

2016 Canadian Recreational Fishery Halibut Catch Report

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Report Prepared for the
International Pacific Halibut Commission (IPHC)

Submitted by:
Fisheries and Oceans Canada (DFO)
401 Burrard St.
Vancouver, British Columbia
Canada

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1. SUMMARY

This report summarizes the 2016 harvest and biological data from the Canadian recreational Halibut fishery in the tidal waters of British Columbia (BC). The recreational total allowable catch for 2016 was 1,100,950 pounds¹ and the estimated harvest is 1,095,461 pounds (5,489 pound underage). The estimated harvest by pieces is 68,889.

The 2016 season opened on February 1 and closed on December 31. Traditional monitoring and reporting programs, such as logbooks, lodge manifests and recreational creel surveys, collected catch, effort and biological data during peak months and areas of the fishery. Estimates of catch in months and areas not monitored by traditional programs were generated from data collected during DFO's internet-based recreational survey (iREC). Initiated in 2012, the iREC survey collects catch and effort information from recreational licence holders on a monthly basis throughout the recreational fishing year².

Final estimates are anticipated to be available by the spring of 2017. Estimated harvest in pieces and net weight by regional areas are noted below.

1.1. Harvest

Table 1. Estimated Harvest in Pieces and Pounds by Regional Area

Area	Pieces	Pounds
North Coast	36,737	529,283
Central Coast	3,417	38,133
South Coast	28,735	528,045
Totals	68,889	1,095,461

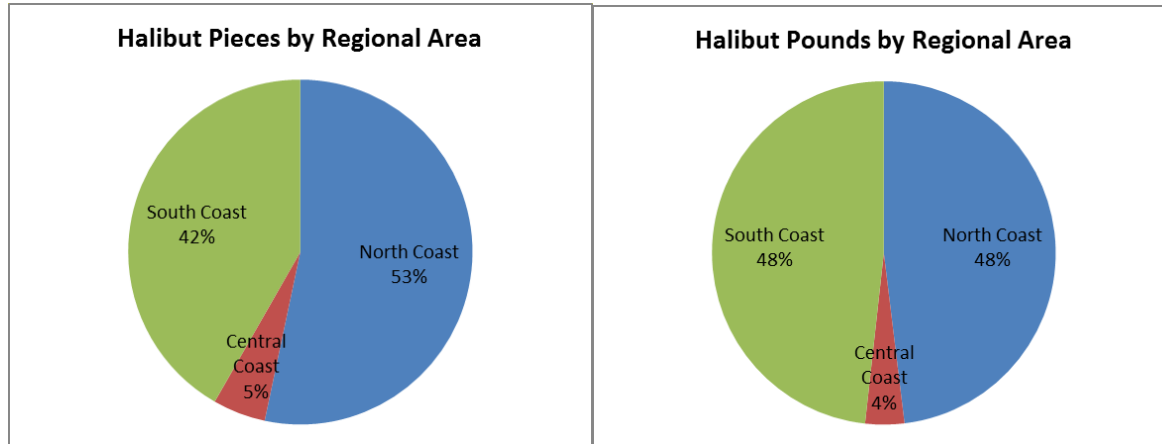


Figure 1. Percentage of Halibut harvested by piece and weight by Regional Area

¹ Pounds in this document refer to net weight (head off, dressed) pounds. See Biological Sampling section for the equations used to convert round weight (head on, undressed) and fork length to net weight.

² For more information on the Internet Recreational Effort and Catch (iREC) Survey please visit the following internet site; http://www.dfo-mpo.gc.ca/csas-sccs/publications/sar-as/2015/2015_059-eng.html.

1.2. Biological Samples

A coast wide total of 16,952 halibut were biologically sampled for either length or weight in 2016, representing 25% of the estimated harvest. The number of biological samples collected by regional areas is noted below.

Table 2. Number of Halibut Biologically Sampled by Regional Area

Area	Samples
North Coast	14,105
Central Coast	1,363
South Coast	1,484
Totals	16,952

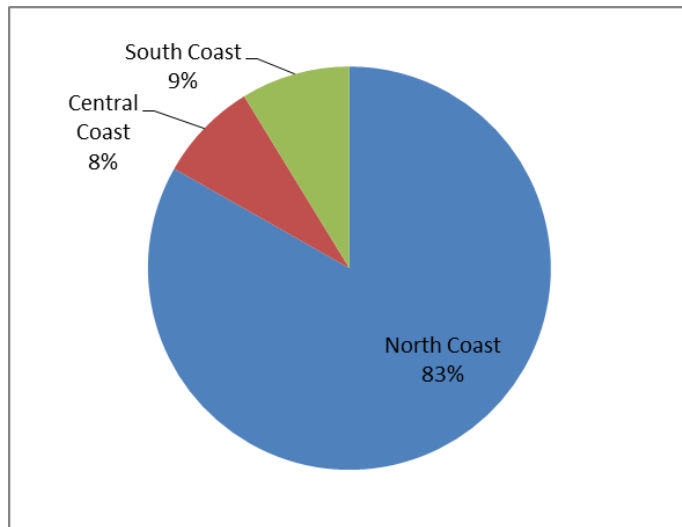


Figure 2. Halibut sampled for length or weight by Regional Area

1.3. Fishery Logistics

Catch monitoring of the recreational fishery in BC is extremely challenging given the large geographic area (numerous remote areas), the diversity of fishing opportunities and the diversity of participants.

Starting in 2015, Tidal Waters Sport Fishing Licences included Conditions of Licence that make catch reporting mandatory. Specifically, the conditions state that “*The licence holder shall provide accurate information regarding their catch and fishing activities upon request of a Creel Surveyor or an on-line surveyor, authorities designated under s.61(5) of the Fisheries Act*”. Conditions of Licence also included regulations related to possession limits, size limits and an annual limit.

In response to the IPHC’s 2012 request for data collection programs on recreational discards, Fisheries and Oceans Canada reviewed its existing recreational halibut catch and release information and examined options for the estimation of release mortalities. DFO obtains information from anglers on the number of halibut releases through creel surveys, logbooks and internet surveys. In BC, anglers are not required to record size or condition of released fish. Such a practice can present challenges in terms of angler safety, application of correct measurement techniques, logistics of reporting the data, and inaccuracies due to various types of bias, such as recall, rounding, and prestige bias. Furthermore, size limits and angler preference are some reasons why released halibut may be a different average size compared to the average size of retained fish. Given these various limitations of the information available, DFO does not currently use recreational release data for the purposes of recreational halibut management or allocation decisions.

DFO estimates recreational fishery discard mortality based on research on the ratio of recreational halibut discard mortality to landed catch in adjacent management areas. The current ratio is 3.6%. Applying this ratio to the 2016 landed catch results in an estimate of 39,437 pounds. This discard mortality is accounted for before the 2B recreational catch limit is established and thus is not included in the calculation of catch relative to the recreational catch limit described elsewhere in this report.

DFO continues to work with the recreational fishery sector in BC to improve recreational fishery monitoring and catch reporting. While the focus remains on strengthening data collection and monitoring for retained catch in recreational fisheries, new reporting tools such as the iREC survey of recreational harvesters include questions about anglers' releases. As the survey continues to move from the testing phase to implementation, DFO will be exploring how the data gathered on releases may be used to inform management.

2. MANAGEMENT, MONITORING and POLICY DEVELOPMENT

2.1. 2016 Recreational Fishery Management Plan

The current domestic sharing arrangement between commercial and recreational fisheries is 85% of the resource allocated to the commercial sector and 15% to the recreational sector, after accounting for First Nations' Food, Social, and Ceremonial requirements. The 15% recreational share in 2016 equates to a total allowable catch of 1,100,950 pounds.

The recreational halibut fishery opened on February 1. The management measures included:

- A maximum length of 133 cm (approx. 52 inches)
- A daily limit of one and a possession limit of two, only one of which may be greater than 90cm (35 inches). On April 1, the size limit on the second fish was reduced to 83 cm and remained in effect for the rest of the season.
- An annual limit of six (6), to be recorded on the Tidal Waters Licence.
- A mandatory Condition of Licence for catch reporting.

The opening was for all Pacific Fishery Management Areas (PFMAs) with the exception of portions of Area 121. Anglers were not permitted to fish for nor retain halibut in Area 121 outside the twelve nautical mile limit and in the waters of Swiftsure Bank.

DFO and the Halibut Sub-committee of the Sport Fishing Advisory Board (SFAB) reviewed in-season catch estimates on a monthly basis. By the end of September, it was determined that the estimated harvest to date plus the forecasted catch to the end of December would likely fall within the 1,100,950 pound Total Allowable Catch. On September 30, DFO announced the fishery would continue under the same management measures through to December 31.

For 2017, the SFAB is considering various management options they may recommend to DFO. These options include considering changes to:

- Minimum and Maximum size limits
- Individual annual limits
- Daily and total possession limits
- Season length
- Time and area closures

2.2. Halibut Experimental Recreational Fishery Program

In 2011, the Department piloted an experimental fishery program where interested recreational stakeholders, such as individual recreational harvesters, lodges, charters, guides or marinas, could request an experimental licence that would allow them to lease quota from commercial harvesters through a market based transfer mechanism. The experimental licence permits licence holders to fish halibut beyond the limits and times of the regular recreational licence.

In 2012, the Minister of Fisheries and Oceans Canada confirmed that the experimental licence would continue to be available and announced the Department was moving forward with a regulatory proposal to continue the experimental fishery for the long term.

This year, the experimental fishery commenced April 1 and remained open until December 31, 2016. As of January 3, 2017, 9,573 pounds of halibut quota has been transferred from the commercial sector to experimental licence holders, of which 5,343 pounds of halibut has been caught.

3. RECREATIONAL CATCH MONITORING and REPORTING PROGRAMS

3.1. Background

Marine creel surveys in BC began in 1980. Originally developed to estimate the catch of chinook and coho salmon in the Strait of Georgia, the geographical scope expanded to include Barkley Sound and Alberni Inlet in 1984, the entire West Coast of Vancouver Island (WCVI) in 1991, Haida Gwaii and the rest of the North Coast in 1995, and most recently Johnstone Strait in 1998. The objectives of the creel survey have been expanded to include estimates for most recreationally caught finfish, including halibut. In 2016, creel programs were implemented in peak fishing times and areas with specific emphasis on halibut and chinook fishing activities.

Lodges operating along the coast provide census data to the Department through the logbook program, manifest data or the electronic log (elog) pilot program. The Department also receives data from some independent guides and avid anglers via logbook programs. These data are combined with the creel survey data to produce estimates of catch for each PFMA by month where traditional monitoring and reporting programs exist.

To address monitoring gaps in the recreational fishery the Department has been piloting an online survey since 2012. The Internet Recreational Catch and Effort (iREC) survey was peer reviewed by the Canadian Scientific Advisory Secretariat (CSAS) in 2015. iREC was developed to provide catch and effort estimates for all areas, months, fishing methods, and species harvested by the recreational sector. To minimize the effect of potential biases in iREC estimates, a calibration procedure was developed to relate iREC estimates and creel survey estimates in areas and times not covered by a creel survey.

3.2. 2016 Recreational Fishery Catch Monitoring

DFO has been working with the Sport Fishing Advisory Board on an implementation plan to strengthen recreational fishery monitoring and catch reporting in the Pacific Region. For the 2016 recreational halibut fishery, DFO used estimates from three sources; the iREC survey, logbook and lodge manifest program, and creel surveys.

As in previous years, traditional monitoring and catch reporting programs such as logbook, lodge manifest and the creel survey were used during peak months and areas of the recreational fishery. In areas and months where traditional programs were not implemented in 2016, DFO used the average iREC bias corrected catch estimates from the most recent years for which these estimates were available at the beginning of the season (the 2013 and 2014 surveys). Catch estimates in these areas and months will be updated with 2016 survey results when bias corrected estimates are available in the spring.

3.3. Haida Gwaii

Haida Gwaii recreational monitoring and reporting programs include a lodge logbook program and a creel survey. Lodge logbook data accounts for approximately 85% of the estimated halibut catch in Areas 1 and 2.

The Haida Gwaii Creel Survey (HGCS) estimates recreational catch from Areas 1 and 2 surrounding Haida Gwaii. Since 1995, the program has conducted creel surveys to estimate catch from recreational anglers in Masset Inlet, Naden Harbour, Langara Island, Skidegate Channel, Cartwright Sound and Rennell Sound. Fish caught in Haida Gwaii by recreational harvesters are also subject to random audits by the Haida Watchmen (Guardians) through the HGCS, which operates in the main fishing months in Area 1 and parts of Area 2.

Information collected from the creel survey is combined with data submitted through the lodge logbook program to generate total catch estimates for Areas 1 and 2. In 2016, 13,265 halibut were sampled for either length or weight.

3.4. North Coast Creel Survey

The North Coast Creel Survey program collects catch information from the recreational fishery surrounding Prince Rupert and Port Edward on the North Coast of B.C. It is focused in Areas 3 and 4, comprising the waters of Chatham Sound between the mouths of the Nass and Skeena Rivers. Chatham Sound is bordered by the Alaska/BC border to the north, Dundas and Stephens Island groups to the west and Porcher Island to the south, covering an area of approximately 4,200 km².

The North Coast Creel Survey program has a hybrid design with four components: an access point angler interview survey, an aerial effort count survey, a trailer census and a fishing lodge logbook program. The study design is similar to the one used in the South Coast Creel Survey.

Access point angler interview surveys collect catch information, angling activity times and biological samples of selected species from anglers at the completion of the fishing trip. The data is used to calculate species specific Catch per Unit Effort (CPUE) values and create angler activity profiles. Aerial surveys are conducted to capture the 'instantaneous' counts of the number of boats fishing at the time of the flight and are used to expand the angler effort profiles generated from the ground surveys to produce an estimate of total daily effort. Lodges in the area submit logbooks to DFO post-season. Lodge data is treated as a complete census of catch, is summed and added to the creel estimates to get an estimate of total catch. To prevent bias in the effort estimates from lodge boats counted during the aerial surveys, a temporal-spatial analysis is conducted of lodge logbook data for days when the overflight occurs and any boats that were fishing in the survey area during the time of the flight are removed from the final count of boats fishing in the area.

In 2016, 840 halibut were sampled for either length or weight.

3.5. Central Coast

Catch information in Areas 7, 8 and 9 on the Central Coast is collected from lodges and some charter operators operating in these areas, primarily through the logbook program. Most lodges participate in the logbook program and collect catch, effort and biological data that are submitted to the Department on a monthly basis. There is no creel program to estimate the number of halibut caught by independent anglers or guides in these areas due to challenges with implementing a survey in this remote and geographically dispersed fishery.

This year 17 lodges participated in the halibut logbook and biological sampling project. The three main objectives of the project are to collect logbook and halibut weight data, to check the scales at the lodges for make, model and accuracy, and to verify the weights being recorded in the logbooks. In 2016, 1,363 biological samples were reported of which 73 halibut weights were independently verified through the charter patrol program.

3.6. South Coast Creel Survey

In the southern waters of BC creel surveys are the main tool to estimate catch of halibut. Surveys are conducted in select fishery strata based on: the highest catch of halibut and chinook, the highest effort, in-season management requirements, and potential impact on stocks of concern. Creel surveys consist of effort surveys and estimation of catch per boat trip based on fishery observers at selected ramps and marinas.

Data collected during angler interviews are recorded in the South Coast Marine Creel Survey form and provide average catch by species and fishing times, while aerial counts from chartered aircraft capture 'instantaneous' counts of the number of recreational boats fishing on randomly selected dates. Fishing times obtained from angler interviews are used to generate daily fishing activity profiles which are used to expand the 'instantaneous' aerial counts to estimate the number of boats fishing each day. The estimate of boats fishing is multiplied by the average catch to estimate the total number of halibut caught each day. Estimates are generated monthly, or occasionally for two week periods where samples rates are high. The estimates are stratified by weekend and holidays vs. weekday dates. In addition, logbook catch data submitted by

remote fishing lodges, independent guides and expert anglers are incorporated into creel estimates post season. The survey in Kyuquot Sound (PFMA's 26, 126) is entirely logbook-based, as fishing from lodges represents essentially all recreational effort in this remote area.

Catch and effort is estimated by creel sub-area and rolled up to DFO PFMA's by month. South Coast waters include PFMA's 11 through 29. The Port Hardy survey also collects information from recreational fishing trips in Area 10.

Creel surveys are active during the peak season of recreational angling and vary in duration depending on location. The spatial and temporal coverage of the survey program can vary year to year in response to budget and fishery priorities. In 2016, surveys were conducted in months outlined in Tables 3 and 4 below.

Table 3. South Coast surveys in inside waters (Johnstone and Georgia and Juan de Fuca Straits)

Location	PFMA's	Duration
Port Hardy	10, 11, 12	Jun. – Aug.
Campbell River	13, 14	Jun.- Sep.*
Sunshine Coast	15, 16	Jun. – Sep.*
Nanaimo	17, 18	Jun - Sep.*
Victoria	19, 20	Feb - Sep.
Vancouver	28, 29	Jun – Sep.*

Note:

*variably active in these areas during these months

Table 4. South Coast surveys in outside waters (West Coast of Vancouver Island)

Location	PFMA's	Duration
Port Renfrew	20, 21, 121	Jun. – Sep.
Barkley Sound	123	Jun. – Sep.
Port Alberni	23	Jun. – Sep.
Tofino	124, 123	Jul. – Sep.
Tahsis/Nootka	25, 125	Jul. – Sep.
Kyuquot	26, 126	Jun. – Aug.
Winter Harbour	27, 127	Jul.– Aug.

For further details on the methodology and results of the South Coast Creel survey, including catch and effort estimates with level of uncertainty, please visit:

<http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/salmon/sc%20stad/bulletins.htm>

In 2016, 1,484 halibut were sampled for length or weights during the South Coast Creel survey interviews.

3.7. Biological Sampling

A total of 16,952 halibut were sampled for lengths or weights, representing 25% of the total estimated coastwide harvest. Samples were collected from lodges, guides and independent anglers interviewed at access points and converted to net weight, head off and dressed, using the following formulas developed by the IPHC:

$$\text{Net Weight} = \text{Fork Length (cm)}^{3.24} \times (6.921 \times 10^{-6})$$

$$\text{Net Weight} = \text{Round Weight} \times 0.75$$

Average net weights were calculated for each Area on a monthly basis to generate estimates of total net weight by month and area caught in the fishery.

4. DATA

The following tables provide detailed catch and biological information collected during the 2016 recreational halibut fishery in BC. Note: these figures are preliminary and subject to change.

Table 5. Summary of the 2016 Recreational Halibut Catch by Pacific Fishery Management Area (PFMA)

Regional Area	DFO PFMA	Est. Halibut Piece Count	Est. Halibut Total Net Wt. (lbs)
North Coast	1	10,405	117,582
	2	6,510	101,294
	3	7,093	123,151
	4	9,001	132,270
	5/6	3,728	54,986
Central Coast	7/8/9	3,417	38,133
South Coast	10/11	1,824	38,435
	12	3,136	45,621
	13/14	566	7,101
	15-18/28/29	365	4,724
	19	2,888	67,965
	20	1,184	29,855
	21/121	5,541	74,655
	23/123	3,137	40,117
	24/124	1,948	38,650
	25/125	2,786	66,173
	26/126	2,423	54,180
	27/127	2,937	60,568
Total Landed in Canada		68,889	1,095,461
Rec TAC (15% of total CDN)			1,100,950
Balance (net wt lbs).			5,489

Table 6. Recreational Halibut Monthly Catch Estimates (net wt. lbs) for 2014, 2015 and 2016

Month	Net Weight (lbs)			Cumulative Net Weight (lbs)		
	2014	2015	2016	2014	2015	2016
Feb	919	8,082	2,880	919	8,082	2,880
March	9,434	18,389	30,615	10,353	26,471	33,495
April	15,246	47,765	22,213	25,598	74,236	55,708
May	44,853	22,768	53,720	70,451	97,004	109,428
June	195,083	211,587	241,328	265,534	308,590	350,756
July	315,075	337,436	358,114	580,609	646,026	708,870
Aug	297,439	302,395	254,620	878,048	948,422	963,490
Sept	30,163	23,795	97,213	908,212	972,216	1,060,703
Oct	2,220	4,782	23,064	910,432	976,998	1,083,767
Nov	1,515	3,833	10,603	911,946	980,832	1,094,371
Dec	1,515	3,833	1,091	913,461	984,665	1,095,461
Total	913,461	980,832	1,095,461			
Recreational Allocation (15% of Canadian TAC)						1,100,950
Estimated Total Catch						1,095,461
Balance (net wt lbs)						5,489

Table 7. 2016 Estimated Halibut Catch in Pieces by Area and Month

FFMA	Feb	March	April	May	June	July	August	Sep	Oct	Nov	Dec	Total	
1	0	0	0	224	3,500	3,200	3,200	281	0	0	0	10,405	
2	0	0	0	237	2,200	2,300	1,400	373	0	0	0	6,510	
3	0	0	14	41	1,860	3,130	1,855	193	0	0	0	7,093	
4	0	0	92	396	2,146	3,199	2,144	829	194	0	0	9,001	
56	0	27	34	250	761	965	1,224	302	166	0	0	3,728	
7/89	0	0	0	197	437	1,120	1,363	164	136	0	0	3,417	
10/11	81	0	0	59	423	559	149	493	59	0	0	1,824	
12	0	57	160	374	688	544	449	660	204	0	0	3,136	
13/14	87	0	14	139	19	0	52	256	0	0	0	566	
15-18/28/29	0	198	120	11	0	0	0	36	0	0	0	365	
19	10	785	558	447	142	198	197	28	455	55	13	2,888	
20	0	21	37	49	211	120	154	154	49	363	26	1,184	
21/121	0	202	44	399	1,337	2,713	740	105	0	0	0	5,541	
23/123	0	374	61	377	883	1,030	290	122	0	0	0	3,137	
24/124	0	0	21	126	292	409	971	129	0	0	0	1,948	
25/125	0	6	22	71	552	970	316	849	0	0	0	2,786	
26/126	0	0	0	37	211	937	949	289	0	0	0	2,423	
27/127	0	28	0	91	868	1,107	718	112	14	0	0	2,937	
2016	Monthly	178	1,698	1,177	3,525	16,530	22,501	16,171	5,376	1,276	418	39	68,889
Totals	Qum	178	1,876	3,053	6,578	23,108	45,609	61,780	67,156	68,432	68,850	68,889	

Note:

1. Data in shaded cells are average iREC estimates from the 2013 and 2014 survey.

Table 8: 2016 Average Net Weight Estimates by Area and Month

FFMA	Feburay	March	April	May	June	July	August	Sept	Oct	Nbv	Dec
1	14	14	14	16	12	11	11	13	11	11	11
2	17	17	17	17	16	15	14	16	15	15	15
3	14	14	14	14	14	19	18	18	18	18	18
4	14	14	14	14	14	14	16	15	15	15	15
5/6	14	14	14	14	14	15	15	15	15	15	15
7/8/9	12	12	12	12	11	10	12	11	11	11	11
10/11	9	9	9	9	9	14	10	12	12	12	12
12	10	10	10	10	10	10	13	12	12	12	12
13/14	19	19	19	19	19	23	21	22	22	22	22
15-18/28/29	14	14	14	13	15	14	15	15	15	15	15
19	13	13	13	13	13	12	12	12	12	12	12
20	13	13	13	13	13	12	12	12	12	12	12
21/21	24	24	24	24	24	22	24	23	23	23	23
23/23	22	22	22	18	26	29	23	26	26	26	26
24/24	12	12	12	12	12	14	14	14	14	14	14
25/25	12	12	12	12	12	13	16	14	14	14	14
26/26	21	21	21	21	21	21	19	20	20	20	20
27/27	15	15	15	15	15	27	25	26	26	26	26

Table 9. 2016 Estimated Halibut Catch in Net Weight (lbs) by Area and Month

FFVA	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Total	
1	0	0	0	3,472	40,425	33,840	36,240	3,605	0	0	0	117,582	
2	0	0	0	4,100	35,805	35,535	20,055	5,799	0	0	0	101,294	
3	0	0	192	586	26,364	59,627	32,834	3,549	0	0	0	123,151	
4	0	0	1,301	5,579	30,264	46,066	33,661	12,477	2,922	0	0	132,270	
5/6	0	379	473	3,500	10,666	14,520	18,421	4,543	2,495	0	0	54,986	
7/8/9	0	0	0	2,139	4,448	11,810	16,307	1,931	1,498	0	0	38,133	
10/11	1,510	0	0	1,105	7,878	12,813	3,084	10,759	1,286	0	0	38,435	
12	0	812	2,277	4,935	10,512	7,782	6,690	9,642	2,972	0	0	45,621	
13/14	1,128	0	177	1,811	248	0	619	3,119	0	0	0	7,101	
15-18/28/29	0	2,578	1,564	143	0	0	0	439	0	0	0	4,724	
19	242	18,780	13,349	10,642	3,413	4,269	4,728	638	10,354	1,261	288	67,965	
20	0	458	806	886	5,381	3,444	3,511	3,966	1,259	9,342	803	29,855	
21/121	0	2,478	543	4,893	16,389	38,394	10,472	1,486	0	0	0	74,655	
23/123	0	4,580	752	4,626	10,824	13,085	4,524	1,727	0	0	0	40,117	
24/124	0	0	452	2,653	6,157	8,659	18,158	2,572	0	0	0	38,650	
25/125	0	98	328	1,074	8,352	26,246	7,932	22,143	0	0	0	66,173	
26/126	0	0	0	737	4,157	21,013	21,732	6,541	0	0	0	54,180	
27/127	0	452	0	838	20,056	21,013	15,652	2,279	278	0	0	60,568	
2016	Monthly	2,880	30,615	22,213	53,720	241,328	358,114	254,620	97,213	23,064	10,603	1,091	1,095,461
Totals	Cum	2,880	33,495	55,708	109,428	350,756	708,870	963,490	1,060,703	1,083,767	1,094,371	1,095,461	

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