



KOSCIUSKO ISLAND EAST TIMBER SALE

Timber Cruise

Abstract

Timber Cruise for the Kosciusko Island East Timber Sale consisting primarily of State old growth
timber.

Publish March 2024.

Southeast Office DNR-Division of Forestry and Fire Protection

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Kosciusko Island East Timber Sale Cruise Report

March 20, 2024

This report is a compilation of information summarizing the estimation of timber volume and quality in the Kosciusko Island East Timber Sale (SSE-1384) on State land on Kosciusko Island near the community of Edna Bay as delineated in the Forest Land Use Plan dated December 2023. The stand was sampled as one type mainly consisting of old growth timber with a residual young growth component.

DOF Kosciusko Island East Timber Cruise

Sample Type/ Frequency

The units were cruised during October of 2023 by the DOF using a variable plot cruise sampling method based on an unbiased grid system. The grid was spaced on 2 x 5 chains representing one acre per cruise plot. This combined sampling produced 188 cruise plots over 186 acres. The Atterbury Cruise Program was used to manage the data. A basal area factor (BAF) of 40 at 16 feet above projected stump height was used to sample measured trees. Obvious cull trees were generally not recorded. This obtained an average of 4.0 trees per plot overall.

Min. Size/ Sorts/ Specifications.

Only trees containing a minimum merchantable saw log per log scaling and grading rules were sampled. Diameters measuring under 9 inches at four feet above stump height were categorically not recorded. Sorts were developed based on perceived industry markets. See attached ADNR-DOF Old Growth and Second Growth Sort Guidelines for Southeast Alaska. Log grades were determined using Official Log Scaling and Grading Rules for the Pacific Northwest as applied and accepted in the Southeast Alaska region. Logs not meeting DOF saw log sorts were recorded as pulp logs. Young growth and old growth #4 saw logs are segregated into the pulp sort. Utility logs (having 50% sound usable chips) are all in the utility pulp sort.

Acreage

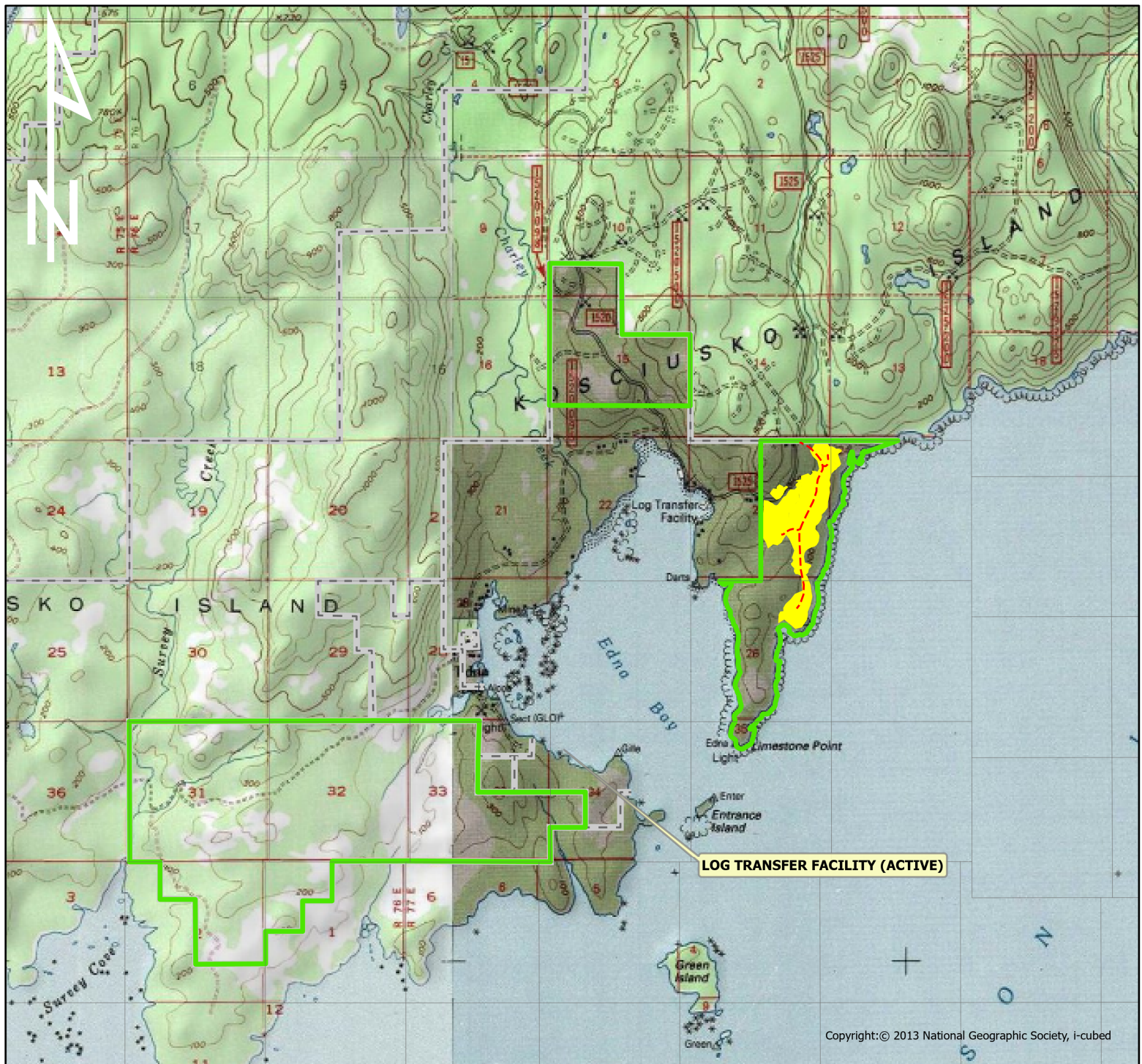
Cruised acreage was determined using ArcGIS, based off points collected along the harvest unit line using a GIS grade GPS receiver (Geode) that was restricted to sampling positions when theoretical accuracy was calculated to be less than 10 feet. GPS data utilized GNSS correction applied by the proprietary algorithm of Juniper Systems, Inc. ArcGIS calculated there to be 186 acres of timber.

Stratification

Timber was generally a mixed stand with portions exhibiting a pronounced age type but not a discrete geographically definable age class. The timber was not stratified by age. Individual trees were subjectively identified by the cruiser as having old growth or young growth characteristics generally associated with size, tree form and observable defect. Several trees were cored with an increment borer to determine either old or young growth status. Some of the smaller hemlock could be treated as either old growth or young growth; these trees were likely influenced by the previous harvest entry. The larger old growth Sitka spruce has notably more defect than the young growth. While some of this is associated with age most was attributable to previous wind damage and secondary stand disturbances.

Parlay Two Timber Sale Map

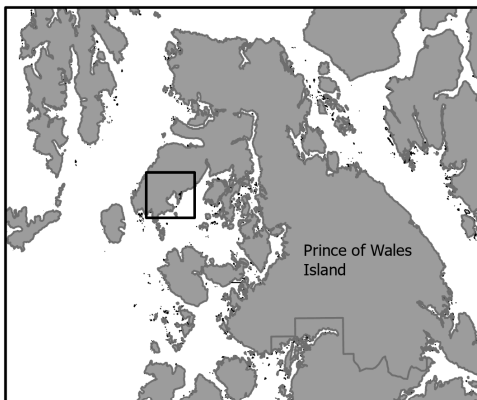
Vicinity Map (1 page)



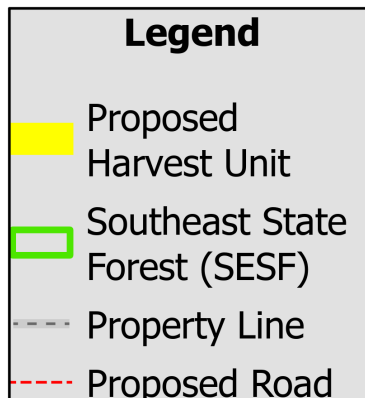
0 1 2 Miles
Area Map 1 in = 1 MILE

T68S R76E, Section(s) 23, 24, 26
Copper River Meridian

**APPENDIX A1
SSE-1384-K
KOSCIUSKO EAST
TIMBER SALE
AREA MAP**



Vicinity Map 1 in = 32 miles



Parlay Two Young Growth Cruise Tabular Summaries

(Atterbury Program Reports, 3 Pages)

Kos East Type 90

Board Foot Volumes Report

Statistical Report

T	Species, Sort Grade - Board Foot Volumes (Type)													Page 1			
Project: KOSEAST													Date	3/11/2024			
													Time	4:45:32PM			
T68S R76E S23 T0090													T68S R76E S23 T0090				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt								
68S	76E	23	KOSEAST	0090	186.00	188	748	S	W								
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume						Average Log		Logs Per /Acre	
			Def%	Gross	Net	Log Scale Dia.				Log Length				Ln Dia Bd CF/ Ft In Ft Lf			
WH	HI	1S		9.9	116	105	19				100		26	33	42	33 29 1117 6.20	.1
WH	HI	PE		7.7	39	36	7				100		100			26 41 1910 10.35	.0
WH	PR	1S	6	7.4	1,959	1,815	338				100		23	47	30	33 29 1175 6.00	1.5
WH	PR	2S	3	4.9	906	861	160				100		12	53	35	34 23 798 3.87	1.1
WH	SA	1S	1	9.2	144	131	24				100			100		33 28 1038 5.44	.1
WH	SA	2S	54	6.5	16,708	15,626	2,906			33	67		8	37	56	35 17 416 2.32	37.5
WH	SA	3S	20	4.8	6,070	5,780	1,075		74	19	8	1	12	28	59	35 9 102 0.84	56.5
WH	SA	4S	1	2.4	497	485	90		100			19	68	12	1	24 6 32 0.42	15.1
WH	PU	3S	1	22.3	105	82	15		6	26	68		37	37	26	32 16 297 2.45	.3
WH	PU	4S		10.3	93	83	15		100			3	97			26 6 28 0.37	2.9
WH	PU	U	14	16.0	4,703	3,953	735		11	14	75	9	18	22	51	33 14 283 1.94	14.0
WH	Totals		70	7.6	31,341	28,956	5,386		18	24	58	2	12	34	52	33 12 224 1.47	129.2
SS	HI	1S	11	2.5	1,099	1,071	199				100	2	47	28	22	30 37 1906 9.23	.6
SS	HI	2S		7.6	42	39	7				100		100			26 52 3040 17.52	.0
SS	HI	SL			42	42	8				100		100			26 41 2070 11.13	.0
SS	PR	1S	23	6.0	2,359	2,217	412				100		60	30	10	30 41 2170 10.62	1.0
SS	PR	2S	11	4.6	1,067	1,018	189				100	2	45	13	40	31 34 1687 7.52	.6
SS	SA	1S	1	8.6	99	91	17				100			47	53	37 38 2174 8.14	.0
SS	SA	2S	36	6.7	3,713	3,464	644			2	98	0	23	26	50	34 26 1129 5.26	3.1
SS	SA	3S	6	6.9	654	609	113		33	13	54	6	16	16	62	34 12 236 1.60	2.6
SS	SA	4S	1		33	33	6		100			53	47			20 7 31 0.40	1.1
SS	PU	3S		12.5	6	5	1			100			100			26 13 140 2.62	.0
SS	PU	U	11	18.2	1,283	1,050	195		1	1	98	2	28	36	34	34 33 1537 7.83	.7
SS	Totals		23	7.3	10,398	9,640	1,793		3	2	96	1	37	26	35	32 24 995 4.98	9.7
RC	L	3S	6	22.5	194	150	28				100	30	32	21	17	25 26 599 5.47	.3
RC	L	1R	4	23.2	127	98	18				100				100	40 35 1713 13.82	.1
RC	L	2R	6	20.2	167	133	25				100			29	71	37 32 1439 9.12	.1
RC	SA	3S	72	7.2	1,767	1,640	305		11	21	68	2	8	39	50	34 14 308 2.19	5.3
RC	SA	4S			13	13	2		100			100				15 8 30 0.49	.4
RC	SA	1R	2		37	37	7				100		100			26 40 1960 15.19	.0
RC	SA	2R	10	8.2	240	221	41				100	13			87	37 29 1276 7.61	.2
RC	Totals		6	10.0	2,545	2,292	426		8	15	76	5	10	31	54	32 15 361 2.69	6.3
S	SG	2S	47	2.4	260	253	47			85	15				100	38 15 307 1.73	.8
S	SG	3S	21		108	108	20		87	13		15		7	78	33 9 88 0.82	1.2
S	PU	4S	3		17	17	3		100				100			29 6 40 0.43	.4
S	O	2S	23		122	122	23				100			75	25	34 25 994 4.39	.1
S	O	3S	6		31	31	6				100				100	36 24 910 4.03	.0
S	Totals		1	1.1	538	531	99		21	43	36	3	3	19	75	34 11 202 1.30	2.6
HM	SG	2S	27	3.4	56	55	10			100				54	46	35 14 236 1.45	.2

T	Species, Sort Grade - Board Foot Volumes (Type)									Page 2									
	Project: KOSEAST									Date	3/11/2024								
										Time	4:45:32PM								
T68S R76E S23 T0090										T68S R76E S23 T0090									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
68S	76E	23	KOSEAST	0090	186.00	188	748	S	W										
S So Gr T rt ad Spp		%	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
		Net BdFt					Log Scale Dia.				Log Length				Ln Dia Bd CF/ Ft In Ft Lf				
		Def%	Gross	Net	4-5		6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft			
HM	SG	3S		78	78	15		30	70		22	78		29	10	101	0.86	.8	
HM	CS	3S		32	32	6		100				100		36	6	60	0.37	.5	
HM	PU	4S		15.5	37	32	6	100			8	92		23	6	24	0.38	1.3	
HM	Totals			0	3.8	204	196	37	44	56	1	23	46	29	28	8	69	0.63	2.8
Type Totals				7.6	45,025	41,615	7,740	14	18	67	2	18	32	48	33	13	276	1.72	150.7

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	KOSEAST			DATE	3/20/2024		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
68S	76E	23	KOSEAST	0090	186.00	188	748	S	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
PLOTS		TREES									
TOTAL		188		748		4.0					
CRUISE		188		748		4.0		15,448		4.8	
DBH COUNT											
REFOREST											
COUNT											
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
W HMLK		586	71.2	20.3	67	35.5	159.7	31,341	28,956	6,310	6,308
S SPRUCE		85	3.8	32.9	87	4.0	22.7	10,398	9,640	1,532	1,532
RCDR OG		59	4.1	27.4	58	3.2	16.8	2,545	2,292	553	553
SPRC SG		11	1.6	18.0	60	0.7	2.9	538	531	116	116
HMLK SG		7	2.3	12.7	38	0.6	2.0	204	196	50	50
TOTAL		748	83.1	21.2	66	44.3	204.0	45,025	41,615	8,561	8,559
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15		
W HMLK		114.2	4.7	877	920	964					
S SPRUCE		70.6	7.7	5,608	6,073	6,538					
RCDR OG		84.1	10.9	1,015	1,140	1,264					
SPRC SG		115.9	36.6	424	669	914					
HMLK SG		80.6	32.8	107	159	211					
TOTAL		157.8	5.8	1,425	1,512	1,600	994	249	110		
CL:	68.1 %	COEFF		SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15		
W HMLK		98.1	4.0	176	183	191					
S SPRUCE		67.9	7.4	867	935	1,004					
RCDR OG		84.2	11.0	236	265	294					
SPRC SG		94.6	29.9	92	131	171					
HMLK SG		77.2	31.4	27	39	51					
TOTAL		132.9	4.9	260	273	286	706	176	78		
CL:	68.1 %	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15		
W HMLK		84.8	6.2	67	71	76					
S SPRUCE		329.7	24.0	3	4	5					
RCDR OG		371.0	27.0	3	4	5					
SPRC SG		575.4	41.9	1	2	2					
HMLK SG		967.3	70.5	1	2	4					
TOTAL		77.0	5.6	78	83	88	237	59	26		
CL:	68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15		
W HMLK		51.1	3.7	154	160	166					
S SPRUCE		170.0	12.4	20	23	26					
RCDR OG		319.1	23.3	13	17	21					
SPRC SG		442.6	32.3	2	3	4					
HMLK SG		1028.3	74.9	0	2	3					
TOTAL		41.4	3.0	198	204	210	69	17	8		

TC TSTATS				STATISTICS				PAGE	2
				PROJECT	KOSEAST			DATE	3/20/2024
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
68S	76E	23	KOSEAST	0090	186.00	188	748	S	W
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.	INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.	INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
W HMLK		57.3	4.2	27,746	28,956	30,166			
S SPRUCE		175.3	12.8	8,408	9,640	10,871			
RCDR OG		338.8	24.7	1,726	2,292	2,857			
SPRC SG		451.1	32.9	357	531	706			
HMLK SG		1184.8	86.3	27	196	366			
TOTAL		51.3	3.7	40,060	41,615	43,171	105	26	12
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.	INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
W HMLK		53.0	3.9	6,065	6,308	6,552			
S SPRUCE		171.6	12.5	1,340	1,532	1,723			
RCDR OG		327.9	23.9	421	553	685			
SPRC SG		440.3	32.1	79	116	153			
HMLK SG		1126.0	82.0	9	50	91			
TOTAL		44.6	3.2	8,281	8,559	8,837	79	20	9

ADNR-DOF Sort Guidelines

Southeast Alaska

(2 pages)

Revised Sort Matrix Reference Card (For Old Growth Cruising)

2022 ADNR-DOF Old Growth Sort Guidelines for Southeast Alaska

Code	Description	Min. Length	Min. Diameter
<u>SPRUCE AND HEMLOCK LOGS</u>			
A	High Grade Sort Clean appearing #2 and better. Reasonably straight, with clear cuttings. Maximum twist 2" per foot. Max. defect 15%.	14'	24"
B	Premium Sort #2 or better. Clear cutting in one Quadrant minimum. Total deductions not more than 50%.	14'	20"
S	Sawlog Sort #3 or better, no rough tops. Maximum deduction 66%.	12'	6"
P	Pulp Sort Min. 50% net utility scale. Won't fit into sawlog sorts due to quality and defect.	12'	6"
<u>RED CEDAR LOGS</u>			
L	Shake & Shingle Suitable to produce 4' blocks for shakes or 16" blocks for shingles. Larger logs that aren't saw quality.	12'	20"
S	Sawlog Sort #3 or better, no rough tops. Maximum deduction 66%.	12'	6"
<u>YELLOW CEDAR LOGS</u>			
S	All Saw Logs Camp run sort. Grade determines quality. No excessive sweep or twist. Must be suitable for sawlogs. 1/3 sound Scribner volume.	12'	6"

Preferred Lengths in order of preference: 36', 33' 40', 26', 16', 14', 12'

Young Growth Product Categories

There is no need to cruise these sorts, these guidelines can be used to set up a log stock report. See Appendix B. Young Growth Cruise Specifications

ADNR-DOF Young Growth Reporting for Southeast Alaska

Code	Description	Min. Length	Min. Diameter	Max Diameter
	<u>All Species</u>			
O	Oversize #3 and better sawlog.	16'	20"	
S	Standard/Gang #3 and better sawlog.	16'	8"	20"
N	Chip and Saw #3 sawlog. 36' only allowed length. No Bark seems.	16'	6"	8"

Log Grades

Grade	Abrv	Desc	Fbr	Min Diameter	Min Length	Min Vol	Vol Type
0	CU	CULL	G	6	1	0	
1	1S	#1 SAW	G	24	16	0	
2	2S	#2 SAW	G	12	12	60	Net
3	3S	#3 SAW	G	6	12	50	Net
4	4S	#4 SAW	G	6	12	10	Net
5	S	SP MILL	G	16	17	0	
7	1R	1 SAW RC	G	28	16	500	Net
8	2R	2 SAW RC	G	20	12	210	Net
P	PE	PEELER	G	24	17	0	
S	SL	SELECT	G	30	16	90	%clear
U	U	UTILITY	G	6	12	0	