# Mcclellan, Barbara A (DFW)

From: Willapa Bay (DFW)

Sent: Thursday, September 7, 2023 8:08 AM

**Subject:** 2023 Willapa Bay Fisheries Update - week 36 Aug 28 - Sept 3

Attachments: 2023 WB Marine Area Recreational Catch Estimate Summary Wk 36 Draft

09.06.2023.pdf; Naselle Hatchery Adult CHK Summary 09.06.2023.pdf; 2023 WB

Hatchery Chinook Eggtake Draft 09.06.2023.pdf; 2023 WB Commercial impacts by area

total summary 09.01.2023.pdf

Follow Up Flag: Flag Status: Follow up Flagged

Hello Everyone,

If you have any questions or comments regarding any of the information provided through these emails for the 2023 salmon season, please reply to this email and/or contact the regional staff directly at the Montesano office (360-249-4628).

# Recreational Marine Area Fishery

Since our last update, there was a slight increase in the number of boats that were observed at Tokeland and South Bend for the marine recreational fishery but catch decreased by 60% from the previous week. The highest effort was recorded by staff on Sunday, September 3<sup>rd</sup>, and the highest catch was a tie recorded on Saturday, September 2 and Sunday, September 3<sup>rd</sup>. The overall weather conditions were cooler for the week and with larger tidal exchanges last week, there was a lot of water moving on each tide. There were 67 hatchery Chinook salmon, 62 hatchery coho, and 21 unmarked coho caught from the fishery from August 28 – September 3 and seen by staff in either Tokeland or South Bend dock locations. There were no unmarked Chinook landed and 27 unmarked Chinook were encountered then released from the fishery during this same week. (See attachment: 2023 WB Marine Area Recreational Estimate Summary Draft Week 36 09.06.02023.pdf)

For the upcoming week, Sept 4 - 10, there will be early morning high tides and low tides in the afternoon, and there will be smaller tidal exchanges between high and low tides this week compared to last week. Unfortunately, these tides are not as favorable for salmon fishing in Willapa Bay, but the weather will remain cooler in the 60's for the week.

If you are interested in any of these regulations and data collected by the Ocean Sampling Program for Ocean Areas 1- 4, you can find those data on our website at Ocean sport salmon quota report | Washington Department of Fish & Wildlife.

# Spawning Ground Surveys

In the last week, staff have observed approximately 204 adult Chinook salmon staging in the Naselle River, and seven carcasses were found. Since last week, staff have now observed approximately 161 adult and seven jack Chinook salmon staging in the Nemah River. No carcasses have been found in the Nemah River at this point. To-date, staff have not observed any spawning or redds in either of these river sections. Staff started spawner surveys in the South Fork Willapa River this week and will survey Trap Creek and Lower Willapa River later this

week. Historically, Chinook salmon begin spawning in Willapa Bay rivers the middle of September.

# Hatchery Chinook Rack Returns

# Naselle River Hatchery

To-date, 597 adult and 40 jack hatchery Chinook salmon have volunteered into the attraction channel and recruited into the hatchery. There have also been 40 unmarked, Chinook salmon (31 males, 9 female) that have volunteered into the hatchery at this point, and all unmarked Chinook salmon have been planted upstream above the hatchery. To-date, there have been 107 Chinook salmon mortalities reported in the Naselle Hatchery. There are also 453 adult Chinook on-hand at the facility (males and females combined). These fish will be held in the facility until they are ready to be spawned. These data will be updated in the next weekly in-season email. (See attachment: Naselle Hatchery Adult CHK Summary 09.06.2023.pdf AND 2023 WB Hatchery Chinook Eggtake Draft 09.06.2023.pdf)

# Nemah and Forks Creek hatcheries

To-date, no Chinook salmon have recruited into the hatchery.

# Commercial Fishery

The commercial fishery in Willapa Bay was open for one day Thursday, August 31 in commercial area 2N, 2M, and 2R at the south end of the bay using tangle net gear. Fifteen boats participated in this fishery. There were 372 hatchery Chinook salmon and 11 coho landed from the fishery on this day. The fleet accrued 14 local, natural origin Chinook impacts during this one-day fishery. Hatchery Chinook salmon encounters were also lower at 47.7% of the predicted preseason estimate for the week. Overall, the commercial fishery has accrued 28 Willapa natural origin Chinook impacts to-date in the last two weeks. (See attachment: 2023 WB Commercial impacts by areas total summary 09.01.2023.pdf)

The Department has modified the commercial fishery for Thursday, September 7, opening commercial areas 2N, 2M, and 2R for an 8-hour fishery using tangle net gear due to the availability of hatchery Chinook and coho and remaining natural-origin Chinook impacts available during this week. An update from this opener will be provided in next week's weekly update email.

As always, in-season data is preliminary and subject to change.

All data provided through these weekly email updates for the months of August and September will be posted to the Willapa Bay Marine Area 2.1 Recreational Creel Monitoring page of our website listed below.

If you have any comments or questions specific to the information provided in these emails, please submit your comments to <a href="willapaBay@dfw.wa.gov"><u>WillapaBay@dfw.wa.gov</u></a>.

Additionally, if you know of anyone who might be interested in receiving these in-season update emails or any other information staff send out regarding Willapa Bay fisheries, please forward this email and have them reply to <a href="www.willapaBay@dfw.wa.gov">WillapaBay@dfw.wa.gov</a> stating they would like to be added to our email distribution list.

Thank you and Fish On! ><(((°>

# Barbara

Online reference links you may be interested in:
Willapa Bay Marine Area 2.1 Recreational Creel Monitoring: Willapa Bay Recreational Salmon
Reports | Washington Department of Fish & Wildlife

Willapa Bay and Grays Harbor (non-treaty) Commercial Salmon fisheries (Regulations and landed catch): Commercial Willapa Bay and Grays Harbor Gillnet Salmon Fishery | Washington Department of Fish & Wildlife

2023 Willaps Bay Marine Area Recreational Catch Estimate

CPUE = Catch per unit effort Effort = An individual angler trip

June-July (Ocean 2 Rules) Unmarked Chinook retention allowed

	Expande	d Data		E	Expanded D	ata - Chinoo	k			Expanded	Data - Coho			
Mgmt Week	# Boats	# Anglers	Estimated Total Chinook Kept	Total Chinook CPUE	Estimated Total UM Chinook Kept	Willapa Origin Chinook UM Impacts	Estimated Total AD Chinook Kept	Willapa Origin Chinook AD Impacts	Estimated Total Coho Kepi	Total Coho CPUE		Estimated Total AD Coho Kept		
26	6	14	3	0.214	0	0	3	3	2	0.143	0	2		
27	8	19	5	0.263	3	*	2	1	1	0.053	Q	1		0.5000000000000000000000000000000000000
28	14	23	0	0.000	0	0	0	0	0	0.000	0	0	2 fish daily, only 1	Effective July 28, 2023, Friday and
29	19	49	7	0.143	2	1	5	2	7	0.143	0	7	Chinook allowed, No	Saturdays, Release
30	23	64	11	0.172	6	2	5	2	26	0.406	0	26	wild coho retention	Chinook and wild coho.
31	48	116	10	0.086	4	1	6	2	22	0.190	0	22		30.01
32	4	6	0	0.000	0	0	0	0	0	0.000	0	0		
Season Total	122	291	36	0.124	15	5	21	7	58	0.199	0	58		

August an	d Septembe	er					Boats and	d Anglers					C	hinook Ret	ained - III	egal to re	tain			Ch	ninook Relea	sed		N	Marked Co	ho	Un	marked C	oho	Tota	Coho
M Chinoak retention	Regal as of Aug	rust 1		A	ctual Raw [	Data			Actual F	Raw Data			CHK AD	Expanded	# WB		CHK UM	Expanded	# CHK		Estimated	Estimated		* 6-1-	0-1-10	Expanded	# C-1-	Coho UM	Expanded	Total Coho	Total
Igmt Week - see ble below for raw data source	Dates	Strata	Strata Description	# Boats Sampled	# Boats Not Sampled	# Total Boats	Expanded # Total Boats	Sample Rate	# Anglers Sampled		# Total Anglers	# CHK AD Kept	OPLIE		Offgin CHK AD Impacts	# CHK UM Kept	CPUE Kept	# CHK UM Kepi	UM Released	CHK UM CPUE	Expanded CHK UM Encounters	Total CHK UM Impacts	Origin CHK UM Impacts		Coho AD CPUE	# Coho AD Kept			# Coho UM Kept	(AD+UM)	Coho Ke (AD + UI
32	8/1 - 8/3	1	Mon - Thur	13	2	15	31	48%	29	2.23	70	2	0.069	5	2	0	0.000	0	1	0.034	2	0	0	0	0.000	0	0	0.000	0	0.000	0
32	8/4 - 8/6	2	Fri - Sun	22	1	23	36	64%	43	1.95	70	2	0.047	3	2	0	0.000	0	0	0.000	0	0	0	2	0.047	3	0	0.000	0	0.047	3
33	8/7 - 8/10	1	Mon - Thur	46	4	50	100	50%	93	2.02	202	15	0.161	33	20	0	0.000	0	5	0.054	11	2	1	0	0.000	0	0	0.000	0	0.000	0
33	8/11 - 8/13	2	Fri - Sun	100	3	103	155	67%	219	2.19	338	24	0.110	37	23	0	0.000	0	4	0.018	6	1	1	1	0.005	2	0	0.000	0	0.005	2
34	8/14 - 8/17	1	Mon - Thur	64	2	66	. 141	47%	127	1.98	281	7	0.055	15	9	0	0.000	0	6	0.047	13	2	1	1	800.0	2	0	0.000	0	800.0	2
34	8/18 - 8/20	2	Fri - Sun	96	11	107	172	62%	220	2,29	394	45	0.205	81	49	0	0.000	0	13	0.059	23	3	2	1	0.005	2	0	0.000	0	0.005	2
35	B/21 - B/24	1	Mon - Thur	122	14	136	289	47%	256	2.10	607	81	0.316	192	117	0	0.000	0	12	0.047	28	4	2	2	800.0	5	1	0.004	2	0.012	7
35	8/25 - 8/27	2	Fri - Sun	145	90	235	375	63%	341	2.35	882	86	0.252	222	135	1	0.003	3	21	0.062	54	8	5	10	0.029	26	6	0.018	16	0,047	41
36	8/28 -8/31	1	Mon - Thur	99	5	104	216	48%	197	1.99	431	24	0.122	5.2	32	0	0.000	0	11	0.056	24	3	2	14	0.071	31	8	0.041	17	0.112	48
36	9/1 - 9/3	2	Fri - Sun	192	39	231	361	64%	449	2.34	843	43	0.096	81	49	0	0.000	0	17	0,038	32	4	3	48	0.107	90	13	0.029	24	0.136	115
37	9/4 - 9/7	1	Mon - Thur																												
37	9/8 - 9/10	2	Fri - Sun																												
38	9/11 - 9/14	1	Mon - Thur																												
38	9/15 - 9/17	2	Fri - Sun																												
39	9/18 - 9/21	1	Mon - Thur																												
39	9/22 - 9/24	2	Fri - Sun																												
40	9/25 - 9/28	1	Mon - Thur																												
40	9/29 - 9/30	2	Fri - Sat																												
	TOTALS	3		899	171	1,070	1,877		1,974	2.20	4,118	329	0.167	722	438	1	0.001	3	90	0.046	195	27	17	79	0.040	160	28	0.014	60	0.054	220

# 2023 Willapa Bay Origin PreSeason Recreational Data

# Preliminary/Draft

Updated

9/6/2023

	W	illapa Bay Natu	ıral-Origi	n Fall Chinool		Wi	llapa Bay	Hatchery-Orig	in Fall Chino	ok	
		Harrist Data	Presease	on Prediction	In-seaso	n Estimate	Hamisat Data	Presease	on Prediction	In-seaso	n Estimate
Mgmt Wk	Date	Harvest Rate Proportions	NOR	Cumulative Total	WB Origin	Cumulative Total	Proportions	HOR	Cumulative Total	WB Origin	Cumulative Total
26/27	June 24 - July 2	0.0109	0	0	1	1	0.0051	3	3	1	1
28	July 3 - 9	0.0049	0	1	0	1	0.0072	4	8	0	1
29	July 10 - 16	0.0276	1	2	1	2	0.0037	2	10	2	2
30	July 17 - 23	0.0547	2	4	2	3	0.0364	22	32	2	4
31	July 24 - 30	0.0241	1	5	1	5	0.0224	14	46	2	6
32	July 31 - Aug 6	0.0440	2	7	0	5	0.1220	75	120	5	10
33	Aug 7 - 13	0.0856	4	11	1	6	0.1368	84	204	42	53
34	Aug 14 - 20	0.1814	8	19	3	9	0.2242	137	341	58	111
35	Aug 21 - 27	0.2430	11	30	10	19	0.2123	130	471	252	363
36	Aug 28 - Sept 3	0.1857	8	38	5	24	0.1598	98	568	81	444
37	Sept 4 - 10	0.1130	5	43	0		0.0618	38	606	0	
38	Sept 11 - 17	0.0252	1	44	0		0.0077	5	611	0	
39	Sept 18 - 24	0.0000	0	44	0		0.0005	0	611	0	
40	Sept 25 - 30	0.0000	0	44	0		0.0000	0	611	0	
			44		24	0.541		611		444	0.726

# Naselle Hatchery Adult Chinook Rack Returns Preliminary/DRAFT \* 9/6/2023

Year			20	21					2	022					20	23 *		
Origin	Ha	tchery			Natural		Ha	tchery			Natural		Ha	tchery			Natural	
Stat Week	Weekly Total	Cumulative	% Run Timing															
31		0			0		1	1			0			0			0	
32	1	1		0	0		12	13	0%	0	0	0.0%	178	178	3%	8	8	1.3%
33	28	29	0%	3	3	0%	2	15	0%	0	0	0.0%	75	253	4%	3	11	1.7%
34	63	92	1%	0	3	0%	36	51	1%	6	6	1.0%	111	364	5%	7	18	2.9%
35	50	142	2%	1	4	1%	191	242	3%	17	23	3.7%	48	412	6%	8	26	4.1%
36	4	146.	2%	0	4	1%	174	416	6%	15	38	6.0%	144	556	8%	15	41	6.5%
37	73	219	3%	4	8	1%	74	490	7%	11	49	7.8%		556	8%		41	6.5%
38	242	461	6%	14	22	3%	84	574	8%	6	55	8.7%		556	8%		41	6.5%
39	3,000	3,461	42%	0	22	3%	49	623	9%	2	57	9.0%		556	8%		41	6.5%
40	962	4,423	53%	137	159	21%	608	1,231	18%	53	110	17.5%		556	8%		41	6.5%
41	940	5,363	64%	81	240	32%	2549	3,780	54%	152	262	41.6%		556	8%		41	6.5%
42	2304	7,667	92%	388	628	85%	1696	5,476	79%	184	446	70.8%		556	8%		41	6.5%
43	306	7,973	96%	72	700	95%	619	6,095	88%	46	492	78.1%		556	8%		41	6.5%
44	230	8,203	98%	18	718	97%	463	6,558	94%	88	580	92.1%		556	8%		41	6.5%
45	88	8,291	99%	17	735	99%	207	6,765	97%	18	598	94.9%		556	8%		41	6.5%
46	36	8,327	100%	5	740	100%	98	6,863	99%	31	629	99.8%		556	8%		41	6.5%
47	7	8,334	100%	0	740		76	6,939	100%	0	629	99.8%		556	8%		41	6.5%
48	1	8,335		0	740		1	6,940	100%	0	629	99.8%		556	8%		41	6.5%
49	0	8,335		0	740		4	6,944	100%	0	629	99.8%		556	8%		41	6.5%
50	0	8,335		0	740		1	6,945	100%	1	630	100.0%		556	8%		41	6.5%
51	0	8,335		0	740		1	6,946	100%	0	630			556	8%		41	
Total	8,335			740			6,946			630			556			41		

# 2023 Willapa Bay CHINOOK Broodstock Summary FishBooks updated 9/6/2023

preliminary/draft

Naselle Hatchery

-							# Adults On-hand		Mortalitie	s (prior to s	spawning)	CHINO	OK surplu	s to-date
Program Release	10% add'l for mortality	Total eggs needed	Fecundity # eggs/female	# of Females Needed	# Females Spawned to- date	# Females still needed	at the facility (males & females combined)	# Eggs on Hand	Females	Males	Jacks	Females	Males	Jacks
5,000,000	500,000	5,500,000	3,000	1,833	0	1,833	453	0	51	53	3	0	0	0
									Total	107		Total	0	
Nemah Hatchery							# Adults On-hand		Mortalitie	s (prior to s	spawning)	CHINO	OK surplu	is to-date
Program Release	10% add'l for mortality	Total eggs needed	Fecundity # eggs/female	# of Females Needed	# Females Spawned to- date	# Females still needed	at the facility (males & females combined)	# Eggs on Hand	Females	Males	Jacks	Females	Males	Jacks
3,300,000	330,000	3,630,000	3,000	1,210	0	1,210	0	0	0	0	0	0	0	0
									Total	0		Total	0	
Forks Creek Hatch	ery	_					# Adults On-hand		Mortalitie	s (prior to	spawning)	CHINO	OK surplu	ıs to-date
Program Release	10% add'l for mortality	Total eggs needed	Fecundity # eggs/female	# of Females Needed	# Females Spawned to- date	# Females still needed	at the facility (males & females combined)	# Eggs on Hand	Females	Males	Jacks	Females	Males	Jacks
400,000	40,000	440,000	3,000	147	0	147	0	0	0	0	0	0	0	0
									Total	0		Total	0	

#### 2023 Willapa Bay CHINOOK Landed Catch

Preliminary draft

2023 MSF Chinook Catch Areas Total Basin Basin 2T 2U 2N 2R 2M Stat Basin NOR HOR Dates Wk Landed Origin Origin Landed Landed NOR HOR Total Landed Landed Total Landed Landed Total Total Landed Landed Total Landed Landed **UM %** UM % UM % **UM %** UM % Catch Landed Landed Landed NOR HOR Landed NOR HOR Landed Landed NOR HOR Landed NOR HOR Aug 13 - 19 Closed 33 34 Aug 20 - 26 Closed Closed 48 NA 48 0 NA 0 246 NA 246 294 0 294 Closed Closed NA NA NA 440 35 Aug 27 - Sept 2 172 172 0 0 268 268 440 0 Closed 36 Sept 3 - 9 37 Sept 10 - 16 NA 0 NA 0 NA 0 NA 0 NA 0 0 0 0 38 Sept 17 - 23 NA 0 NA 0 NA 0 NA 0 NA 0 0 0 0 39 Sept 24 - 30 NA 0 NA 0 NA 0 NA 0 NA 0 0 0 0 NA 0 NA 0 NA 0 NA 0 NA 0 0 0 0 40 Oct 1 - 7 NA NA 0 NA 0 NA 0 0 0 41 Oct 8 - 14 NA 0 0 0 42 Oct 15 - 21 Closed 43 Oct 22 - 28 Closed NA Closed 0 0 0 NA NA 44 Oct 29 - Nov 4 NA NA NA NA NA 0 0 0 Nov 5 - 11 NA 45 NA NA NA 0 0 0 NA NA 46 Nov 12 - 18 NA NA 0 0 0 NA NA NA 47 Nov 19 - 25 Closed NA 0 0 NA NA Closed 0 48 Nov 26 - 30 514 734 0 734 0 0 0 0 220 220 0 0 514 TOTAL LANDED

2N, M, R, & T: Tangle Net Weeks 34-38	0		220	0	514
2U: Tangle Net Weeks 37-41		0			
MSF & Small Mesh: Weeks 39-41, 44-48	0	0	0	0	0

# 2023 Willapa Bay CHINOOK Impacts

Preliminary draft

	2	T.	2	2U	2	N	2	R	2	M	In-Season	Estimated	PRESEASO	ON Predicted
Stat Wk	In-season Total NOR	In-season Local NOR	Natural Or	igin Impacts	Natural Or	igin Impacts								
	Impacts	Weekly	Cumulative	Weekly	Cumulative									
33					Clo	sed					0	0	0	0
34	Clo	sed	Clo	sed	2	2	0	0	11	10	11	11	34	34
35	Clo	sed	Clo	sed	7	5	0	0	13	11	17	28	35	69
36					Clo	sed		,					0	69
37													92	161
38													124	285
39													73	358
40													41	399
41													16	415
42					Clo	sed							0	415
43					Clo	sed							0	415
44									Clo	sed			0	415
45													0	415
46													0	415
47													0	415
48					Clo	sed	Clo	sed					0	415
TOTALS	0	0	0	0	9	7	0	0	23	21	28		415	

Tangle Net MSF 0

0

7

0

21

# 2023 Willapa Bay COHO Commercial Catch and Impacts

Preliminary draft

	2	Т			2	U			21	N			2	R			2	М		W	B In-sea	son	WB PRE	SEASON F	redicted
Total Landed Catch	UnMarked %	Estimated NOR	Estimated HOR	Total Lended Catch	UnMarked %	Estimated NOR	Estimated HOR	Total Landed Catch	UnMarked %	Estimated NOR	Estimated HOR	Total Landed Catch	UnMarked %	Estimated NOR	Estimated HOR	Total Landed Catch	UnMarked %	Estimated NOR	Estimated HOR	NOR	HOR	Total	NOR	HOR	Total
									Clos	sed													0	0	0
	Clos	sed			Clo	sed		0	0.000	0	0	0	0.000	0	0	6	0.000	0	6	0	6	6	7	6	13
	Clos	sed			Clo	sed		7	0.000	0	7	0	0.000	0	0	5	0.333	2	3	2	10	12	17	7	24
									Clos	sed										-			0	0	0
																							882	2,557	3,439
																							3,503	13,190	16,693
																							3,272	11,803	15,075
																							3,021	7,596	10,617
																							2,564	3,296	5,860
			-						Clos	sed													0	0	0
									Clos	sed													0	0	0
																	Clo	sed					894	434	1,328
																					-		513	342	855
																							555	326	881
																							13	7	19
									Clo	sed			Clo	sed									7	4	11
0		0	0	0		0	0	7		0	7	0		0	0	11		2	9	2	16	18	15,248	39,567	54,815
0		0	0	0		0	0	7		0	7	0		0	ō	11		2	9						
0		0	0	0		0	0	0		0	0	0		0	0	0		0	0						
	Landed Catch  0	Total Landed Catch Clos	Closed Closed Closed Closed 0 0 0	Total Landed Catch  UnMarked % Estimated NOR  Closed  Closed  0 0 0 0	Total Landed Catch  Closed  Closed  Closed  Closed  Closed  O O O O	Total Landed Catch  UnMarked %  Closed  Closed	Total Landed Catch  Windows Programme Colored  Closed  Closed	Total Landed Catch    UnMarked   Estimated   NOR   Estimated   HOR   Catch   UnMarked   Estimated   HOR   Catch   UnMarked   HOR   Estimated   HOR   HOR   Closed   C	Total Landed Catch    Value   Value	Total anded Catch   Value   Estimated   Nor   Estimated   Hor   Value   Valu	Total Landed Catch   Variable   Estimated Catch   Variable   Variable Catch   Variable   Variable Catch   Variable   V	Total Landed Catch   UnMarked   Estimated Catch   UnMarked   UnMarked	Total Landed Catch   UnMarked   Estimated %   NOR   Estimated %   Catch   UnMarked %   Cat	Total Landed Catch   Value   Estimated Catch   Value   Catch   Value   Catch   Value   Catch   Value   Value   Catch   Value   Valu	Total Landed Catch   Total Landed Catch   Total Landed Catch   Total Landed NOR   Tota	Total Landed   UnMarked   Estimated Landed   HOR   Catch   UnMarked   Estimated   HOR   Catch   UnMarked   Estimated   HOR   Catch   UnMarked   Estimated   Estimated   HOR   Catch   UnMarked   Estimated   Estimated   Estimated   Catch   UnMarked   W.   Work   HOR   Catch   W.   Work   HOR   Work   Catch   W.   Work   HOR   Work   Catch   W.   Work   Catch   W.   Work   Catch   W.   Work   HOR   Work   Catch   W.   W.   Work   Catch   W.   Work   Catch   W.   Work   Catch   W.   W.   Work   Catch   W.   Work   Catch   W.   Work   Catch   W.   W.   Work   Catch   W.   Work   Catch   W.   W.   W.   W.   W.   W.   W.   W	Total Landed   UMMarked   Estimated   Es	Total Landed   UnMarked   Estimated   Catch   Value   Value   Catch   Value   Value	Total Lunded   UnMarked   Estimated   UnMarked   Estimated   UnMarked   Un	Total Lunded   UnMarked   Estimated Rore   Estimated Lunded   Work   Estimated Rore   Estimated Rore	Total Lunded   UnMarked   Estimated Lunded   UnMarked   Estimated Lunded   UnMarked   Estimated Lunded   UnMarked   Un	Total Lunded Norm   N	Total Lunded Water Room   Stimated Lunded Water Work   Stimated Lunded Water Work   Stimated Lunded Water Work   Stimated Room   Stimated	Total Lunded   Norward Lunded   Stimated   Stimated	Total Lander   Tot