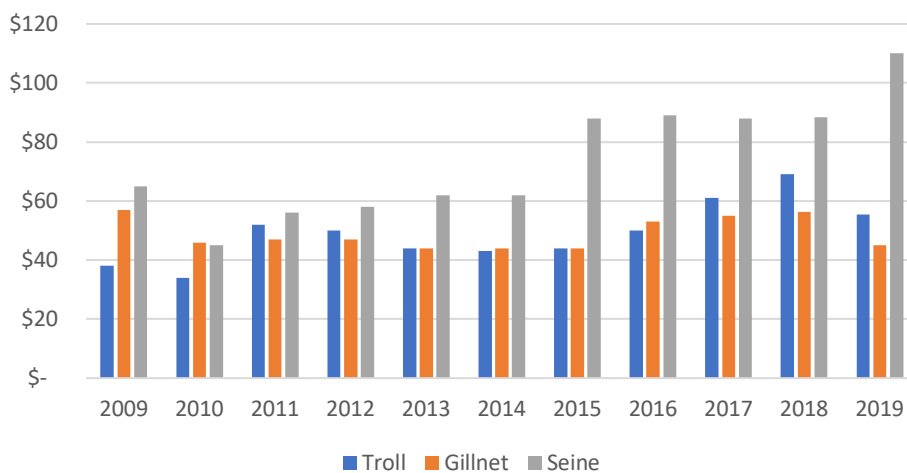
Aggregate value over the last 10 years is shown by fishery grouping in the chart below.



Salmon

Salmon licence values have seen a steady growth since 2014 but show a decline in 2019. Gillnet licences decreased in value by 20% and troll licences decreased by 23%. Decrease in values is likely from reported uncertainty and perceived risk in the fishery due to loss of access and fishing opportunities. Notably, industry experts have reported low sockeye returns and closures as a cause for decreased value of licences, as well as a landslide in Big Bar B.C., which blocked several salmon runs. While salmon seine licences appear to have risen in value by 25%, industry experts noted that many of the higher transactions occurred earlier in the season prior to the landslide and prior to increased skepticism and uncertainty settling in.

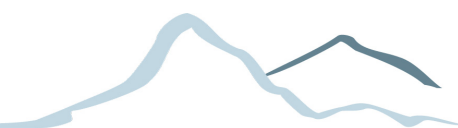
Salmon licence values by type, 2009-2019



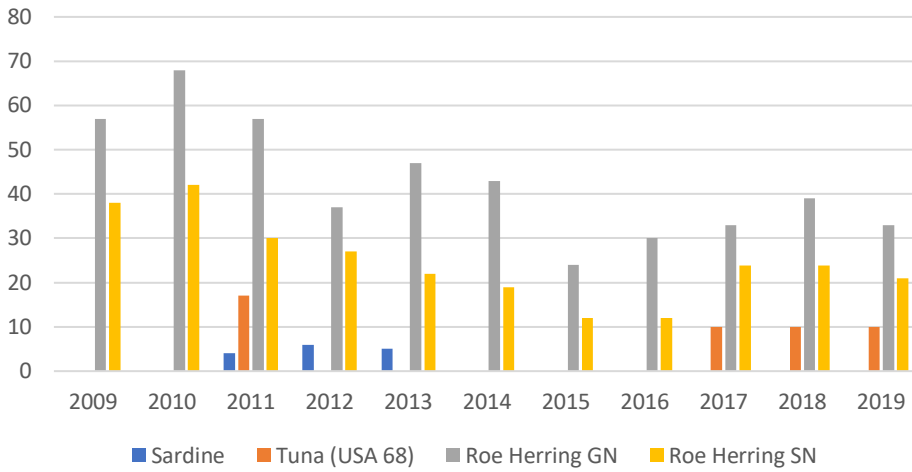
Pelagics

Both herring fisheries saw slight declines in value in 2019: herring gillnet by 15 percent and herring seine by 12.5 percent. Both fisheries retained higher values at the start of the season but traded much lower at the end of the season. Industry experts report that there is concern among fishers over the viability of herring fisheries. It should also be noted that there was little movement among herring seine licences in 2019, likely due to low values on licences purchased several years ago at much higher prices.

There have been no sardines present off the coast of B.C. for the seventh straight year resulting in no sardine fishery. Canada and the U.S. are currently negotiating terms of United States – Canada Albacore Tuna Treaty which means the limited and tenuous rights associated with some of the USA 68 licences makes the fishery difficult to evaluate.



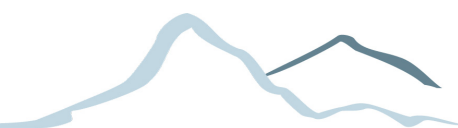
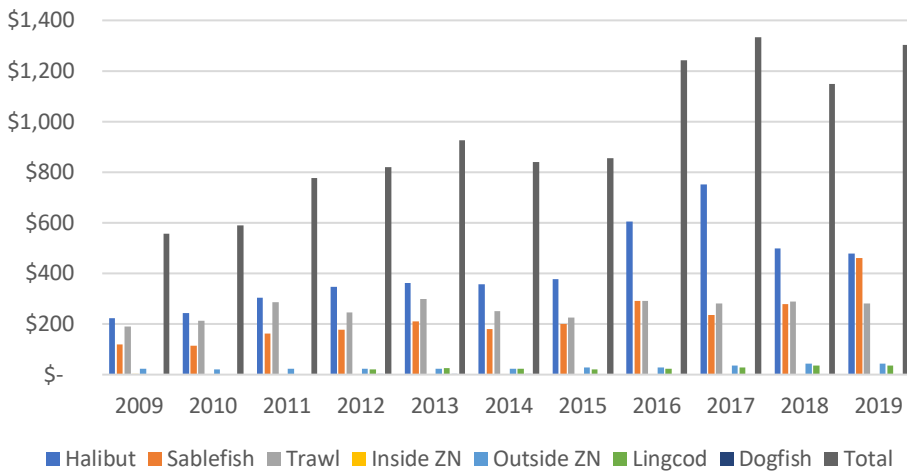
Pelagics licence values, 2009-2019



Groundfish

Total licence and quota values in all groundfish fisheries were relatively stable, seeing slight decreases with the exception of sablefish, which rose by 65 percent. The lack of movement and slight decrease may be the result of general industry skepticism and the general trend of individuals leaving the industry. Licence and quota values for the groundfish fishery are also impacted by and reflective of halibut values which have dropped off from 2016 highs (up to \$120/lb) and have been steady at approximately \$90-93/lb since. Rises in sablefish are likely due to the retentions of licences and the high value product.

Groundfish licence and quota values, 2009-2019

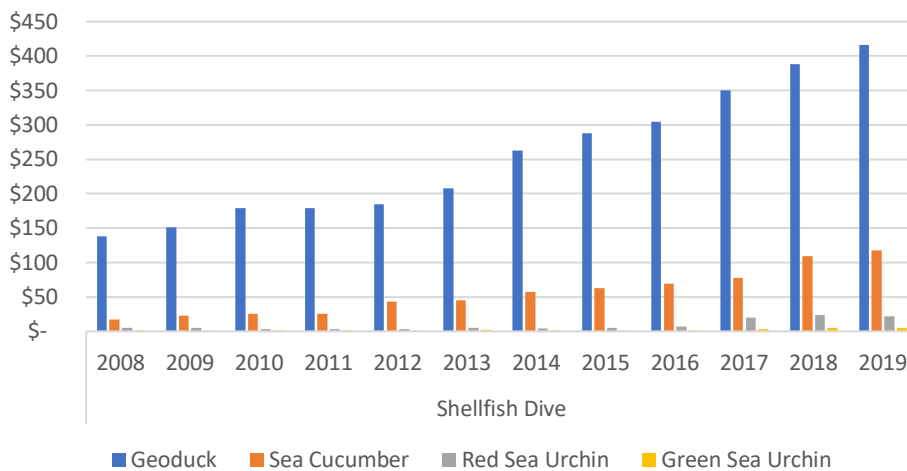


Shellfish

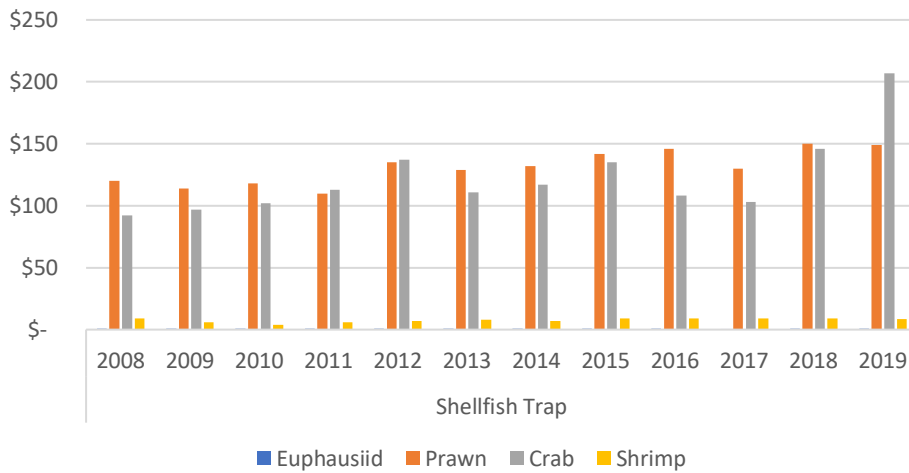
Overall, the shellfish dive fisheries appear stable with slight growth. Geoduck licence and quota values, in particular, rose by 4.8 percent from last year. This is likely due to a tight market with high demand but few individuals willing to sell licences and quota. Sea cucumber appears to show growth from last year though industry experts have pointed out that there were very few transactions in 2019 and prices may still reflect some of the growth from 2018. Urchin licence values appear the same or have slightly decreased in value. Industry experts report that licence values in both fisheries are not aligned with profits. Red sea urchin licences sold early in 2019 are likely reflective of 2018 values. Green sea urchin licence holders are likely retaining licences with the hopes that the fishery will grow after seeing a loss in market share to Russia.

The trawl/trap shellfish fisheries remained stable compared to last year which is likely due to reports of few transactions and licences for sale in 2019.

Aggregate dive fishery licence values (\$ millions)



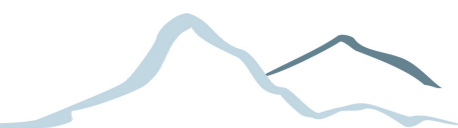
Aggregate shellfish trap licence values (\$ millions)



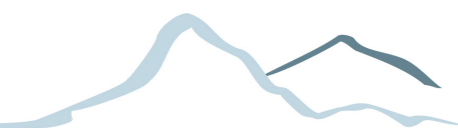
Rates of return – leasing

The estimated rate of return for readily leased (typically non-vessel based or fisheries with IVQ) licences or quota for the valuation period is shown in the following table. Estimates are the contractor’s best effort to capture a value for market lease rates that can vary widely. In cases where no lease transactions were uncovered, estimates were used based on the 2018 report.

Fishery	Lease rate	Quota/licence valuation	Rate of return
Herring – roe seine	\$-	\$90,000	0.0%
Herring – roe gillnet	\$1,500	\$37,000	4.0%
Halibut	\$5.00/lb	\$93.00/lb	5.3%
Sablefish	\$3.00/lb	\$87.00/lb	3.4%
Trawl – groundfish (uncut)	\$0.13/lb	\$1.70/lb	7.7%
Trawl – groundfish (hake)	\$0.005	\$0.20/lb	2.5%
Rockfish inside	\$2,400	\$30,000	8%
Rockfish outside	\$8,500	\$280,000	3%
Lingcod hook and line	\$0.40/lb	\$15.00/lb	2.6%



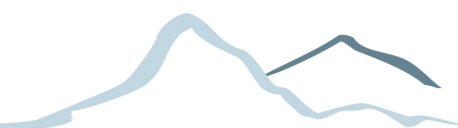
Dogfish hook and line	\$-	\$0.12	0.0%
Prawn	\$44,000	\$804,000	5.5%
Crab	\$31,200	\$1,100,000	2.8%
Geoduck	\$620,000	\$8,140,000	7.6%
Sea cucumber	\$80,000	\$1,400,000	5.7%
Red sea urchin	\$6,500	\$270,000	2.4%
Green sea urchin	\$4,000	\$100,000	4%



Methodology

Valuations performed

Fishery grouping	Fishery	Gear	Valuation				
			Avg. vessel value	Avg. licence value		Quota Value	Lease Value
				Full Fee	Reduced Fee		
Salmon	Salmon	Seine	x	x	x		x
	Salmon	Gillnet	x	x	x		x
	Salmon	Troll	x	x	x		x
Pelagics	Herring – roe	Seine	x	x	x		x
	Herring – roe	Gillnet	x	x	x		x
	Herring – SOK						
	Tuna	Hook and Line		x			
	Sardine	Seine					
Groundfish	Halibut	Longline	x	x		x	x
	Sablefish	Longline/trap	x	x		x	x
	Groundfish trawl	Trawl	x	x		x	x
	Rockfish	Hook and Line	x	x			x
	Lingcod and Dogfish	Hook and Line				x	x
Shellfish	Prawn	Trap	x	x			x
	Crab	Trap	x	x			x



	Shrimp	Trawl	x	x			
	Geoduck	Dive	x	x		x	x
	Sea cucumber	Dive	x	x			x
	Green sea urchin	Dive	x	x		x	
	Red sea urchin	Drive	x	x		x	
	Euphausiid	Trawl	x	x			
Schedule II	Schedule II species			x			

Valuation methodology

Information on commercial fishing licence and quota values were gained through interviews with individual licence holders, brokers, fishers, processors, industry publications, and anyone with knowledge of specific market transactions. Most valuations are a synthesis of multiple sources listed above. In cases where information could not be uncovered, data from the 2018 report was utilized. The following is a list of information sources starting with the most preferred:

- Information based on actual transactions
- Anecdotal information on transactions or industry expert opinions on price levels
- Prices listed (but not transacted) from boat brokers or trade publications
- Contractor's judgement

Within each fishery valuation, the contractor has noted the number of uncovered transactions and denoted a value of high, medium (med), or low in the confidence of the valuation. Confidence levels have been assigned based on the confidence assigned in previous reports, consistency among transactions, and the variety of sources with consistent transactions.

Licence and quota stratification and valuation criteria

The valuation for each licence type includes the quota and units (per foot, per license, etc.), an indication of the number of transactions uncovered, and the confidence of the valuation

A general description is also included for:

- Licence designation (AS, AG, AT, etc.)

- Nature of licence (vessel or party based)
- # of commercial licences available
- # of communal commercial licences available
- Licence management regime (Area licencing including # of areas, stacking, etc.)
- The type of stratification utilized (per licence, per lb, etc.)
- Vessel build (classic or modern)
- # of vessels

Valuation trends

The valuation trend graphs were updated for each commercial fishery. It should be noted that these graphs are not adjusted for inflation, and in some cases, no new data was uncovered.

Licencing information

For more information than the brief synopses of licencing information provided in this report, please refer to the following sources:

- IFMP's: <http://www.pac.dfo-mpo.gc.ca/fm-gp/ifmp-eng.html>
- DFO Licencing: <https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/licence-commercial-eng.html>

Vessel valuation

Aggregate fleet values per fishery are arrived at by using past data for average vessel value as a baseline; however, the number of vessels has been updated and adjusted. Using past data as an average vessel value may not reflect 2019 transactions for some fisheries, as industry experts report that skepticism as to the viability of some fisheries is driving vessel prices down.

In determining the number of vessels, duplicates were identified and removed from the total count as some licences allow for stacking multiple licences on a single vessel. Vessels were then counted as either modern or classic. Modern vessels are those built from 1980 while classic vessels are those built before 1980. Since this criterion was used to distinguish vessels, vessels that did not include classification data were not counted. As a result, not all vessels from the data set are included in the valuation.

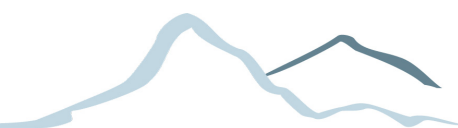
Fleet vessel valuation is imprecise and uses incomplete datasets. The number of licenced vessels is drawn from one data source, DFO's *Pacific Region Commercial Fishing Licences Database*.

SALMON- Salmon seine (AS)

Background to valuation

General	
Licence designation	AS
Nature of Licence	Vessel-based
# commercial licences	209
# communal licences	67
Area licencing?	2 areas (A + B)
Stacking?	Yes
Competitive or quota mgmt.?	Competitive

Valuation parameters	
Licence	Per licence
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~4
Confidence in current year valuation	med



Current valuation

Licence value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
Full fee	194	530,000	102,820,000
Reduced fee	15	498,000	7,470,000
F (communal)	67	n/a	n/a
All AS	209	528,000	110,290,000

Valuation comments

- Licence values ranged from \$425,000 - \$600,000 (full fee).
- Higher licence prices are from pre-season sales and decreased throughout the season. At the end of the season, licences were on the market for \$350,000 but did not appear to be selling.
- No reduced fee licences were uncovered. Reduced fee values have been estimated based on the percent difference of full fee licences from 2018 to 2019.

Vessel value

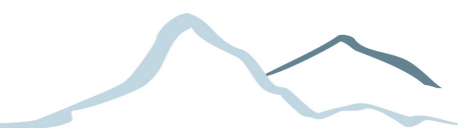
Aggregate fleet value is arrived at by using past data for average vessel value as a baseline; however, the number of vessels has been updated. The number of licenced vessels is drawn from DFO's *Pacific Region Commercial Fishing Licences Database*. Fleet vessel valuation is imprecise and uses incomplete DFO datasets.

Salmon Seine	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	73	184,000	13,432,000
Modern	36	646,000	23,256,000
Total	109	336,587	36,688,000

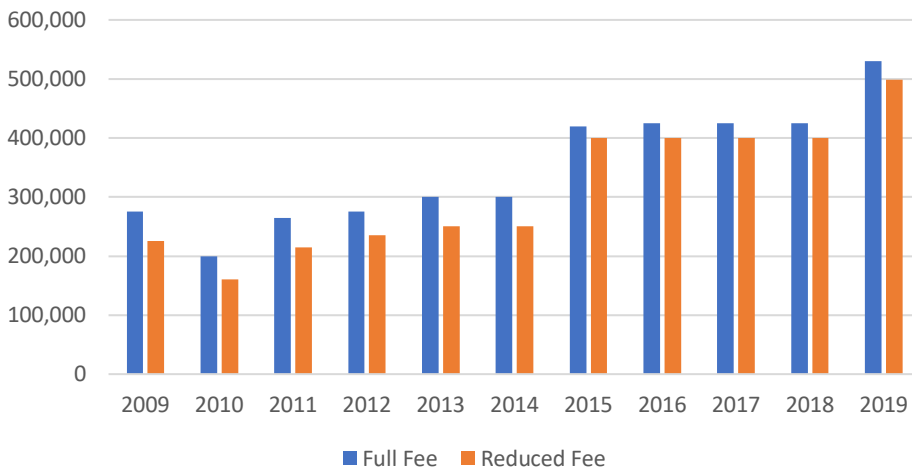
Licensing trends

Recent AS licence valuations

Salmon seine prices were slightly higher at the beginning of 2019 from 2018 values; however, there was a drop in value as the season progressed. Industry experts have commented that uncertainty in the fishery has caused a decline in licence values.



AS licence valuations, 2009-2019



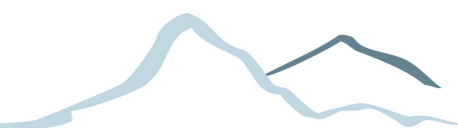
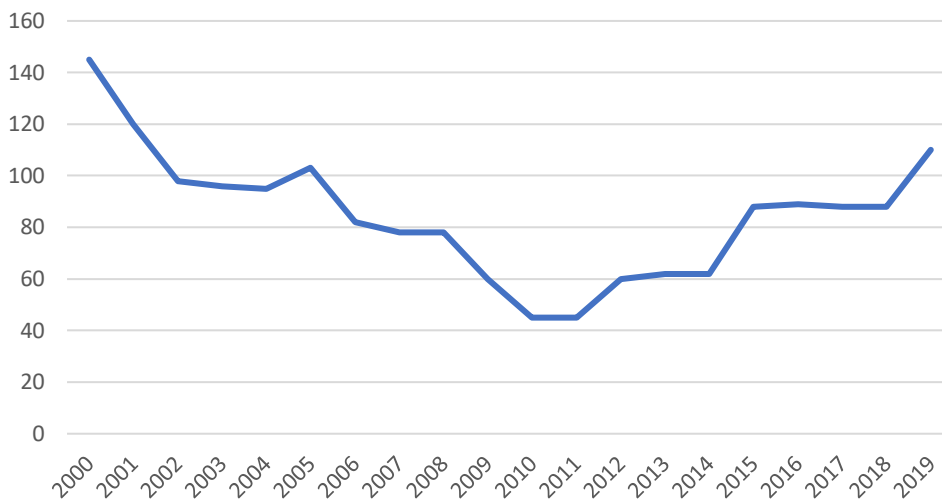
Recent AS Licence lease rates

No lease transaction were uncovered for AS licences.

Aggregate value of AS Licences (\$ million by year)

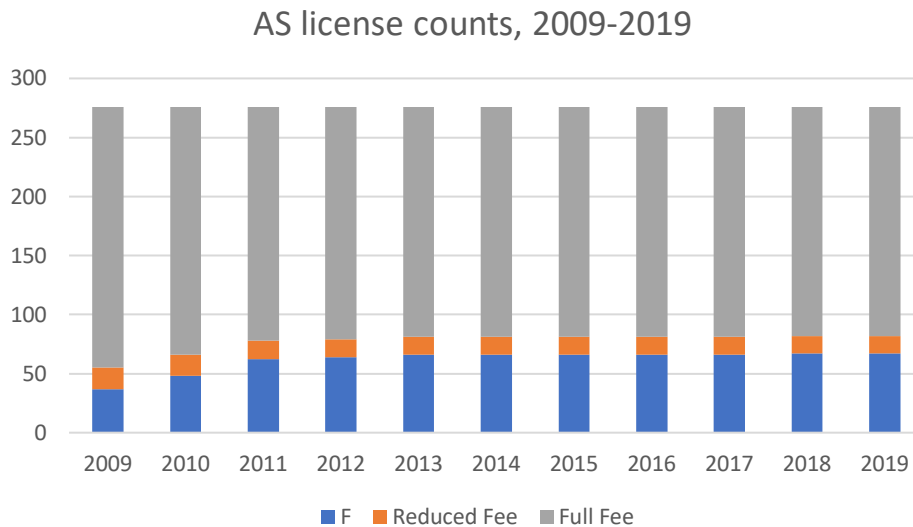
While licences were available to purchase, end of season inactivity suggests that values may decrease in 2020. Some industry experts suggest that uncertainty may result in fewer transactions or lower prices in 2020.

Aggregate AS license value (\$ millions), 2000-2019



AS licence counts by category

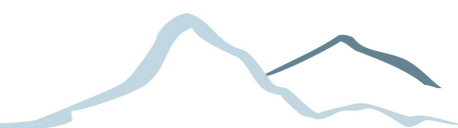
The number of AS licences remained stable over 2019.



Outlook/commentary

The outlook for the salmon seine sector is uncertain given the following observations:

- Skepticism and uncertainty within the industry towards fishing opportunities and access.
- Perceived industry impacts as a result of events such as the Big Bar landslide and the closures.
- Industry experts report that in 2017, an AS licence could sell for \$500,000 along the south coast for a large vessel; however, at the end of 2019, the value was likely half.
- Salmon fisheries are perceived as high-risk due to a number of events and management measures limiting fishing opportunities, including low sockeye returns, closures intended to restore chinook populations, and a landslide in Big Bar, B.C. that blocked salmon runs.
- In 2019, there were no sockeye openings on the coast.



SALMON - Salmon gillnet (AG)

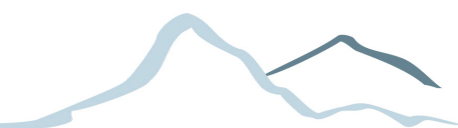
Background to valuation

General	
Licence designation	AG
Nature of Licence	vessel-based
# commercial licences	694
# communal licences	333
Area licencing?	3 areas
Stacking?	yes
Competitive or quota mgmt.?	competitive

Valuation parameters	
Licence	Per licence
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	med
# transactions underlying valuation	~17
Confidence in current year valuation	high

Current valuation

Category	# of Licences	Value/Licence \$	Total Value \$
Full fee	694	56,000	38,864,000
Reduced fee	107	52,000	5,564,000
F (communal)	333	n/a	n/a
All AG	801	55,000	44,428,000



Valuation comments

- Licence values ranged from \$50,000 - \$65,000 (full fee) and varied in this range across all areas
- Most sales, especially with higher values, likely occurred earlier in the season prior to closures and the Big Bar landslide.
- No reduced fee licences were uncovered. Reduced fee values have been estimated based on the percent difference of full fee licences from 2018 to 2019.

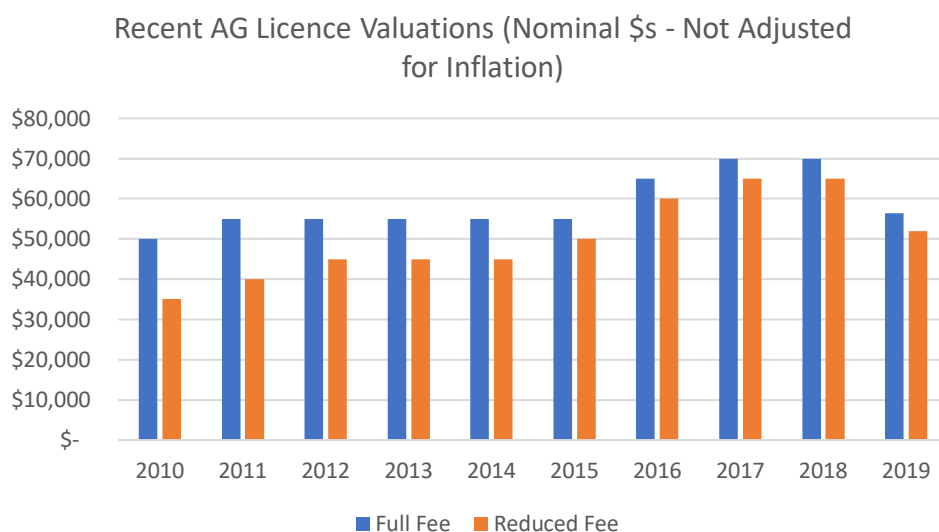
Vessel value

Aggregate fleet value is arrived at by using past data for average vessel value as baseline; however, the number of vessels has been updated. The number of licenced vessels is drawn from DFO's *Pacific Region Commercial Fishing Licences Database*. Fleet vessel valuation is imprecise and uses incomplete DFO datasets.

Salmon Gillnet	#vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	291	73,000	21,243,000
Modern	235	162,000	38,070,000
Total	526	112,762	59,313,000

Licencing trends

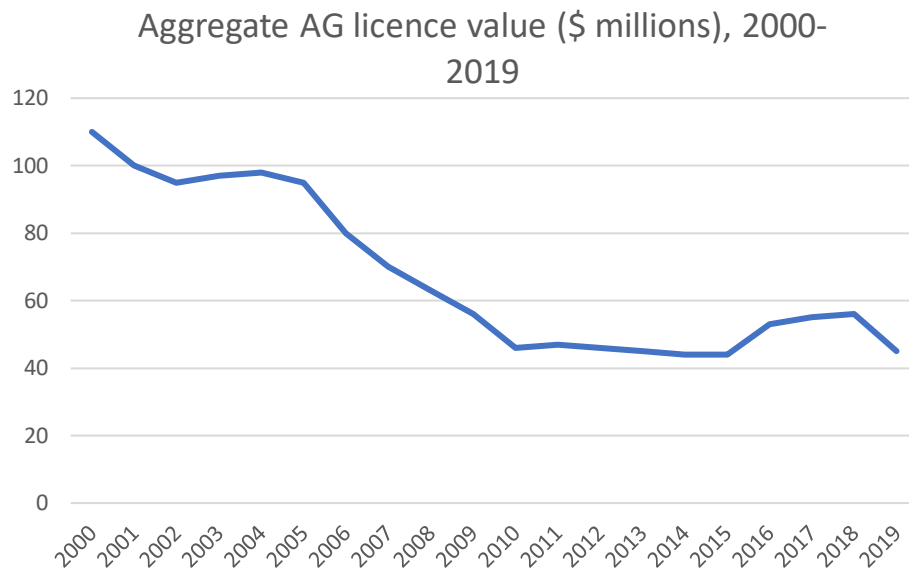
Recent AG licence valuations



Recent AG licence lease rates

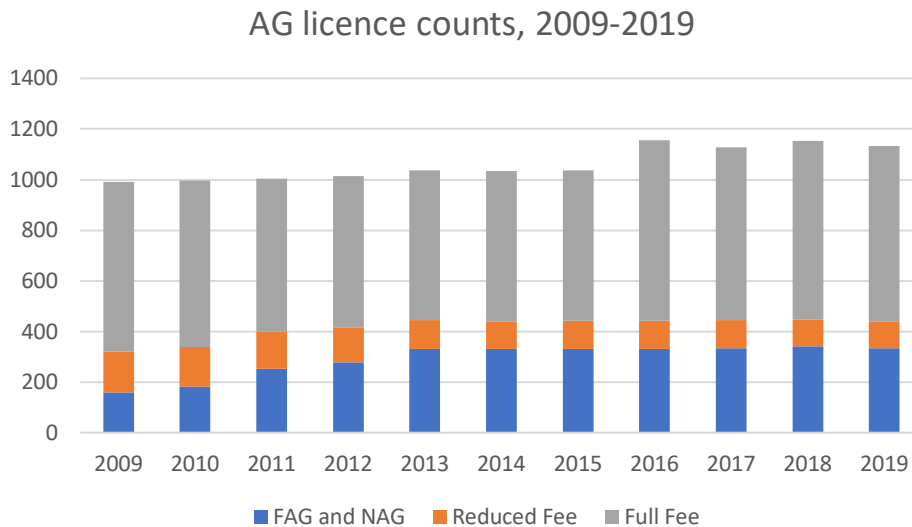
- Lease rates in 2019 were as high as \$4,500 in Area D and C and as low as \$2000, though limited data was uncovered so confidence in this value is low.
- Average leases price was approximately \$2,928. The valuation only uncovered lease data for Areas C, D, and E so it is difficult to evaluate the difference in lease prices across Areas.

Aggregate value of AG licences (\$ millions by year)



AG licence counts by category

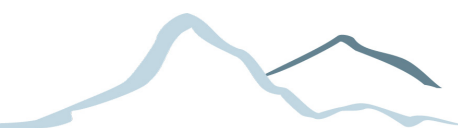
The number of AG licences decreased by 18 in 2019.



Outlook/commentary

The outlook for the salmon gillnet is generally negative given the following observations:

- Low stock abundance, anticipated returns, potential closures, and the landslide in Big Bar, B.C. amplified the negative outlook for 2020.
- Industry experts stated that AG licence prices are falling due to limited fishing opportunities in 2019.
- Overall experts cited a landslide in Big Bar, B.C. that blocked salmon runs and low sockeye as contributing factors.
- In 2019, there were no sockeye openings on the coast.



SALMON – Salmon troll (AT)

Background to valuation

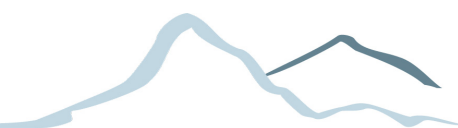
General	
Licence designation	AT
Nature of Licence	vessel-based
# commercial licences	335
# communal licences	90
Area licencing?	3 areas
Stacking?	yes
Competitive or quota mgmt.?	competitive

Valuation parameters	
Licence	per licence
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	Med
# transactions underlying valuation	~20
Confidence in current year valuation	high

Current valuation

Licence value at December 31, 2019:

Category	# of Licences	Value/Licence \$	Total Value \$
Full fee	325	167,000	54,275,000
Reduced fee	10	146,000	1,460,000
F (communal)	90	n/a	n/a
All AT	335	166,000	55,735,000



Valuation comments

- Licence values ranged from \$140,000 to \$200,000.
- The highest values, \$190,000 - \$200,000 were pre-season sales in Area F.
- No reduced fee licences were uncovered. Reduced fee values have been estimated based on the percent difference of full fee licences from 2018 to 2019.

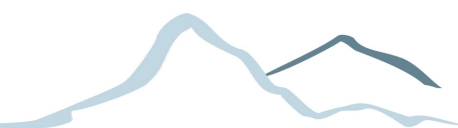
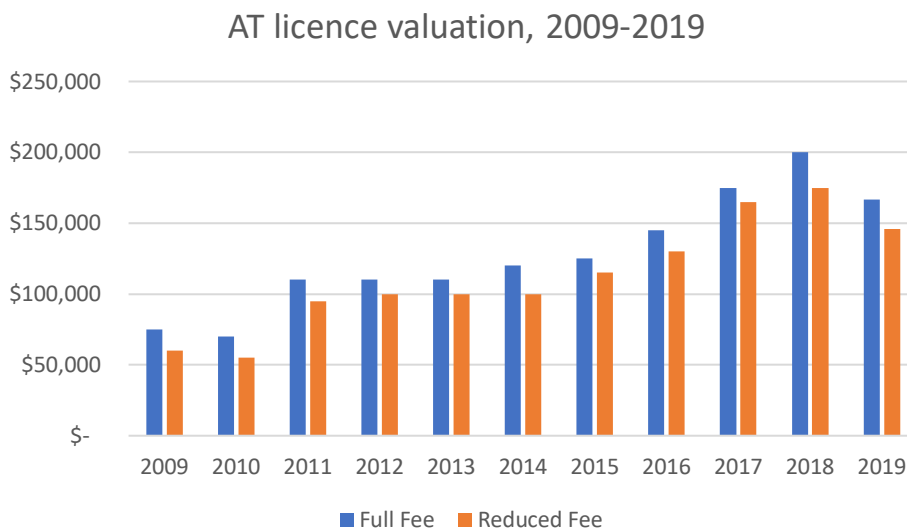
Vessel value

Aggregate fleet value is arrived at by using past data for average vessel value as baseline; however, the number of vessels has been updated. The number of licenced vessels is drawn from DFO's *Pacific Region Commercial Fishing Licences Database*. Fleet vessel valuation is imprecise and uses incomplete DFO datasets.

Salmon Troll	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	204	136,000	27,744,000
Modern	47	262,000	12,314,000
Total	251	159,594	40,058,000

Licencing trends

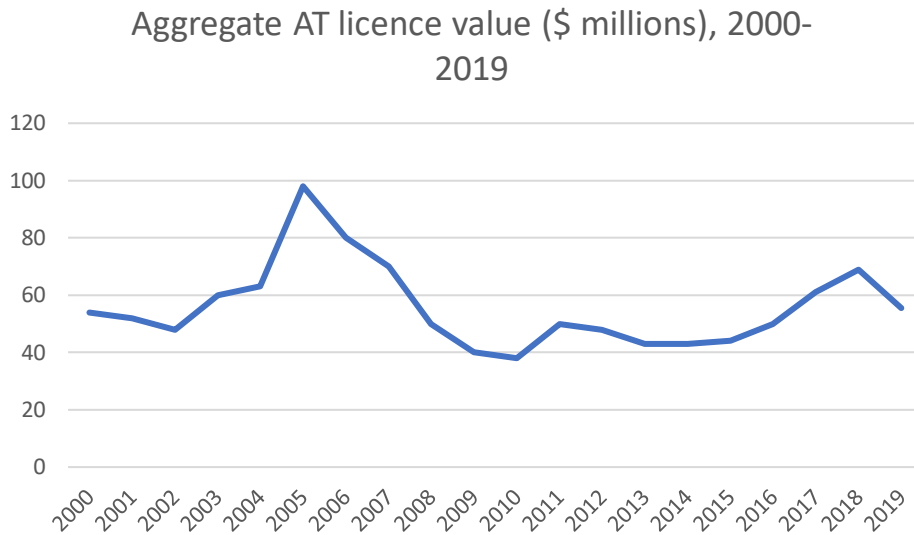
Recent AT licence valuation



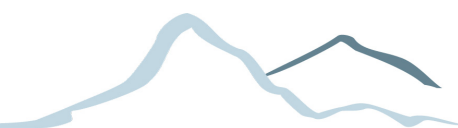
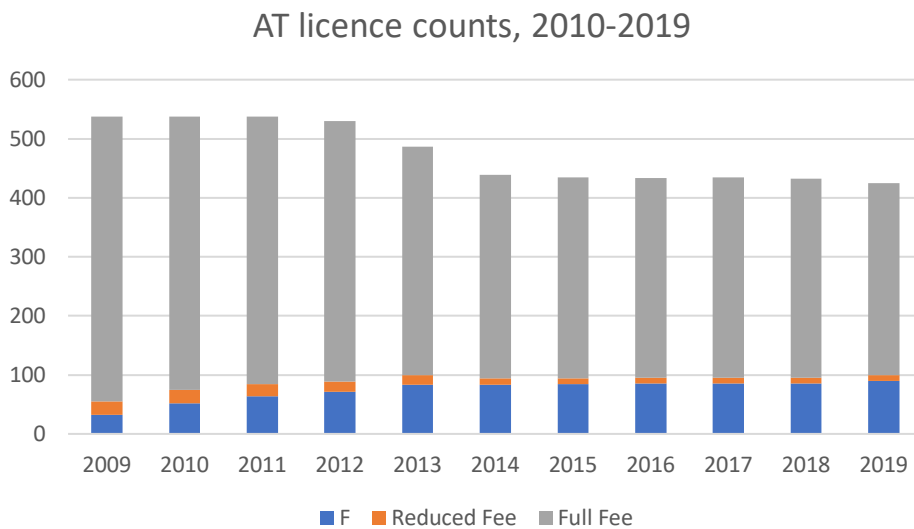
Recent AT licence lease rate (\$)

Lease values were approximately \$3,500 per licence, though few were uncovered in the valuation so confidence in this value is low and does not reflect potential difference in values by area.

Aggregate value of AT licence (\$ millions by year)



AT licence counts by category



Outlook/commentary

General outlook and commentary for the salmon troll sector includes the following:

- In recent years, there has been less difference in licence values across the areas.
- In 2019, there were no sockeye openings on the coast.
- Salmon troll is are perceived as high-risk due to low stock abundance and closures.
- In 2018, a drop in AT values was predicted. Transactions uncovered in 2019 show higher values for pre-season licences than licences bought/sold during or later in the season.
- Fishing on the coast is perceived as sporadic and high-risk due to threats from climate change, management decisions limiting fishing opportunities (i.e., marine protected areas, closures), and reduced abundance. In 2019, events such as the Big Bar landslide, limited openings for Chinook and sockeye, as well as lower than anticipated returns have instilled additional pessimism in the industry which has likely affected licence values.

PELAGICS - Roe herring seine (HS)

Background to valuation

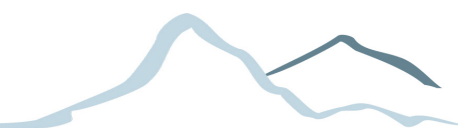
General	
Licence designation	HS
Nature of Licence	party-based
# commercial licences	241
# communal licences	11
Area licencing?	5 areas
Stacking?	yes (limited)
Competitive or quota mgmt.?	pools (equal sharing)

Valuation parameters	
Licence	per licence
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~5
Confidence in current year valuation	low

Current Valuation

Licence value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
Full fee	196	90,000	17,640,000
Reduced fee	45	85,500	3,848,000
F (communal)	11	n/a	n/a
All HS	241	89,000	21,488,000



Valuation comments

- Full fee licences were as high as \$110,000 at the beginning of the season but had dropped to approximately \$50,000 at the end of the season. Industry experts confirmed that end of season value of an HS licence was no more than \$50,000.
- No reduced fee licences were uncovered. Reduced fee values have been estimated based on the per cent difference of full fee licences from 2018 to 2019.

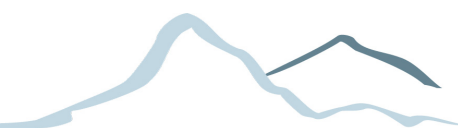
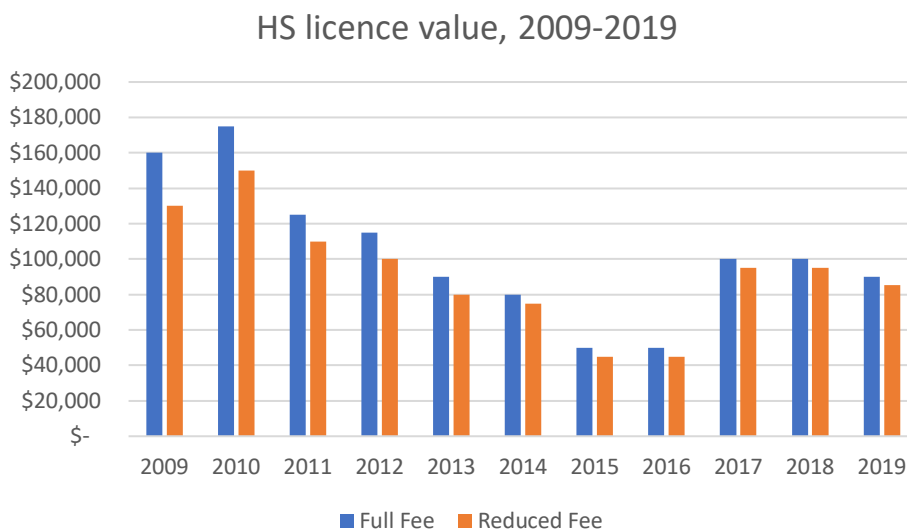
Vessel value

Aggregate fleet value is arrived at by using past data for average vessel value as baseline; however, the number of vessels has been updated. The number of licenced vessels is drawn from DFO's *Pacific Region Commercial Fishing Licences Database*. Fleet vessel valuation is imprecise and uses incomplete DFO datasets.

Herring Seine	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	55	175,000	9,625,000
Modern	33	733,000	24,189,000
Total	88	384,250	33,814,000

Licencing trends

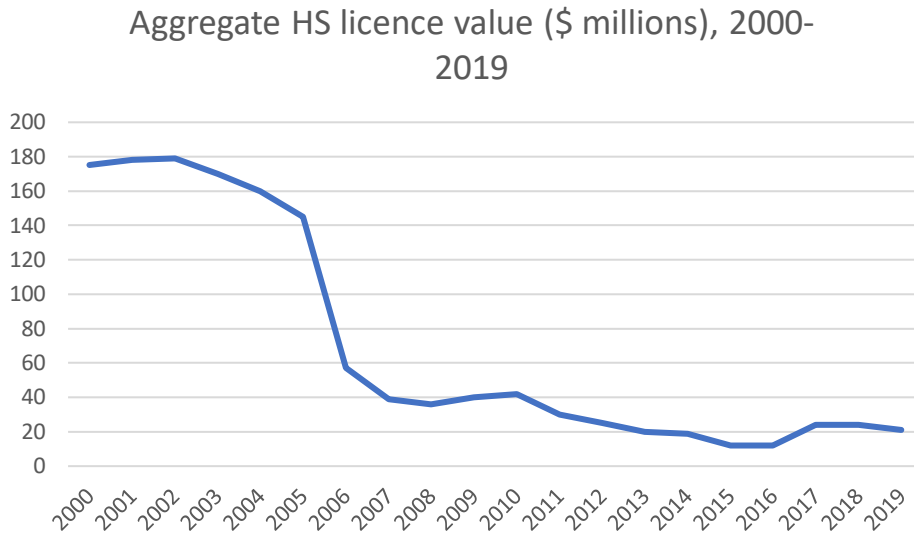
Recent HS licence valuation



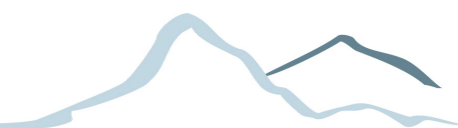
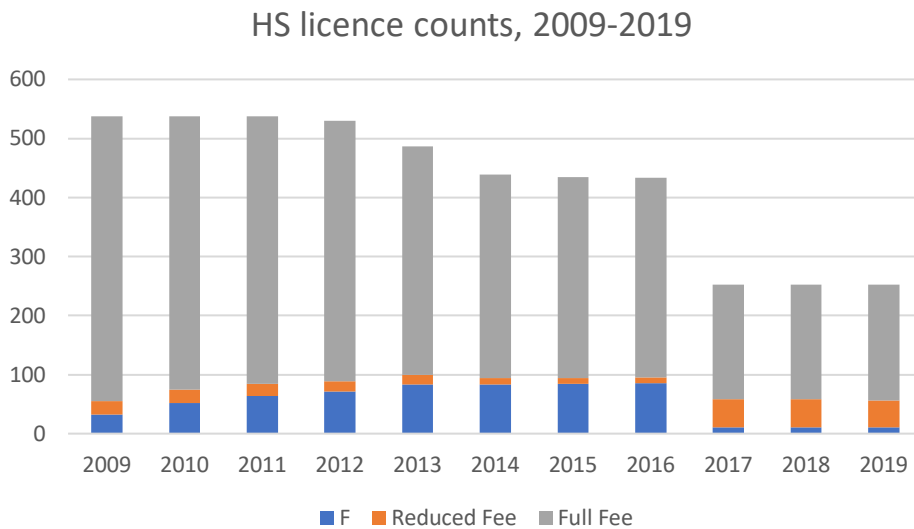
Recent HS licence lease rates (\$)

No lease transaction were uncovered for HS licences.

Aggregate value of HS licence (\$ millions by year)



HS Licence counts by category



Outlook/commentary

While few transactions were uncovered in the 2019 valuation, the following observations summarize the outlook for the roe herring seine fishery:

- While licence prices at the start of the season aligned with 2018, prices dropped by almost half by the end of the season.
- Industry experts commented that few transactions in 2019 may be due to reluctant sellers who acquired their licence a decade ago when an HS licence went for upwards of \$750,000.

PELAGICS - Roe herring gillnet (HG)

Background to valuation

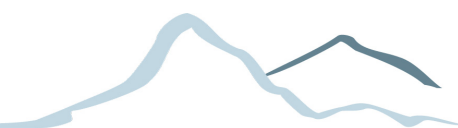
General	
Licence designation	HG
Nature of Licence	party-based
# commercial licences	987
# communal licences	280
Area licencing?	5 areas
Stacking?	yes
Competitive or quota mgmt.?	pools (equal sharing)

Valuation parameters	
Licence	per licence
Quota	n/a
Vessels	n/a
Amount of trading activity in category this year	high
# transactions underlying valuation	~38
Confidence in current year valuation	high

Current valuation

Licence value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
Full fee	743	37,000	27,491,000
Reduced fee	244	25,000	6,100,000
F (communal)	280	n/a	n/a
All AG	987	34,000	33,591,000

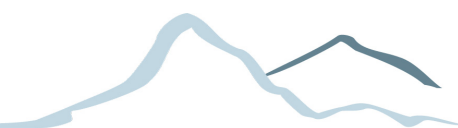
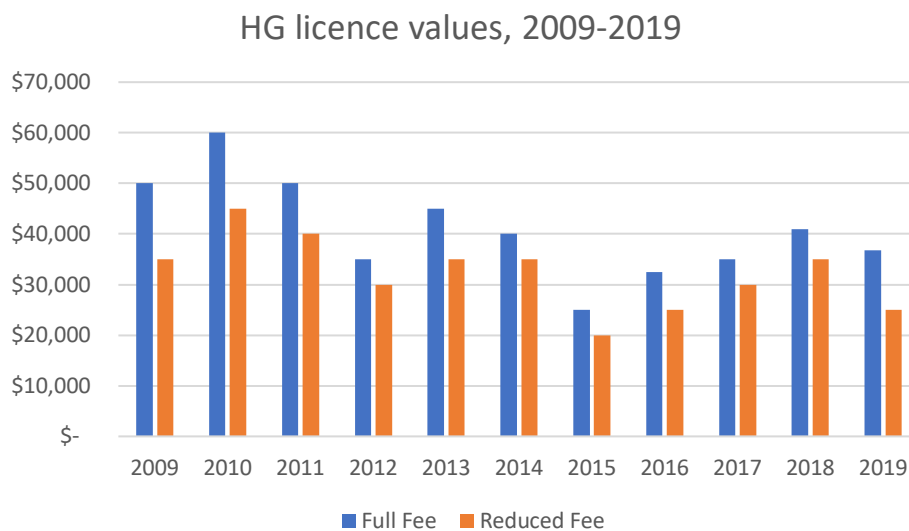


Valuation comments

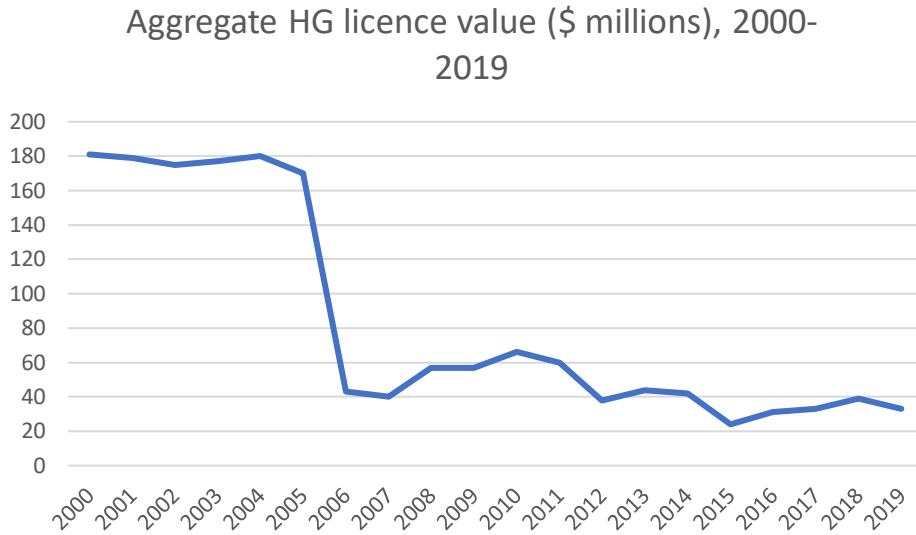
- Licence values ranged from \$35,000 - \$40,000.
- Reduced fee licences were approximately \$25,000; however, selling prices declined towards the end of the season to approximately \$18,500.
- Values for full fee licences have dropped slightly from 2018 and industry experts are questioning the future viability of the herring fishery due to total allowable catch and stock abundance. This is likely impacting licence values.

Licensing trends

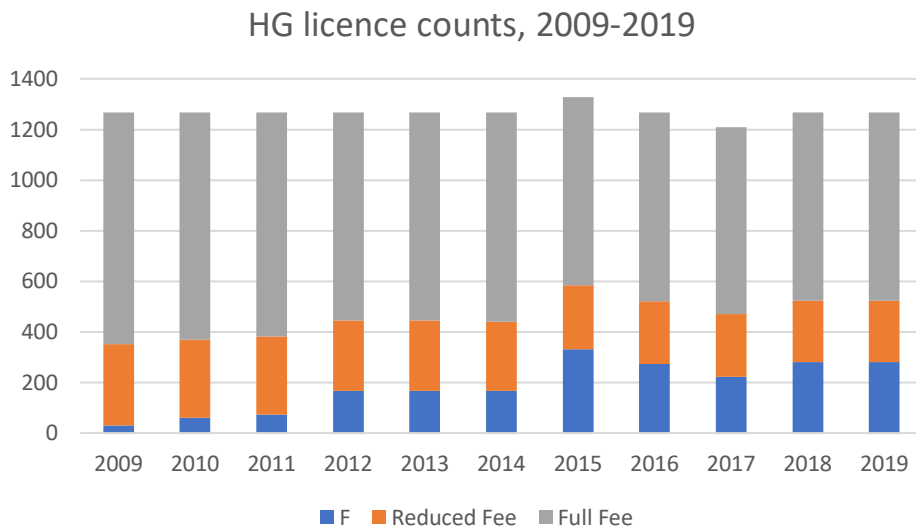
Recent HG licence valuation



Aggregate value of HG licences (\$ millions by year)

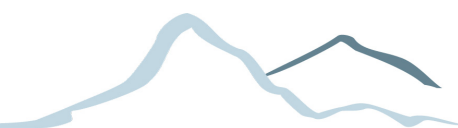


HG licence counts by category



Recent HG licence lease rates (\$)

Recent HG licences leased for approximately \$1,500.



Outlook/commentary

- The future of the herring fishery is in question and perceived as high-risk for entry due to changes in total allowable catch each season and to declining stock abundance.

PELAGICS – Tuna (USA 68)

Background to valuation

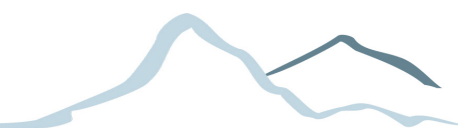
General	
Licence designation	USA 68
Nature of Licence	vessel-based
# commercial licences	45
# communal licences	0
Area licencing?	no
Stacking?	no
Competitive or quota mgmt.?	competitive

Licence parameters	
Licence	per licence
Quota	n/a
Vessels	n/a
Amount of trading activity in category this year	low
# transactions underlying valuation	~0
Confidence in current year valuation	low

Current valuation

Licence value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
Full fee	45	250,000	11, 250, 000



Valuation comments

- No transaction were uncovered for USA 68 licences for 2019 though listed prices were uncovered for approximately \$250,000. These prices could change as a result of negotiated allocations under the US/Canada Tuna Treaty.
- Most tuna fishers do not rely on the USA 68 licence, rather they seek a tuna permit under the schedule II privileges at a substantive savings.

PELAGICS - Sardine (ZS)

Background to valuation

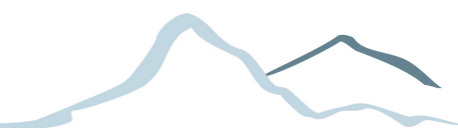
Licence designation	ZS
Nature of Licence	party-based
# commercial licences	25
# communal licences	0
Area licencing?	no
Stacking?	no
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per licence
Quota	n/a
Vessels	n/a
Amount of trading activity in category this year	none
# transactions underlying valuation	none
Confidence in current year valuation	no valuation provided

Current valuation

Licence value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
Full fee	25	n/a	n/a

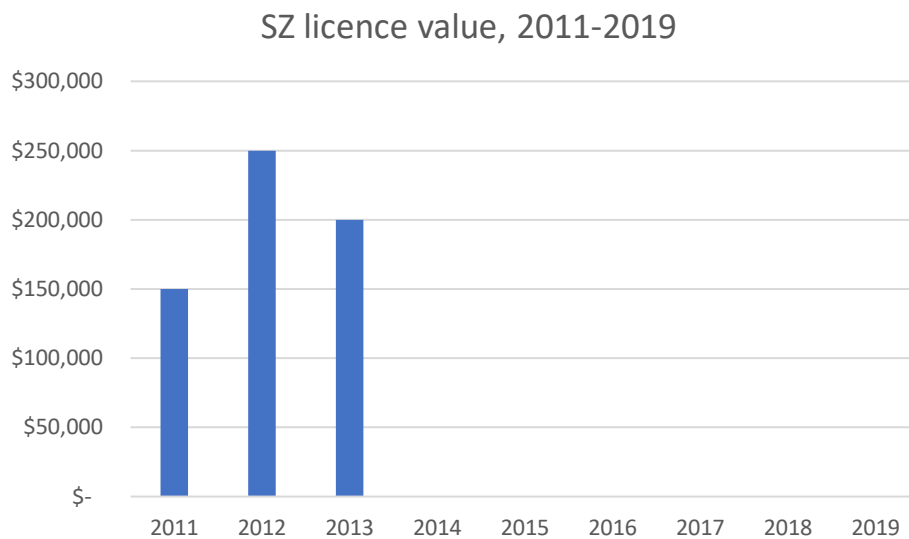


Valuation comments

- 2019 marked the sixth consecutive season that there has been no presence of sardine on the BC coast, resulting in no harvesting for the season.
- No transactions uncovered for this licence and likely no transactions took place.

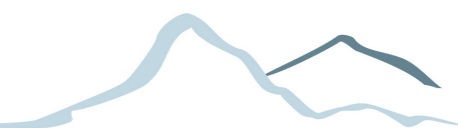
Licencing trends

Recent ZS licence valuation



Outlook/commentary

- For the sixth straight year, sardine numbers remained below the cut-off level to allow the directed fishery to open.
- Sardine presence off the coast of BC directly relate to oceanic conditions and their migration is generally understood to be on a 40-year cycle. There is no predicted sardine fishery in BC coastal waters until the species returns.

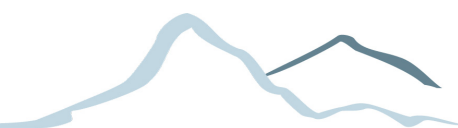


GROUND FISH – Halibut (L)

Background to valuation

General	
Licence designation	L
Nature of Licence	vessel-based
# commercial licences	341
# communal licences	92
Area licencing?	no
Stacking?	no
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per foot
Quota	per lb (dressed head)
Vessels	yes
Amount of trading activity in category this year	med
# transactions underlying valuation	~12 (licences) ~ 47 (quota)
Confidence in current year valuation	high



Current Valuation

Category	# of Licences	Value/Licence \$/ft Value/Quota \$/lb	Avg. Licence \$	Total Value \$
Full fee	341	830	33,000	11,253,000
Communal	92			
Quota	5,040,910 lbs	93.00		468,805,000
Total Value				480,058,000

Valuation comments

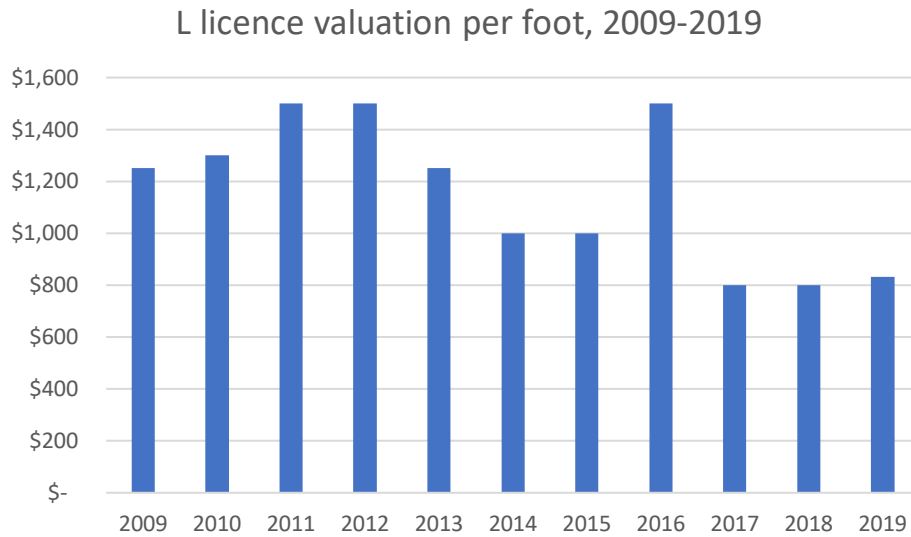
- Average licence value based on \$833 per foot and 40.25 ft average vessel length = \$33,000
- While the valuation uncovered a range of \$800 - \$1000 per foot L-tab values, some transactions were likely above this range but could not be confirmed due to unknown vessel lengths.
- Halibut quota ranged from \$85-\$102/lb. The mode and median value were both \$92.50/lb
- Industry experts confirmed that halibut quota was generally traded between \$90-\$95/lb in 2019 which is down from highs of \$120/lb in previous years. Last year's valuation reported that prices had stabilized, and it appears that this is the trend for 2019.

Vessel value

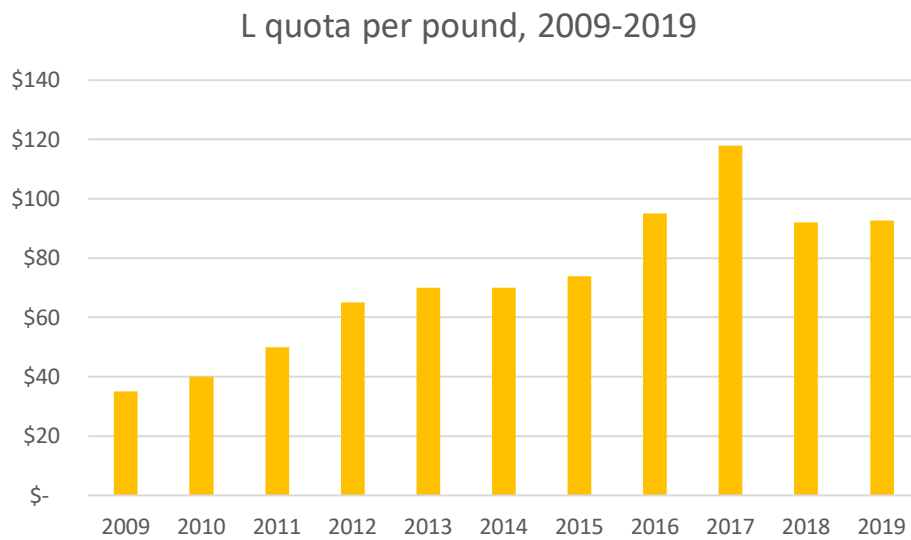
Halibut	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	182	147,000	26,754,000
Modern	88	268,000	23,584,000
Total	270	186,437	50,338,000

Licencing trends

Recent L licence valuation

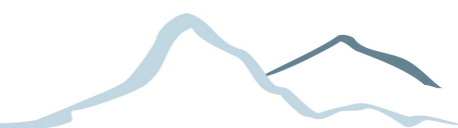


Recent L quota valuation

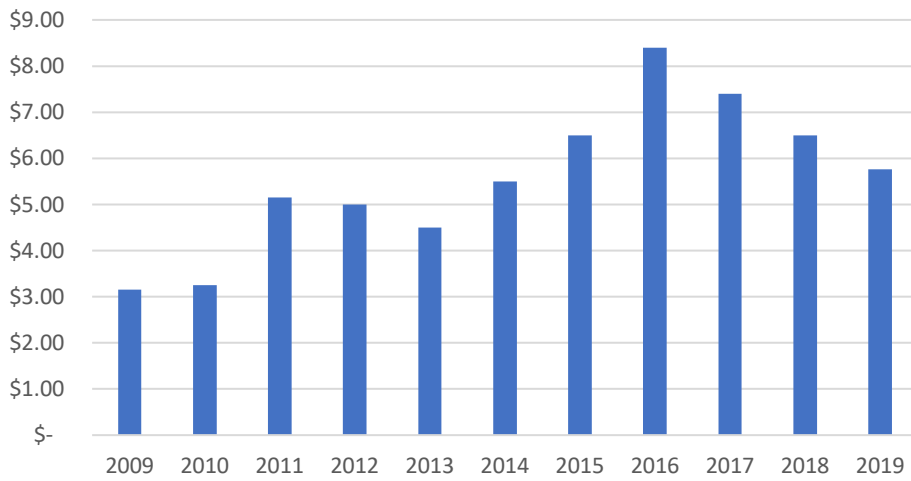


Recent halibut quota lease rates (\$ per lb)

Halibut quota leased for an average of \$5.00/lb. Quota is often leased with a minimum down payment plus an additional price paid to the lessor on the x-vessel price of the fish.

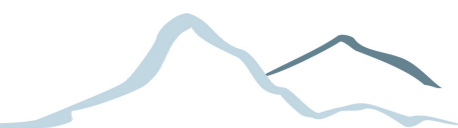
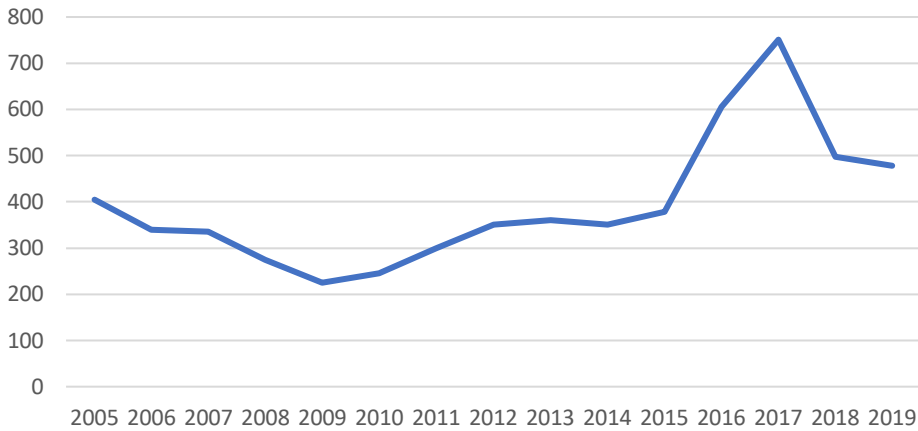


L lease rate per pound, 2009-2019

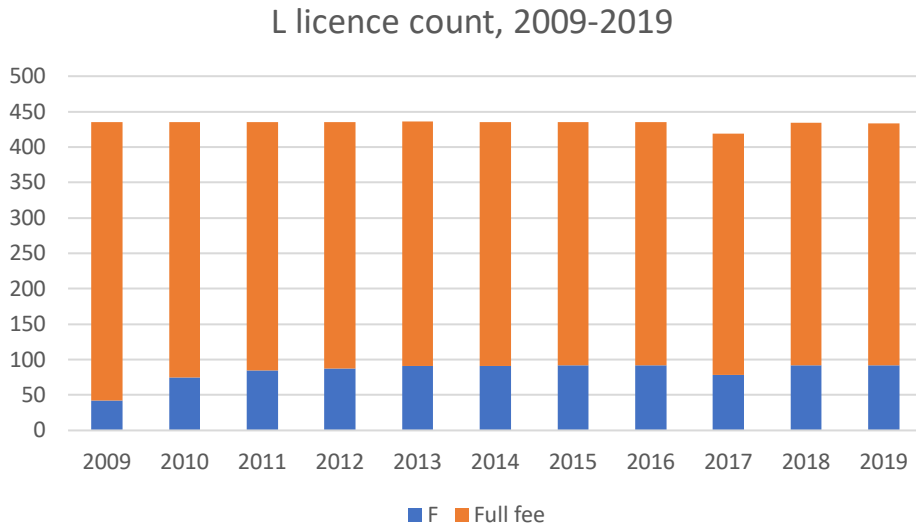


Aggregate value of L licences and halibut quota (\$ million by year)

Aggregate L licence and quota value (\$ millions),
2005-2019



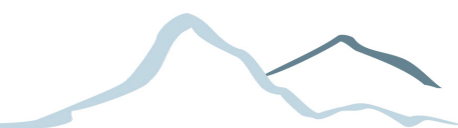
L licence counts by category



Outlook/commentary

The outlook for halibut value and quota is summarized as follows:

- Halibut quota value is down from previous years. Industry experts commented that the value peaked in 2017 at \$120-\$130/lb and has since stabilized.
- Experts have suggested that the value has come down partly due to market demand for other species such as ling cod.
- In the past, halibut quota was often purchased for its return on investment but with skepticism in the fishery due to access, this is no longer the case.

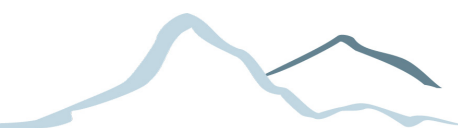


GROUND FISH – Sablefish (K)

Background to valuation

General	
Licence designation	K
Nature of Licence	vessel-based
# commercial licences	41
# communal licences	7
Area licencing?	no
Stacking?	no
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per foot
Quota	per lb (j-cut)
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~ 8 (quota) ~ 3 (licence)
Confidence in current year valuation	med



Current valuation

Licence and quota value at December 31, 2019

Category	# of Licences	Value/Licence \$/ft Value/Quota \$/lb \$/lb (j-cut) ²	Value/Licence \$	Total Value \$
Full fee	41	7,000	400,000	16,400,000
Communal	7			
Quota	5,110,877 lbs	87		444,646,000
Total Value				461,046,000

Valuation comments

- Average licence value per foot is based on a \$400,000 value per licence and average vessel length of 59.1 feet.
- With few licence transactions uncovered in the valuation, there is low confidence in the licence value, particularly when compared to previous years' valuation at approximately \$250,000.
- Quota prices ranged from \$82 – \$92 per lb.

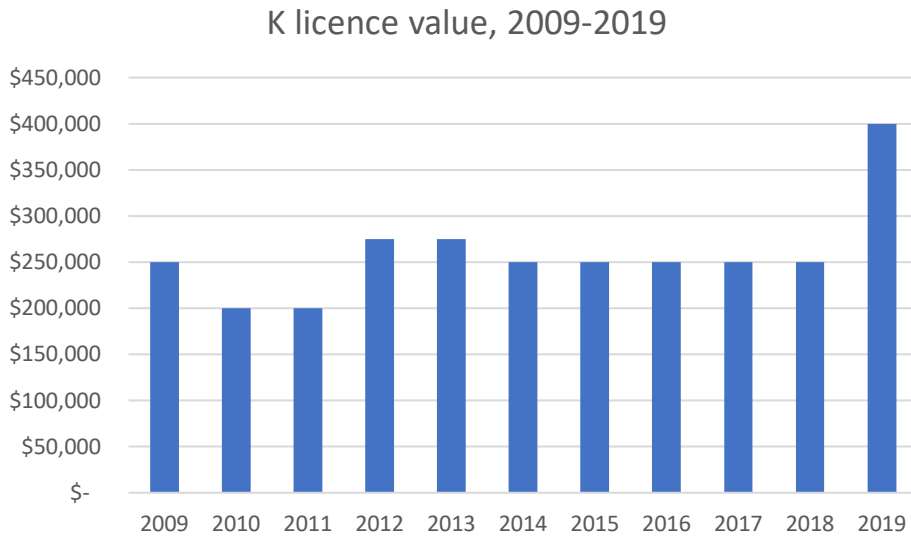
Vessel value

Sablefish	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	24	200,000	4,800,000
Modern	14	650,000	9,100,000
Total	38	365,789	13,900,000

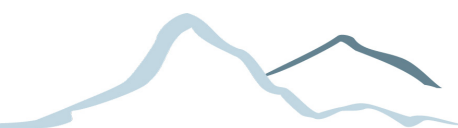
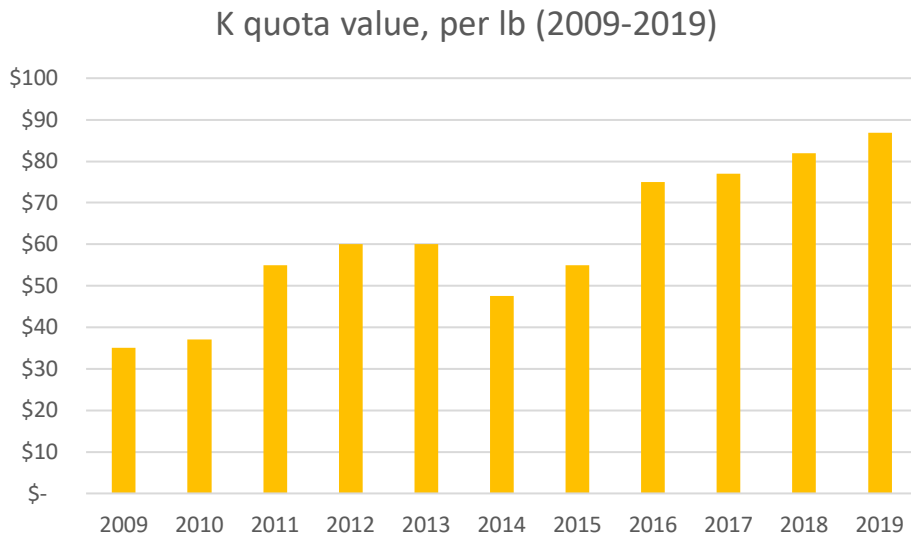
² Transaction recorded in 2019 were recorded as j-cut pounds.

Licence and quota trends

Recent K licence valuation



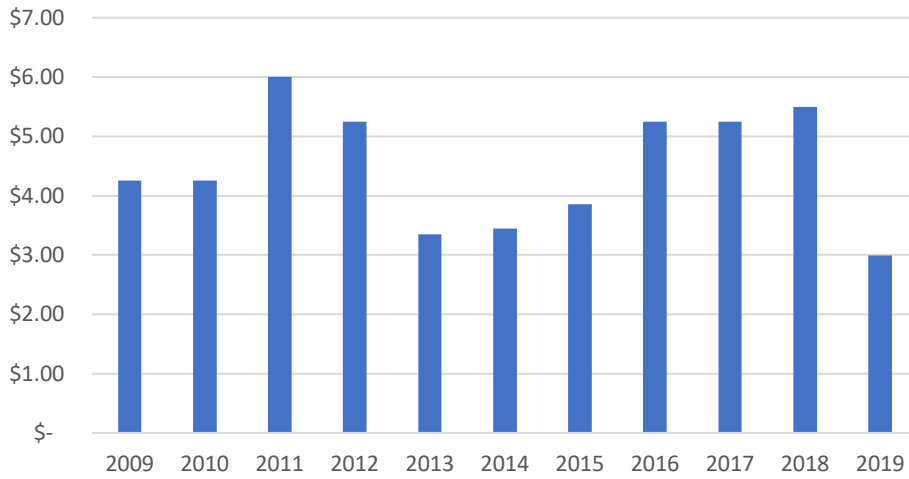
Recent K quota valuation (\$ per lb)



Recent K quota lease rates (\$ per lb)

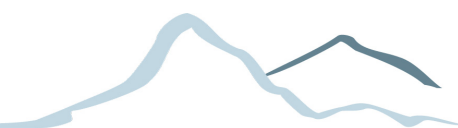
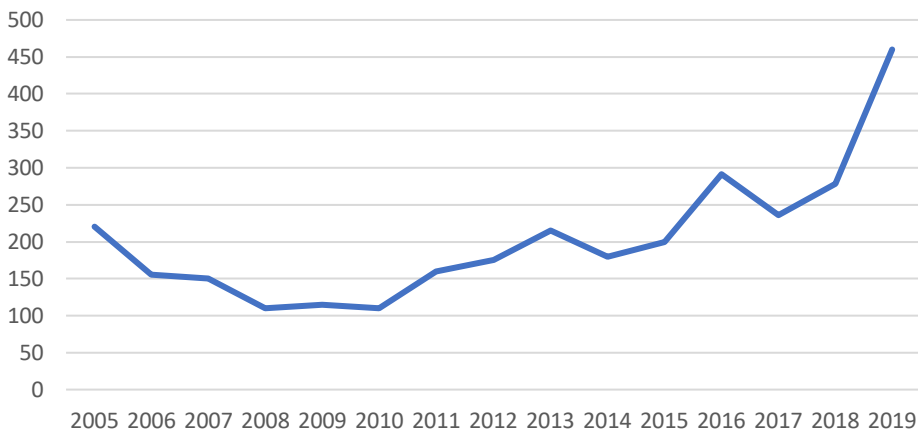
The average quota lease price was \$3.00/lb. Industry experts commented that lease prices rise and fall with the ex-vessel price of the fish which was approximately \$8.50/lb early in 2019 and \$6.50/lb at the end of 2019.

K lease rate, per lb, 2009-2019

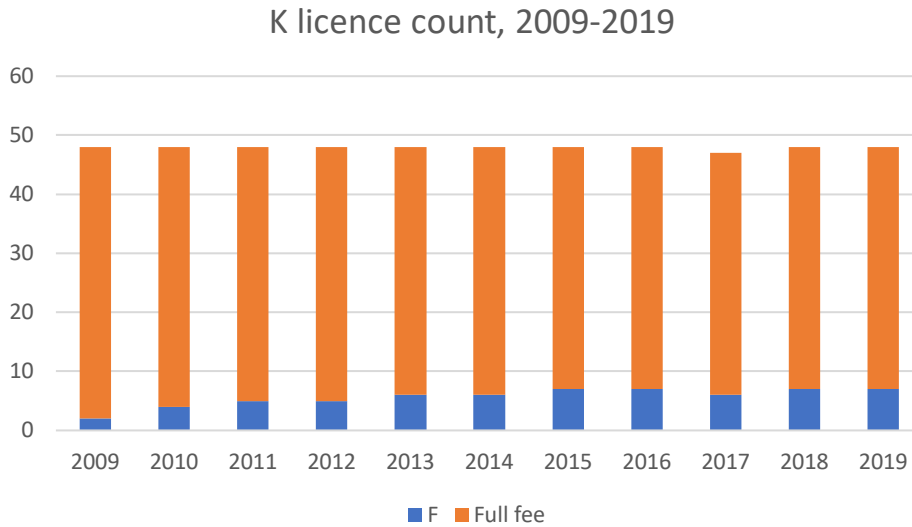


Aggregate value of K licence and quota (\$ millions by year)

Aggregate K licence and quota value (\$ millions), 2005-2019



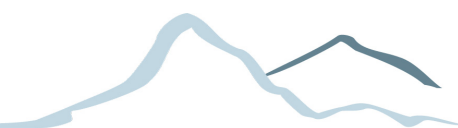
K licence counts by category



Outlook/commentary

General outlook for sablefish fishery licence and quota values is summarized below:

- There has been minimal licence trading activity with very few market transactions uncovered over the last few years. Industry experts suggested that this is partly due to licence holders wanting to retain them because there are so few available.
- The sablefish licence is generally regarded as a useful licence to have because:
 - it can be utilized on a large vessel, such as a seine vessel, which may not be otherwise inactive;
 - there are several options for gear type;
 - high value for the product;
 - generally low by-catch in the fishery;
 - there are large amounts of quota available;
 - the species can be fished year-round.

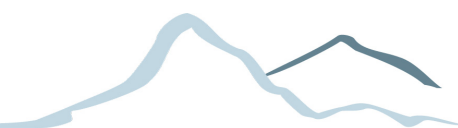


GROUND FISH – Groundfish trawl (T)

Background to valuation

General	
Licence designation	T
Nature of Licence	vessel-based
# commercial licences	135
# communal licences	4
Area licencing?	no
Stacking?	no
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per foot
Quota	per lb
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~ 2 (licence) ~ 1 (quota)
Confidence in current year valuation	low



Current valuation

Licence and quota value at December 31, 2019

Category	# of Licences lbs quota	Value/Licence \$/ft Value/ quota \$/lb	Avg. licence \$	Total Value \$
Full fee	135	672	41,000	5,535,000
Communal	4	n/a	n/a	n/a
Uncut quota	106,224,735 lbs	1.70		180,582,000
Hake outside	344,068,839 lbs	0.20		68,814,000
Total value	450,293,574 lbs			254,931,000

Valuation comments

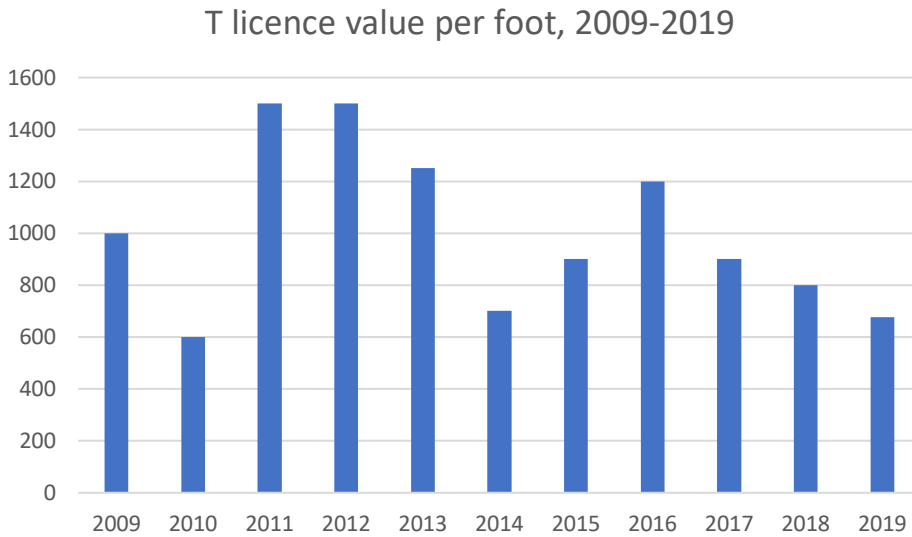
- The average per foot licence value is based on \$41,000 average licence value and an average vessel length of 61 feet, totalling \$672 per foot.
- No transactions were uncovered for Hake quota, though anecdotal reports suggest that the price has increased over the years.
- Smaller T licences in the \$40,000 - \$50,000 range are often purchased just to hold quota where larger ones in the \$200,000 - \$400,000 range are sought after for larger holding caps and sold at a premium.

Vessel Value

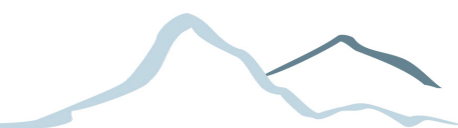
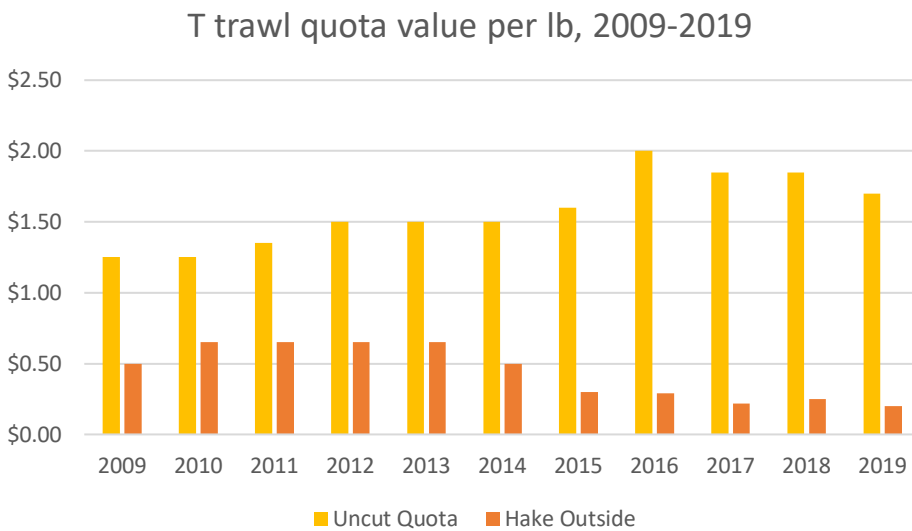
Groundfish trawl	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	69	440,000	30,360,000
Modern	36	1,375,000	49,500,000
Total	105	760,571	79,860,000

Licence and quota trends

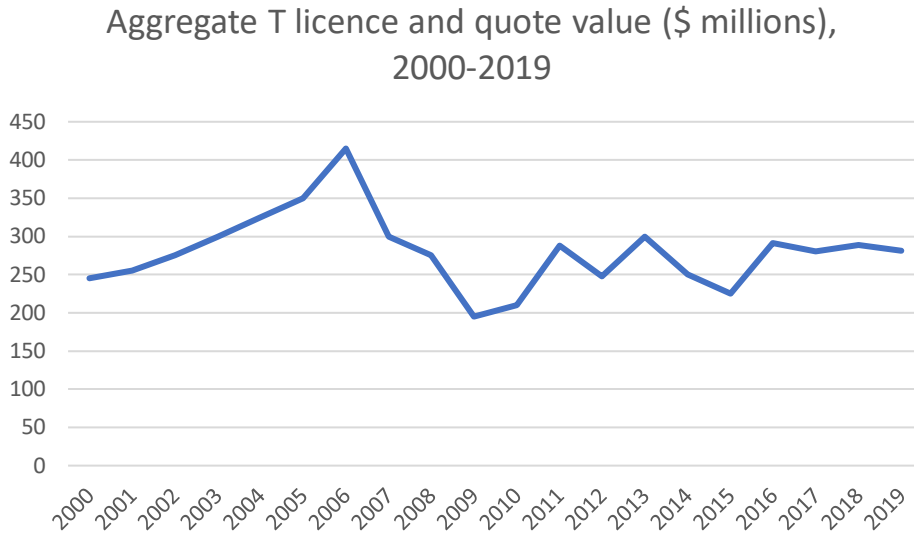
Recent T licence and trawl quota valuation (\$ per foot)



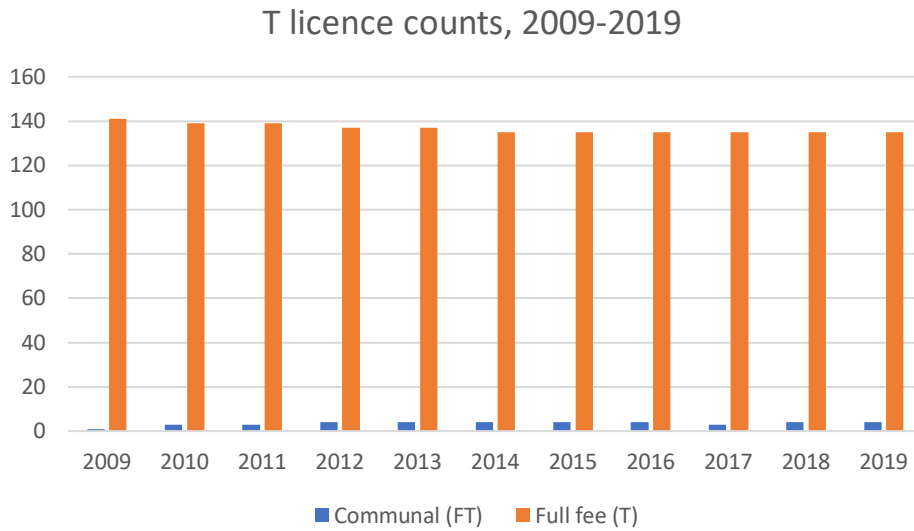
Recent T trawl quota valuation (\$ per lb)



Aggregate value of T licence and trawl quota (\$ millions by year)

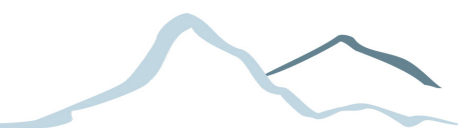


T licence counts by category



Recent T licence and quota lease rates

No licence or quota lease transactions were uncovered.



Outlook/commentary

General outlook regarding groundfish trawl valuation is summarized below:

- The specific holding cap assigned to each T licence greatly affects its value.
- Larger vessels that also hold schedule II licences tend to trade higher because of the opportunity to fish tuna.
- Large licences on large vessels are rare because they are on vessels that cannot easily serve other purposes. These licences are difficult to evaluate because there are no new licences being created and they already hold a large portion of the TAC.

GROUND FISH - Rockfish hook and line (ZN)

Background to valuation

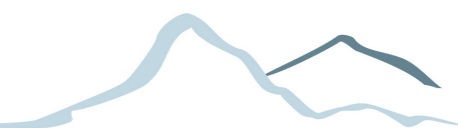
General	
Licence designation	ZN
Nature of Licence	party-based
# commercial licences	209
# communal licences	51
Area licencing?	yes
Stacking?	no
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per licence
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~ 1 (inside) ~ 7 (outside)
Confidence in current year valuation	low

Current valuation

Licence and quota value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
ZN inside	52	\$30,000	1,560,000
ZN outside	157	280,000	43,960,000



ZN communal	51		
ZN total	209	218,000	45,520,000

Valuation comments

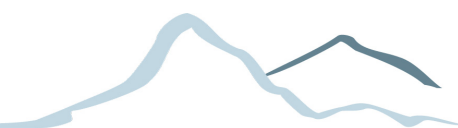
- There tends to be minimal movement of ZN licences.
- ZNO licence values ranged from \$265,000 - \$300,000 with higher prices attached to the middle of the season.
- Industry experts believe that 2019 ZNO licence values were inflated due to previous sales.

Vessel Value ZN outside

ZN Outside	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	80	136,000	10,880,000
Modern	44	286,000	12,584,000
Total	124	189,226	23,464,000

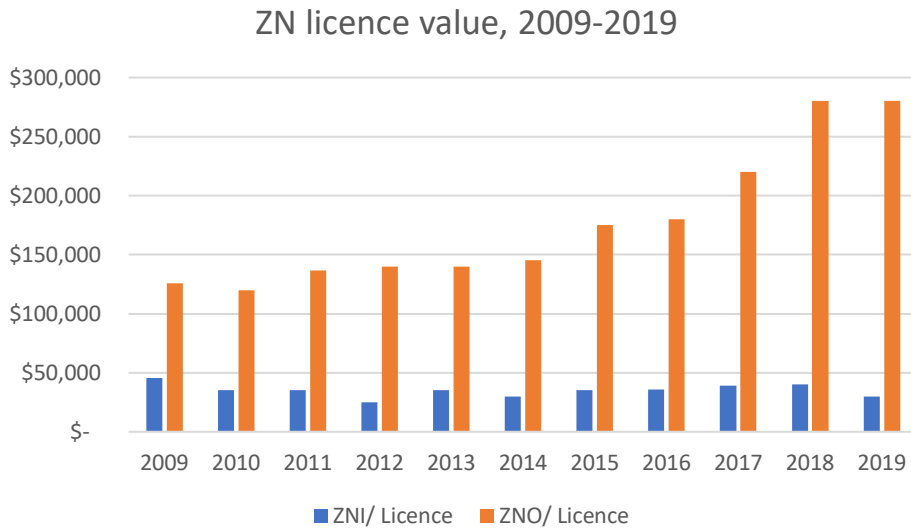
Vessel Value ZN inside

ZN Inside	#vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	3	75,000	225,000
Modern	5	196,000	980,000
Total	8	150,625	1,205,000

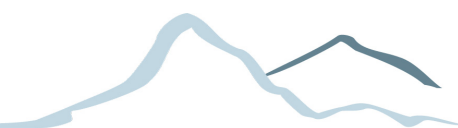
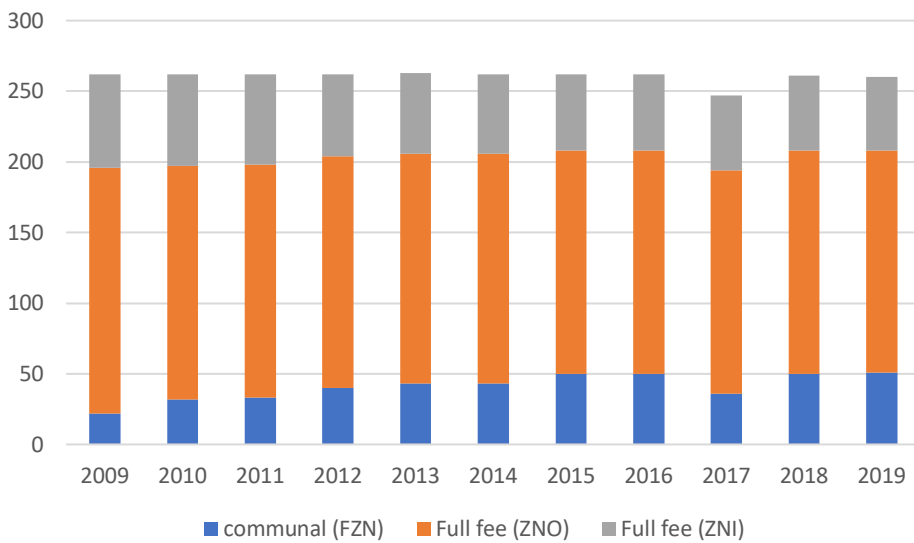


Licencing trends

Recent ZN licence valuations



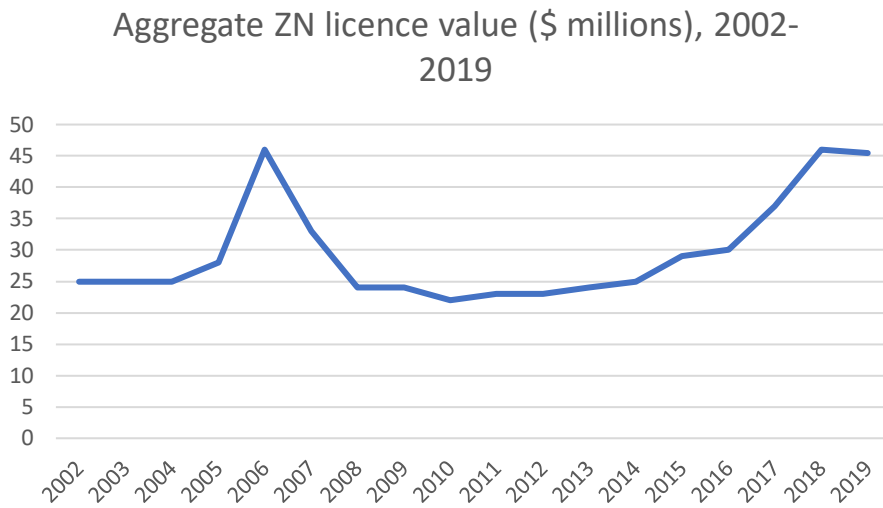
ZN licence counts by category



Recent ZN lease rates (\$)

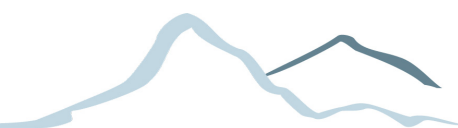
Lease prices for ZNI licences were approximately \$2,400. ZNO licences leased for approximately \$8,500 ranging from \$7,000 - \$ 9,000. Some reported lease rates in these ranges included uncut quota.

Aggregate value of ZN licences (\$ millions by year)



Outlook/commentary

Due to the potential for rockfish by-catch in the halibut fishery, ZN licences are highly sought after by halibut fishers and are seen as a requirement to be successful in the halibut fishery.



GROUND FISH – Lingcod and dogfish

Lingcod and dogfish are managed under an IVQ program and do not have dedicated licence categories. However, they can be executed under the authority of any vessel-based licence. This makes these fisheries difficult to estimate for valuation purposes.

Lingcod

Approximately three ling cod quota transactions were uncovered for this report with values averaging around \$15/lb.

Quota value at December 31, 2019

Category	Lbs of quota	Value (\$) /lb	Total value
Lingcod quota (H & L)	2,484,768	15.00	37,271,520

- Lingcod leases in the hook and line fishery were approximately \$0.40.
- Increasingly, there is more consumer market demand for lingcod and experts say that, comparably, it is easier to fish than halibut. These factors could drive up the price of quota in the future.

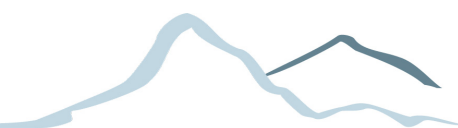
Dogfish

Approximately three dogfish quota transactions were uncovered for this report with values averaging at around \$0.12/lb.

Quota value at December 31, 2019

Category	Lbs of quota	Value (\$)/lb	Total value
Dogfish quota (H & L)	18,889,012	0.12	2,266,681

- Small amounts of dogfish quota are sold with halibut quota.
- While there has been a dedicated dogfish fishery in the past, most dogfish is caught as bycatch in halibut and hake fisheries. Dogfish requires a C licence as bycatch and can be attached to another licence.



SHELLFISH - Prawn trap (W)

Background to valuation

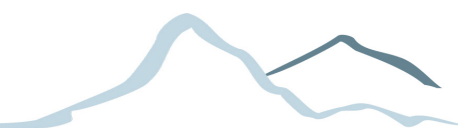
General	
Licence designation	W
Nature of Licence	vessel-based
# commercial licences	186
# communal licences	61
Area licencing?	no
Stacking?	yes
Competitive or quota mgmt.?	competitive

Valuation parameters	
Licence	per foot
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	med
# transactions underlying valuation	~6
Confidence in current year valuation	med

Current Valuation

Licence and quota value at December 31, 2019

Category	# of Licences	Value/foot \$	Avg value/licence \$	Total Value \$
W Licences	186	22,000	804,000	149,544,000
Communal	61			



Valuation comments

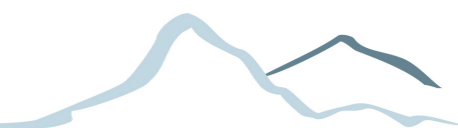
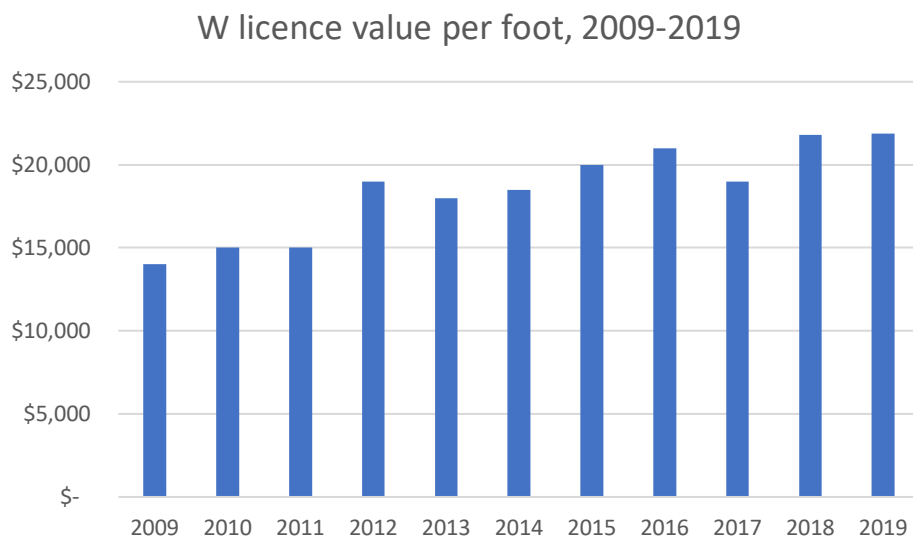
- Average licence value per foot is based on an average vessel length of 36.7 feet.
- Smaller licences are often leased and stacked on larger vessels.
- When smaller licences are sold and stacked onto larger vessels, the licences become married and cannot be sold and put on smaller vessels. Prawn trap allocations are per licence (300 traps per licence) so stacking multiple small licences on a larger vessel will allow the vessel to have more fishing opportunities.
- Historically, licences have been valued by vessel length; however, industry experts have stated that with smaller, more efficient speedboats, vessel length is becoming less of an evaluation criteria.

Vessel Value

Prawn by trap	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	62	162,000	10,044,000
Modern	71	325,000	23,075,000
Total	131	252,817	33,119,000

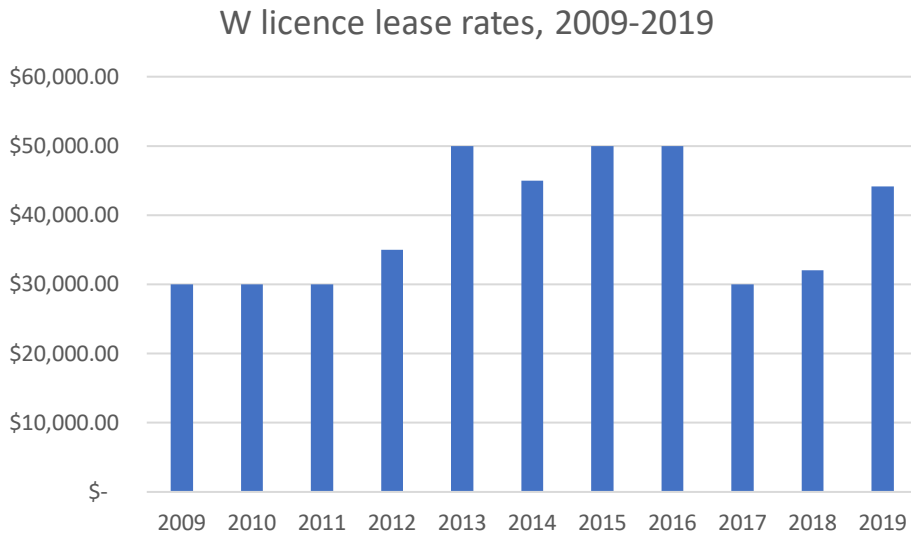
Licencing trends

Recent W licence valuation

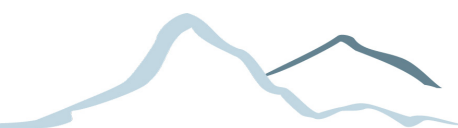
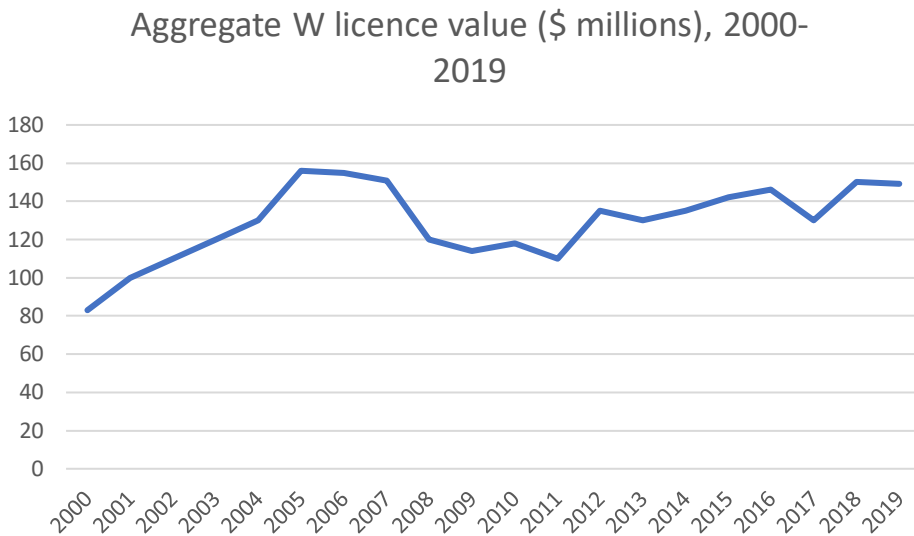


Recent W licence lease rates (\$)

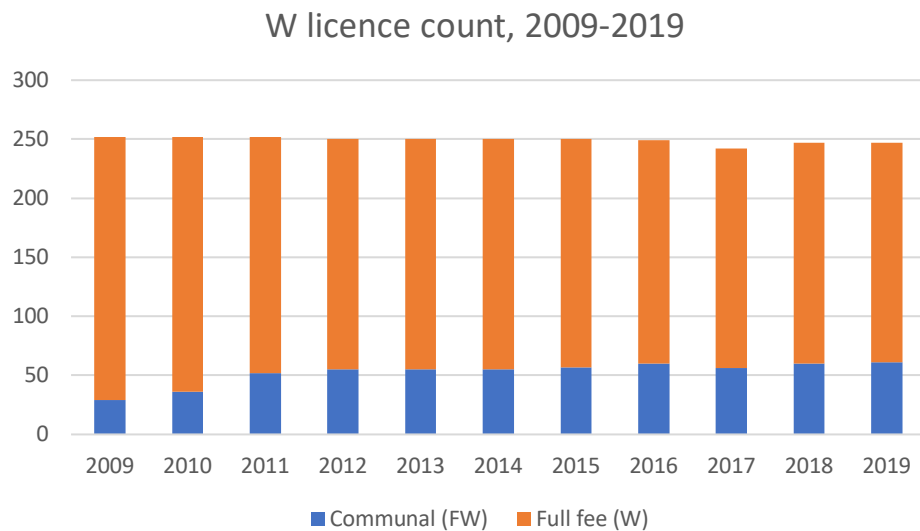
The average lease price for a W licence was approximately \$44,000 or \$1,200 per foot and is based on three transactions.



Aggregate value of W licences (\$ millions by year)

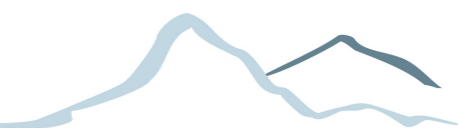


W licence count by category



Outlook/commentary

- Licence values in the prawn trap fishery appear to be stable over the last few years, though the valuation is based on only a few transactions.



SHELLFISH - Crab (R)

Background to valuation

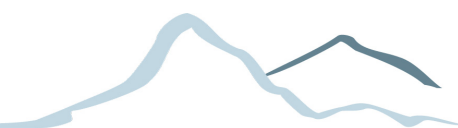
General	
Licence designation	R
Nature of Licence	vessel-based
# commercial licences	188
# communal licences	33
Area licencing?	7 areas
Stacking?	no
Competitive or quota mgmt.?	competitive

Valuation parameters	
Licence	per foot
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~ 2
Confidence in current year valuation	low

Current valuation

Licence value at December 31, 2019

Category	# of Licences	Value/foot \$	Avg value/licence \$	Total Value \$
R Licences	188	35,000	1,100,000	\$206,800,000
Communal	33			



Valuation comments

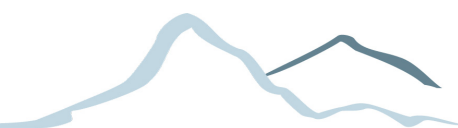
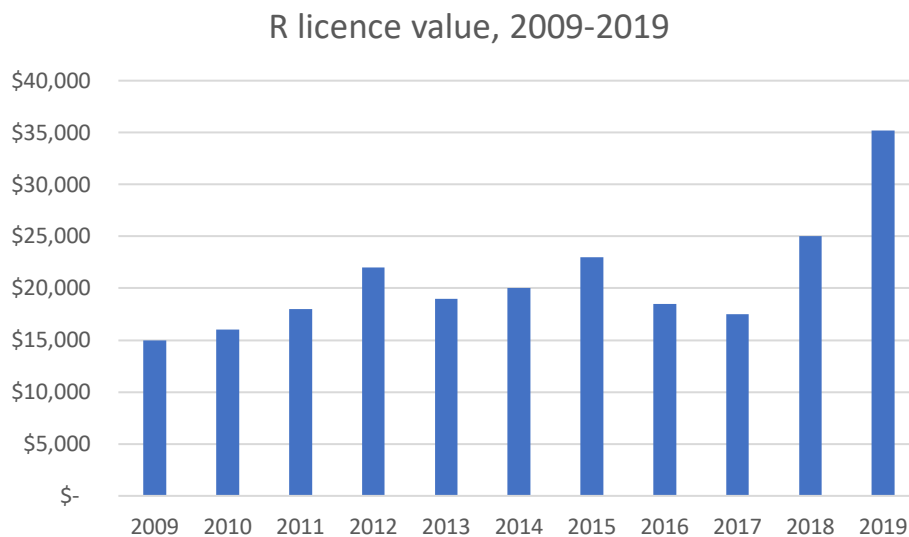
- Average licence value per foot is based on an average vessel length of 31.25 feet.
- Licences vary by length with longer licences holding a higher total value but a lower value per foot.
- Licence values vary considerably across Areas. Anecdotal information from industry experts points to average values ranging from \$40,000 - \$19,000 per foot with Areas A, B and I on the high end and Areas G and H on the low end.

Vessel Value

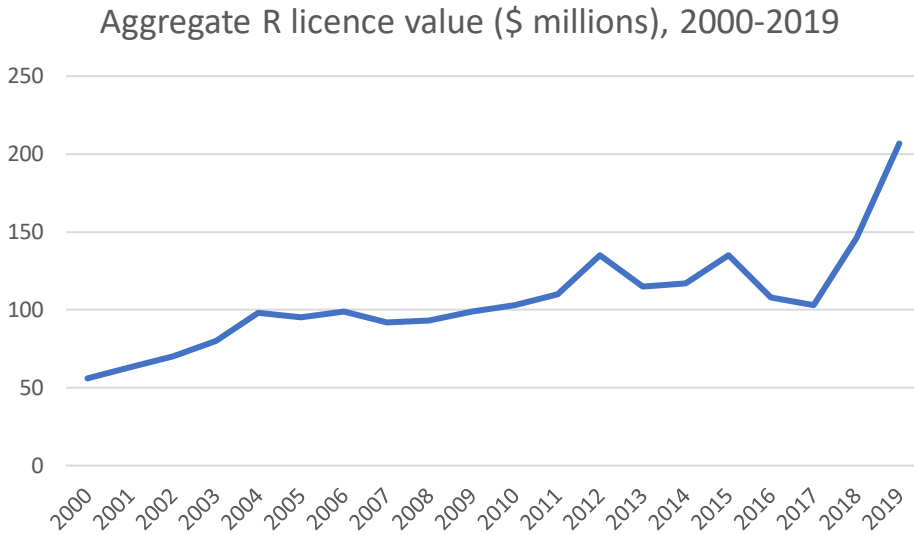
Category	#vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	25	144,000	3,600,000
Modern	102	350,000	35,700,000
Total	127	309,449	39,300,000

Licencing trends

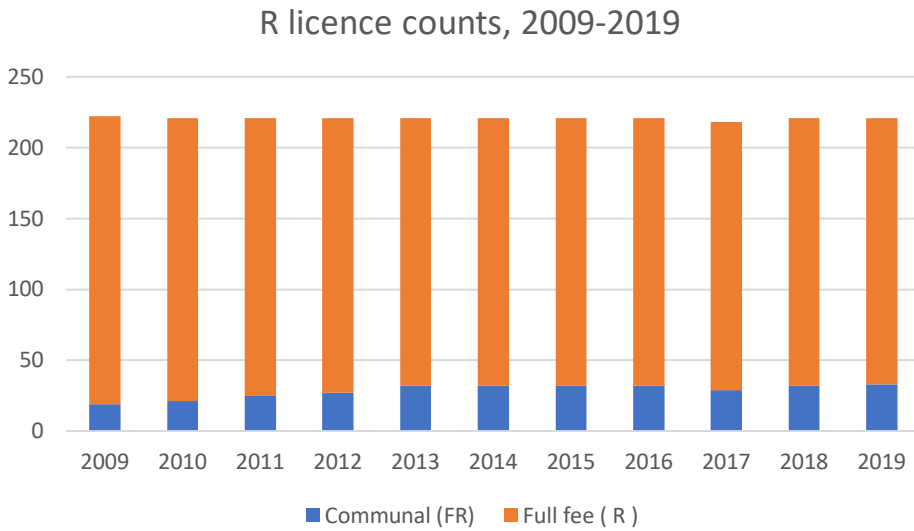
Recent R licence valuation



Aggregate value of R licence (\$ millions by year)

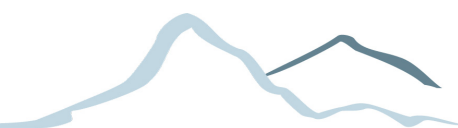


R licence counts by category



Recent R licence lease rates

R licences are leased at approximately \$1,000 per foot. However few transactions were uncovered so there is low confidence in this figure.



Outlook/commentary

General outlook for crab fishery includes the following observations:

- There were few transactions uncovered in the valuation which is likely since R licences are difficult to come by. Most people who own them are fishing them.
- Some areas are more valuable which is reflected in the price. Variation in values by Area is due to fishing potential. For example, Vancouver Island offers sheltered/protected fishing areas which attracts more boats, therefore limiting catch potential.

SHELLFISH – Shrimp trawl (S)

Background to valuation

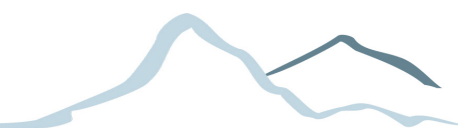
General	
Licence designation	S
Nature of Licence	Vessel-based
# commercial licences	207
# communal licences	26
Area licencing?	No
Stacking?	No
Competitive or quota mgmt.?	Competitive

Valuation parameters	
Licence	per foot
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~2
Confidence in current year valuation	low

Current Valuation

Licence value at December 31, 2019

Category	# of Licences	Value/foot \$	Avg value/licence \$	Total Value \$
R Licences	207	1,000	42,000	8,694,000
Communal	26			



Valuation comments

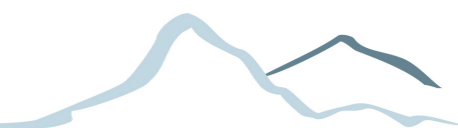
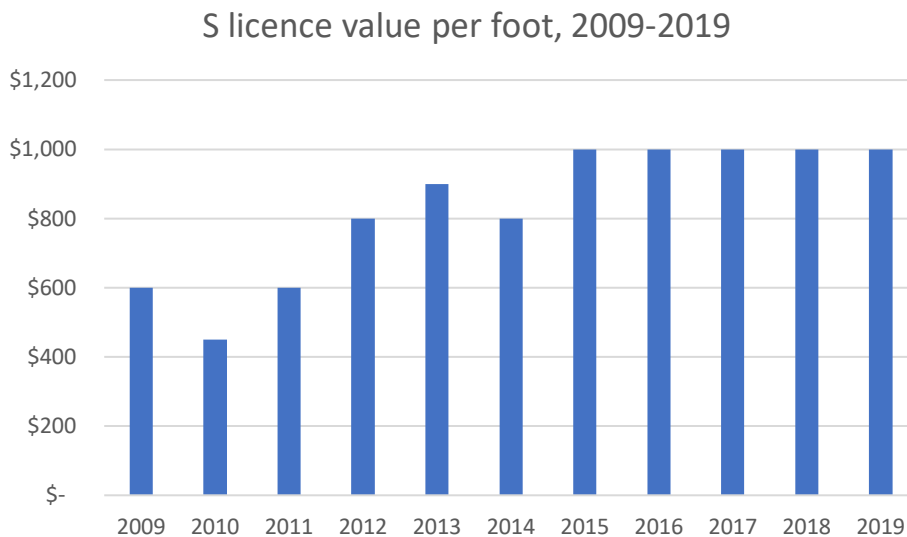
- An average licence value is based on \$1,000 per foot valuation and a 42 foot average vessel length.
- The value per foot remains unchanged from the 2018 valuation.

Vessel Value

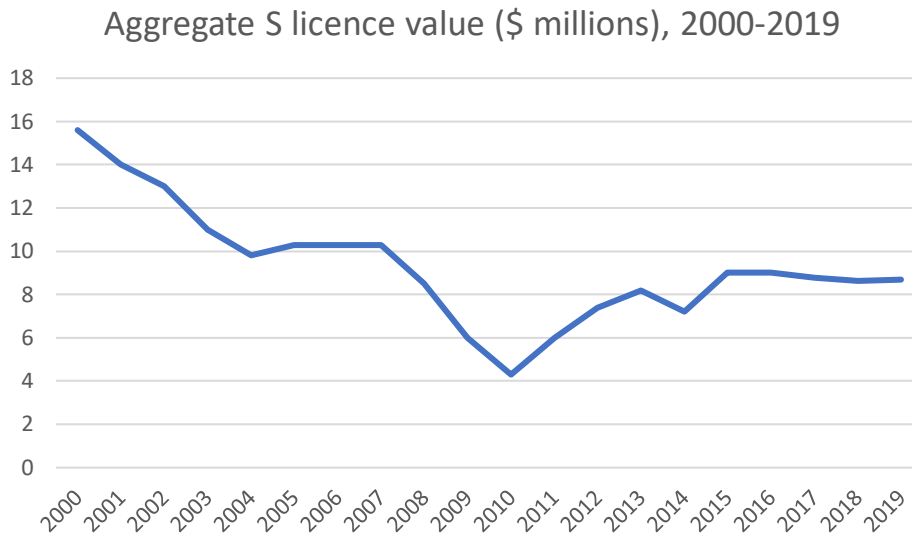
Shrimp trawl	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	119	83,000	9,877,000
Modern	58	167,000	9,686,000
Total	177	110,525	19,563,000

Licencing trends

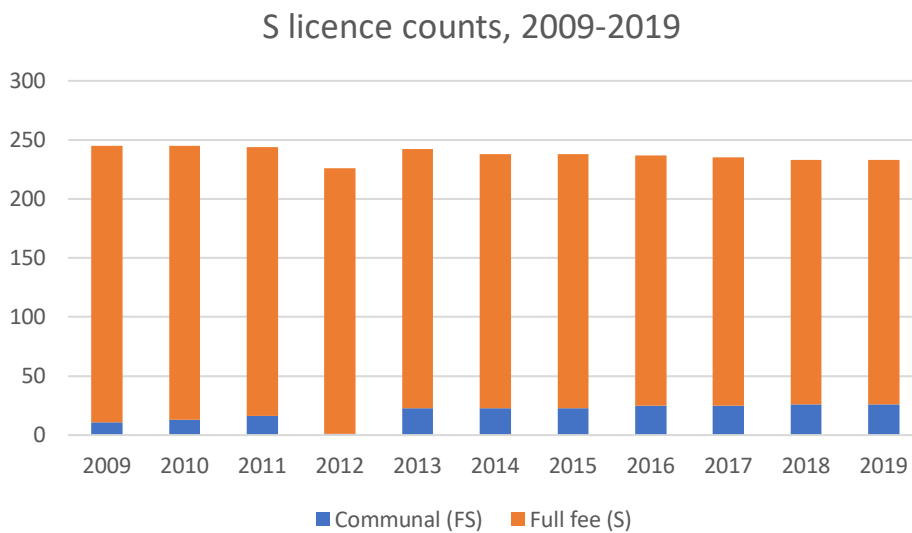
Recent S licence valuation



Aggregate value of S licence (\$ millions by year)

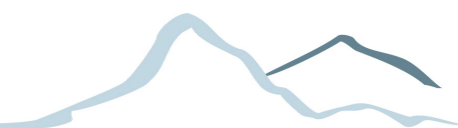


S licence counts by category



Recent S licence lease rates

- No lease transactions were uncovered for S licences.



Outlook/commentary

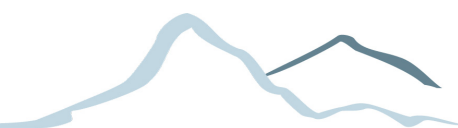
Industry experts have indicated that shrimp licences are likely to remain near current value for the foreseeable future, citing disputes between DFO and industry on the management of the fishery.

SHELLFISH - Geoduck (G)

Background to valuation

General	
Licence designation	G
Nature of Licence	vessel-based
# commercial licences	50
# communal licences	5
Area licencing?	3 areas
Stacking?	yes
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per licence
Quota	per block
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~ 7 (quota blocks) ~ 1 (licence, without quota block)
Confidence in current year valuation	med



Current valuation

Licence and quota value at December 31, 2019

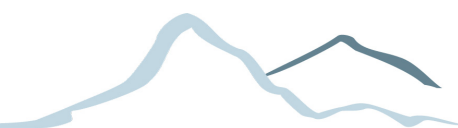
Category	# of Licences	Value/Licence \$ Value/block	Total Value \$
S Licences	50	250,000	12,500,000
Communal	5		
Quota blocks	500	\$814,000	407,000,000
Total			419,500,000

Valuation comments

- Few transactions for G tabs (licence only) were uncovered in the valuation.
- G tabs values are unchanged from last year according to industry experts and anecdotal reports.
- Quota blocks (1/10) ranged in value from \$800,000 - \$850,000; an apparent rise from last year though industry experts state little change in values in the geoduck fishery.

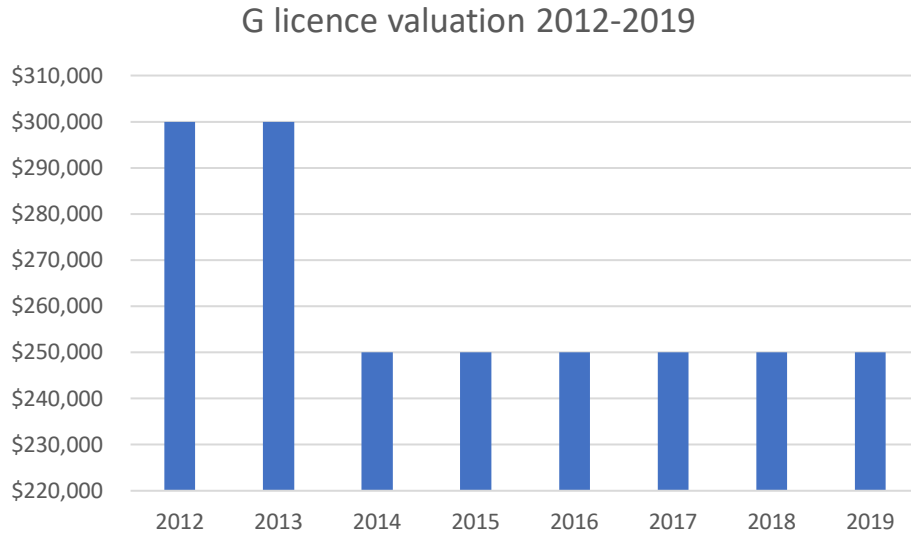
Vessel value

Geoduck	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	16	108,000	1,728,000
Modern	20	264,000	5,280,000
Total	46	152,348	7,008,000

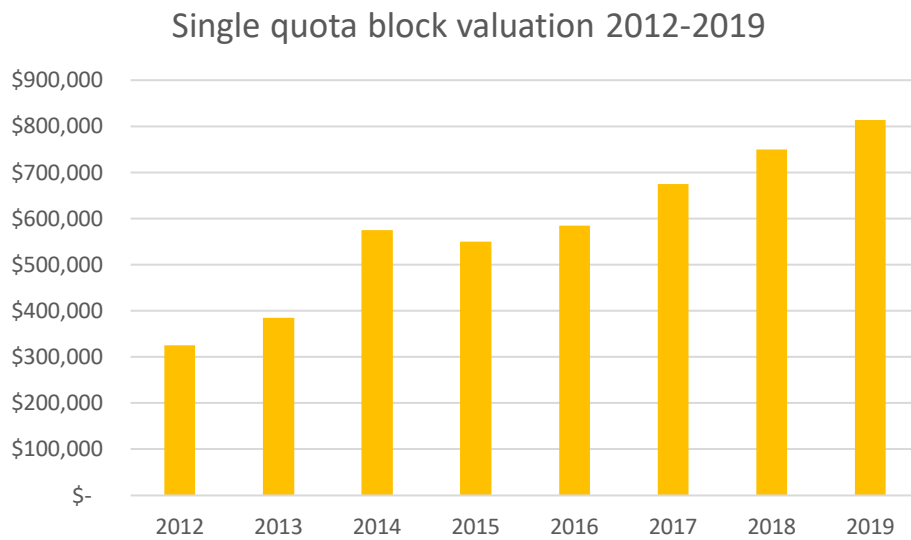


Licencing trends

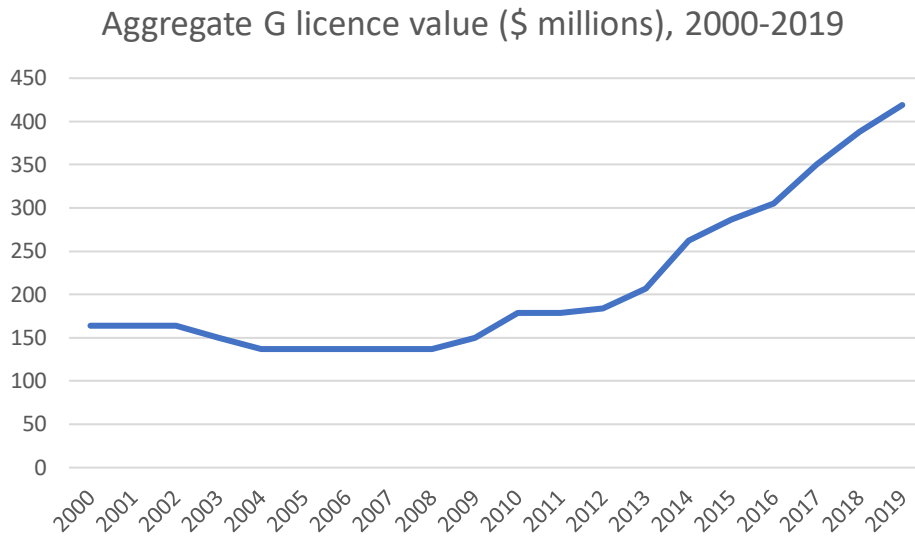
Recent G licence valuation



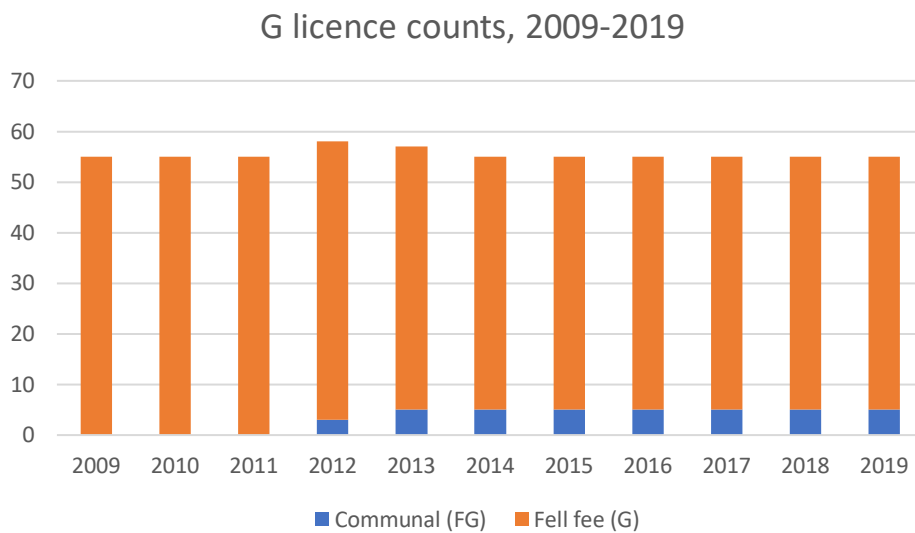
Recent geoduck quota valuation



Aggregate value of G licence (\$ millions by year)

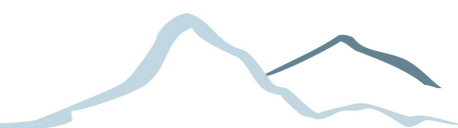


G licence counts by category



Recent G licence lease rates

Geoduck quota leased for approximately \$18/lb in 2019.



Outlook/commentary

In general, industry experts report that the geoduck fishery remains stable, based on the following observations:

- Demand remains high for licences and quota access, but the market is very tight as not many people are willing to sell licences.
- The price of quota has increased since last year's valuation.

SHELLFISH – Sea cucumber (ZD)

Background to valuation

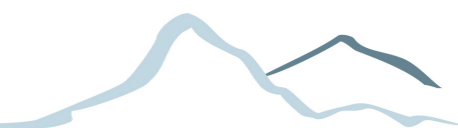
General	
Licence designation	ZD
Nature of Licence	party-based
# commercial licences	84
# communal licences	0
Area licencing?	4 areas
Stacking?	yes
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per licence
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~0
Confidence in current year valuation	low

Current valuation

Licence value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
ZD Licences	84	1,400,000	117,600,000
Communal	n/a		



Valuation comments

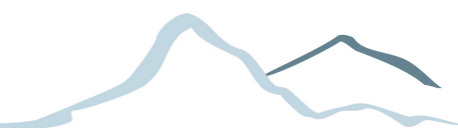
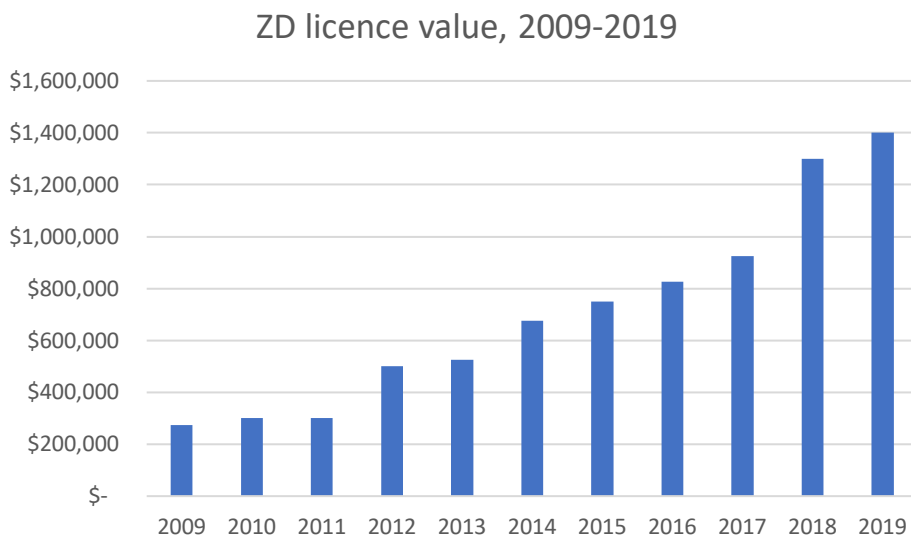
- No transactions were uncovered in the valuation though anecdotal information suggest that the value per licence was slightly higher than last year, at approximately \$1,400,000.
- There are a number of people looking to purchase ZD licences but few sellers.
- Experts commented that there were few, if any, transaction for 2019 and few, if any, licences on the market as of early 2020.

Vessel Value

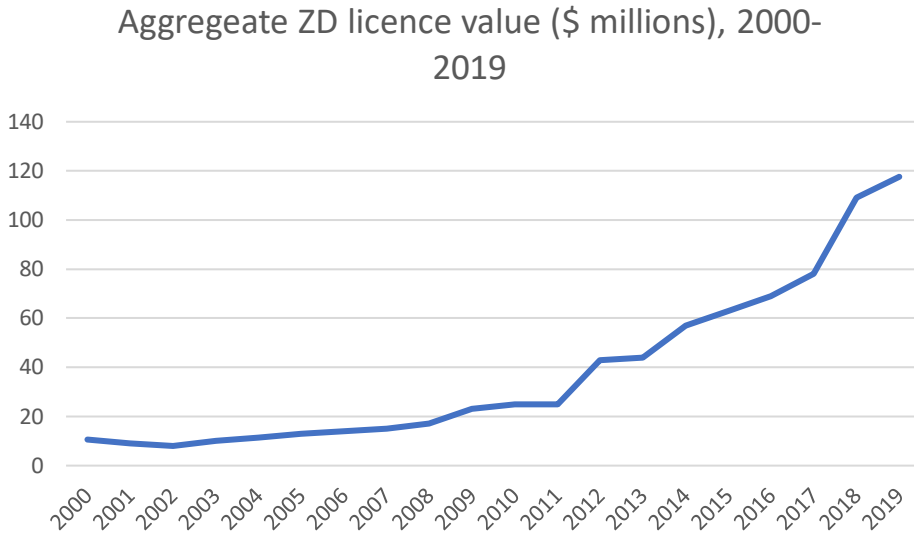
Sea cucumber	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	8	108,000	864,000
Modern	17	264,000	4,488,000
Total	25	214,080	5,352,000

Licencing trends

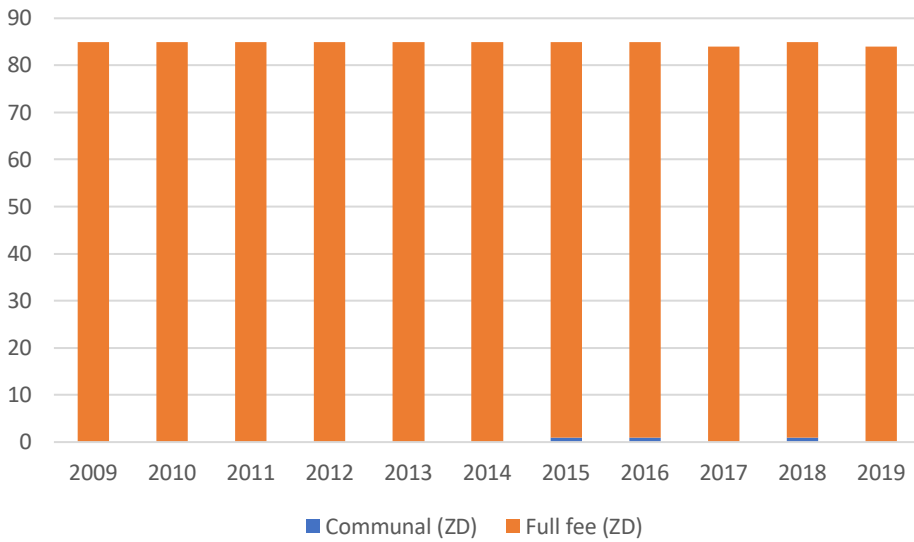
Recent ZD licence valuations



Aggregate value of ZD licences (\$ millions by year)

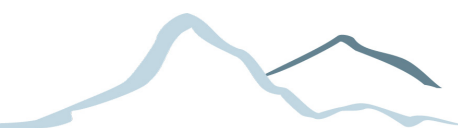


ZD licence counts by category



Recent ZD lease rates

No lease transactions were uncovered for ZD licences.



Outlook/commentary

Industry experts made the following general observations on the sea cucumber fishery:

- While there was significant activity in 2018, there was little licence movement in 2019.
- The market for sea cucumbers is notoriously tight and there many interested buyers but few sellers.
- Consumer market demand for sea cucumber is almost exclusively in Asia.

SHELLFISH – Red sea urchin (ZC)

Background to valuation

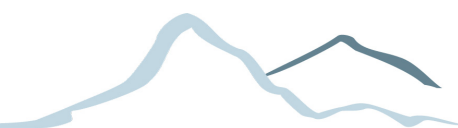
General	
Licence designation	ZC
Nature of Licence	party-based
# commercial licences	80
# communal licences	30
Area licencing?	2 areas
Stacking?	yes
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per licence
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~4
Confidence in current year valuation	med

Current valuation

Licence and quota value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
ZC Licences	80	270,000	21,600,000
Communal	30		



Valuation comments

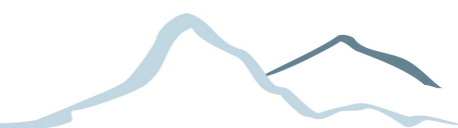
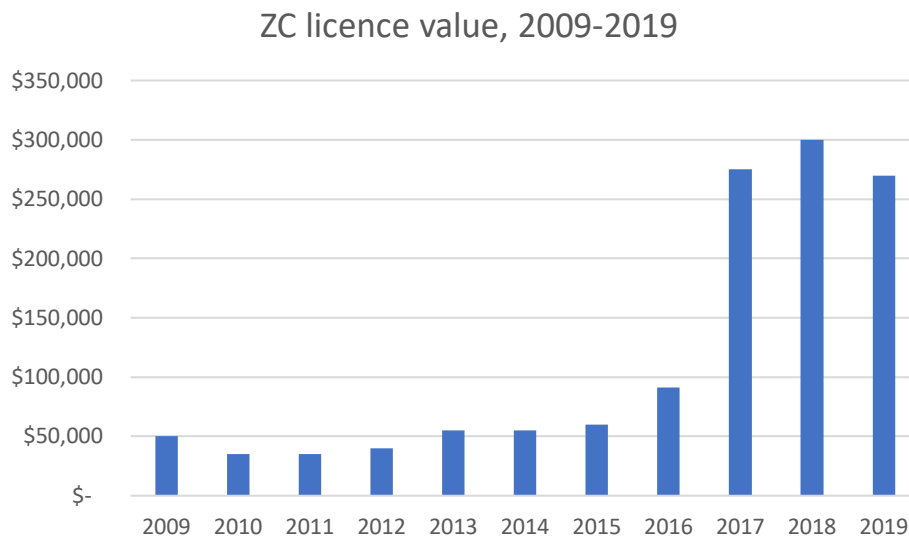
While values per licence decreased in 2019, asking prices in early 2020 remain the same as values reported in 2018.

Vessel value

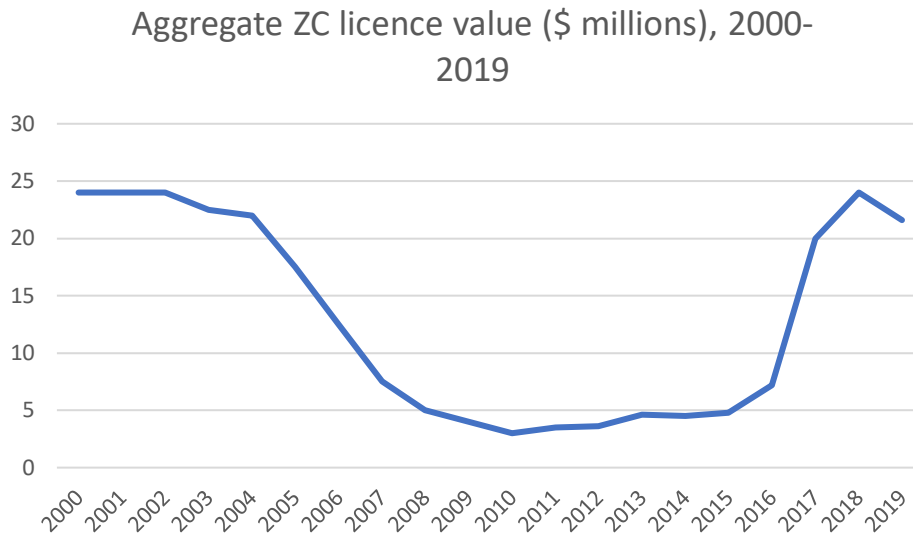
Red sea urchin	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	13	81,000	1,053,000
Modern	20	200,000	4,000,000
Total	33	153,121	5,053,000

Licencing trends

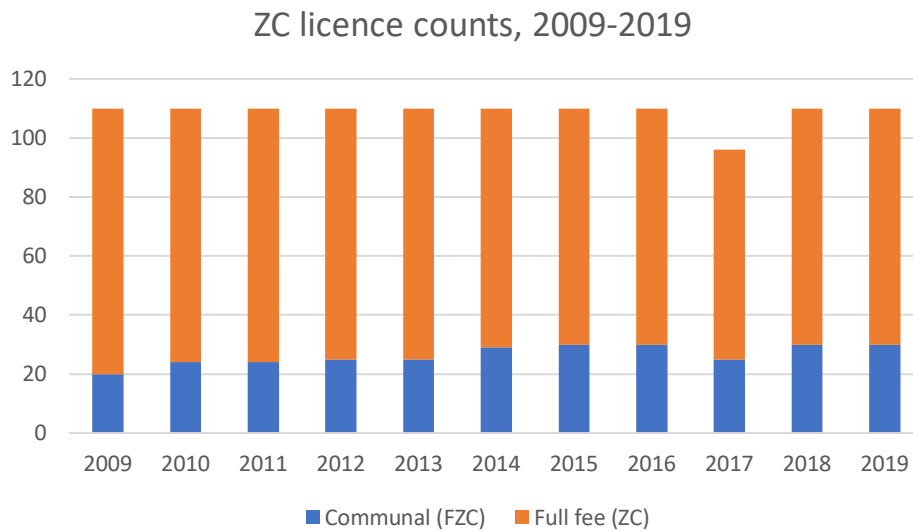
Recent ZC licence valuation



Aggregate value of ZC licences (\$ millions by year)

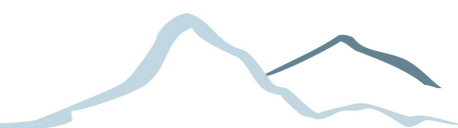


ZC licence counts by category



Recent ZC lease rates

No lease transactions were uncovered for ZC licences.



Outlook/commentary

Licences purchased in early 2019 were likely influenced by 2018 values and, according to industry experts, likely sold higher than their value.

SHELLFISH – Green sea urchin (ZA)

Background to valuation

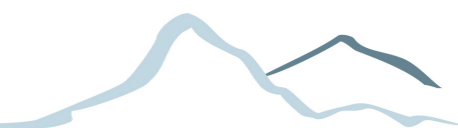
General	
Licence designation	ZA
Nature of Licence	party-based
# commercial licences	48
# communal licences	0
Area licencing?	2 areas
Stacking?	yes
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per licence
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~1
Confidence in current year valuation	low

Current valuation

Licence and quota value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
ZA Licences	48	100,000	4,800,000
Communal	n/a		



Valuation comments

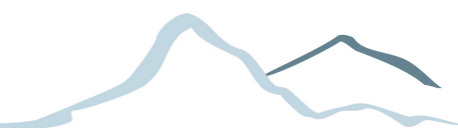
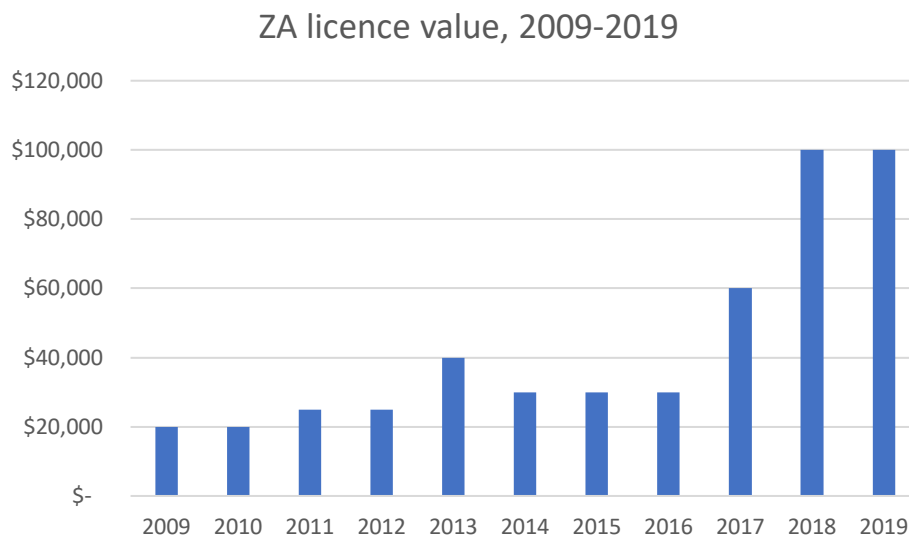
- Industry experts report no change since last year in ZA licence values.

Vessel value

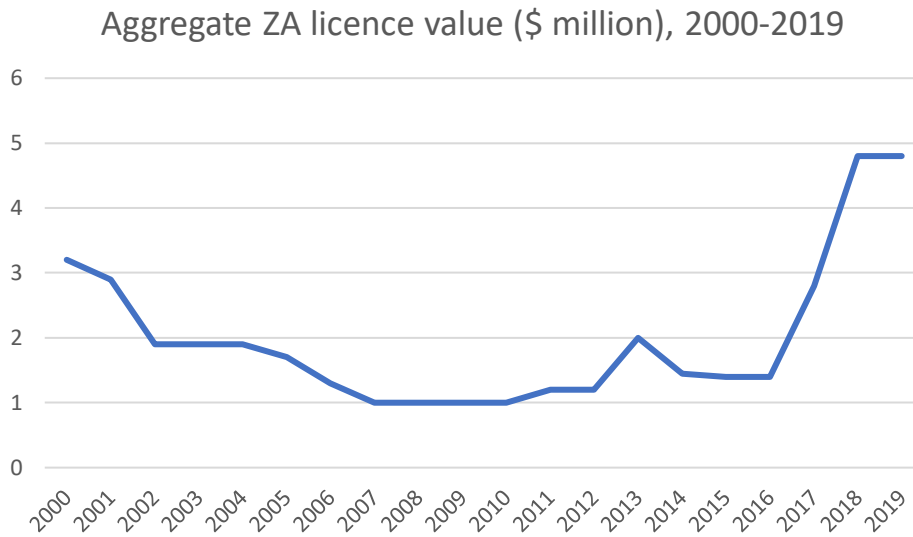
Green sea urchin	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	3	81,000	243,000
Modern	6	200,000	1,200,000
Total	9	160,333	1,443,000

Licensing trends

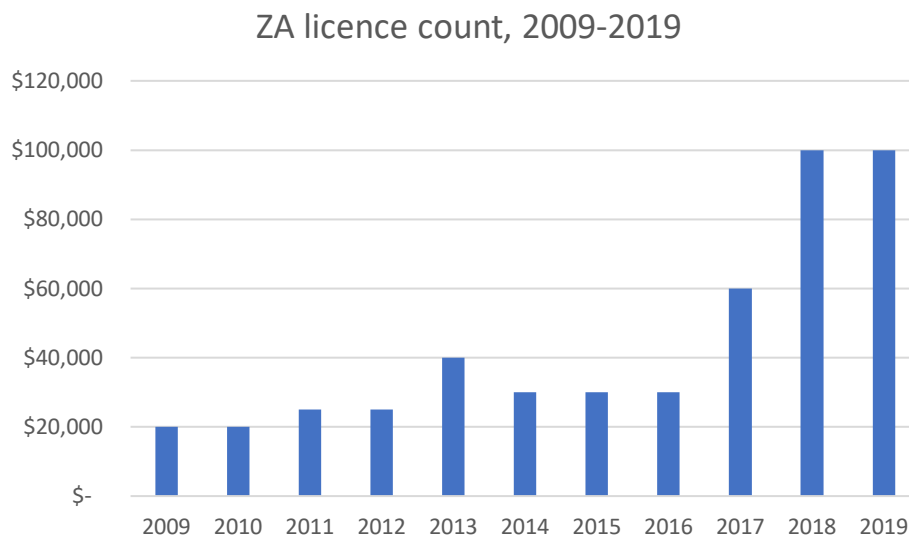
Recent ZA licence valuation



Aggregate value of ZA licences (\$ millions by year)

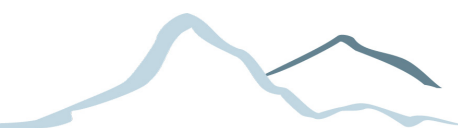


ZA licence counts by category



Recent ZD lease rates

- No lease transactions were uncovered for ZD licences.



Outlook/commentary

General observations on the outlook for the green sea urchin fishery include:

- The fishery has declined in value in Canada over the last few years since the Russian fishery opened and created competition.
- Industry experts have seen little movement over the last few years and expect the licence holders are retaining them with the hopes that the fishery will become profitable again.

SHELLFISH - Euphausiid (ZF)

Background to valuation

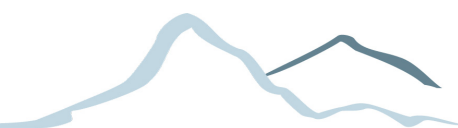
General	
Licence designation	ZF
Nature of Licence	party-based
# commercial licences	16
# communal licences	1
Area licencing?	no
Stacking?	no
Competitive or quota mgmt.?	quota

Valuation parameters	
Licence	per licence
Quota	n/a
Vessels	yes
Amount of trading activity in category this year	low
# transactions underlying valuation	~0
Confidence in current year valuation	Very low

Current valuation

Licence and quota value at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
ZF Licences	16	40,000	640,000
Communal	n/a		



Valuation comments

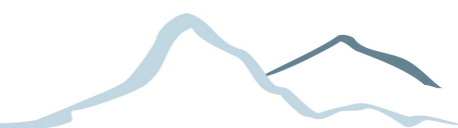
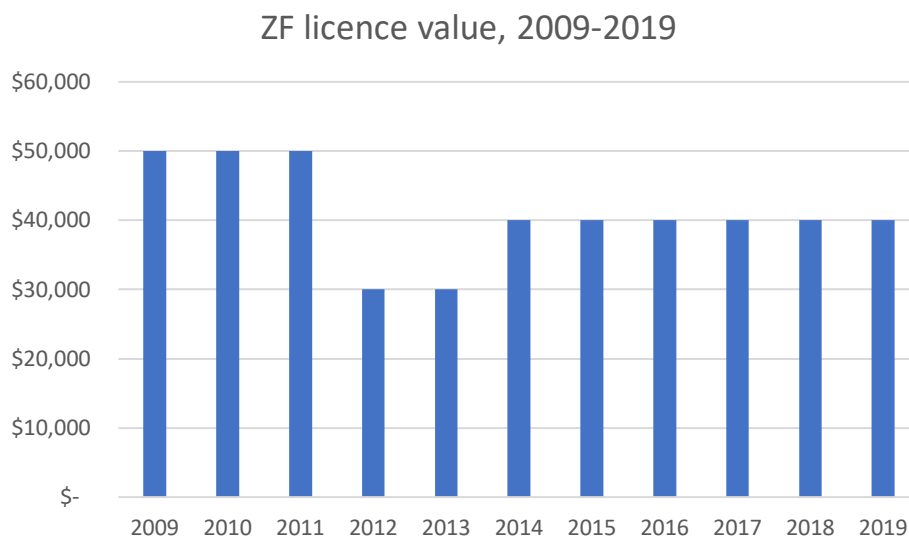
- No transaction activity was recorded for 2016, 2017, 2018, and 2019. Anecdotal information from 2015 indicated values in the \$40,000 to \$50,000 range.
- Value per licence has remained the same but market capitalization has decreased due to relinquished licences.

Vessel value

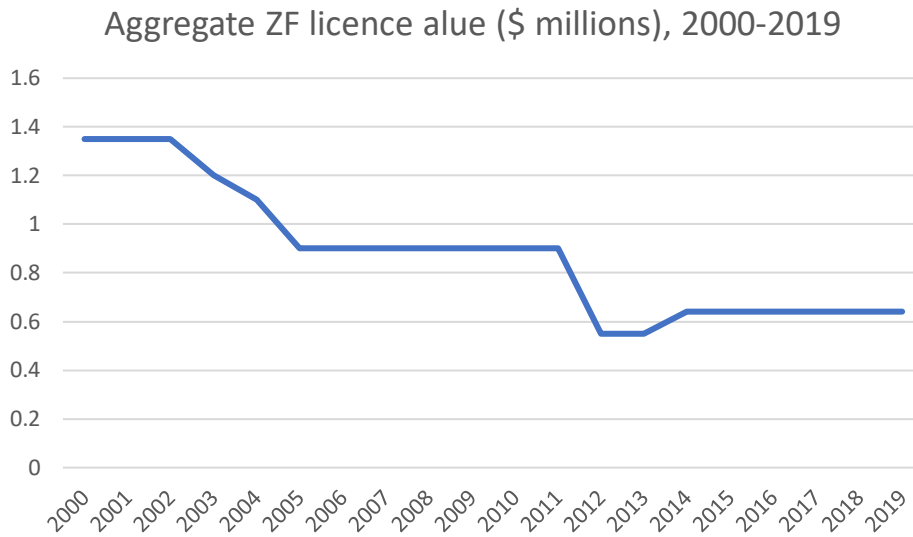
Euphasiid	# Vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	3	184,000	552,000
Modern	0	646,000	n/a
Total	3	184,000	552,000

Licencing trends

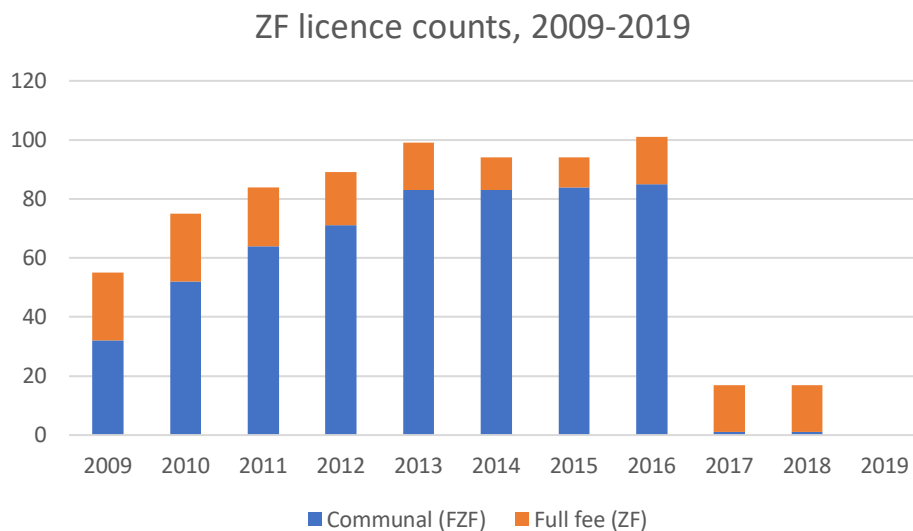
Recent ZF licence valuation



Aggregate value of ZF licences (\$ millions by year)



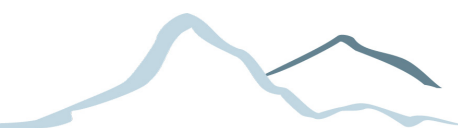
ZF licence counts by category



Outlook/commentary

General outlook for the euphasiid fishery is summarized below:

- This is a very small-scale fishery with low participation and low profitability.
- Outlook is uncertain as little information could be provided by industry experts.



Schedule II species (C)

Background to valuation

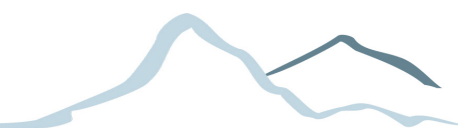
General	
Licence designation	C
Nature of Licence	Vessel-based
# commercial licences	311
# communal licences	14
Area licencing?	No
Stacking?	No
Competitive or quota mgmt.?	Various

Valuation parameters	
Licence	per foot
Quota	n/a
Vessels	no
Amount of trading activity in category this year	low
# transactions underlying valuation	~ 0
Confidence in current year valuation	low

Current Valuation

Licence values at December 31, 2019

Category	# of Licences	Value/Licence \$	Total Value \$
C Licences	311	600	5,909,000
Communal	14		



Valuation comments

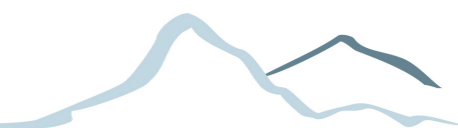
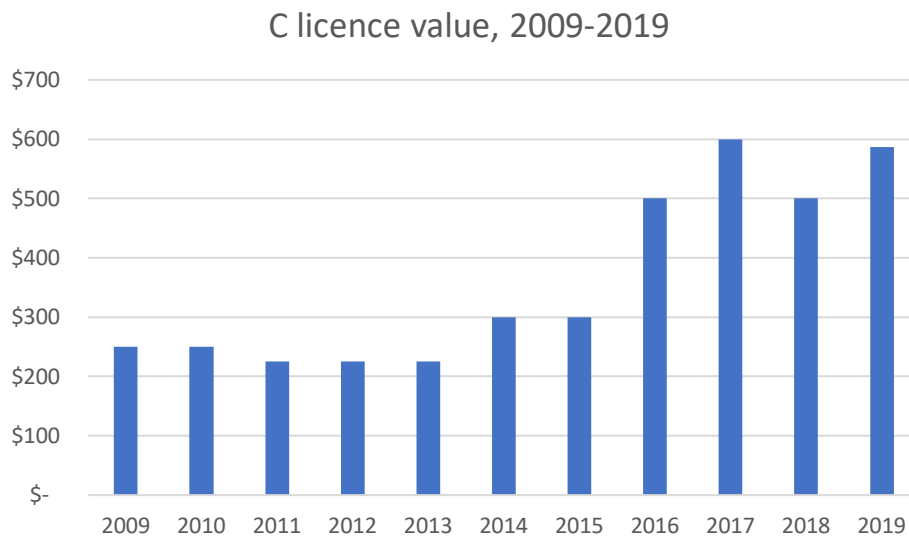
- Anecdotal reports from industry experts suggest that C licence values range \$350 (under 20 feet) per foot for smaller vessel to \$1000 foot for larger vessels (over 40 feet).
- Total licence value is based on an average licence price of \$19,000 and average vessel length of 31.5 feet.

Vessel value

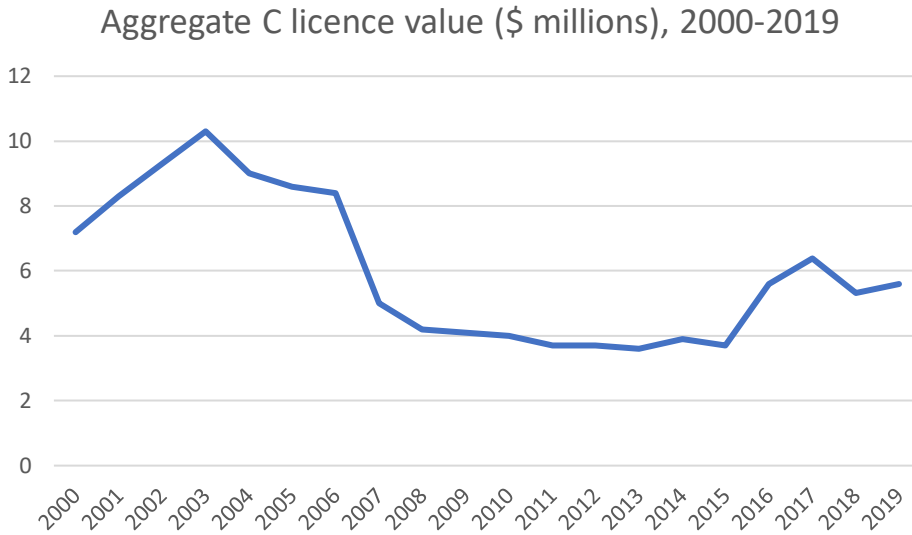
Schedule II	#vessels	Avg. Vessel Value (\$)	Aggregate Value (\$)
Classic	161	40,000	6,440,000
Modern	100	143,000	14,300,000
Total	261	79,464	20,740,000

Licensing trends

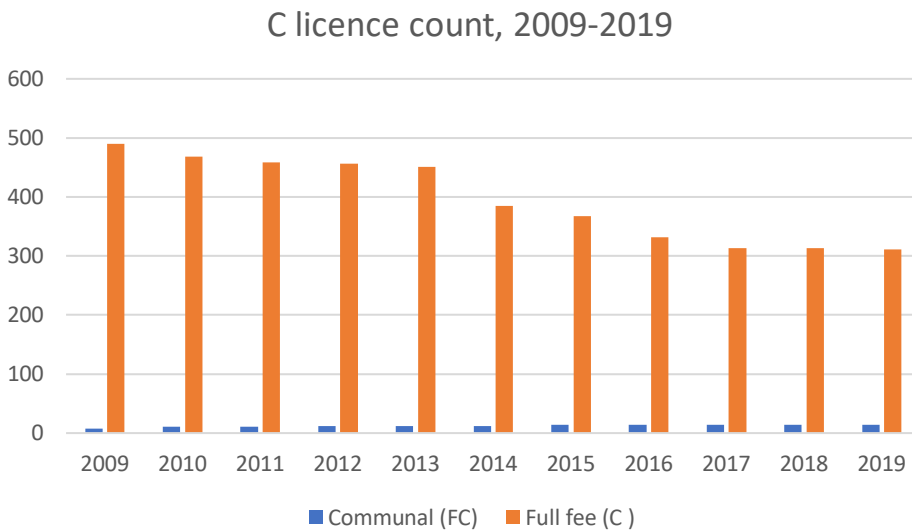
Recent C licence valuations



Aggregate value of C licences (\$ millions by year)



C licence counts by category



Outlook/commentary

Larger vessels are seen as more valuable as they can be used along with the USA 68 privileges to fish tuna. Smaller vessels may only be used as moorage unless the owner/operator also has another licence, such as an L-tab (halibut).

