TABLES

Table 1. Definitions of habitat characteristics within edge habitat units in the large mainstem habitat survey in the Skagit River System, Washington.

Substrate	Definition
Boulder	rounded rock > 256 mm diameter
Cobble	rounded rock > 64 mm diameter and < 256 mm diameter
Riprap	angular boulder sized rock placed for bank protection
Rubble	angular cobble sized rock placed for bank protection
Gravel	2 - 64 mm diameter rock
Sand	rock particles < 2 mm in diameter, individual particles still distingishable from the boat
Mud	rock particles much less 2 mm in diameter, individual particles not distingishable from the boat
Organic	small particles of detritus

Cover type	Definition
Boulder	rounded rocks > 256 mm diameter
Cobble	rounded rocks > 64 mm diameter and < 256 mm diameter
Deep water	water depth greater than 1.0 meter (other cover types take presidence)
Detritus	small non-woody dead plant material
Plants	live non-woody aquatic vegetation
Riprap	angular boulder sized rock placed for bank protection
Rubble	angular cobble sized rock placed for bank protection
Undercut bank	submerged area underneath an overhanging bank
Wood	woody debris of various sizes and types
No cover	substrate < cobble sized, depth < 1.0 meters, no other previously defined cover present

Types of Wood Cover	Definition
Anchored brush	branches of non-tree woody plants hanging in the water
Bankroots	roots of live trees and shrubs in the water
Branch	woody debris < 20 cm in diameter, not acumulated in debris piles
Debris pile	numberous or single types of wood cover acumulated in a pile or jam
Log	woody debris 20 cm or greater in diameter, not acumulated in debris piles
Rootwad	roots and lower trunk of non-growing trees (any size)
Piling	logs driven vertically into the river
Mixed	mixture of wood cover types where no single type is 70% or greater

Wood Cover Size	Definition
Fine	individual peices of wood cover < 20 cm diameter
Small	individual peices of wood cover 20 - 50 cm diameter
Large	individual peices of wood cover > 50 cm diameter
Mixed	mixture of wood cover sizes where no single size is 70% or greater

Table 2. Large mainstem reaches in the Skagit River basin. River miles (RM) and gradient were calculated from USGS 7.5 minute quadrangles. Channel width is the mean canopy opening width from ten channel cross sections visible on orthophotos for each reach. Reaches identified for habitat inventory are highlighted in gray.

River	Reach Name	Hydro-modified	Current Channel Pattern	start RM	end RM	Length (miles)	Gradient	Channel Width (m)
Sauk	Sa010	no	multi	0.0	4.5	4.5	0.20%	275
Sauk	Sa020	no	single	4.5	9.0	4.5	0.26%	112
Sauk	Sa030	no	multi	9.0	11.9	2.9	0.29%	261
Sauk	Sa040	no	single	11.9	12.9	1.0	0.30%	138
Sauk	Sa050	no	multi	12.9	22.1	9.2	0.29%	226
Sauk	Sa060	no	single	22.1	32.5	10.4	0.75%	73
Sauk	Sa070	no	multi	32.5	40.0	7.5	0.73%	147
Skagit	SK030	yes	single	8.1	18.8	10.7	0.02%	191
Skagit	SK040	no	multi	18.8	22.5	3.7	0.05%	280
Skagit	SK050	yes	single	22.5	24.8	2.3	0.05%	172
Skagit	SK060A	no	multi	24.8	36.4	11.6	0.06%	260
Skagit	SK060B	yes	single	36.4	41.6	5.2	0.09%	206
Skagit	SK070	no	single	41.6	47.5	5.9	0.10%	206
Skagit	SK080A	no	single	47.5	57.0	9.5	0.07%	148
Skagit	SK080B	no	multi	57.0	60.5	3.5	0.10%	187
Skagit	SK090	no	single	60.5	65.0	4.5	0.09%	143
Skagit	SK100	no	single	65.0	75.1	10.1	0.15%	166
Skagit	SK110	no	single	75.1	83.8	8.7	0.15%	95
Skagit	SK120	no	single	83.8	87.7	3.9	0.25%	62
Skagit	SK130	no	single	87.7	93.3	5.6	0.26%	98
Skagit	SK140	no	single	93.3	96.5	3.2	1.44%	
Suiattle	Su010	no	multi	0.0	2.8	2.8	0.68%	193
Suiattle	Su020	no	single	2.8	10.6	7.8	0.59%	65
Suiattle	Su030	no	multi	10.6	18.3	7.7	0.70%	177
Suiattle	Su040	no	multi	18.3	25.5	7.2	1.26%	113
Cascade	Ca010	no	multi	0.0	3.0	3.0	0.59%	70
Cascade	Ca020	no	single	3.0	4.5	1.5	1.10%	30

Table 3. Mean width of selected bank and bar habitat units, compared to the gradient and channel width of their mainstem reach, within the Skagit River, Washington.

Reach #	Unit Name	Ave. Unit Width (m)	Reach Gradient	Channel Width (m)
BANK UNITS				
SK 060B	LB COTTONWOOD	2.4	0.09%	206
SK 060B	RB COTTONWOOD	2.5	0.09%	206
SK 060A	DAY ISLAND BANK	2.4	0.06%	260
SK 060B	FERNANDO RIPRAP	1.9	0.09%	206
SK 030	TEN DOLLAR RIPRAP	4.1	0.02%	191
SK 100	BANK BELOW SUTTER	3.7	0.15%	166
SK 100	BANK BELOW HOOPER	1.7	0.15%	166
SK 100	BARNABY RIPRAP	2.3	0.15%	166
SK 100	BARNABY RIPRAP	1.7	0.15%	166
SK 110	TAYLOR BANK	1.8	0.15%	95
SK 110	BIG EDDY BANK RB	3.3	0.15%	95
SK 110	BIG EDDY BANK LB	2.5	0.15%	95
SK070	MILL CREEK BANK	2.6	0.10%	206
SK070	PRESSENTIN RIPRAP	3.8	0.10%	206
	mean	2.6		
	standard deviation	0.8		
	sample size	14		
BAR UNITS				
SK 060B	FERNANDO BAR	27.5	0.09%	206
SK 030	TEN DOLLAR BAR	15.2	0.02%	191
SK 100	POWERLINE BAR	15.1	0.15%	166
SK 100	FORGOTTEN BAR	18.6	0.15%	166
SK 110	MARBLEMONT BAR	5.9	0.15%	95
SK 110	SAM'S BAR	4.7	0.15%	95
SK070	LAKE HOLE BAR	22.4	0.10%	206
	mean	15.6		
	standard deviation	8.3		
	sample size	7		

Table 4. Area (in hectares) of edge habitat units in the sampled mainstem reaches, estimated from current orthophotos.

Reach	Reach Type (Hydromodification & Channel pattern)	total channel area (ha)	backwater area (ha)	bank area (ha)	bar area (ha)
Sa010	no/multi	199.2	4.1	1.9	16.8
Sk030*	yes/single	77.1	0.0	1.5	3.6
Sk040	no/multi	166.7	2.6	2.5	7.1
Sk050	yes/single	63.7	0.0	1.9	0.0
Sk070	no/single	195.6	1.3	4.4	14.5
Sk090	no/single	103.6	0.5	2.7	3.0
Sk100	no/single	269.8	6.6	5.0	19.7
Sk110	no/single	133.0	1.8	6.8	9.8
Sk120	no/single	38.9	0.1	3.2	2.0

* The inventoried portion of Sk030 was from the WDFW mainstem trap site in Burlington to the mouth of Nookachamps Creek.

Table 5. Percent each edge habitat type represents of the total channel area in the sampled mainstem reaches, according to measurements from current orthophotos. As in the table above, the inventoried portion of Sk030 was from the WDFW mainstem trap site in Burlington to the mouth of Nookachamps Creek.

Reach	Reach Type (Hydromodification & Channel pattern)	backwater % of channel area	bank % of channel area	bar % of channel area	total edge habitat % of channel area
Sk040	no/multi	1.5%	1.5%	4.3%	7.3%
Sa010	no/multi	2.1%	1.0%	8.4%	11.5%
	mean	1.8%	1.2%	6.3%	9.4%
Sk100	no/single	2.4%	1.8%	7.3%	11.6%
Sk110	no/single	1.3%	5.1%	7.3%	13.8%
Sk120	no/single	0.3%	8.3%	5.3%	13.8%
Sk090	no/single	0.4%	2.6%	2.9%	5.9%
Sk070	no/single	0.7%	2.2%	7.4%	10.3%
	mean	1.0%	4.0%	6.0%	11.1%
Sk030	yes/single	0.0%	2.0%	4.7%	6.7%
Sk050	yes/single	0.0%	3.0%	0.0%	3.0%
	mean	0.0%	2.5%	2.3%	4.8%

Table 6. Total area (in hectares) of edge habitat units for both sampled and unsampled mainstem reaches in the Skagit River System, Washington.

River	Reach Name	Hydro-modified	Current Channel Pattern	Total Channel Area (ha)	Backwater Area (ha)	Bank Area (ha)	Bar Area (ha)	Total Edge Area
Skagit	SK030*	yes	single	328.9	0.0	8.2	7.6	
Skagit	SK040	no	multi	166.7	2.6	2.5	7.1	
Skagit	SK050	yes	single	63.7	0.0	1.9	0.0	
Skagit	SK060A	no	multi	485.4	8.7	5.8	30.6	
Skagit	SK060B	yes	single	172.4	0.0	4.3	4.0	
Skagit	SK070	no	single	195.6	1.3	4.4	14.5	
Skagit	SK080A	no	single	226.3	2.3	9.1	13.6	
Skagit	SK080B	no	multi	105.3	1.9	1.3	6.6	
Skagit	SK090	no	single	103.6	0.5	2.7	3.0	
Skagit	SK100	no	single	269.8	6.6	5.0	19.7	
Skagit	SK110	no	single	133.0	1.8	6.8	9.8	
Skagit	SK120	no	single	38.9	0.1	3.2	2.0	
Skagit	SK130	no	single	88.3	0.9	3.5	5.3	
Skagit	SK140*	no	single					
			total	2377.8	26.7	58.7	123.8	209.2
Sauk	Sa010	no	multi	199.2	4.1	1.9	16.8	
Sauk	Sa020	no	single	81.1	0.8	3.2	4.9	
Sauk	Sa030	no	multi	121.8	2.2	1.5	7.7	
Sauk	Sa040	no	single	22.2	0.2	0.9	1.3	
Sauk	Sa050	no	multi	334.6	6.0	4.0	21.1	
Sauk	Sa060	no	single	122.2	1.2	4.9	7.3	
Sauk	Sa070	no	multi	177.4	3.2	2.1	11.2	
			total	1058.5	17.8	18.6	70.3	106.7
Suiattle	Su010	no	multi	87.0	1.6	1.0	5.5	
Suiattle	Su020	no	single	81.6	0.8	3.3	4.9	
Suiattle	Su030	no	multi	219.3	3.9	2.6	13.8	
Suiattle	Su040	no	multi	130.9	2.4	1.6	8.2	
			total	518.8	8.7	8.5	32.4	49.6
Cascade	Ca010	no	multi	33.8	0.6	0.4	2.1	
Cascade	Ca020	no	single	7.2	0.1	0.3	0.4	
			total	41.0	0.7	0.7	2.6	4.0
	SYSTEM TOTAL			3996.1	53.9	86.5	229.1	369.5

* There is no estimate for Sk140, and the estimate for Sk030 is for the entire reach.

Table 7. Comparison of habitat unit areas measured from aerial photos to field-measured areas on Skagit River.

Unit Name	unit#	unit type (field)	Area (m^2) (photo)	mean Area (m^2) (field)	deviation from field area
MARBLEMOUNT SLOUGH BW	29	backwater	787	366	115.0%
SAM'S BW	42	backwater	1135	433	162.1%
MUDDY CREEK BW	7	backwater	2890	2024	42.8%
WASHINGTON EDDY MIDDLE	17M	backwater	3510	2087	68.2%
YOUNG'S BAR BW	16	backwater	3664	1142	220.8%
DAY SLOUGH BW	6	backwater	5393	6728	-19.8%
MARBLEMOUNT BW	27	backwater	6148	1123	447.5%
SAUK BACKWATER	65	backwater	6258	21717	-71.2%
WASHINGTON EDDY EAST	17E	backwater	10116	9438	7.2%
WASHINGTON EDDY WEST	17W	backwater	10658	5618	89.7%
BIG EDDY BANK RB	31	bank	198	397	-50.2%
BIG EDDY BANK LB	32	bank	465	400	16.5%
BANK BELOW SUTTER	18	bank	872	1135	-23.2%
BARNABY RIPRAP	22	bank	961	687	39.9%
BARNABY RIPRAP	23	bank	1040	380	174.1%
LB COTTONWOOD	4	bank	1090	818	33.2%
PRESSENTIN RIPRAP	56	bank	1486	1444	2.9%
RB COTTONWOOD	5	bank	1526	1372	11.2%
BANK BELOW HOOPER	19	bank	1664	959	73.6%
TEN DOLLAR RIPRAP	13	bank	1783	2592	-31.2%
DAY ISLAND BANK	8	bank	1882	2194	-14.2%
TAYLOR BANK	28	bank	2163	1584	36.6%
MILL CREEK BANK	55	bank	2229	1658	34.5%
FERNANDO RIPRAP	9	bank	2972	2245	32.4%
SAM'S BAR	34	bar	3182	711	347.9%
MARBLEMONT BAR	26	bar	3572	1077	231.7%
FORGOTTEN BAR	25	bar	5349	5080	5.3%
POWERLINE BAR	20	bar	5710	5113	11.7%
TEN DOLLAR BAR	14	bar	7548	7421	1.7%
LAKE HOLE BAR	54	bar	10702	8542	25.3%
FERNANDO BAR	3	bar	16642	19263	-13.6%
Total (all units)			123595	115743	6.8%
Total (backwater units only)			50559	50675	-0.2%
Total (bank units only)			20330	17862	13.8%
Total (bar units only)			52706	47206	11.7%

Table 8. Summary of regression statistics for field measurements against aerial photo measurements on Skagit River, Washington.

	R Squared	Regression Slope	SE of Slope	df *(N - 2)*	t for Ho: Slope = 1	Crit. t (2 tailed) alpha 0.05
All Edge Habitat Units	0.59	1.042	0.161	29	0.263	2.045
Backwater Units Only	0.23	0.942	0.607	8	0.096	2.306
Bank Units Only	0.65	0.784	0.167	12	1.293	2.179
Bar Units Only	0.96	1.290	0.113	5	2.566	2.571

Table 9. Habitat characteristics within representative mainstem edge habitat units. A (*) indicates that both habitat characteristics are equally dominant.

Backwater Units:

Reach	Unit Name	Mean Depth (m)	Dominate Surface Velocity	Dominant / SubDominant Substrate	Dominant / SubDominant Cover Type	Dominant / SubDominant (wood cover only)
SA010	Sauk	0.62	low	sand only	wood/no cover*	debris piles/branches
SK100	Middle Wa. eddy	0.46	low	mud/sand	plants/wood	debris piles/anchored brush
SK100	East Wa. eddy	0.77	low	mud/sand	plants/wood	branches/debris piles
SK100	West Wa. eddy	0.86	low	mud/sand	wood/plants*	debris piles/mixed
SK110	Marblemount	0.56	low	sand/gravel	cobble/plants	

Natural Bank Units:

Reach	Unit Name	Mean Depth (m)	Dominant Surface Velocity	Dominant / SubDominant Substrate	Dominant / SubDominant Cover Type	Dominant / SubDominant (wood cover only)
SA010	Napoleon	0.73	medium	sand/gravel	wood/cobble	bank roots/mixed
SK040	LOD heaven	0.79	low	sand only	wood only	debris piles/logs*
SK070	Mill	0.57	low	sand/gravel	wood/cobble	debris piles/mixed*
SK090	Mixmaster	0.54	low	sand/gravel	wood/no cover	debris piles/mixed
SK090	Faber	0.64	low	sand/gravel	wood/undercut bank	bank roots/mixed
SK100	Sutter	0.76	low	sand/gravel	wood/deep water	debris piles/logs
SK110	Taylor	0.44	medium	gravel/sand	cobble/wood	bank roots/debris piles
SK120	Copper	0.49	low	cobble/sand*	wood/cobble	bank roots/debris piles
SK120	Shovelspur	0.65	low	sand/boulder	wood/boulder	bank roots/branches

Hydromodified Bank Units:

Reach	Unit Name	Mean Depth (m)	Dominant Surface Velocity	Dominant / SubDominant Substrate	Dominant / SubDominant Cover Type	Dominant / SubDominant (wood cover only)
SK050	Riverfront pk.	0.67	low	sand/riprap	wood/rubble	debris piles/logs
SK050	Pipeline	0.60	low	sand/mud	wood/rubble	logs/debris piles
SK070	Pressentin riprap	0.57	low	riprap/gravel	rubble/riprap	
SK120	Alma riprap	0.60	low	riprap/sand	wood/rubble	debris piles/mixed

Bar Units:

Reach	Unit Name	Mean Depth (m)	Dominant Surface Velocity	Dominant / SubDominant Substrate	Dominant / SubDominant Cover Type	Dominant / SubDominant (wood cover only)
SA010	Napoleon bar	0.33	medium	gravel/cobble	cobble only	
SK040	Highway 9 bar	0.29	low	gravel/sand	cobble/no cover	
SK070	Lake hole bar	0.57	low	sand/gravel	cobble/deep water	
SK090	Faber bar	0.30	low	gravel/cobble	cobble only	
SK100	Forgotten bar	0.29	low	cobble/gravel*	cobble only	
SK100	Powerline bar	0.32	medium	gravel/cobble	cobble/plants	

Table 10. Area of habitat types by zone.

Habitat type	Estuarine Emergent Marsh (hectares)	Emergent Forested Transition (hectares)	Forested Riverine/tidal (hectares)	Total (hectares)
entire zone	1014.6	1000.2	540.9	2555.7
mainstem channel	58.0	206.7	316.6	581.3
subsidiary channel	51.3	34.4	1.7	87.4
large blind channel	12.5	11.5	0.0	24.0
small blind channel	45.7	<37	<11	<93.7
non-channel wetland (marsh, scrub shrub, or forested)	847.1	747.6*	222.6*	1863.0*

	% area of zone	% area of zone	% area of zone	% of Total Area
mainstem channel	5.7%	20.7%	58.5%	22.7%
subsidiary channel	5.1%	3.4%	0.3%	3.4%
large blind channel	1.2%	1.1%	0.0%	0.9%
small blind channel	4.5%	<3.7%	<2%	<3.7%
non-channel wetland (marsh, scrub shrub, or forested)	83.5%	74.7%*	41.2%*	73.9%*

* Includes area for small blind channel.

Table 11. Chinook abundance, habitat preference coefficients, densities, and distribution in edge habitat units in the lower, middle, and upper Skagit River, Washington. Chinook abundance was measured in two ways: peak numbers of fish/grid point (top), and fish-weeks/grid point (bottom). Total smolts (1,500,000) from D. Seiler, WDFW, (pers. comm.).

	Edge Unit Type	Lower River	Middle River	Upper River	Total
		Peak Number of Chinook/Grid Point			
	Backwaters	2.165	2.975	3.69	
PEAK 0+	Natural Banks	1.15	1.58	1.96	
CHINOOK PER	Hydromodified Banks	0.86	0.04	1.16	
GRID POINT	Bars	0.08	0.95	0.72	
	Backwaters	1.88	2.59	3.21	
PREFERENCE	Natural Banks	1.00	1.37	1.70	
COEFFICIENT (K_i)	Hydromodified Banks	0.75	0.03	1.01	
	Bars	0.07	0.83	0.63	
	Backwaters	1.225	1.682	2.087	1.780
0+ CHINOOK	Natural Banks	0.650	0.894	1.109	0.970
DENSITY	Hydromodified Banks	0.486	0.023	0.656	0.348
(0+ CHINOOK/m^2)	Bars	0.045	0.537	0.407	0.440
	Backwaters	31,838	247,317	196,184	475,339
0+ CHINOOK	Natural Banks	16,261	208,220	205,086	429,567
SMOLT	Hydromodified Banks	49,128	973	0	50,101
DISTRIBUTION	Bars	6,651	388,482	149,861	544,994
		Fish-Weeks/Grid Point			
	Backwaters	21.82	26.90	39.4	
0+ CHINOOK	Natural Banks	10.3	12.7	18.6	
FISH-WEEKS PER	Hydromodified Banks	6.4	0.6	19.0	
GRID POINT	Bars	1.0	6.0	13.1	
	Backwaters	2.12	2.61	3.83	
PREFERENCE	Natural Banks	1.00	1.23	1.81	
COEFFICIENT (K_i)	Hydromodified Banks	0.62	0.06	1.84	
	Bars	0.10	0.58	1.27	
	Backwaters	1.316	1.623	2.377	1.859
0+ CHINOOK	Natural Banks	0.621	0.766	1.122	0.907
DENSITY	Hydromodified Banks	0.386	0.036	1.146	0.282
(0+ CHINOOK/m^2)	Bars	0.060	0.362	0.790	0.454
	Backwaters	34,227	238,603	223,458	496,287
0+ CHINOOK	Natural Banks	15,536	178,538	207,614	401,688
SMOLT	Hydromodified Banks	39,001	1,557	0	40,557
DISTRIBUTION	Bars	8,869	261,734	290,864	561,468

Table 12. Summary of rearing habitat area at juvenile chinook sampling sites in the Skagit River estuary, Washington.

Site	Zone		High Tide Area (m^2)	Low Tide Area (m^2)	Bankfull Channel Area (m^2)
Deepwater Slough	Forested Riverine Tidal	mean	5267	1068	
		std	2421.8	741.7	
		N	45	45	
Grain of Sand	Forested Riverine Tidal	mean	1768	962	
		std	584.1	519.3	
		N	23	22	
Freshwater Pond	Transition	mean	4776	1960	
		std	1139.7	79.5	
		N	18	18	
Brown Slough	EEM				1962
Ika	EEM				2373
Tom Moore	EEM				1024

Table 13. Recovery efficiency for age 0+ chinook at six sampling sites in the Skagit River estuary, Washington. The ending gauge and tidal drop values are in centimeters. The Ika site has two gauges. The data listed in the table are for the lower gauge.

site	Marks Released	Ending Gauge level	Tidal Drop	RE
Brown Slough	35	177	98	91%
Brown Slough	29	-30	299	97%
Deepwater Slough	74	2	41	55%
Freshwater Pond	89	72	24	24%
Freshwater Pond	75	39	136	43%
Grain of Sand	100	143	14	7%
Grain of Sand	55	93	27	8%
Grain of Sand	67	33	124	45%
IKA	91	13	122	16%
IKA	88	34	155	27%
Tom Moore	97	63	132	15%
Tom Moore	46	48	44	28%
Tom Moore	46	19	73	65%
Tom Moore	46	17	75	74%

*The Ika site had two gauges. The data listed in the table were for the lower gauge.

Table 14. Chinook (age 0+) production, in fish/ha, by estuary habitat type in the Skagit estuary in 1995. Fish-days/ha was converted to fish/ha by assuming a residence time of 25 days (Healy 1980). Peak densities are shown for comparative purposes, and were not used in any subsequent calculations.

EEM Zone:

Habitat Type	Site	Sampling Method	fish days per hectare	fish per hectare	peak fish per hectare
Large Blind Channel	Brown Slough	Beach Seine	246,895	9,876	4,102
Main Channel			no sample	no sample	no sample
Small Blind Channel	Brown Slough	Fyke	53,733	2,149	1,068
Small Blind Channel	Ika	Fyke and Beach Seine	165,527	6,621	3,231
Small Blind Channel	Tom Moore	Fyke	35,532	1,421	586
Subsidiary Channel			no sample	no sample	no sample

Transition Zone:

Habitat Type	Site	Sampling Method	fish days per hectare	fish per hectare	peak fish per hectare
Large Blind Channel			no sample	no sample	no sample
Main Channel			no sample	no sample	no sample
Small Blind Channel	Freshwater Pond	Fyke and Beach Seine	319,043	12,762	5,247
Subsidiary Channel			no sample	no sample	no sample

Forested Riverine Tidal Zone :

Habitat Type	Site	Sampling Method	fish days per hectare	fish per hectare	peak fish per hectare
Main Channel			no sample	no sample	no sample
Small Blind Channel	Deepwater Pond	Beach Seine	58,547	2,342	1,158
Small Blind Channel	Deepwater Slough	Fyke	13,106	524	253
Small Blind Channel	Grain of Sand	Fyke and Beach Seine	140,437	5,617	6,019
Subsidiary Channel			no sample	no sample	no sample

Note: large blind channel habitat is not present in this zone.

Table 15. Total chinook 0+ smolt production by estuary habitat type, estimated for the Skagit estuary in 1995. Values shown for small blind channels in the Transition and Forested Riverine Tidal zones are derived from the maximum area estimates (37 ha in the Transition Zone and 11 ha in the Forested Riverine Tidal Zone).

Zone	Channel Type	Total Area (ha)	Mean Chinook Density	Total Chinook Production
EEM	Main	58.0	NA	NA
	Subsidiary	51.3	NA	NA
	Large Blind	12.5	9,876	123,450
	Small Blind	45.7	3,397	155,243
Transition	Main	206.7	NA	NA
	Subsidiary	34.4	NA	NA
	Large Blind	11.5	NA	NA
	Small Blind	< 37	12,762	472,194
Forested Riverine Tidal	Main	316.6	NA	NA
	Subsidiary	1.7	NA	NA
	Small Blind	< 11	2,828	31,104
Total	Main			NA
	Subsidiary			NA
	Large Blind			123,450
	Small Blind			658,541
	Total			781,991

Table 16. Details of trawl samples for juvenile chinook in north Skagit Bay, 1995.

Gear	Pair Trawl	Otter Trawl	Otter Trawl	Otter Trawl	Otter Trawl	
Date	5/4/95	8/10/95	9/1/95	9/29/95	10/20/95	**1995 Summary**
Number of Tows	6	6	6	10	9	37 Sets
Species						
Chinook	0	0	0	0	0	0 Chinook
Coho	0	0	0	0	0	0 Coho
Chum	0	0	0	0	0	0 Chum
Sockeye	0	0	0	0	0	0 Sockeye
Steelhead	0	0	0	0	0	0 Steelhead
Trout	0	0	0	0	0	0 Trout
Dolly Varden	0	0	0	0	0	0 Dolly Varden
Stickleback	1	1	2	0	2	6 Stickleback
Sculpin	0	0	1	1	1	3 Sculpin
Perch	0	3	72	0	3	78 Perch
Flatfish	0	6	3	0	2	11 Flatfish
Smelt	289	0	0	0	23	312 Smelt
Herring	1	38	305	65	322	731 Herring
Sandlance	3	2	43	0	0	48 Sandlance
Gunnel/prickleback	0	22	0	0	0	22 Gunnel/prickleback
Larval baitfish	0	0	0	0	0	0 Larval baitfish
Misc. Baitfish	0	0	0	0	0	0 Misc. Baitfish
Juv. Rock/Cottid	0	1	0	0	0	1 Juv. Rock/Cottid
Shrimp	500	0	0	0	0	500 Shrimp
Inverts	500	2	6	25	1	534 Inverts
Other	6	0	0	0	0	6 Other

Table 17. Details of beach seine samples and otolith collection for juvenile chinook in north Skagit Bay, 1995.

Date	Site	Sets	Chinook Caught	Otoliths collected
5/11/95	**Total**	**22**	**52**	**38**
	Ala Spit	4	1	0
	Hoypus Pt	5	7	0
	Hope Is	4	6	0
	Hope Is Inn	3	19	19
	Similk/Kiket	3	4	4
	Skagit Is	3	15	15
	Lone Tree	---	---	---
5/19/95	**Total**	**28**	**34**	**34**
	Ala Spit	5	13	13
	Hoypus Pt	10	15	15
	Hope Is	8	5	5
	Hope Is Inn	1	0	0
	Similk	2	0	0
	Skagit Is	2	1	1
	Lone Tree	---	---	---
6/8/95	**Total**	**24**	**84**	**75**
	Ala Spit	6	3	3
	Hoypus Pt	3	4	4
	Hope Is	1	0	1
	Hope Is Inn	7	37	36
	Similk	1	0	0
	Skagit Is	3	3	3
	Lone Tree	3	37	28
6/16/95	**Total**	**18**	**52**	**51**
	Ala Spit	6	12	12
	Hoypus Pt	1	0	0
	Hope Is	---	---	---
	Hope Is Inn	3	17	17
	Similk	---	---	---
	Skagit Is	---	---	---
	Lone Tree*	8	23	22
6/30/95	**Total**	**18**	**61**	**58**
	Ala Spit	2	20	19
	Hoypus Pt	1	0	0
	Hope Is	---	---	---
	Hope Is Inn	9	22	22
	Similk	---	---	---
	Skagit Is	---	---	---
	Lone Tree	6	19	17
7/19/95	**Total**	**20**	**64**	**64**
	Ala Spit	9	17	17
	Hoypus Pt	6	21	21
	Hope Is	---	---	---
	Hope Is Inn	3	23	23
	Similk	---	---	---
	Skagit Is	---	---	---
	Lone Tree	2	3	3
8/18/95	**Total**	**16**	**12**	**9**
	Ala Spit	5	8	7
	Hoypus Pt	1	0	0
	Hope Is	1	0	0
	Hope Is Inn	4	2	0
	Similk	---	---	---
	Skagit Is	---	---	---
	Lone Tree	5	2	2
8/31/95	**Total**	**12**	**15**	**15**
	Ala Spit	4	4	0
	Hoypus Pt	3	0	0
	Hope Is	---	---	---
	Hope Is Inn	2	0	0
	Similk	---	---	---
	Skagit Is	3	11	0
	Lone Tree	---	---	---
9/18/95	**Total**	**11**	**3**	**0**
	Ala Spit	3	1	0
	Hoypus Pt	1	0	0
	Hope Is	---	---	---
	Hope Is Inn	4	2	0
	Similk	---	---	---
	Skagit Is	2	0	0
	Lone Tree	1	0	0
10/27/95	**Total**	**5**	**0**	**0**
	Ala Spit	4	0	0
	Hoypus Pt	1	0	0
	Hope Is	---	---	---
	Hope Is Inn	---	---	---
	Similk	---	---	---
	Skagit Is	---	---	---
	Lone Tree	---	---	---
1995 Summary		**174**	**377**	**344**

(cont'd next column)

* collected 1 w/adipose clip

Table 18. Beach seine species composition by date. Collections from north Skagit Bay, 1995.

Date	5/11/95	5/19/95	6/8/95	6/16/95	6/30/95	7/19/95	8/18/95	8/31/95	9/18/95	10/27/95	**1995 Summary**	
No. Sets	22	28	24	18	18	20	16	12	11	5	174	Sets
Species												
Chinook	52	34	84	52	61	64	12	15	3	0	377	Chinook
Coho	28	329	15	4	5	0	0	0	0	0	381	Coho
Chum	13,121	7,204	236	33	7	0	3	0	0	0	20,604	Chum
Sockeye	11	402	3	82	37	4	0	0	0	0	539	Sockeye
Steelhead	0	0	3	3	0	0	0	0	0	0	6	Steelhead
Trout	2	2	12	2	2	0	2	0	0	0	22	Trout
Dolly Varden	1	0	4	2	1	0	0	0	0	0	8	Dolly Varden
Stickleback	1	17	60	10	37	103	20	8	24	2	282	Stickleback
Sculpin	25	86	66	20	57	51	10	187	46	3	551	Sculpin
Perch	270	260	2,056	294	251	485	853	528	1,729	1	6,727	Perch
Flatfish	56	34	21	15	10	74	15	7	2,934	2	3,168	Flatfish
Smelt	41	141	73	411	168	378	3,563	238	3,047	0	8,060	Smelt
Herring	835	87	348	144	1,275	215	1,664	1,432	397	0	6,397	Herring
Sandlance	150	0	11	242	21	1,545	353	1,485	255	1	4,063	Sandlance
Gunnel/prickleback	79	52	112	0	33	71	1	2	1	0	351	Gunnel/prickleback
Larval baitfish	0	3	0	0	0	0	0	0	0	0	3	Larval baitfish
Misc. Baitfish	0	0	0	0	0	0	0	0	0	0	0	Misc. Baitfish
Juv. Rock/Cottid	400	0	0	0	0	0	0	0	0	0	400	Juv. Rock/Cottid
Shrimp	0	0	10	0	0	0	0	0	0	0	10	Shrimp
Inverts	0	0	76	0	0	0	6	0	5	0	87	Inverts
Other	2	22	9	1	17	80	2	1	89	4	227	Other

Table 19. Beach Seine sample areas and site substrate and slope characteristics.

Site No	Site Name	Substrate	Slope	Number of Sets	Area Total
1	Ala Spit	cobble	steep	36	
2	Ala Spit, N Pt	cobble	steep	3	
3	Ala Spit, W	cobble	steep/moderate	3	
4	Ala Spit, end of road S	cobble	steep	1	
5	Ala Spit, main channel	cobble	steep	3	Ala Spit
6	Ala Spit, near pilings	cobble	moderate	2	48
7	Hoypus Pt	cobble	moderate	3	
8	Hoypus Pt, N	cobble	moderate	13	
9	Hoypus Pt, S of pile	cobble	moderate	11	
10	Hoypus Pt, S++	sand/cobble	shallow	1	Hoypus Pt
11	Hoypus Pt, pile	cobble	moderate	4	32
12	Hope Is Inn	cobble	moderate	21	
13	Hope Is Inn 200 yd S	cobble	moderate	2	
14	Hope Is Inn NE	cobble	moderate	5	Hope Is Inn
15	Hope Is Inn, S of ramp	cobble	moderate	5	33
16	Hope Is	cobble	steep	1	
17	Hope Is, N. @ buoys	cobble	moderate	2	
18	Hope Is, NE	cobble	steep	6	
19	Hope Is, NW	cobble	steep	2	
20	Hope Is, S nr small Is	cobble	steep	2	Hope Is
21	Hope Is, across from In	cobble	steep	4	17
22	Kiket, E / Similk	mud/cobble	moderate/shallow	3	
23	Kiket, W end	cobble	steep	2	
27	Similk	mud, eelgrass & cobble	moderate/shallow	1	Similk/Kiket 6
24	Lone Tree @ Tree	cobble	steep/moderate	13	
25	Lone Tree Launch	cobble	steep/moderate	11	Lone Tree
26	Lone Tree, N+	cobble	moderate	1	25
28	Skagit Is, E end	cobble	steep	2	
29	Skagit Is, N	cobble	steep	2	Skagit Is
30	Skagit Is, NE	cobble	steep	9	13

Note: Kiket & Similk sites were combined & identified as Similk Area for all other purposes.

Table 20. Catch of juvenile chinook per set for beach seine sites in northern Skagit Bay, 1995. No catch is indicated by a catch per set of 0.00, while "---" indicates no sets made at the indicated site and date.

	Date									
Site	05/11	05/19	06/08	06/16	06/30	07/19	08/18	08/31	09/18	10/27
Lone Tree	---	---	12.33	2.88	3.17	1.50	0.40	---	0.00	---
Hope Is. Inn	6.33	0.00	5.29	5.67	0.22	7.67	0.50	0.00	0.50	---
Ala Spit	0.25	2.60	0.50	2.00	10.00	1.89	1.60	1.00	0.33	0.00
Skagit Islan	5.00	0.50	1.00	---	---	---	---	3.67	0.00	---
Hoypus Pt	1.40	1.50	1.33	0.00	0.00	3.50	0.00	0.00	0.00	0.00
Similk	1.33	0.00	0.00	---	---	---	---	---	---	---
Hope Island	1.50	0.63	0.00	---	---	---	0.00	---	---	---

Table 21. Mean lengths and sample sizes, by date, of juvenile chinook salmon sampled in Skagit Bay in 1995. Lengths are in mm. Pairs of dates for which pairwise comparison showed statistically different mean lengths (p<.05) are marked by a "*". "NS" indicates no significant difference in mean lengths between that pair of dates.

			Dates of Pairwise Comparison of Differences in Mean Lengths							
Sample Date	Mean Length	Sample Size	5/19	6/8	6/16	6/30	7/19	8/18	8/31	9/18
5/11	87	50	*	*	*	*	*	*	*	*
5/19	95	33	---	*	*	NS	NS	*	*	*
6/8	77	85		---	NS	*	*	*	*	*
6/16	81	51			---	*	*	*	*	*
6/30	93	59				---	*	*	*	*
7/19	99	63					---	*	*	*
8/18	118	11						---	NS	NS
8/31	122	15							---	NS
9/18	115	3								---

Table 22. Mean lengths and sample sizes, by date and sampling site, of juvenile chinook salmon sampled in Skagit Bay in 1995. Lengths are in mm. Sites that differed significantly ($p<.05$) in mean length on a sampling date are listed on the last line. "---" indicates that the sites that were not sampled on that date, or had too few samples to compare mean lengths.

	May 11		May 19		June 8		June 16		June 30		July 19		Aug 18		Aug 31	
	Mean Length	N	Mean Length	N	Mean Length	N	Mean Length	N	Mean Length	N	Mean Length	N	Mean Length	N	Mean Length	N
Ala Spit	---	---	107	12	---	---	93	12	97	20	102	17	112	7	113	4
Hope Island	92	5	77	5	---	---	---	---	93	20	---	---	---	---	---	---
Hope Inn	89	20	---	---	75	37	75	17	86	2	94	23	---	---	---	---
Hoypus	80	6	92	15	---	---	---	---	---	---	102	20	---	---	---	---
Lone Tree	---	---	---	---	74	37	79	22	90	17	---	---	136	3	---	---
Skgt Island	85	15	---	---	---	---	---	---	---	---	---	---	---	---	126	11
Similk/Kiket	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Significant Differences	None		Ala Spit vs. Hope Island		None		Ala Spit vs. others		None		Hope Inn vs others		None		Ala Spit vs Skgt Island	

Table 23. Chinook catch, effort, and otoliths samples collected from Skagit River test fisheries in 1995. This table includes catches from both the chinook test fishery and the subsequent coho test fishery.

Date	Week #	Test Type	Site	Chinook Catch	# Ad-clips	Otoliths Taken	# of Sets	Hours Fished	C/Hr
May 1	18	Chinook	Blakes	3		3	10	5.22	0.57
May 8	19	Chinook	Blakes	5	2	3	11	5.15	0.97
May 15	20	Chinook	Blakes	27	1	26	11	5.3	5.09
May 30	22	Chinook	Blakes	14		14	12	4.33	3.23
June 7	23	Chinook	Blakes	11		11	10	4.72	2.33
June 14	24	Chinook	Blakes	9		9	10	4.55	1.98
June 21	25	Chinook	Blakes	5		5	11	4.15	1.20
June 28	26	Chinook	Blakes	6		6	2	1.75	3.43
July 5	27	Chinook	Blakes	5		5	6	2.33	2.15
July 12	28	Chinook	Blakes	10		10	9	5.3	1.89
July 19	29	Chinook	Blakes	17	1	16	8	5.13	3.31
Aug 2	31	Chinook	Blakes	12		12	8	5.65	2.12
Aug 10	32	Chinook	Blakes	16		16	8	2.66	6.02
Aug 16	33	Chinook	Blakes	7		7	8	4.33	1.62
Sept 20	38	Coho	Spudhse	3		3	17	7.06	0.42
Sept 20	38	Coho	Blakes	4		0	11	9.08	0.44
Sept 27	39	Coho	Spudhse	0		0	19	6.95	0.00
Sept 27	39	Coho	Blakes	1		1	10	6.33	0.16
Oct 4	40	Coho	Spudhse	5		5	24	6.65	0.75
Oct 4	40	Coho	Blakes	1		1	14	6.08	0.16
Oct 25	43	Coho	Spudhse	0		0	18	7.76	0.00
Nov 2	44	Coho	Spudhse	0		0	22	9.65	0.00
Total				161	4	153	259	120.13	1.34

Table 24. Catches of all species in 1995 chinook test fishery at Blakes Drift on the Skagit River.

Date	Week #	Chinook	Chum	Pink	Coho	Sockeye	Steelhead
May 1	18	3	0	0	0	0	5
May 8	19	5	0	0	0	0	5
May 15	20	27	0	0	0	0	4
May 30	22	14	0	0	0	0	4
June 7	23	11	0	0	0	0	1
June 14	24	9	0	0	0	0	1
June 21	25	5	0	0	0	5	1
June 28	26	6	0	0	0	0	0
July 5	27	5	0	0	0	3	0
July 12	28	10	0	0	0	1	0
July 19	29	17	0	0	0	1	0
August 2	31	12	0	0	1	0	0
August 10	32	16	0	6	0	0	0
August 16	33	7	0	0	0	0	0
Total		147	0	6	1	10	21

Table 25. Summary of chinook age 0+ catches at 21 tributary and off-channel smolt trapping sites throughout the Skagit River basin. Data are from SSC, WDFW, and North Cascades National Park.

Site	Number of Years Trapped	Mean Number of Chinook 0+ Captured
Carpenter Creek (Fisher Slough)	2	1312
Hansen Trib. 271	4	0
Ross Island Slough	2	998
Mannser Creek	7	5
Etach Slough	7	97
Hamilton Slough	2	2
Finney Pond	2	0
Sauk Slough	2	2
Tiny Kisutch/Hiachuck	4	0
Constant Channel	3	0
Skinny Sauk Pond	4	0
All Creek	2	0
Boundary Creek	2	0
Seed Orchard Creek	7	<1
Swamp Creek	7	3
Barnaby Slough	2	847
Cascade Mill Pond	4	<1
Oakes Creek Trib.	3	0
Zander Creek	6	<1
County Line Ponds	2	499
Park Slough	2	59

Table 26. Annual estimates of chinook (age 0+) abundance at four estuary sampling sites, and estimated total age 0+ chinook smolt outmigration from the Skagit River, Washington. Abundance is shown both in terms of fish-days/ha (top) and peak fish/ha (bottom). Smolt outmigration estimates are from D. Seiler, WDFW (pers. comm.). The 1992-1994 chinook abundance data are from SSC (unpubl. data).

Use over entire season (fish-days per hectare at MLW)

Site	1992	1993	1994	1995
Tom Moore	107,253	252,138		35,532
Deepwater Channel	67,760	31,848		13,106
Grain of Sand	883,578			140,437
Freshwater Pond	291,980			319,043

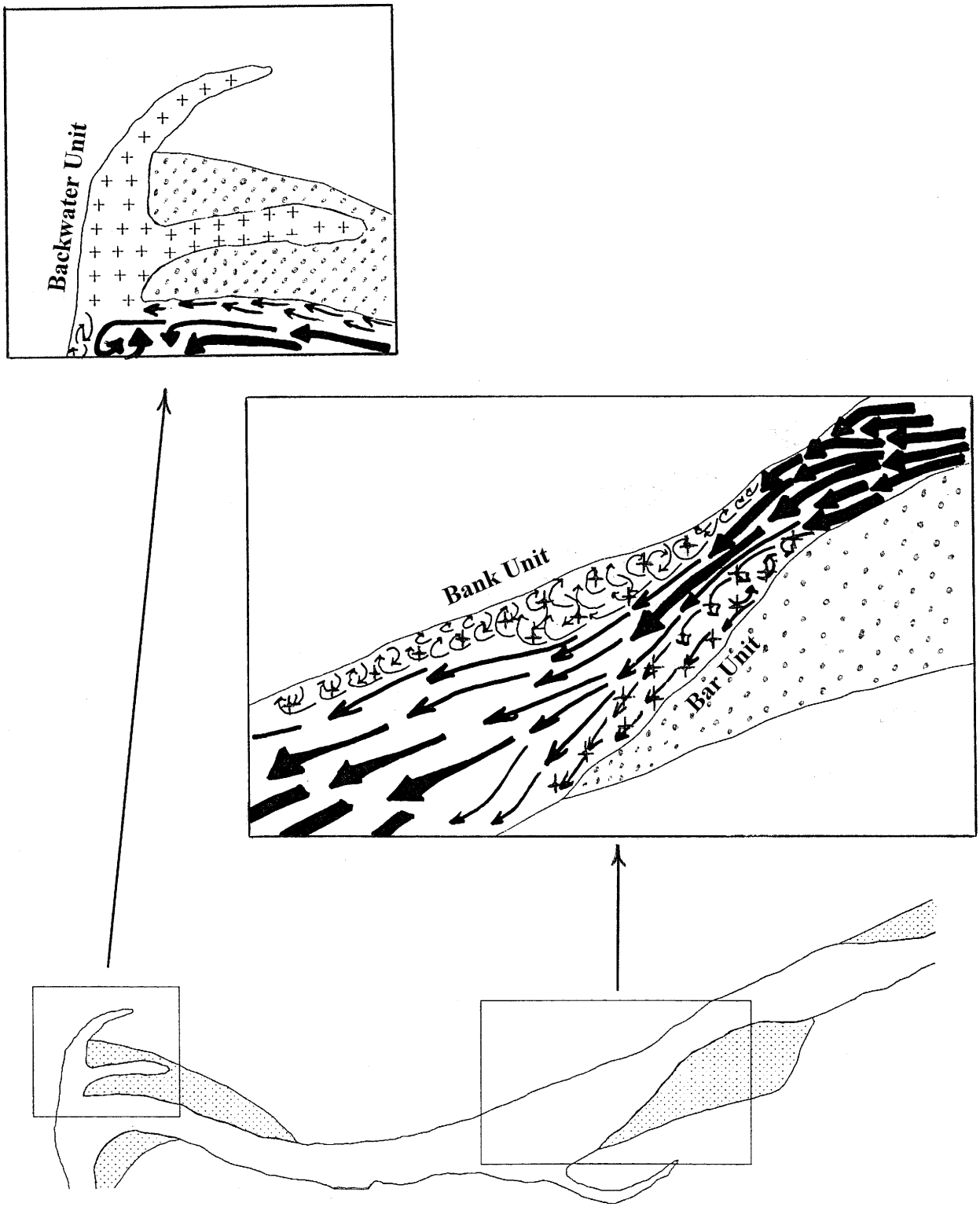
Seasonal Peak (fish per hectare at MLW)

Site	1992	1993	1994	1995
Tom Moore	4,321	8,649		586
Deepwater Channel	1,264	391	904	253
Grain of Sand	16,625	5,716	16,809	6,019
Freshwater Pond	4,576	5,555		5,247

Total Smolt Outmigration	2,400,000	3,000,000	2,700,000	1,500,000

FIGURES

Figure 1.



Schematic Top View of Edge Habitat Units for Large Mainstem Habitat.

Arrows represent the direction of current. Larger bold lined arrows represent higher water velocity areas. Smaller light lined arrows represent lower velocity areas.

Grid points

Open Gravel or Sand Bar

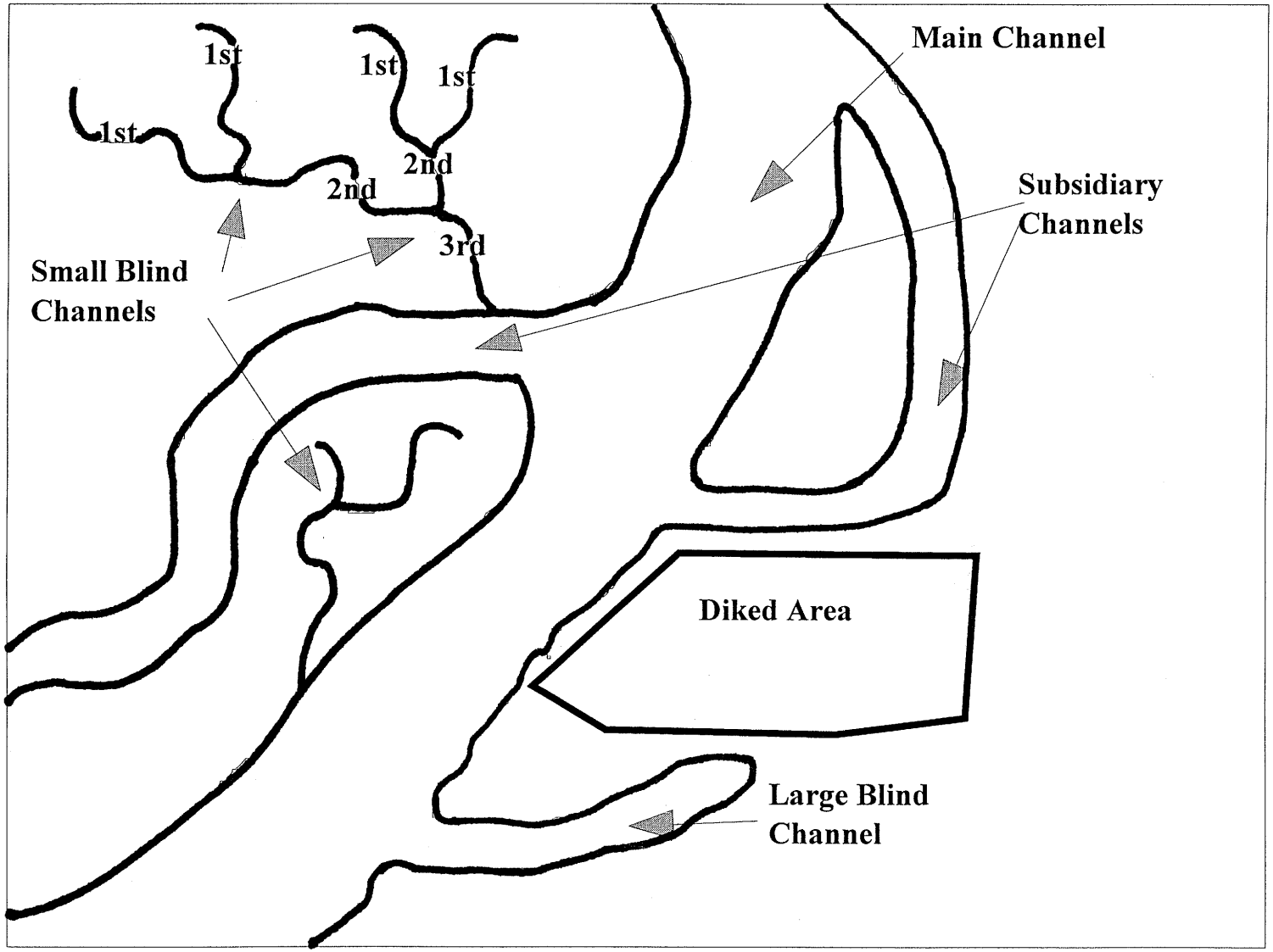


Figure 2. Estuary channel types. After Simenstad (1983).

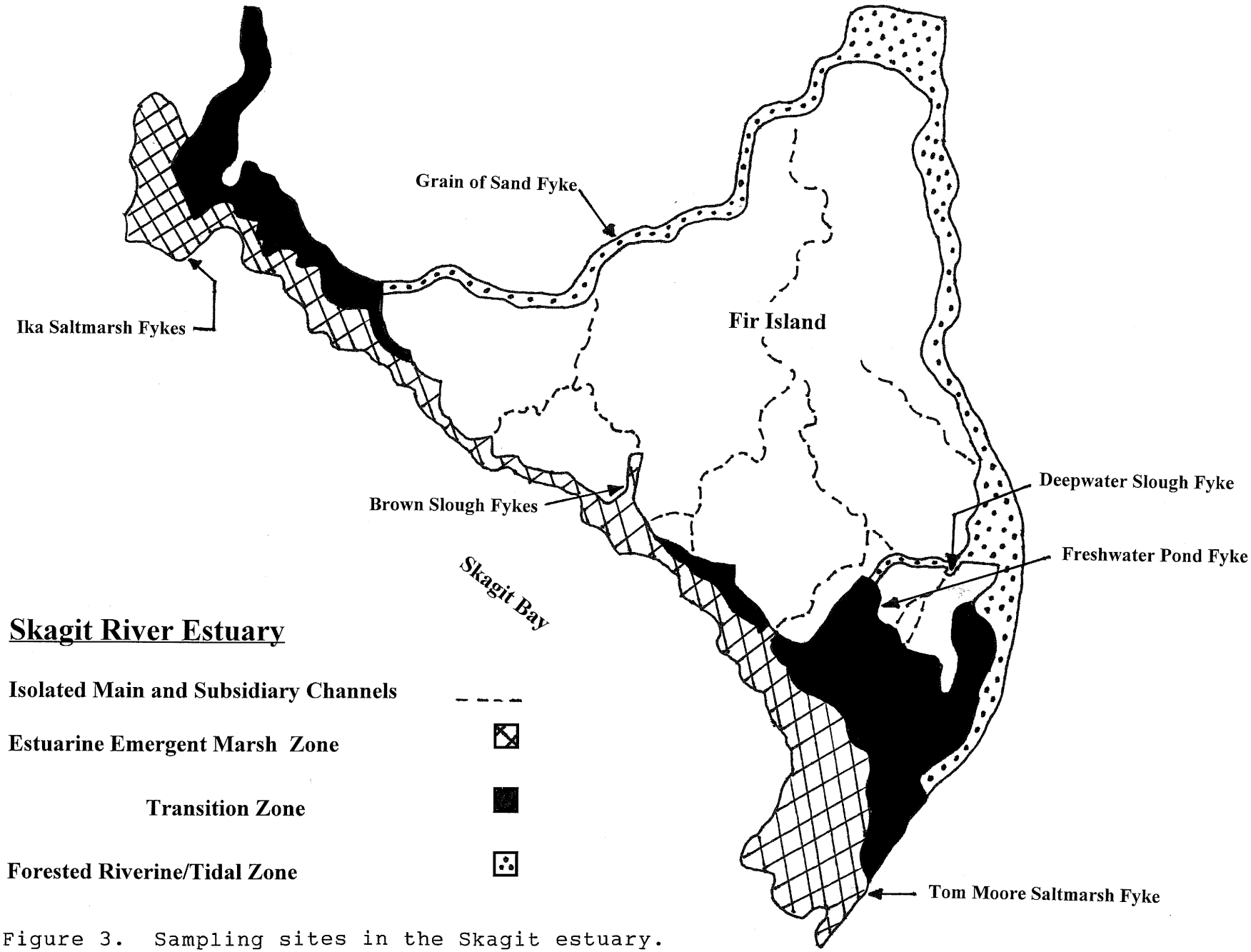


Figure 3. Sampling sites in the Skagit estuary.

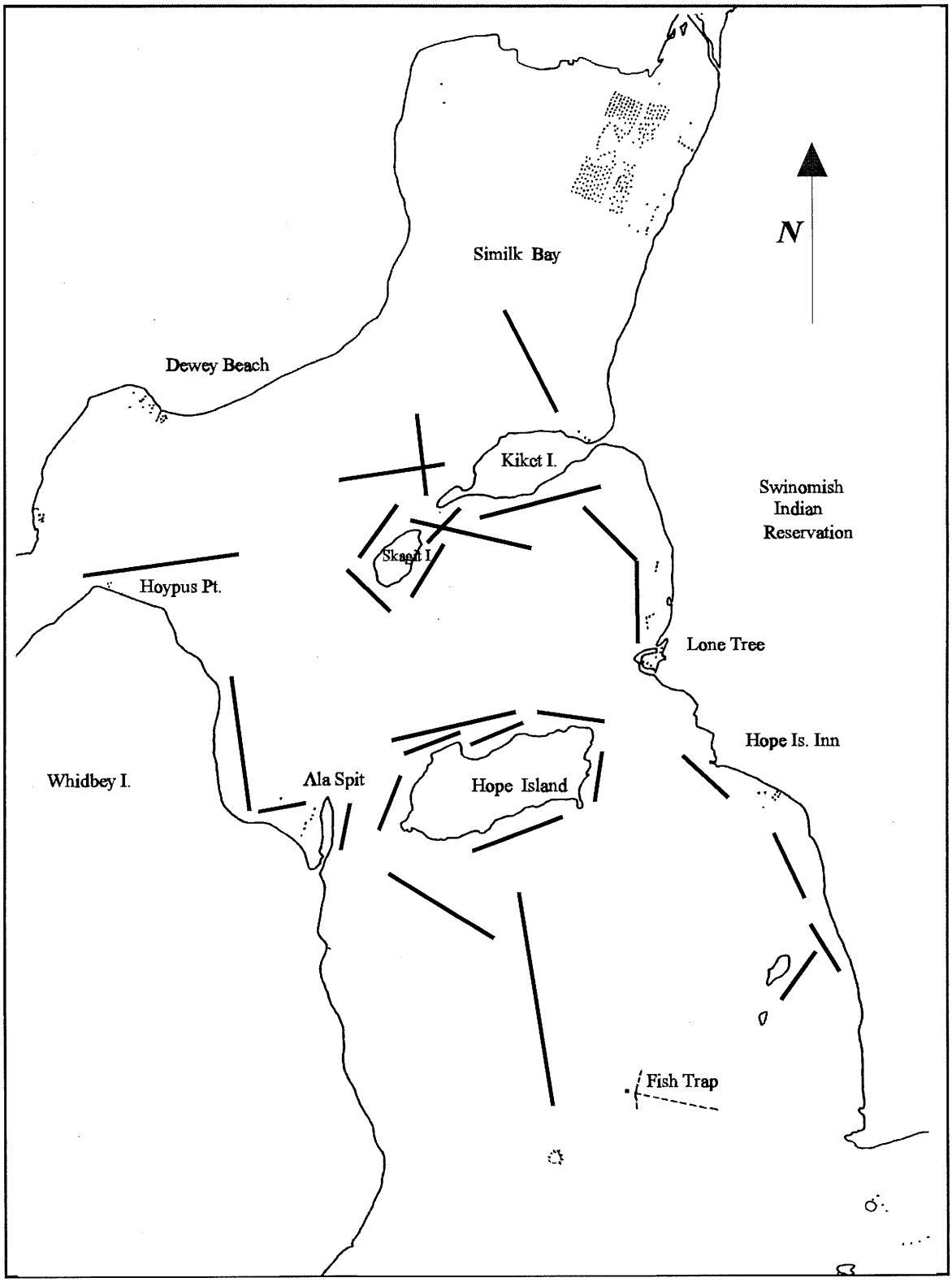


Figure 4. Trawl locations for surface tows made to collect juvenile chinook salmon in northern Skagit Bay, 1995. The indicated sample locations are approximate and were sampled at different times throughout the season. Trawl direction along the indicated tracks varied, according to prevailing currents and other conditions.

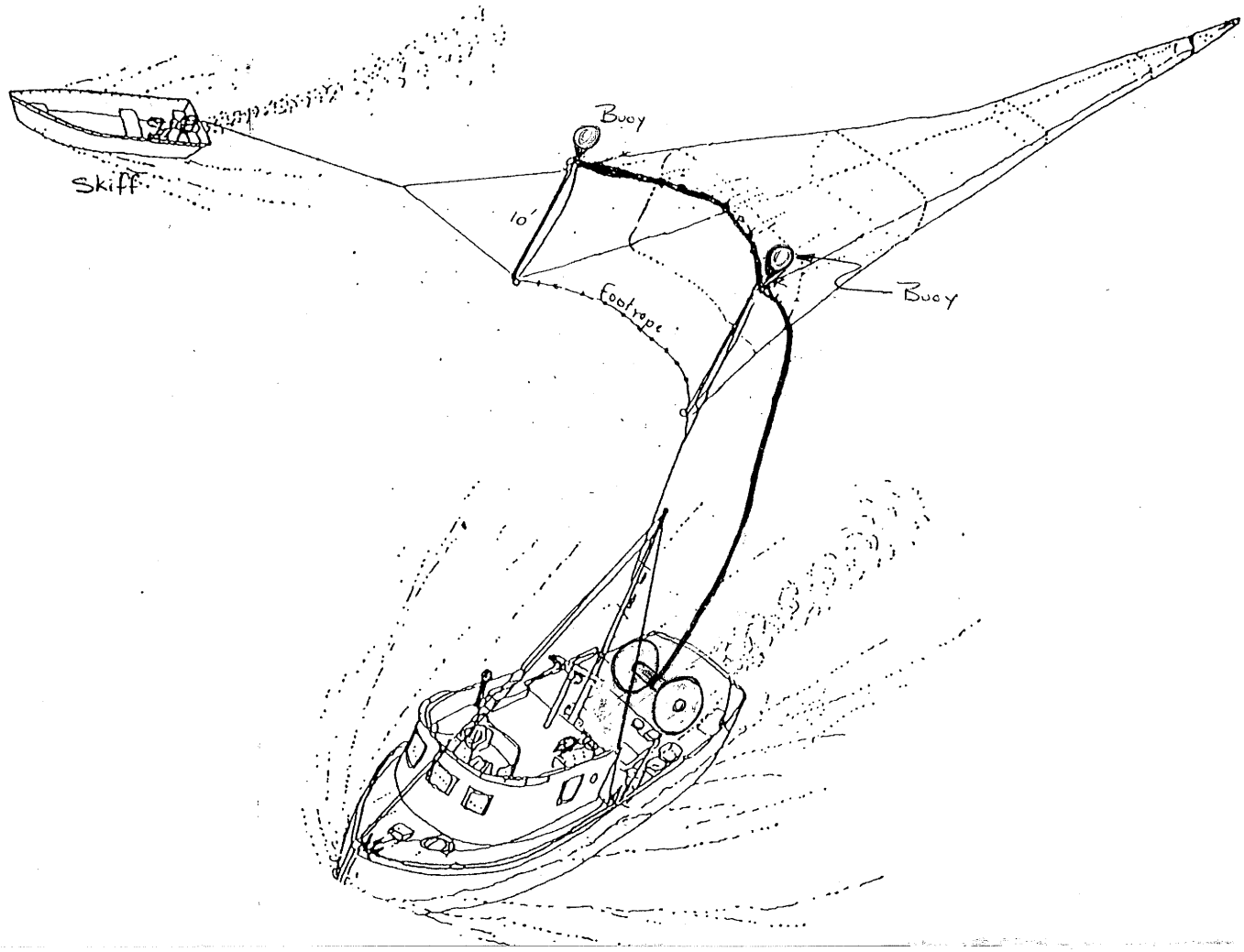


Figure 5. Surface pair-trawl used for collection of juvenile chinook salmon in northern Skagit Bay, 1995. This arrangement was used with a stern gill-net vessel and an outboard jet-powered skiff, towing a net with a 10 ft high by 15 ft wide opening and approximately 40 ft in length. Vertical poles were used on either side (wing) of the net to maintain maximum vertical opening; buoys were used at each end of the headrope to help keep the net on the surface; and 30 pound weights were used on the ends of the vertical poles to help maintain maximum opening of the net. Tows were conducted at speeds of 2 to 3 knots. Adapted from a figure provided by K. Larsen.

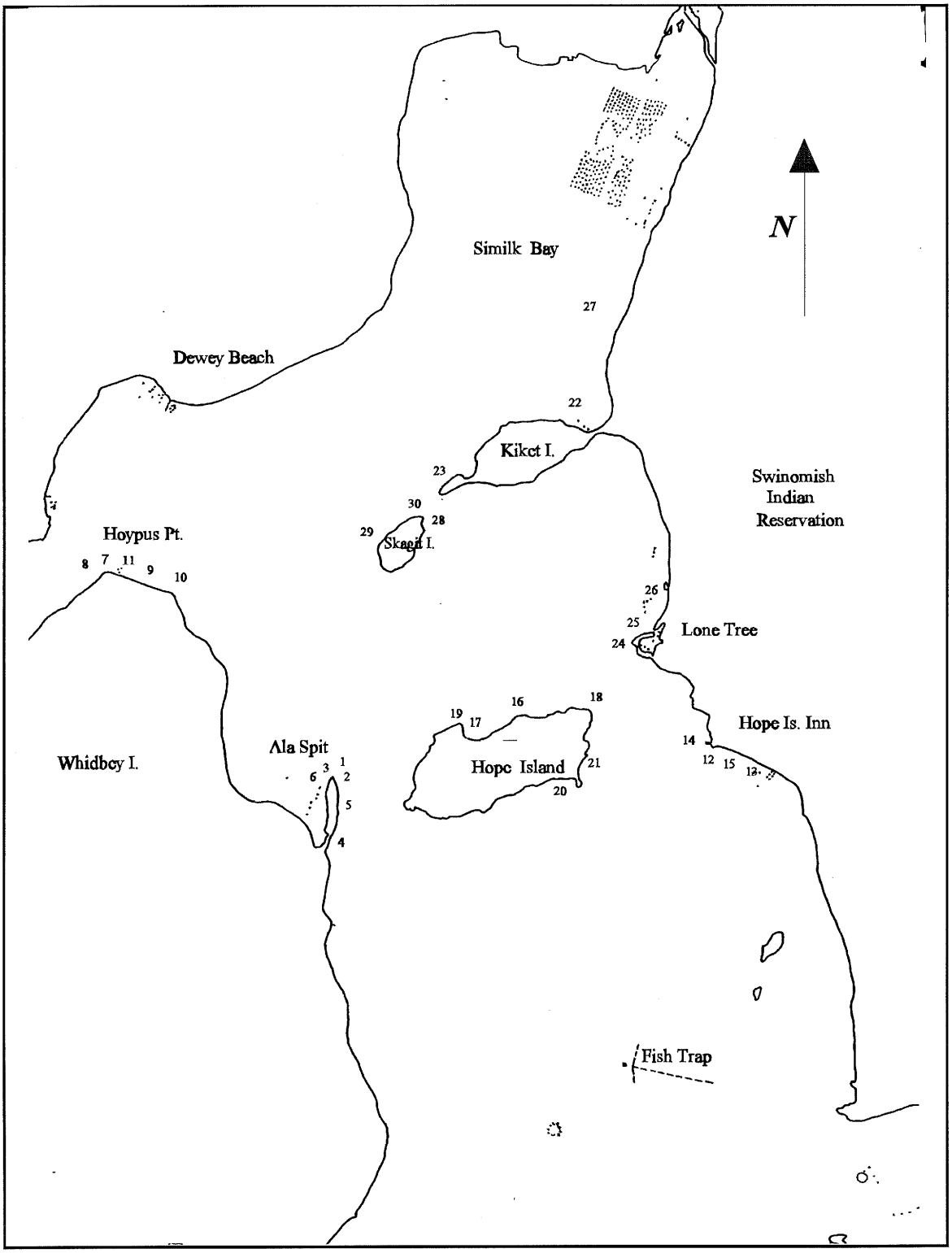


Figure 6. Northern Skagit Bay beach seine sites. Several sites, withing eight sampling areas, were sampled at various times throughout the season. The eight areas were; Hoypus Point, Ala Spit, Hope Island, Hope Island Inn, Lone Tree, Skagit Island, Kiket Island, and Similk Bay. Details on the morphology and loaction of each site is presented in Table 19.

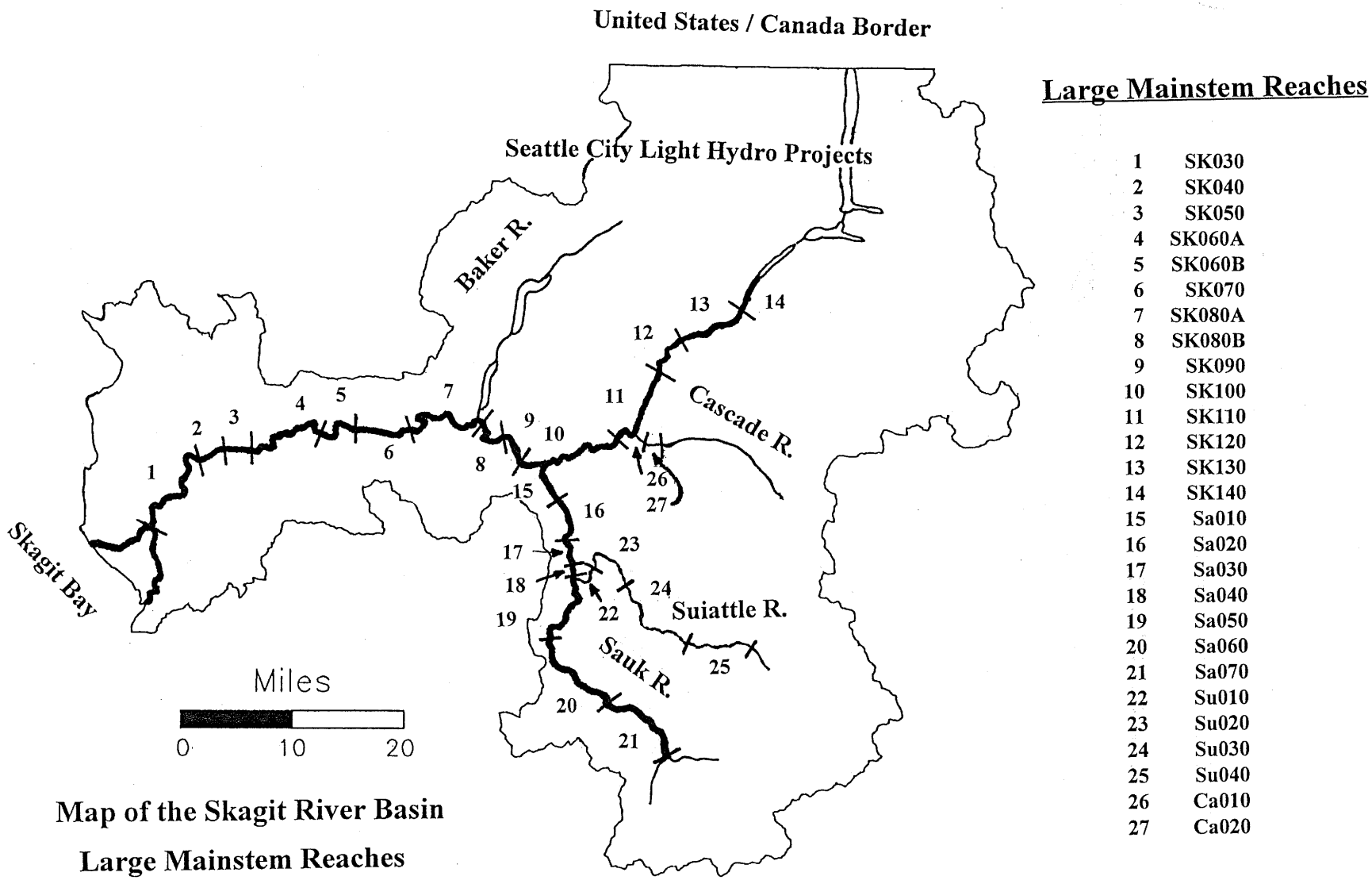


Figure 7. Skagit River Basin, Washington, showing large mainstem reaches.

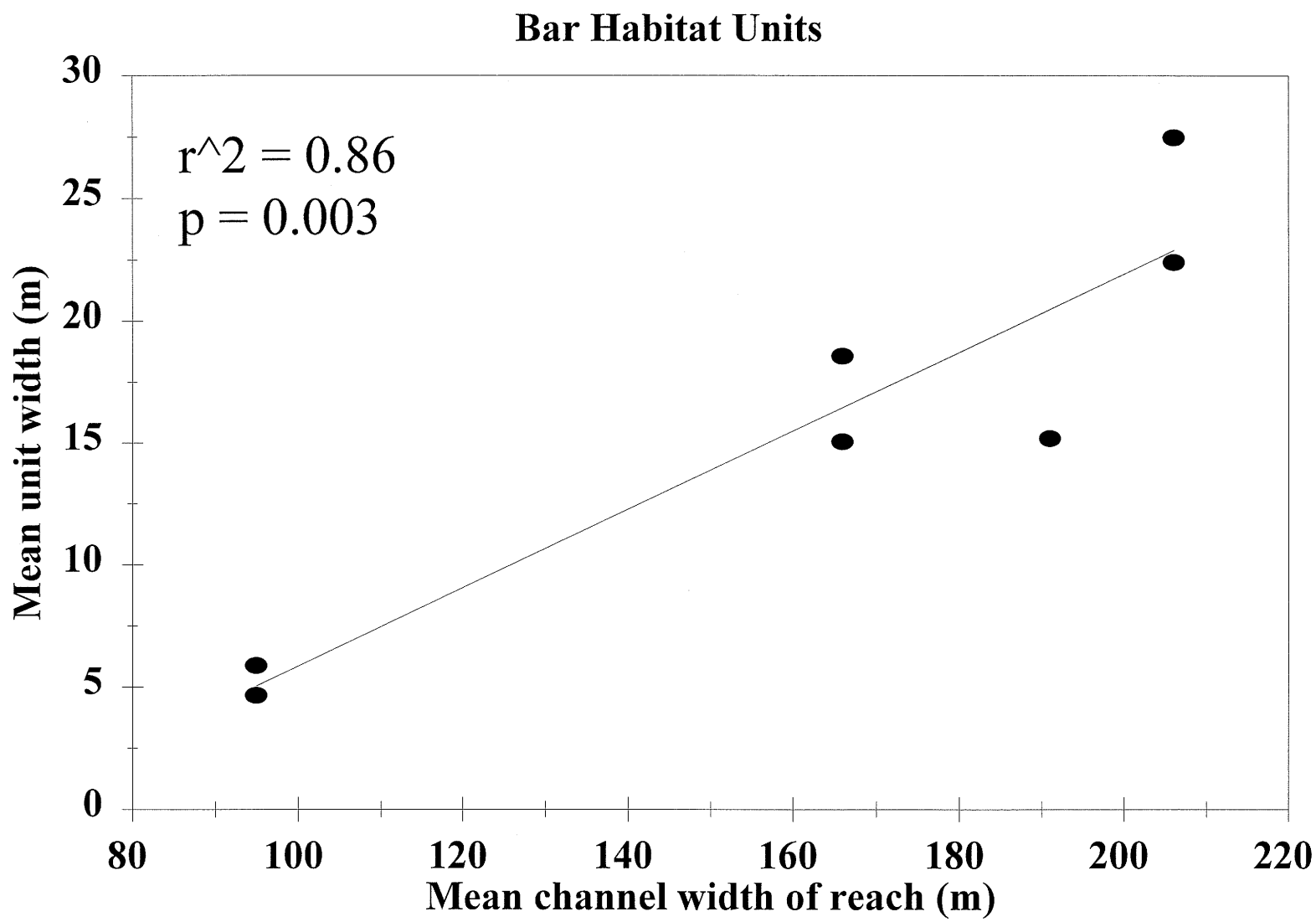


Figure 8. Mean width of bar habitat units in the Skagit River, Washington, compared to the mean width of the reaches in which they were found.

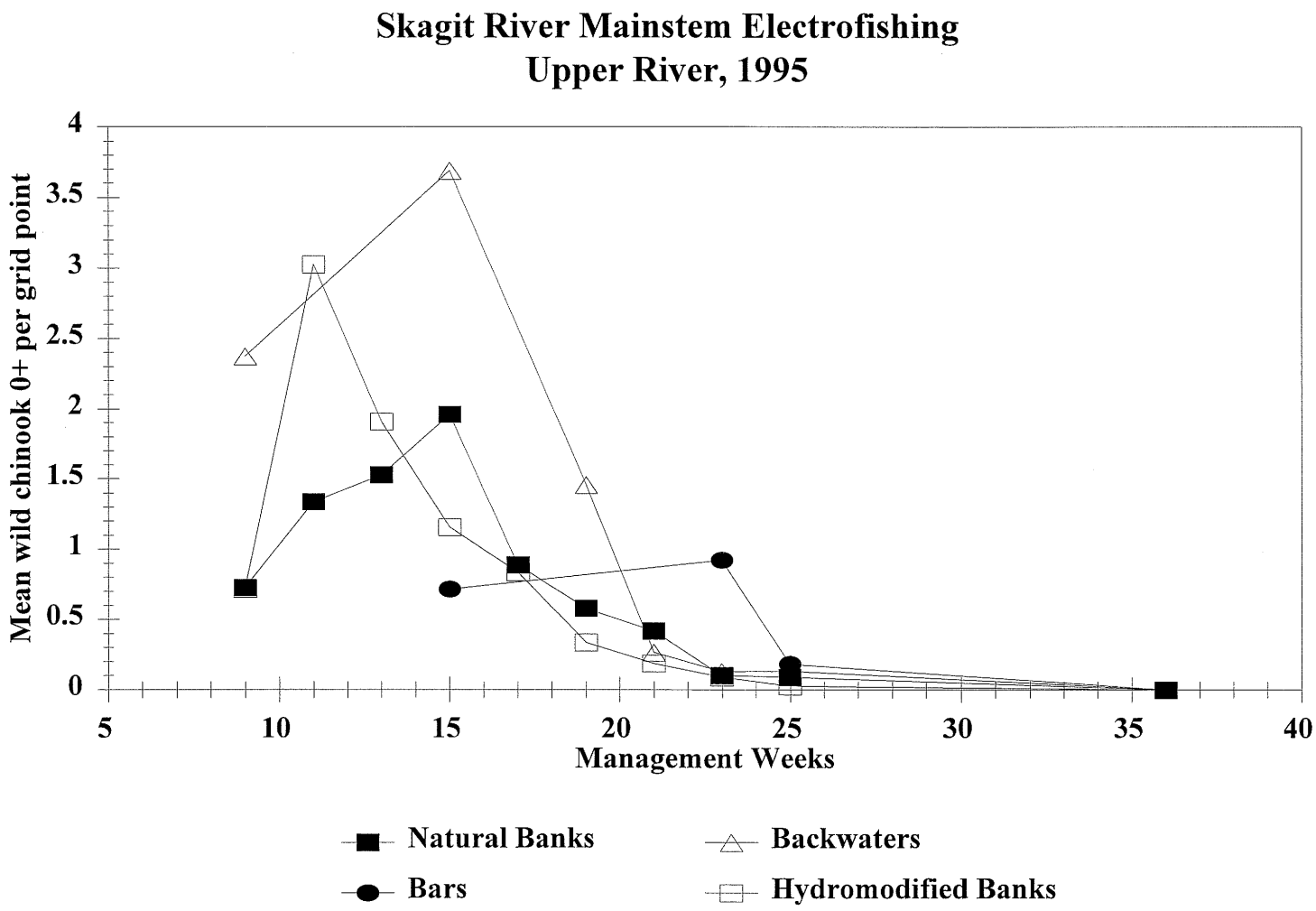


Figure 9. Mean number of chinook / grid pt., by habitat type, in the upper Skagit River, Washington, in 1995.

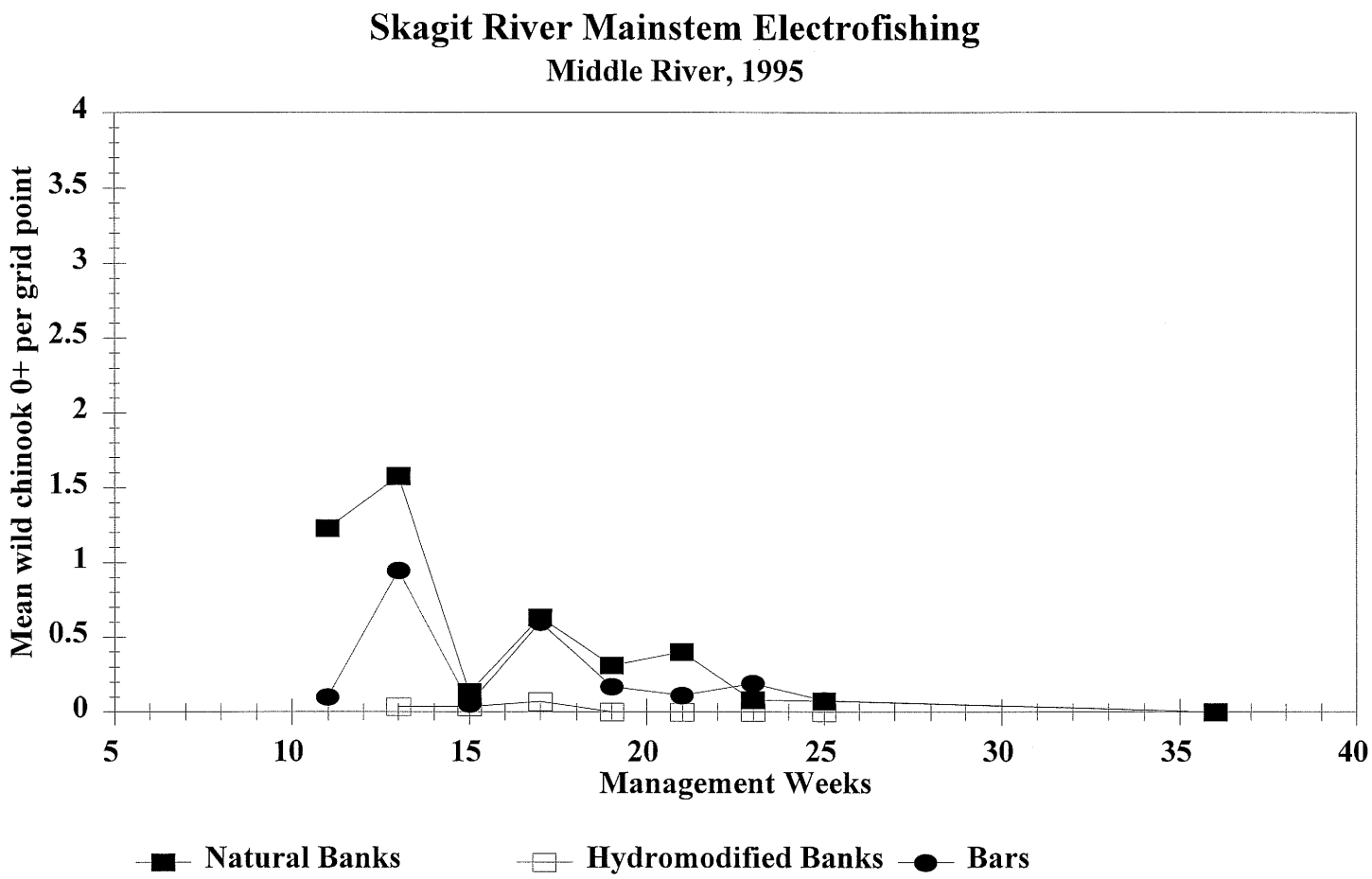


Figure 10. Mean number of chinook / grid pt., by habitat type, in the middle Skagit River, Washington, in 1995.

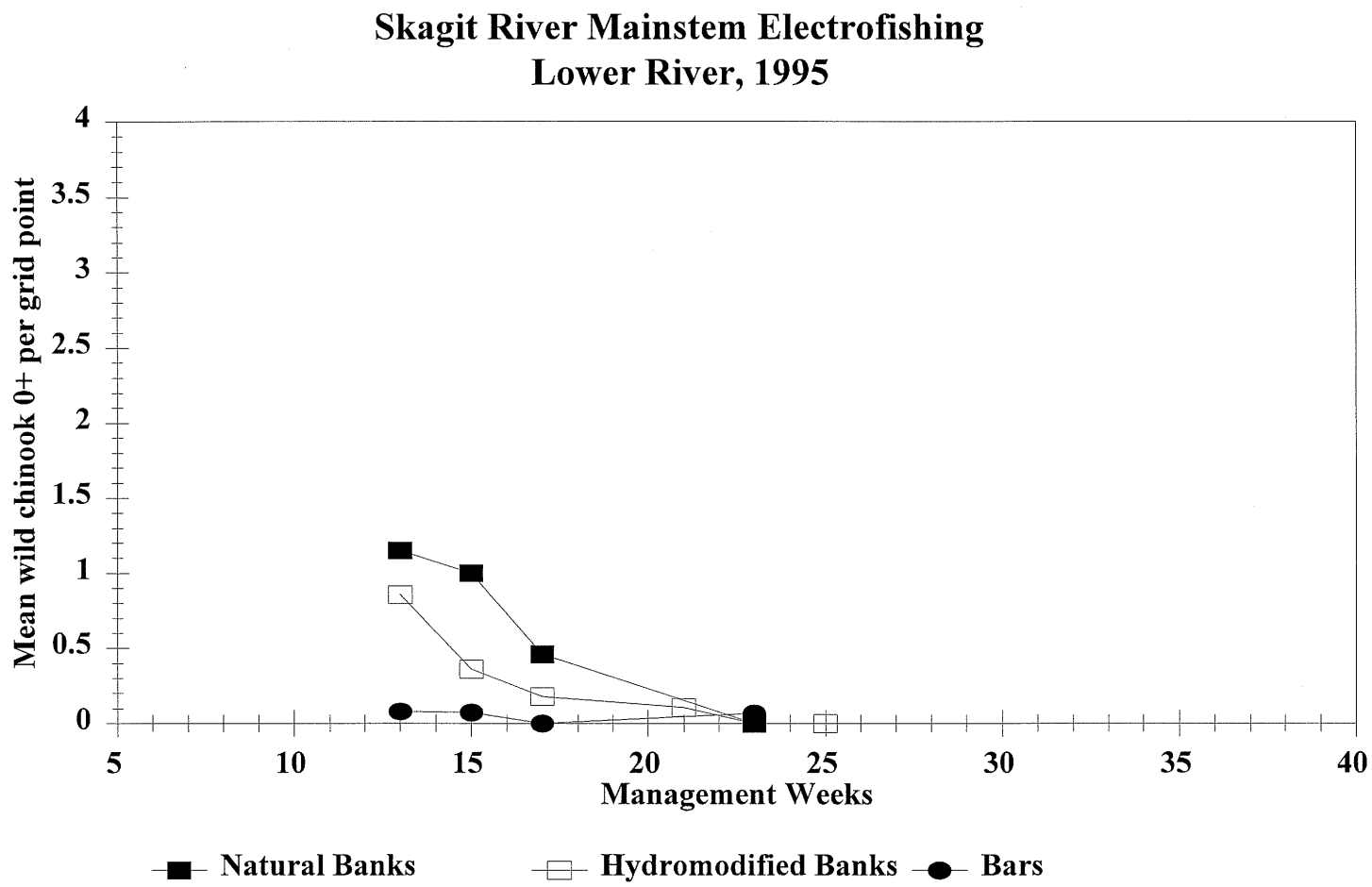


Figure 11. Mean number of chinook / grid pt., by habitat type, in the lower Skagit River, Washington, in 1995.

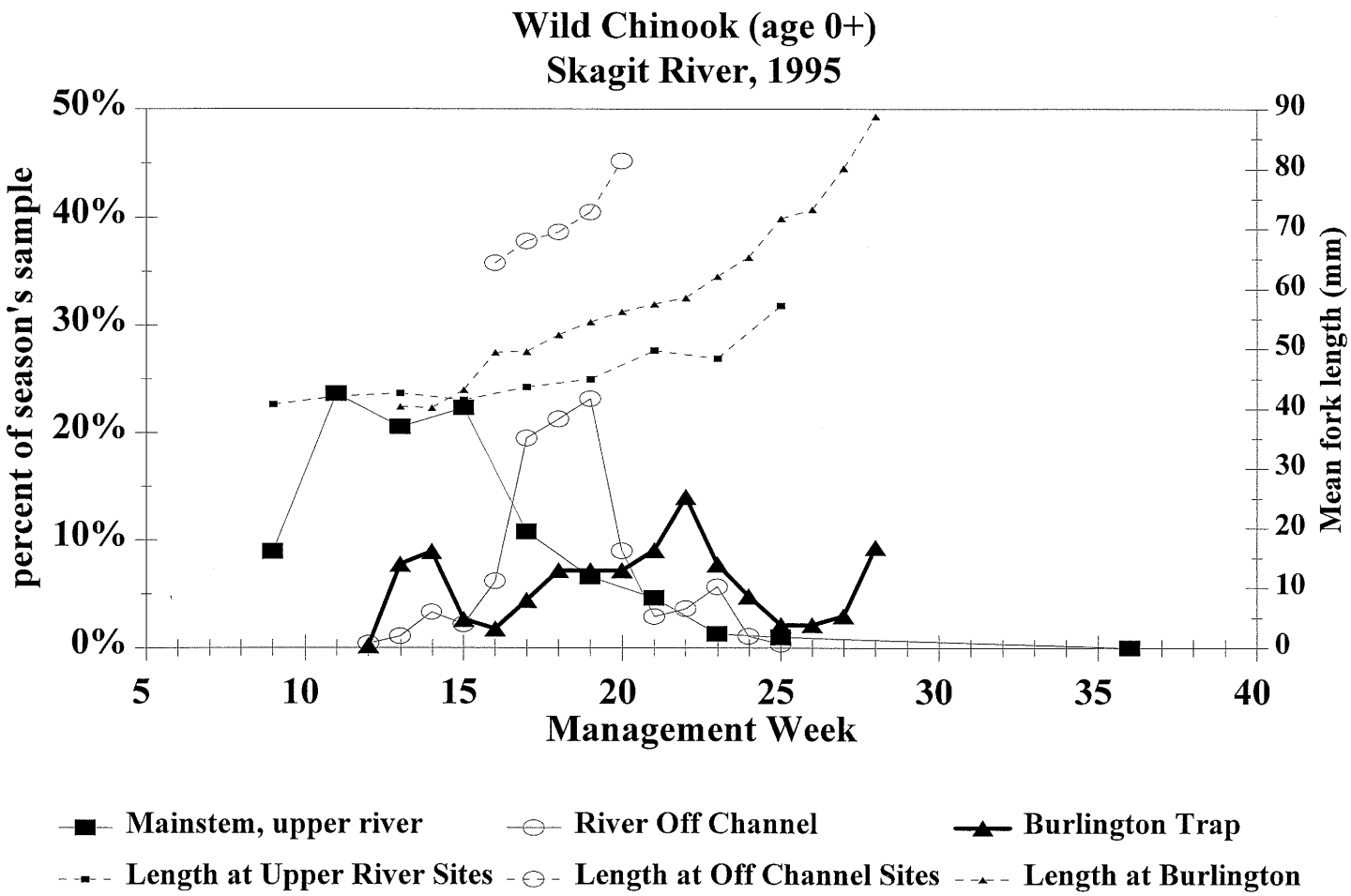


Figure 12a. Length and outmigration timing of 0+ chinook in the Skagit River, 1995.

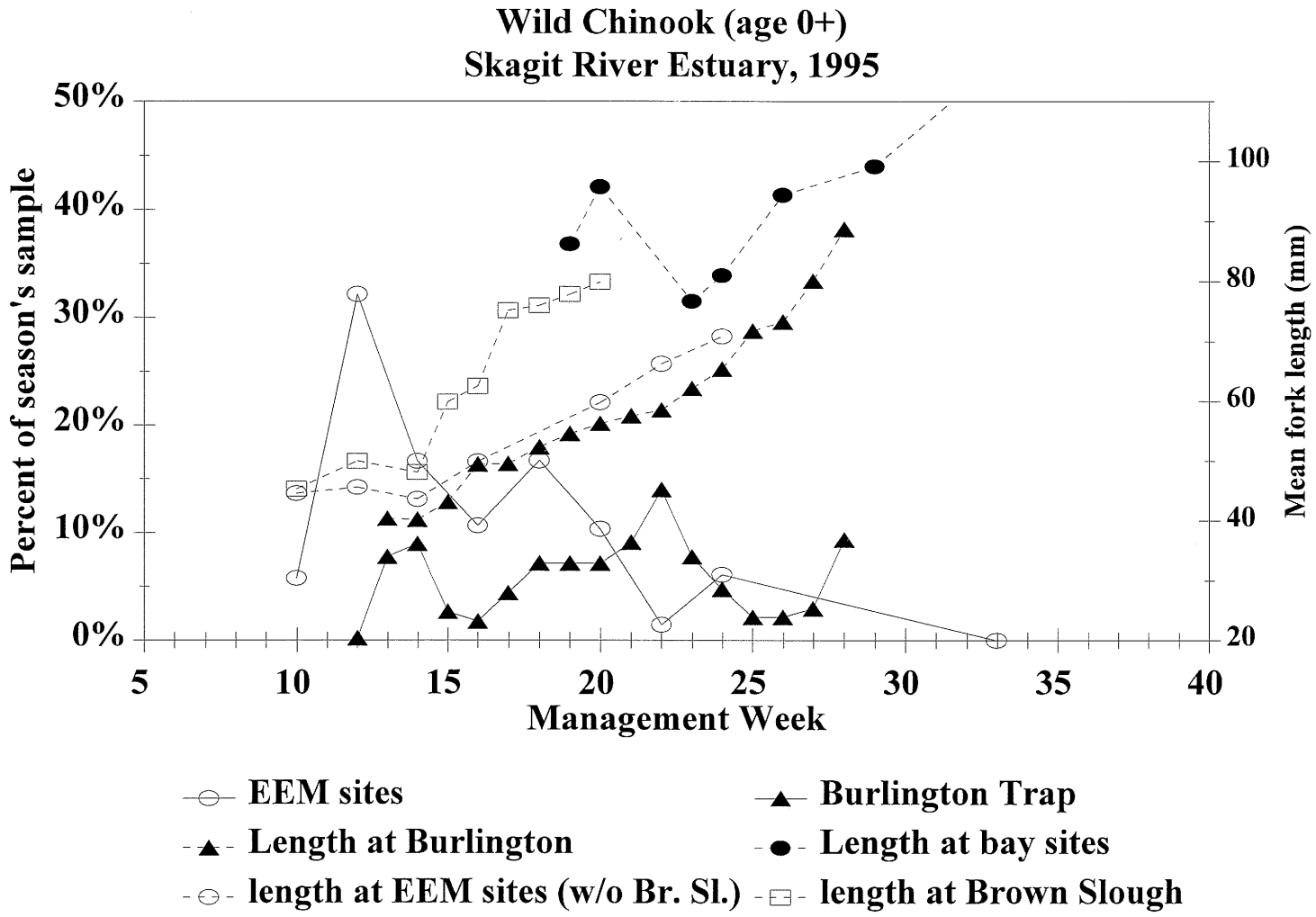


Figure 12b. Length and outmigration timing of 0+ chinook in the Skagit estuary, 1995.

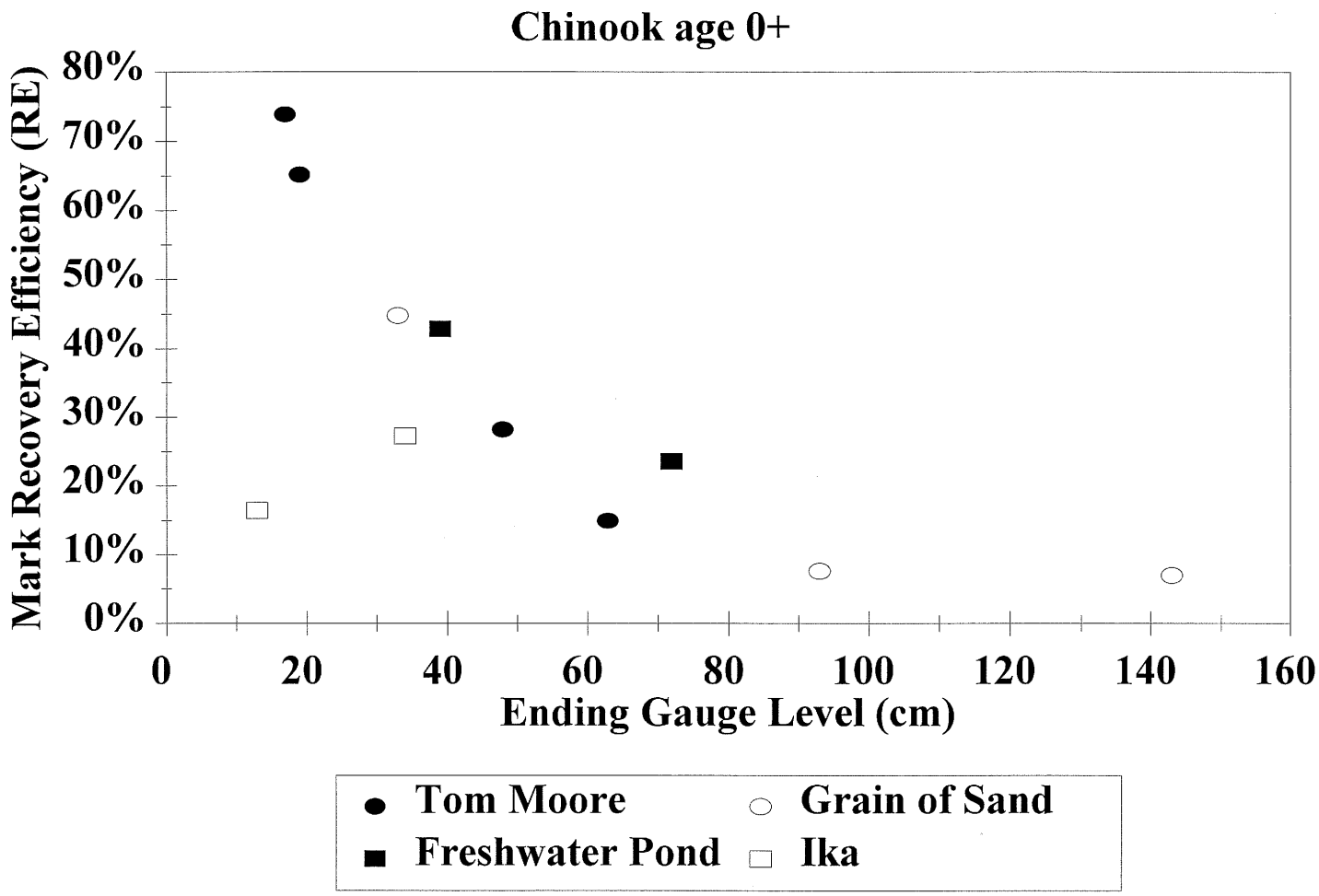


Figure 13. Recovery efficiency compared to tidal gauge height in the Skagit estuary.

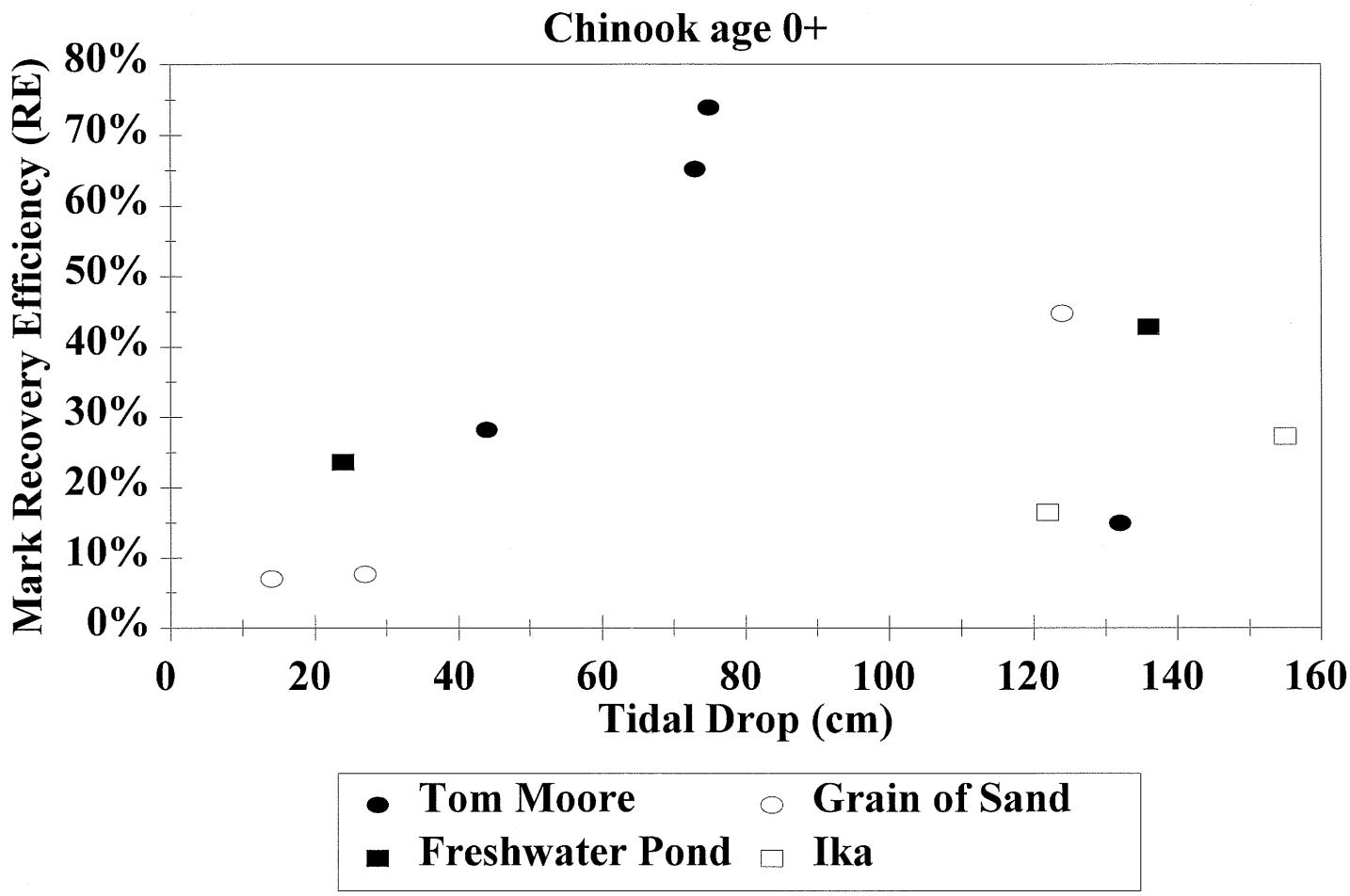


Figure 14. Recovery efficiency compared to tidal drop in the Skagit estuary.

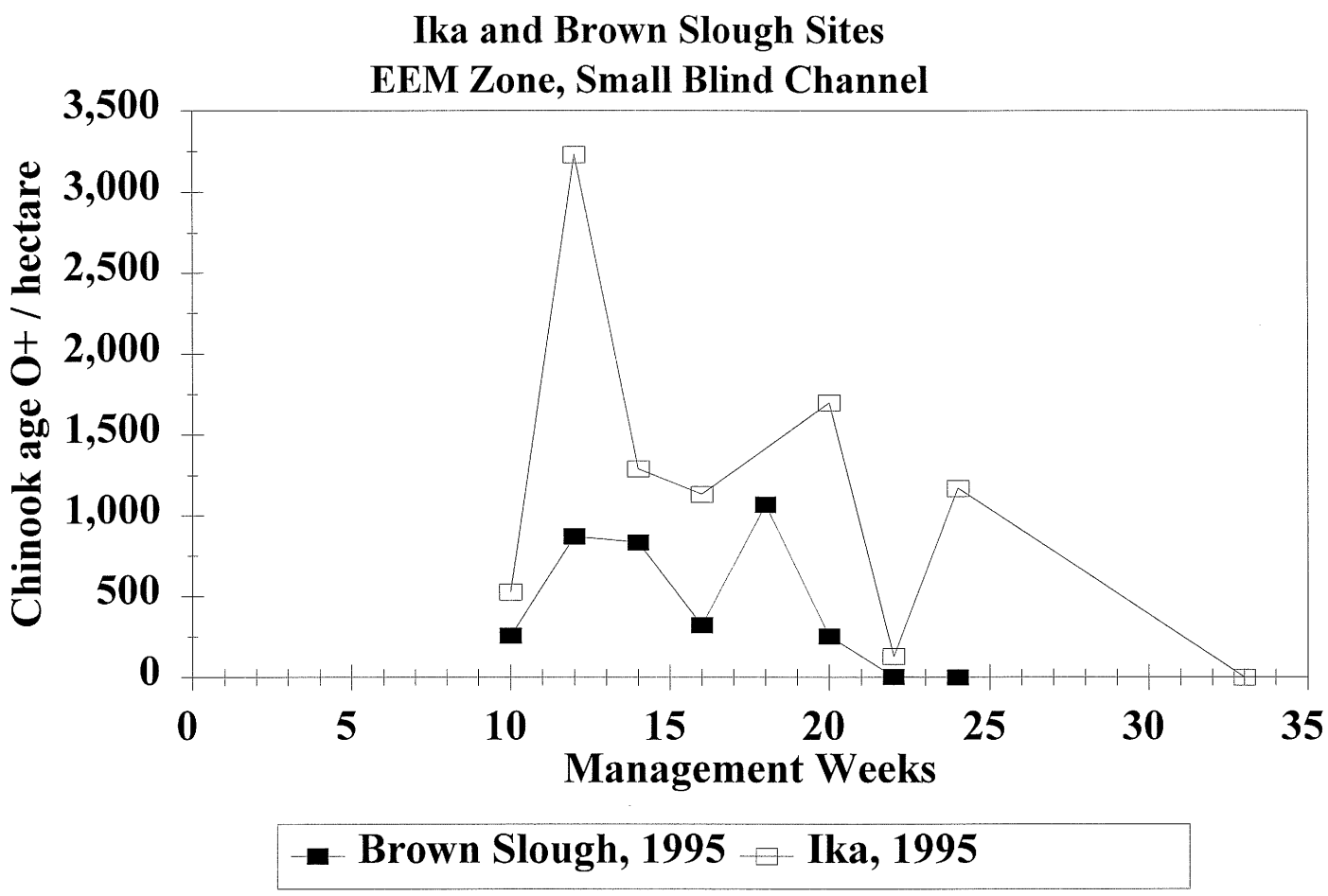


Figure 15. Age 0+ chinook density by week at the Brown Slough and Ika Sites, 1995.

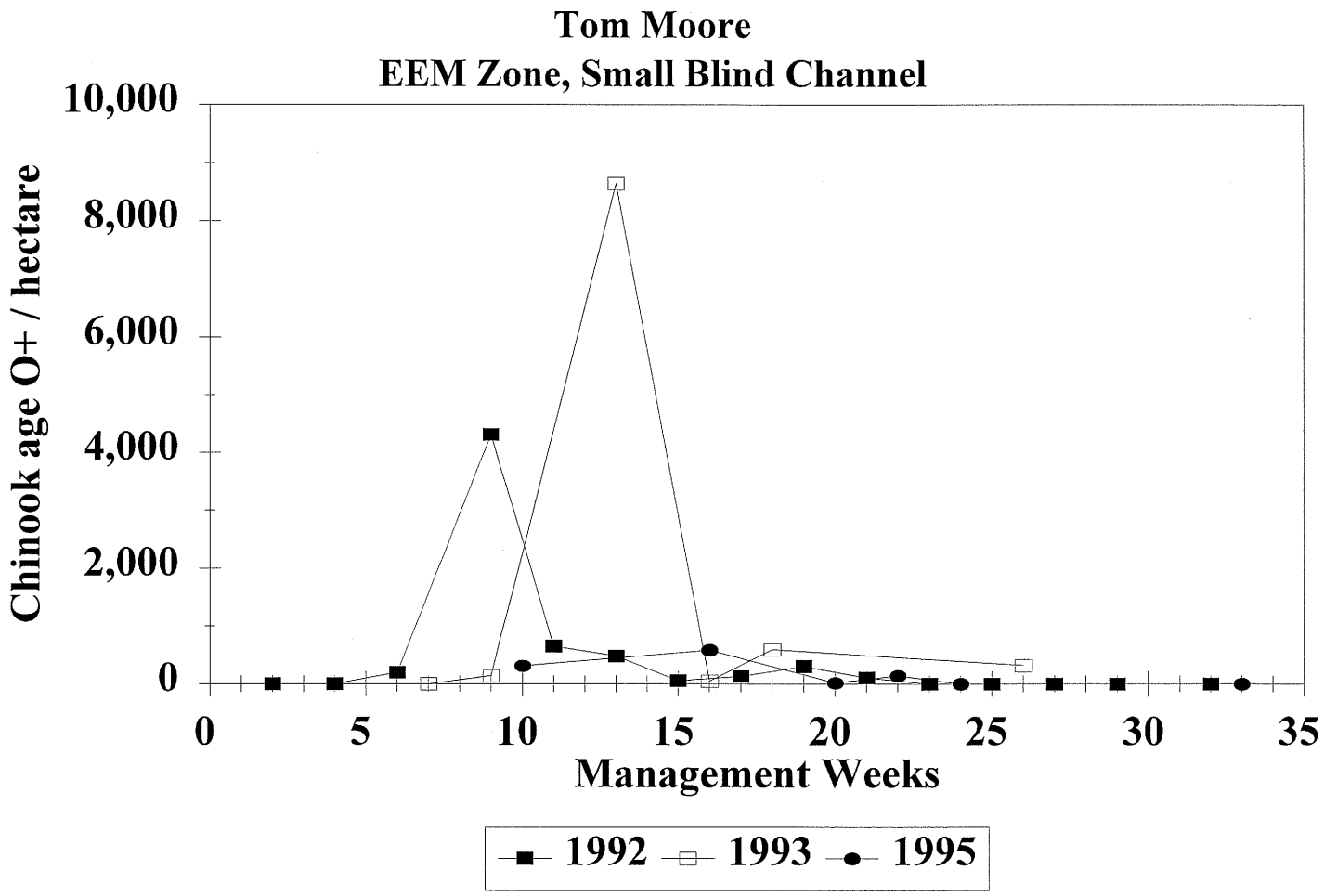


Figure 16. Age 0+ chinook density by week at the Tom Moore site, 1992-1995.

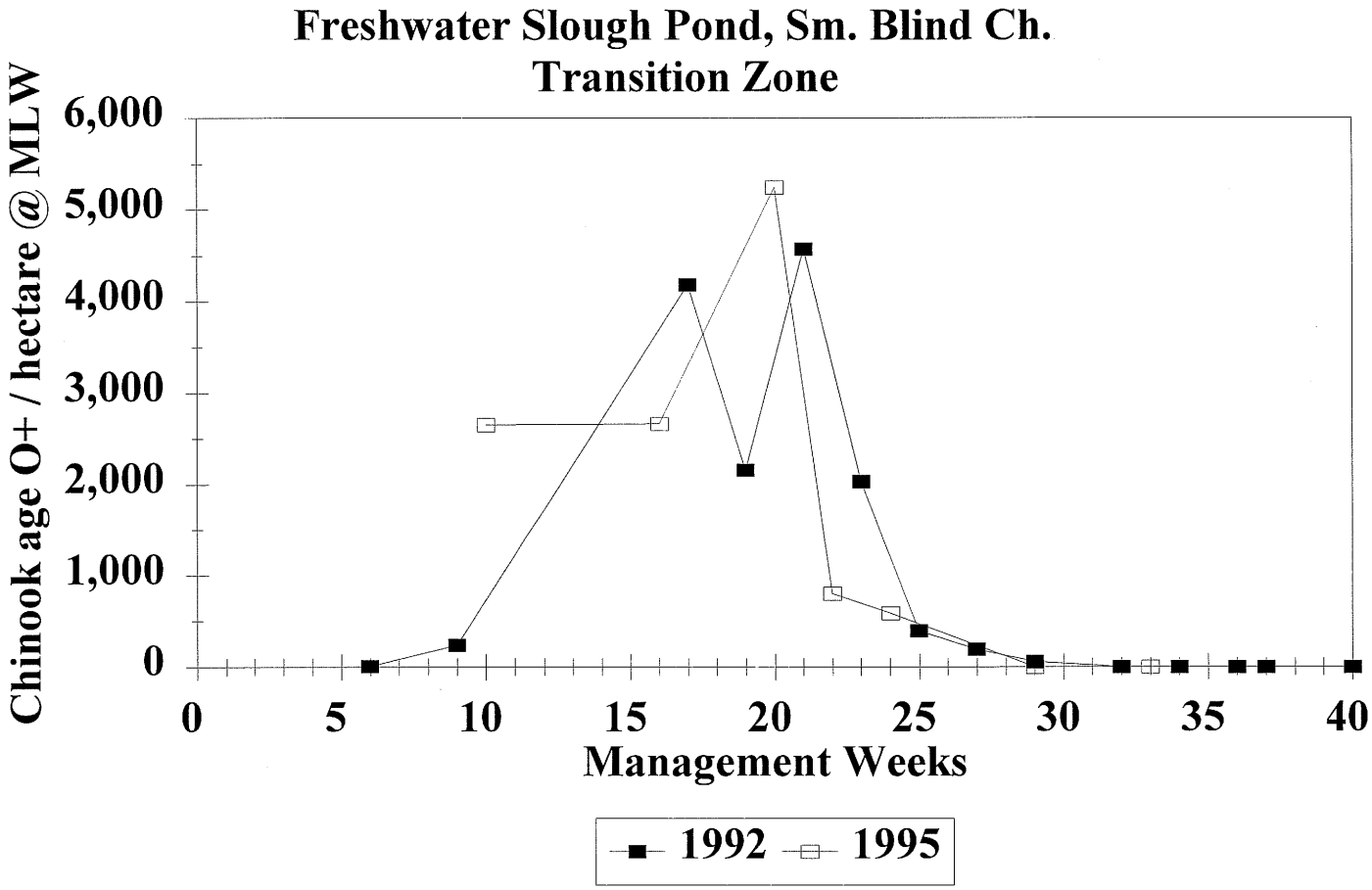


Figure 17. Age 0+ chinook density by week at the Freshwater Pond site, 1992-1995.

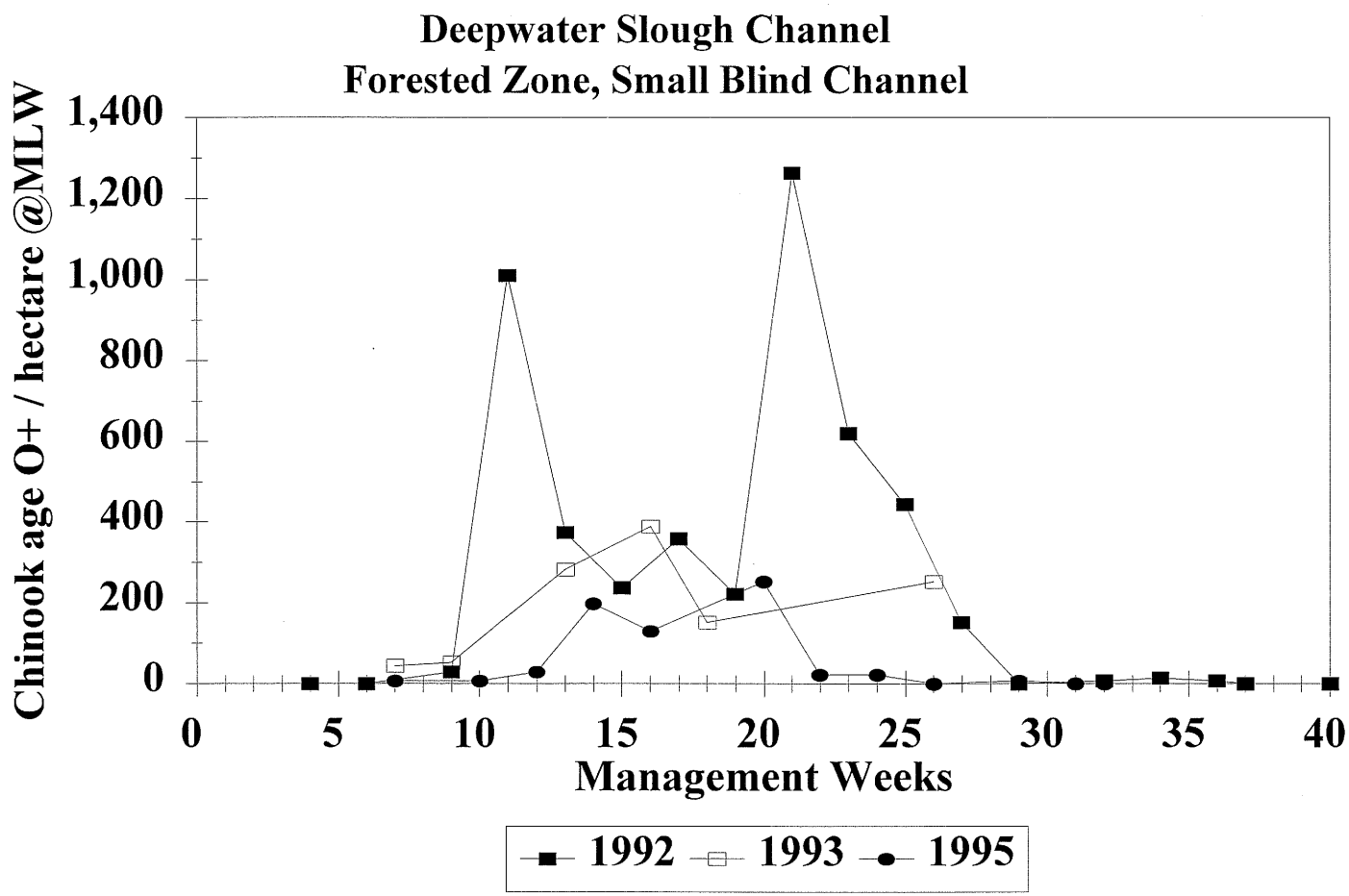


Figure 18. Age 0+ chinook density by week at the Deepwater Slough Channel site, 1992-1995.

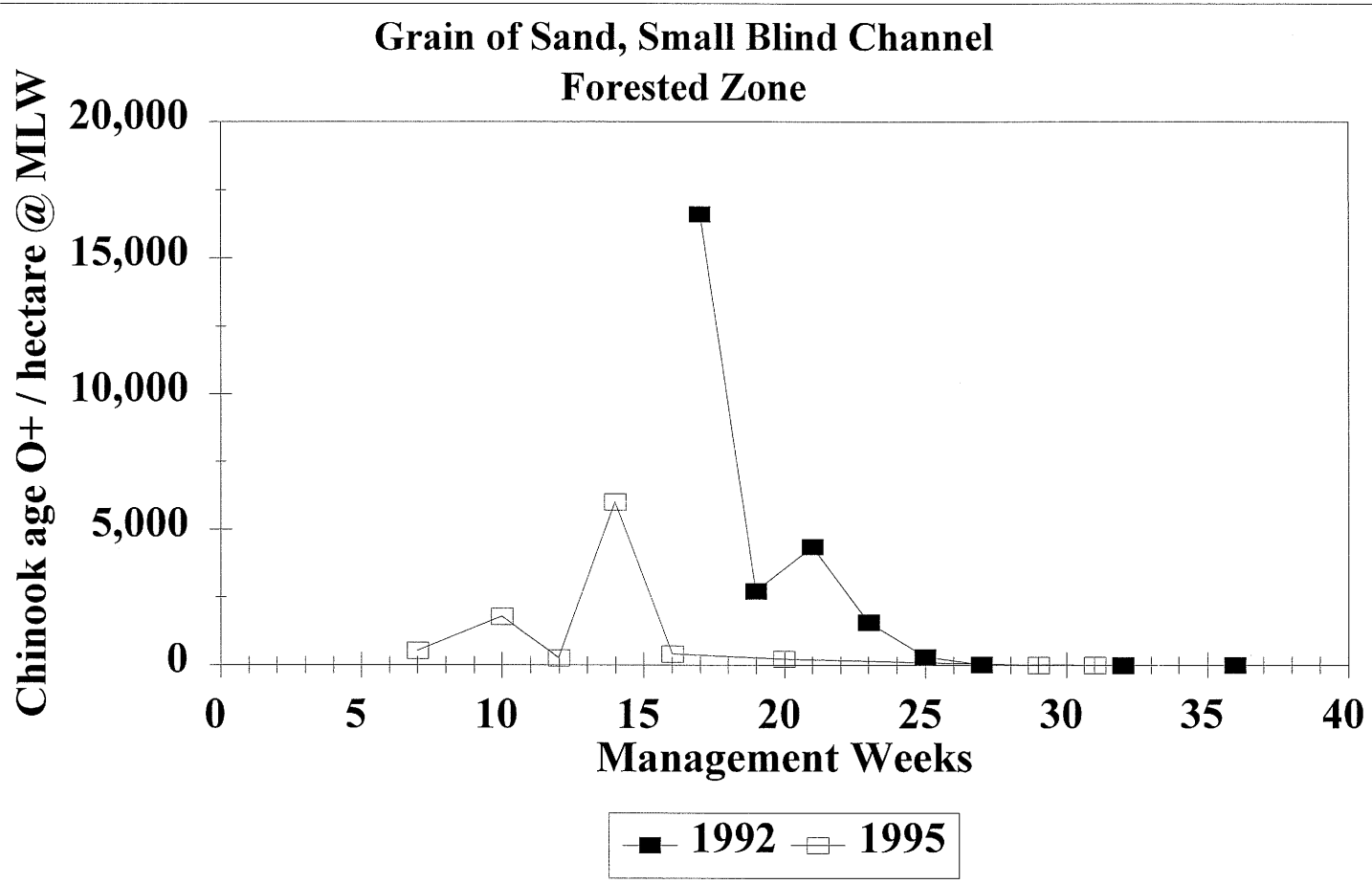


Figure 19. Age 0+ chinook density by week at the Grain of Sand site, 1992 and 1995.

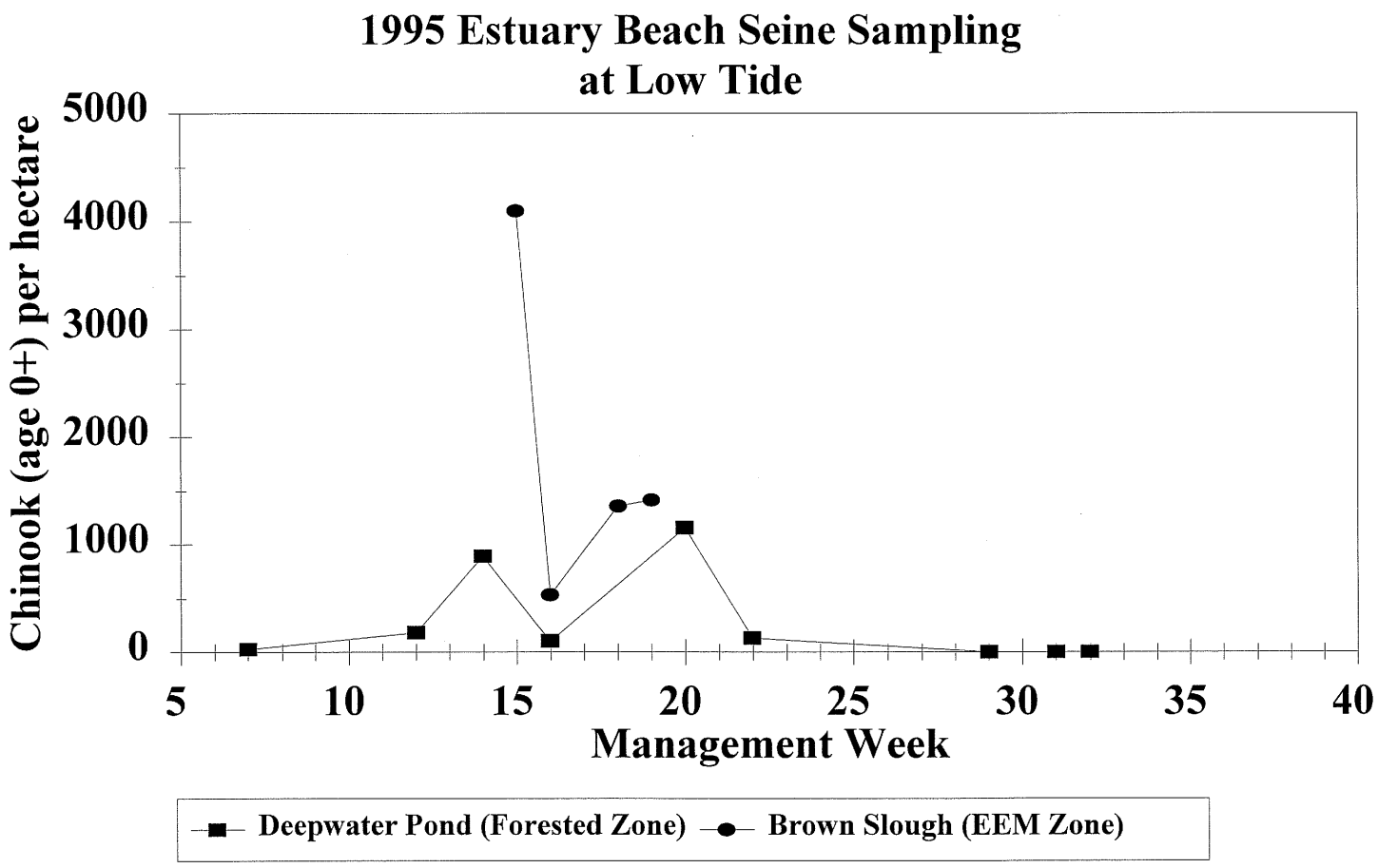


Figure 20. Age 0+ chinook density by week at the Deepwater Pond and Brown Slough beach seine sites in 1995.

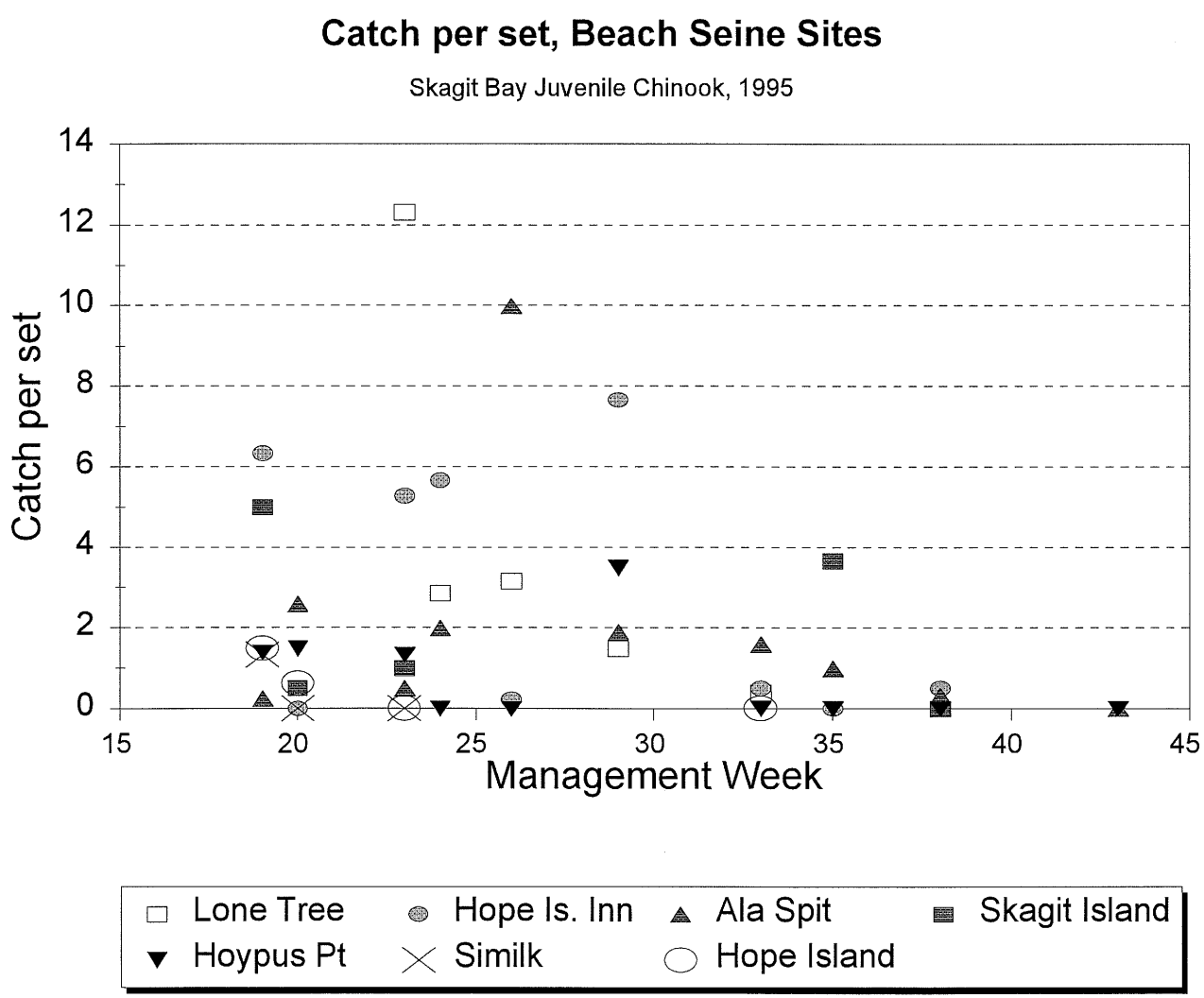


Figure 21. Catch of juvenile chinook per set for beach seine sites in northern Skagit Bay, 1995.

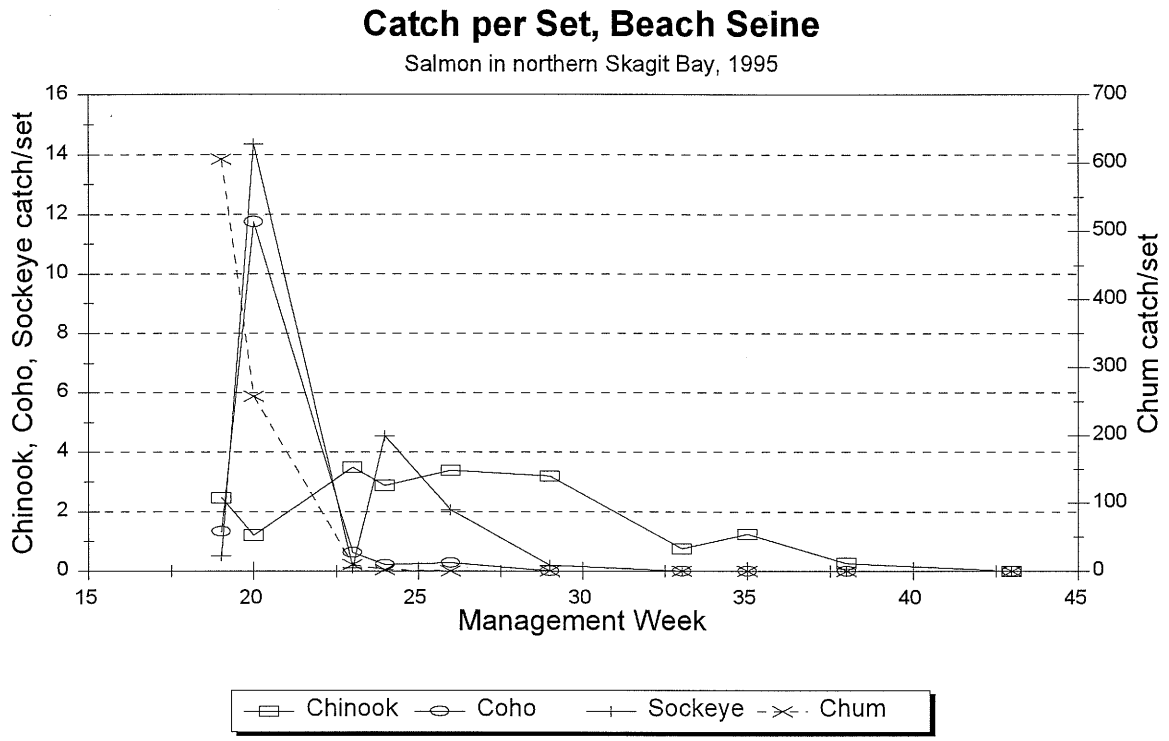


Figure 22. Catch per set (CPUE) of salmon in beach seine samples taken from northern Skagit Bay in 1995.

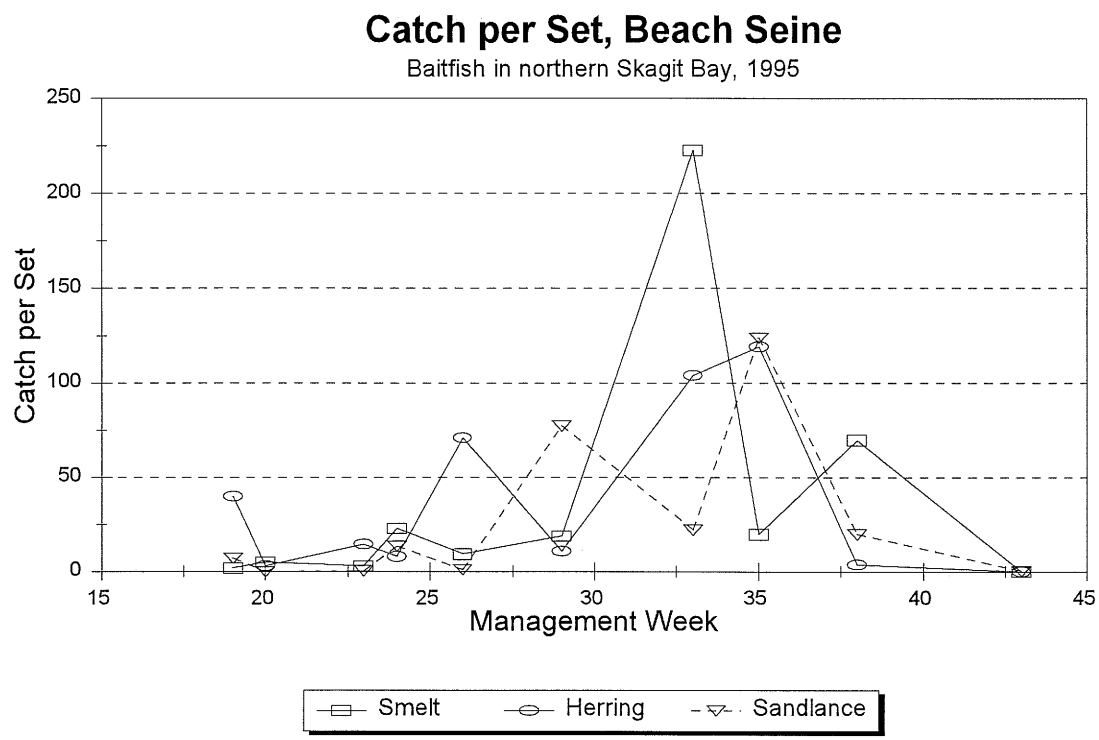


Figure 23. Catch per set (CPUE) of baitfish species in beach seine samples taken from northern Skagit Bay in 1995.

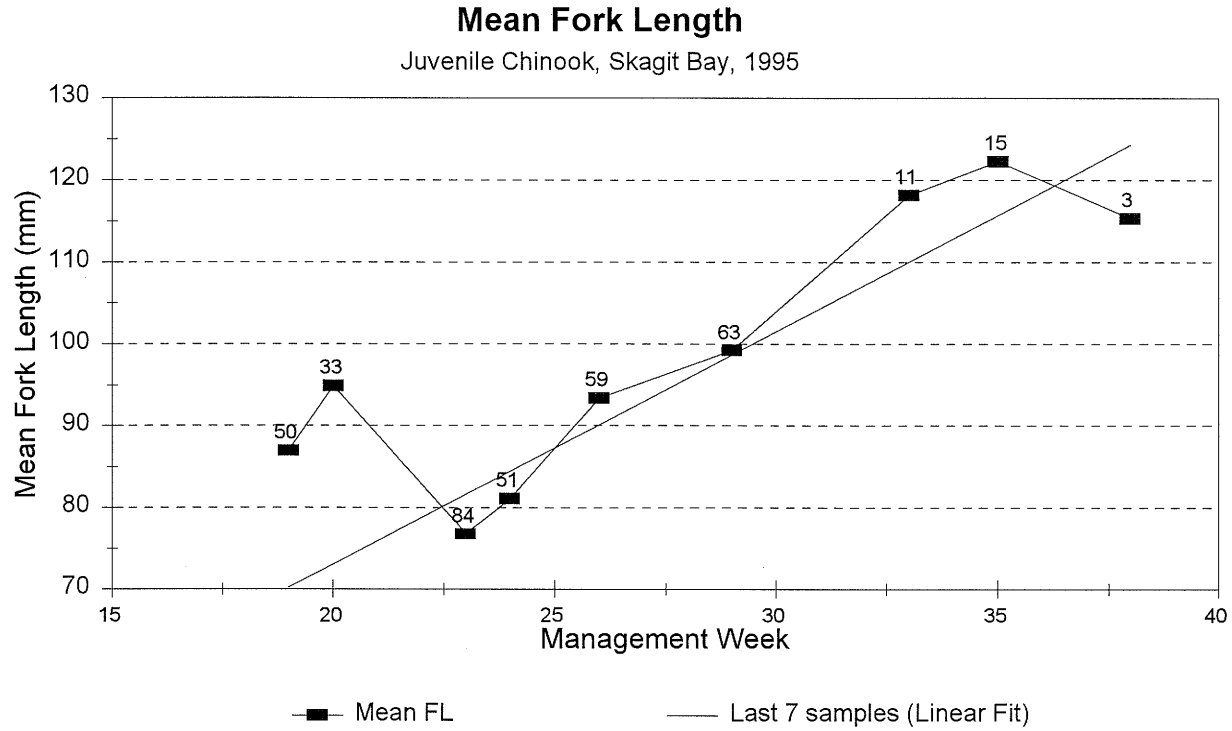
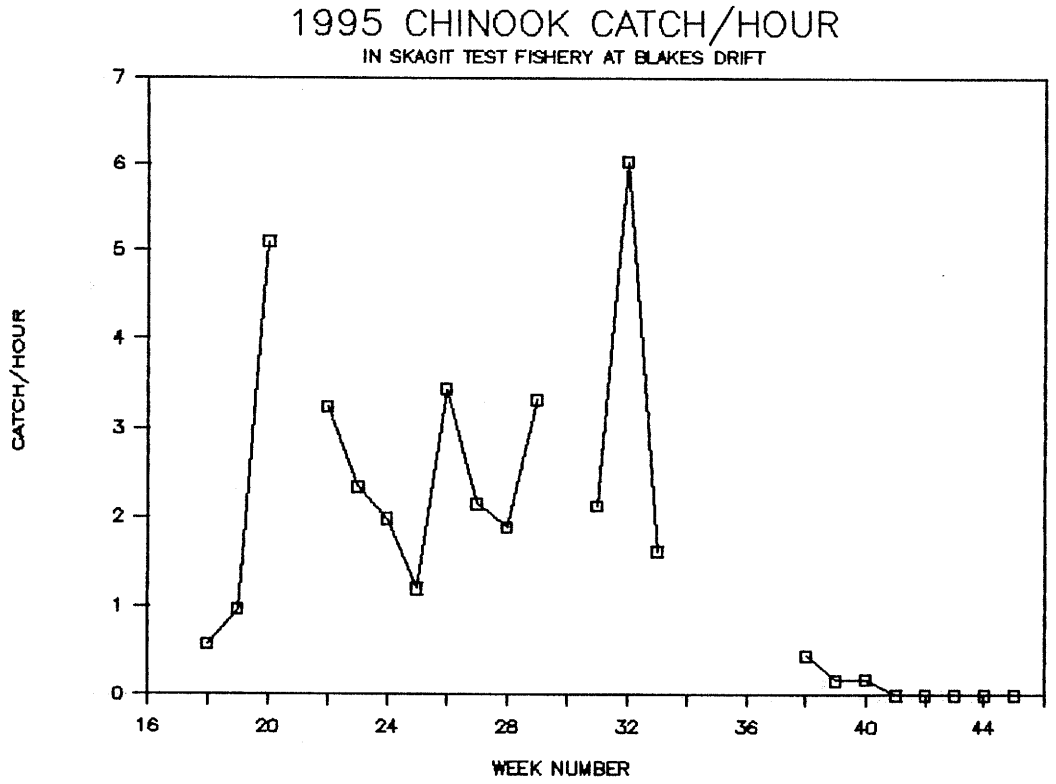


Figure 24. Mean fork length of juvenile chinook collected by beach seine from Skagit Bay, 1995. All samples collected on each sample date were averaged; total sample number is indicated above each graph point. The linear regression of mean lengths, for the last 7 sample dates, is also shown.

Figure 25. Catch/hour of chinook in the Skagit test fishery in 1995 (top), and compared to the 1990-94 mean (bottom).



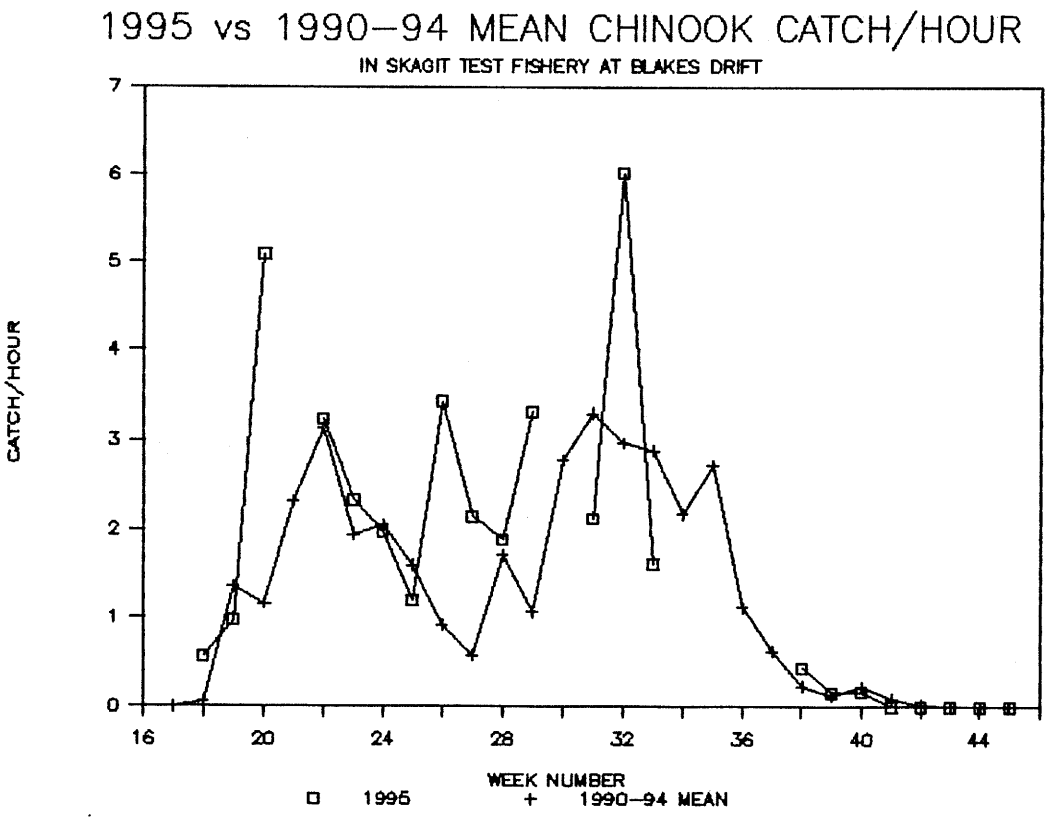
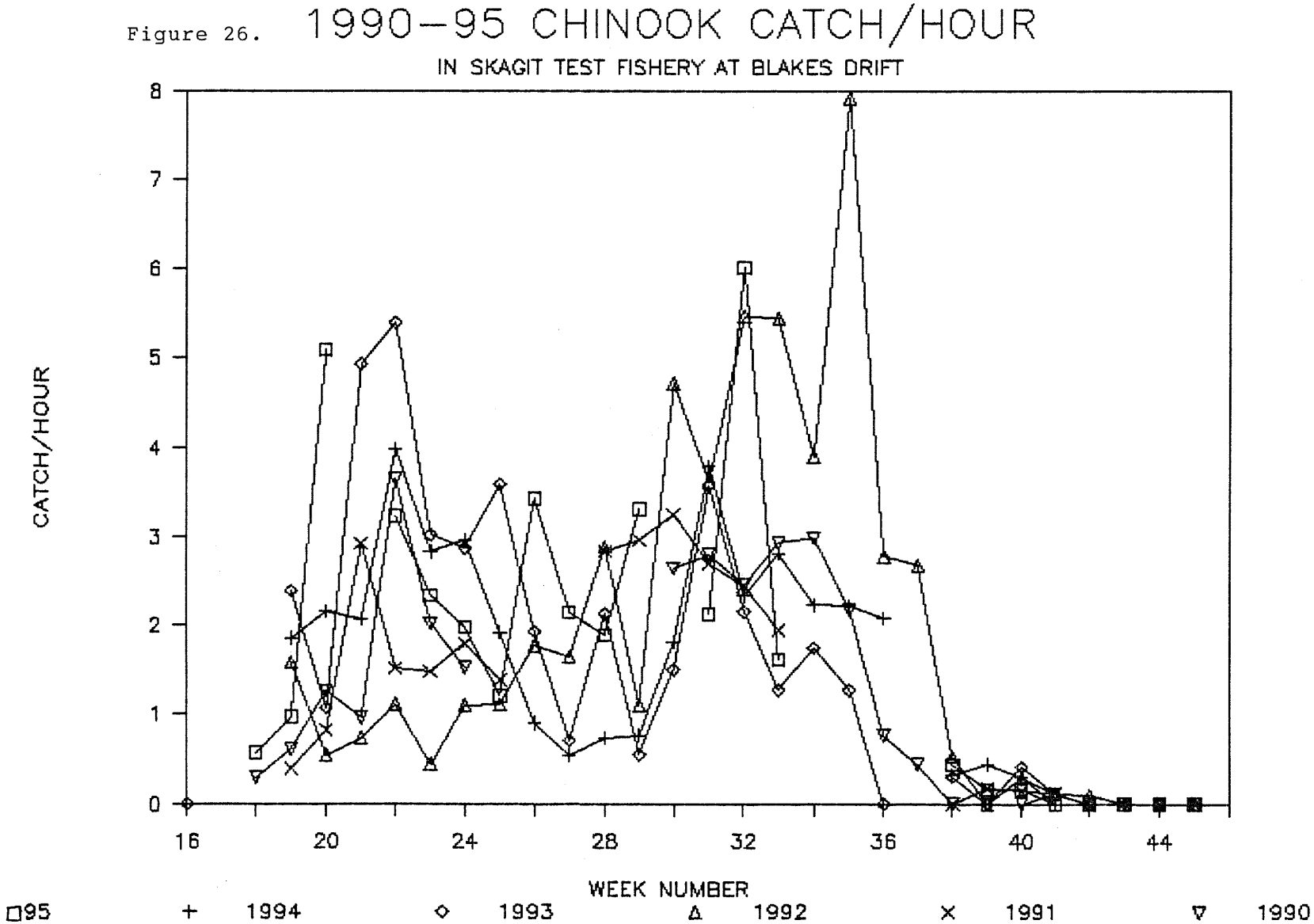


Figure 26.


1990–95 CHINOOK CATCH/HOUR
IN SKAGIT TEST FISHERY AT BLAKES DRIFT
CATCH/HOUR
0
1
2
3
4
5
6
7
8
16
20
24
28
32
36
40
44
WEEK NUMBER
95
1994
1993
1992
1991
1990

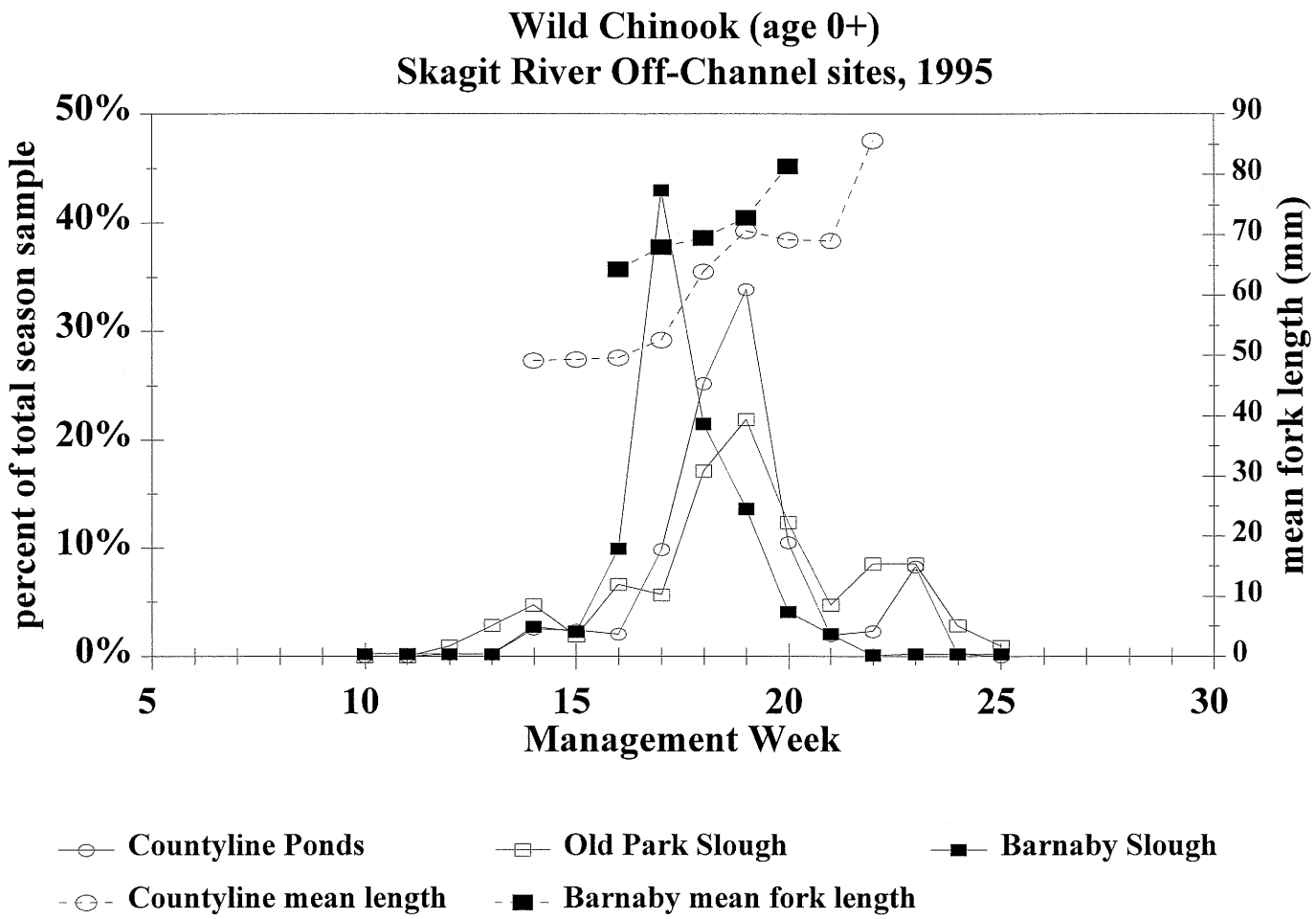


Figure 27. Length and outmigration timing of age 0+ chinook in off-channel habitat of the Skagit River, 1995.

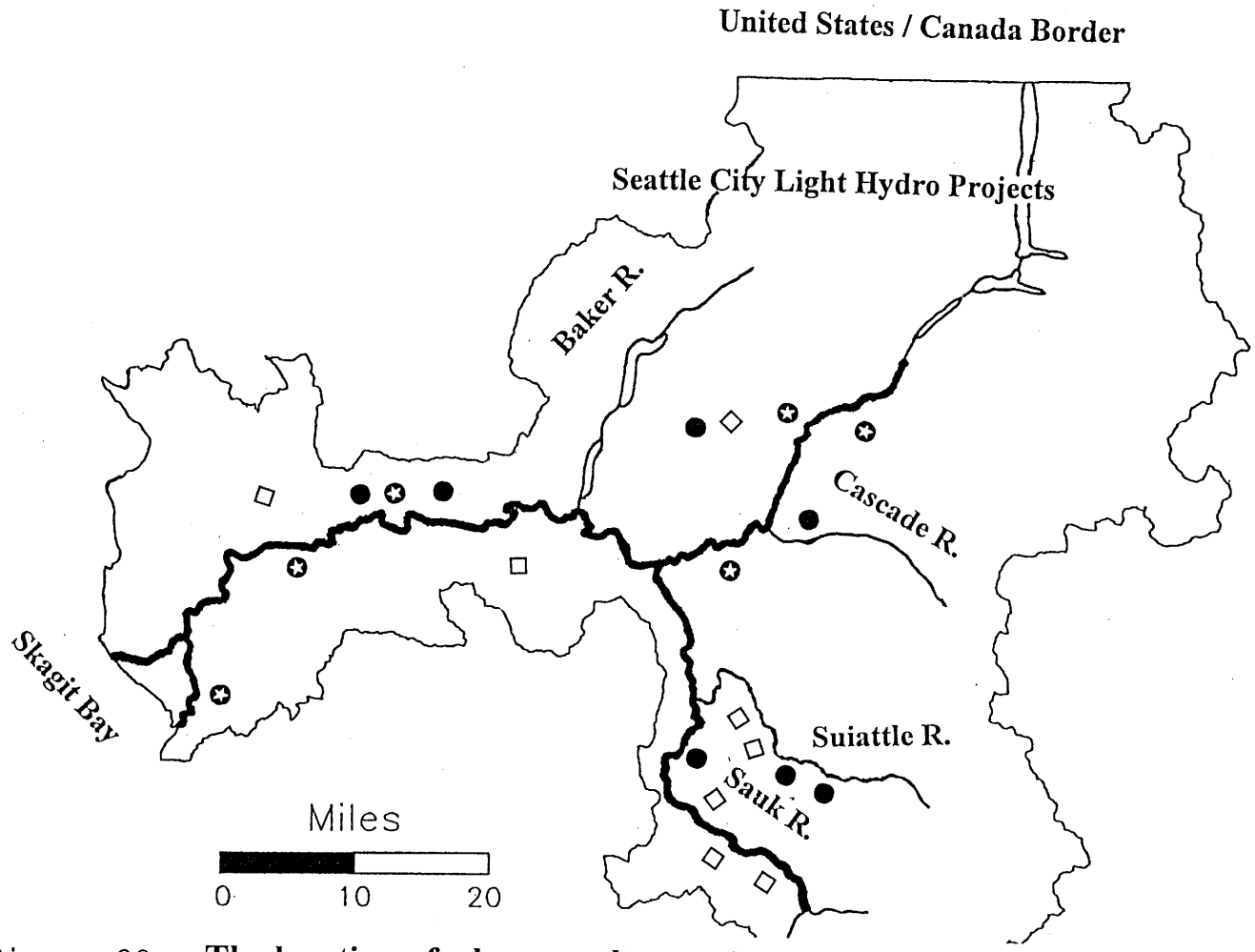


Figure 28. **The location of where smolt traps have been operated in tributary and off-channel habitat of the Skagit River basin.**

- □ Chinook age 0+ Never Observed
- ● Chinook age 0+ Intermittently Observed at Low Levels (usually <10)
- ✪ Chinook age 0+ Regularly Observed at Higher Levels (usually >100)

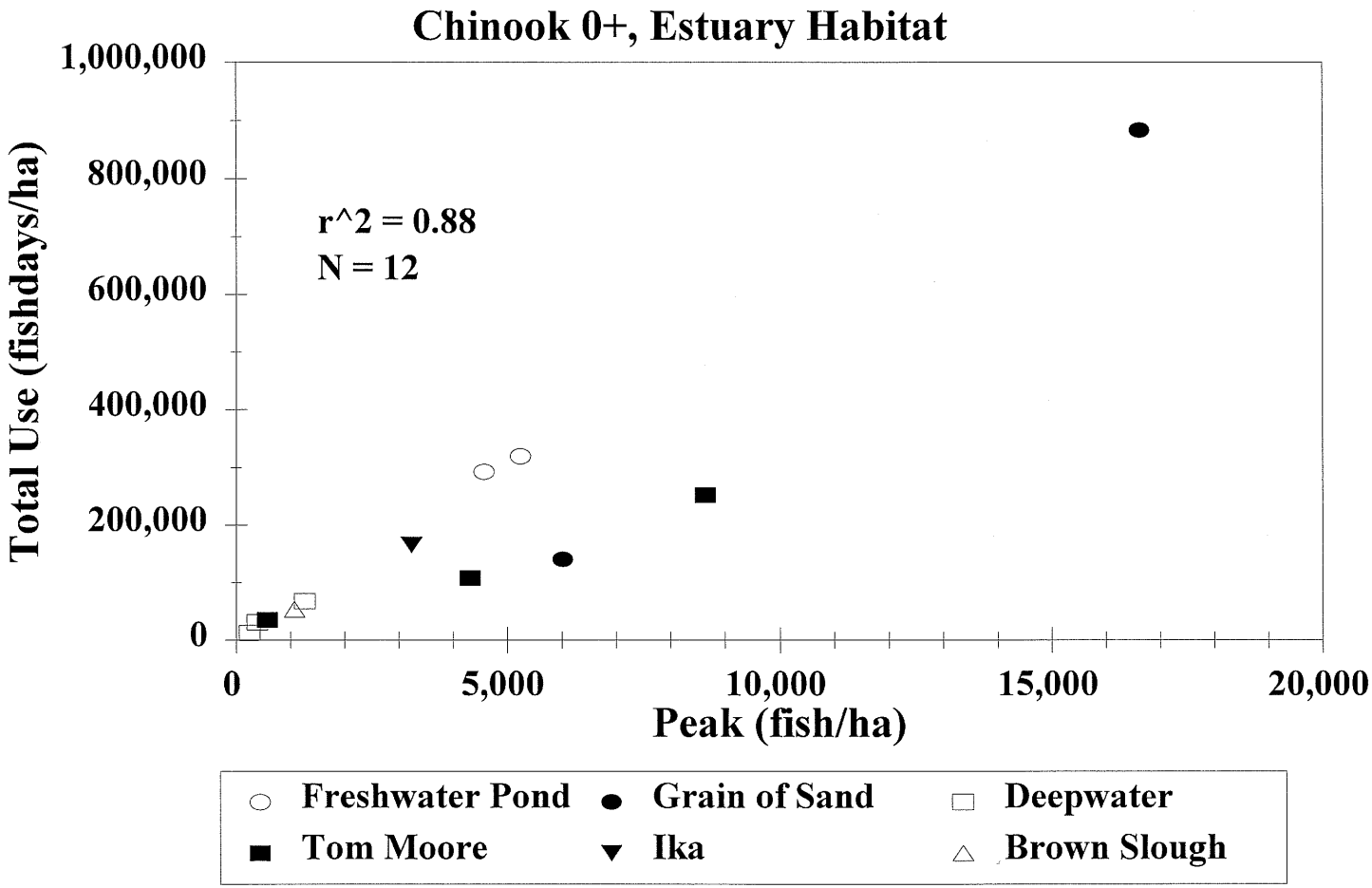


Figure 29. Fish-days compared to peak counts of age 0+ chinook at Skagit estuary sites.

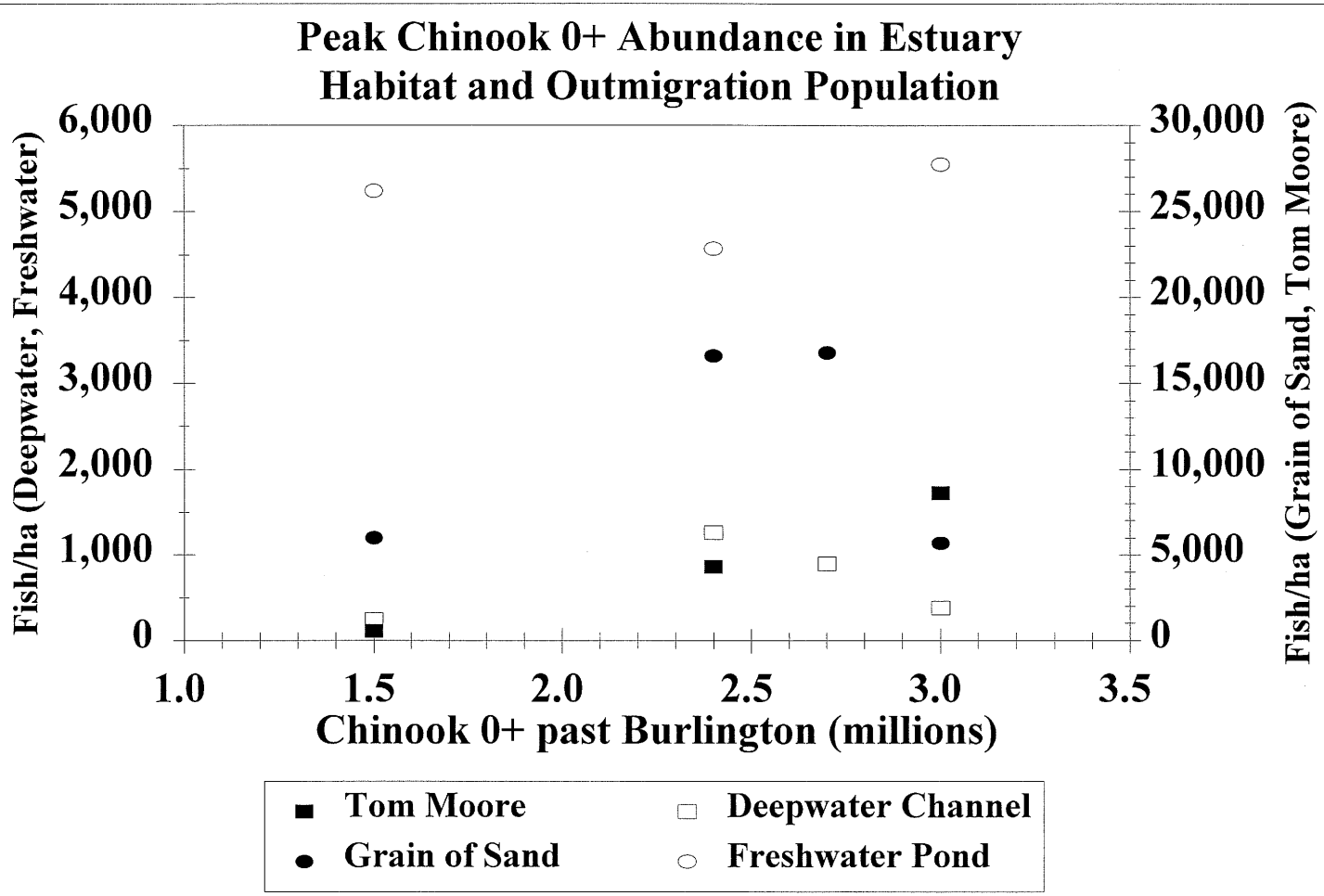


Figure 30. Peak age 0+ chinook counts at Skagit estuary sites compared to total smolt outmigration estimated at Burlington Trap, 1992-1995.

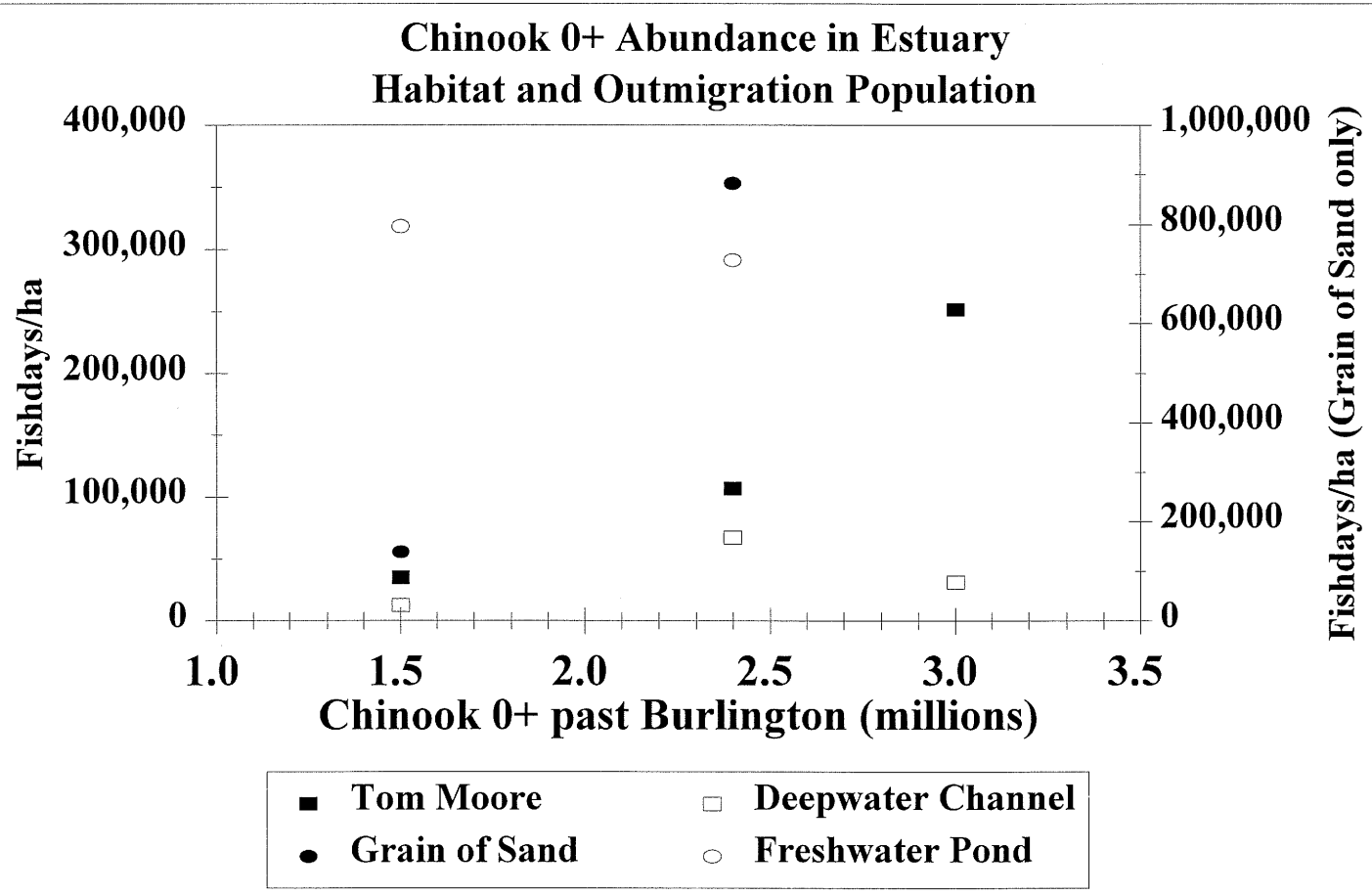


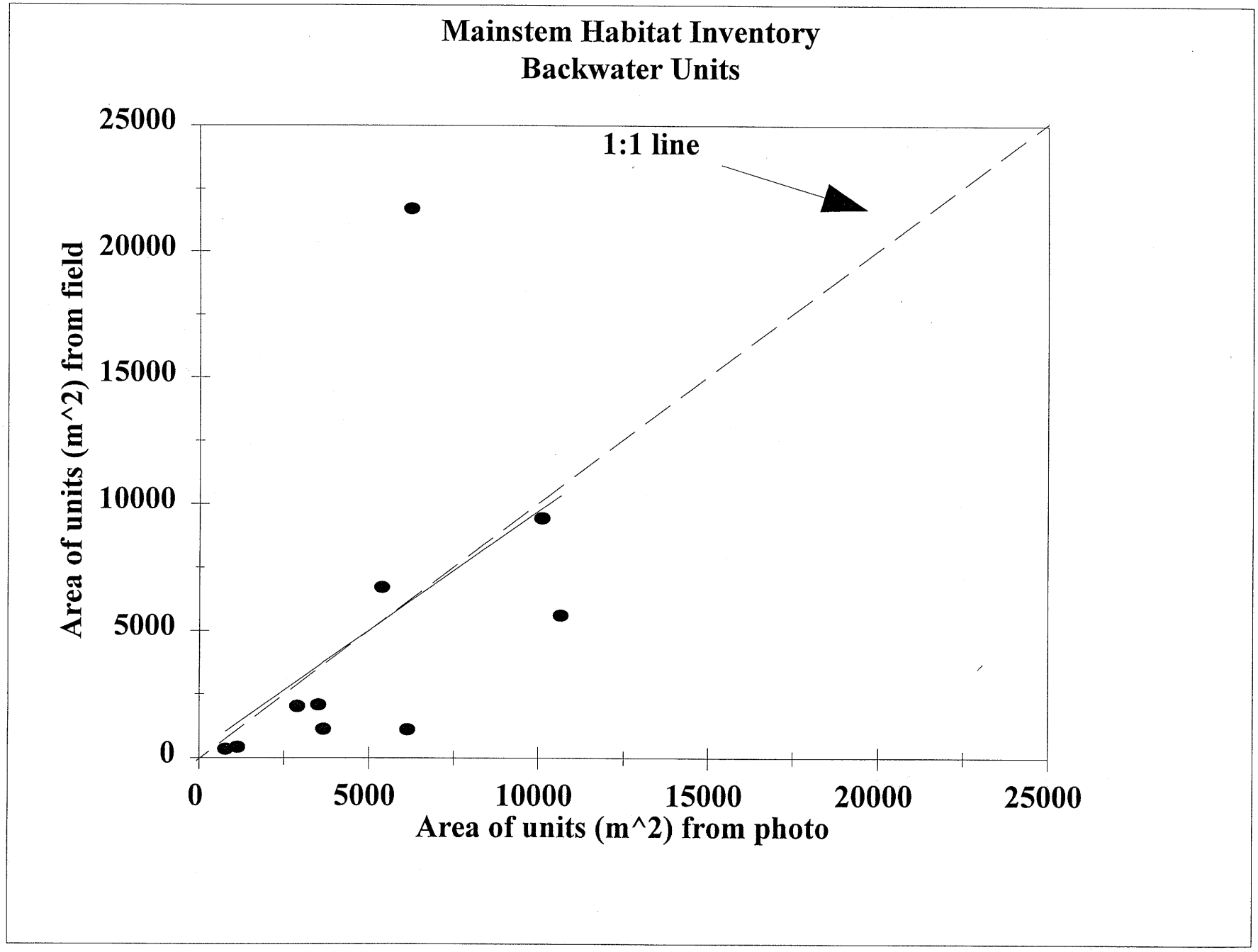
Figure 31. Age 0+ chinook density, in terms of fish-days, at Skagit estuary sites, compared to total smolt outmigration estimated at Burlington Trap, 1992-1995.

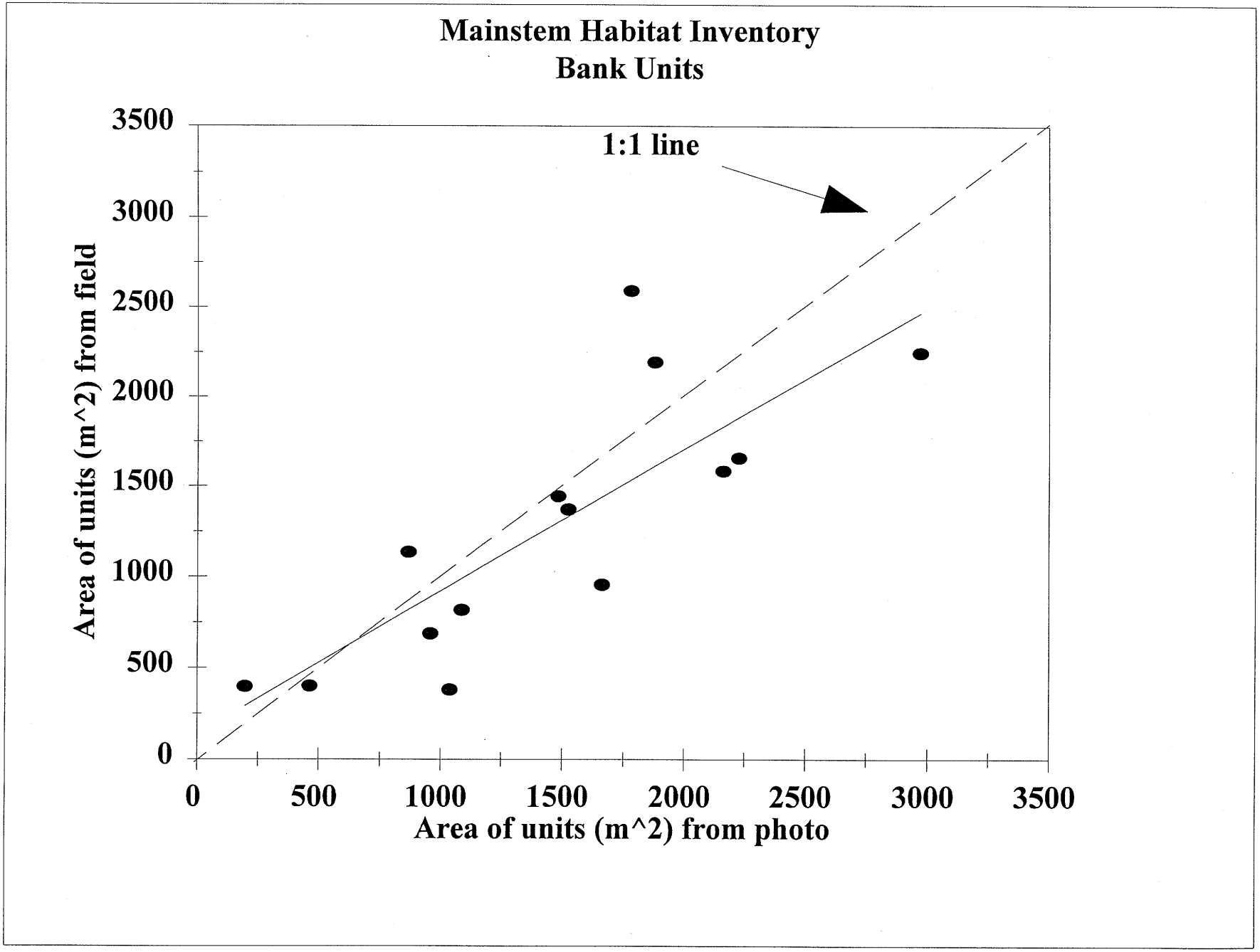
APPENDICES

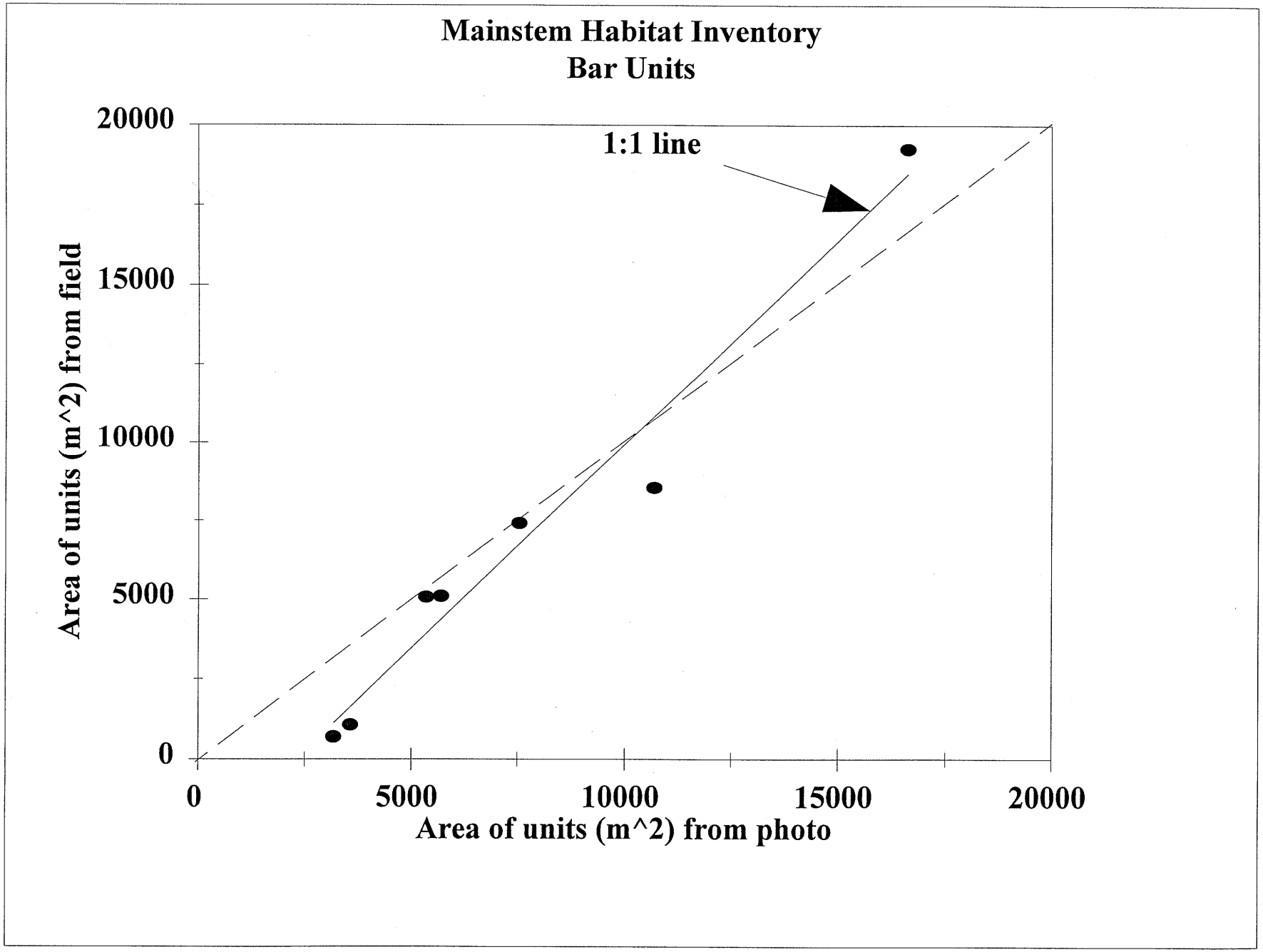
APPENDIX 1

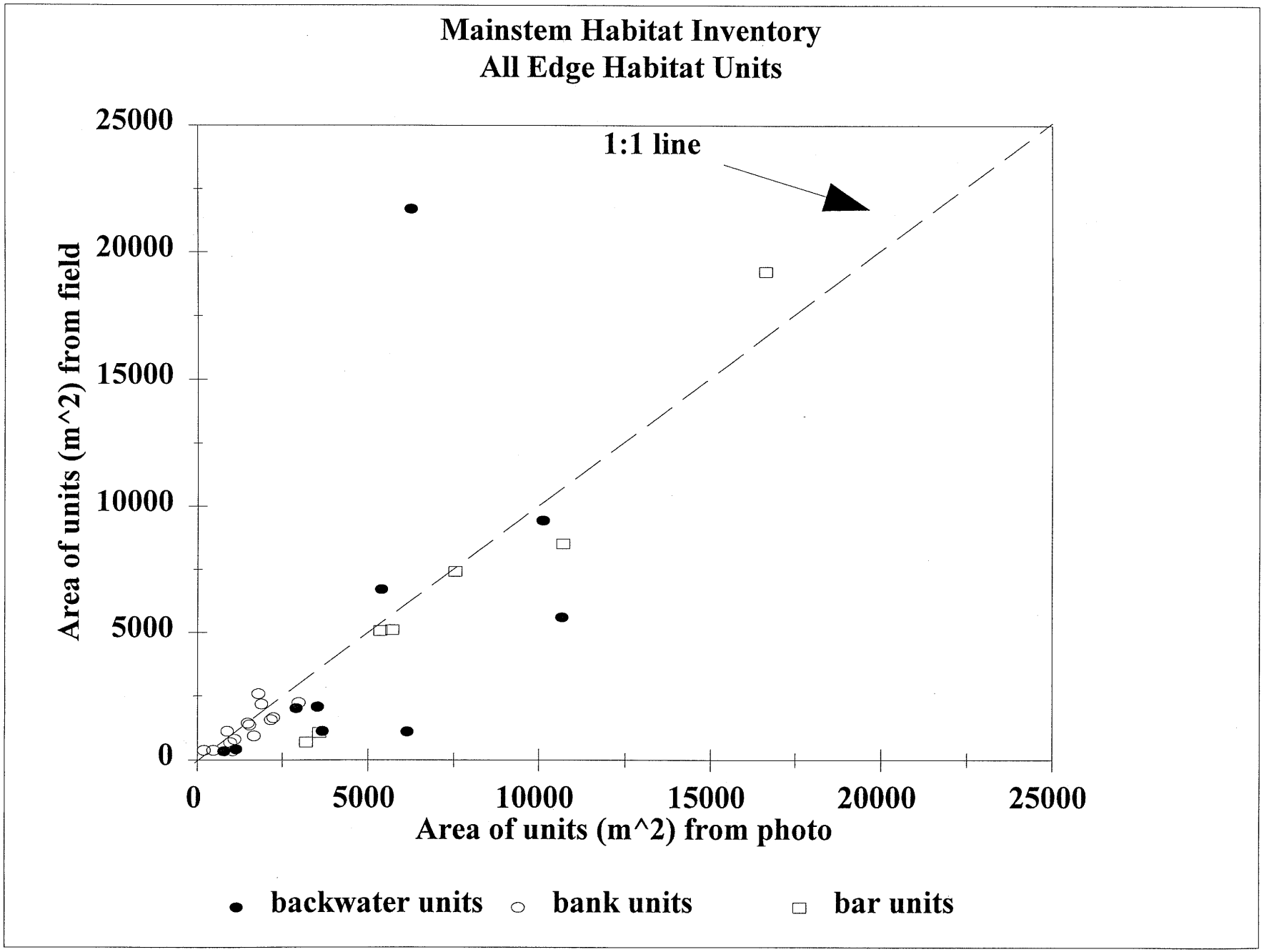
reach	Unit Name	unit#	unit type (photo)	unit type (field)	length (m) (photo)	mean length (m) (field)	Area (m^2) (photo)	mean Area (m^2) (field)	mean width (m) (field)
Sk060	DAY SLOUGH BW	6	backwater	backwater			5393	6728	
Sk060	MUDDY CREEK BW	7	backwater	backwater			2890	2024	
Sk030	YOUNG'S BAR BW	16	backwater	backwater			3664	1142	
Sk110	MARBLEMOUNT BW	27	backwater	backwater			6148	1123	
Sk110	MARBLEMOUNT SLOUGH BW	29	backwater	backwater			787	366	
Sk110	SAM'S BW	42	backwater	backwater			1135	433	
Sa010	SAUK BACKWATER	65	backwater	backwater			6258	21717	
Sk100	WASHINGTON EDDY EAST	17E	backwater	backwater			10116	9438	
Sk100	WASHINGTON EDDY MIDDLE	17M	backwater	backwater			3510	2087	
Sk100	WASHINGTON EDDY WEST	17W	backwater	backwater			10658	5618	
Sk030	SPUDHOUSE BANK	2	bank	bank	716	884	1862	3801	4.3
Sk060	LB COTTONWOOD	4	bank	bank	419	338	1090	818	2.4
Sk060	RB COTTONWOOD	5	bank	bank	587	549	1526	1372	2.5
Sk060	DAY ISLAND BANK	8	bank	bank	724	914	1882	2194	2.4
Sk060	FERNANDO RIPRAP	9	bank	bank	1143	1213	2972	2245	1.9
Sk030	TEN DOLLAR RIPRAP	13	bank	bank	686	640	1783	2592	4.1
Sk100	BANK BELOW SUTTER	18	bank	bank	335	306	872	1135	3.7
Sk100	BANK BELOW HOOPER	19	bank	bank	640	564	1664	959	1.7
Sk100	BARNABY RIPRAP	22	bank	bank	370	305	961	687	2.3
Sk100	BARNABY RIPRAP	23	bank	bank	400	229	1040	380	1.7
Sk110	TAYLOR BANK	28	bank	bank	832	864	2163	1584	1.8
Sk110	BIG EDDY BANK RB	31	bar	bank	76	114	198	397	3.3
Sk110	BIG EDDY BANK LB	32	bank	bank	179	134	465	400	2.5
Sk040	LOD HEAVEN	50	bank	bank	823	777			
Sk050	RIVERFRONT PARK BANK	52	bank	bank	1067	975			
Sk050	PIPELINE BANK	53	bank	bank	1036	975			
Sk070	MILL CREEK BANK	55	bank	bank	857	804	2229	1658	2.6
Sk070	PRESSENTIN RIPRAP	56	bank	bank	572	576	1486	1444	3.8
Sk090	FABER'S BANK	58	bank	bank	697	823			
Sk090	MIXMASTER BANK	59	bank	bank	1143	1076			
Sk120	COPPER BANK	60	bank	bank	649	716			
Sk120	ALMA RIPRAP	61	bank	bank	676	652			
Sk120	SHOVELSPUR BANK	62	bank	bank	1254	1128			
Sa010	NAPOLEON BANK	64	bank	bank	819	305			
Sk030	NO.1 DRIFT BAR	1	bar	bar	831	919	12957	17263	18.8
Sk060	FERNANDO BAR	3	bar	bar	1067	701	16642	19263	27.5
Sk030	TEN DOLLAR BAR	14	bar	bar	484	486	7548	7421	15.2

reach	Unit Name	unit#	unit type (photo)	unit type (field)	length (m) (photo)	mean length (m) (field)	Area (m^2) (photo)	mean Area (m^2) (field)	mean width (m) (field)
Sk110	POWERLINE BAR	20	bar	bar	366	510	5710	5113	15.1
Sk100	FORGOTTEN BAR	25	bar	bar	343	269	5349	5080	18.6
Sk110	MARBLEMONT BAR	26	bar	bar	229	183	3572	1077	5.9
Sk110	SAM'S BAR	34	bar	bar	204	152	3182	711	4.7
Sk040	HWY 9 BAR	51	bar	bar	362	408			
Sk070	LAKE HOLE BAR	54	bar	bar	686	381	10702	8542	22.4
Sk090	FABER'S BAR	57	85%bar/15%bank	bar	888	460			
Sa010	NAPOLEON BAR	63	bar	bar	533	335			
				Sum	22691	20664	138414	136806	


Mainstem Habitat Inventory
Backwater Units
1:1 line
Area of units (m^2) from field
Area of units (m^2) from photo
0
5000
10000
15000
20000
25000


Mainstem Habitat Inventory
Bank Units
1:1 line
Area of units (m^2) from field
Area of units (m^2) from photo
0
500
1000
1500
2000
2500
3000
3500


Mainstem Habitat Inventory
Bar Units
1:1 line
Area of units (m^2) from field
Area of units (m^2) from photo
0
5000
10000
15000
20000


Mainstem Habitat Inventory
All Edge Habitat Units
1:1 line
Area of units (m^2) from field
Area of units (m^2) from photo
0
5000
10000
15000
20000
25000
backwater units
bank units
bar units

Regression Statistics

All Units (except Spudhouse bank and #1 Drift bar, they were not used in ave. width calculation)

Multiple R	0.7691154
R Square	0.5915385
Adjusted R Square	0.5774536
Standard Error	3354.6895
Observations	31

Analysis of Variance

	df	*Sum of Squa*	*Mean Sq*	*F*	*Significance F*
Regression	1	472644373.9	4.73E+08	41.998119	4.3E-07
Residual	29	326364301.53	11253941		
Total	30	799008675.43			

	Coefficie	*Standard Err*	*t Statistic*	*P-value*	*Lower 95*	*Upper 95.00%*
Intercept	-424.6541	880.19709611	-0.482453	0.6329856	-2224.859	1375.5511
x1	1.0429816	0.1609391508	6.4805956	3.67E-07	0.713824	1.3721391

Regression Statistics

Backwater Units only

Multiple R	0.4810645
R Square	0.231423
Adjusted R Square	0.1353509
Standard Error	6137.2665
Observations	10

Analysis of Variance

	df	*Sum of Squa*	*Mean Sq*	*F*	*Significance F*
Regression	1	90731733.619	90731734	2.4088471	0.1592523
Residual	8	301328324.17	37666041		
Total	9	392060057.79			

	Coefficie	*Standard Err*	*t Statistic*	*P-value*	*Lower 95*	*Upper 95.00%*
Intercept	307.29816	3629.5091388	0.0846666	0.9343799	-8062.365	8676.9612
x1	0.9415113	0.6066258633	1.5520461	0.155067	-0.45737	2.3403931

Regression Statistics

Bank Units only (except Spudhouse bank, it was not used in ave. width calculation)

Multiple R	0.8054269
R Square	0.6487125
Adjusted R Square	0.6194385
Standard Error	446.54472
Observations	14

Analysis of Variance

	df	*Sum of Squa*	*Mean Sq*	*F*	*Significance F*
Regression	1	4418763.1067	4418763.1	22.160053	0.0005078
Residual	12	2392826.2593	199402.19		
Total	13	6811589.3659			

	Coefficie	*Standard Err*	*t Statistic*	*P-value*	*Lower 95*	*Upper 95.00%*
Intercept	137.50096	269.66347144	0.5098983	0.6186688	-450.0453	725.04719
x1	0.7839107	0.1665256735	4.7074466	0.0004097	0.4210824	1.146739

Regression Statistics

Bar Units (except #1 Drift bar, it was not used in ave. width calculation)

Multiple R	0.9814784
R Square	0.9632999
Adjusted R Square	0.9559599
Standard Error	1311.5432
Observations	7

Analysis of Variance

	df	*Sum of Squa*	*Mean Sq*	*F*	*Significance F*
Regression	1	225750839.62	2.26E+08	131.23938	8.88E-05
Residual	5	8600727.7868	1720145.6		
Total	6	234351567.4			

	Coefficie	*Standard Err*	*t Statistic*	*P-value*	*Lower 95*	*Upper 95.00%*
Intercept	-2966.926	981.95756057	-3.021441	0.0233538	-5491.129	-442.7241
x1	1.289697	0.1125785343	11.455976	2.66E-05	1.0003046	1.5790893

APPENDIX 2

Mean wild chinook (age 0+) per grid point shocked by edge habitat type and management week.

Group	Reach	Unit Type	Unit #	week 9	week 11	week 13	week 15	week 17	week 19	week 21	week 23	week 25	wk 36-38
Lower River	SK040	**bank**	50			**1.15**	**1.00**	**0.46**			**0.00**		
Lower River	SK050	bank (H)	53			0.85	0.61	0.12		0.09	0.00	0.00	
Lower River	SK050	bank (H)	52			0.88	0.12	0.24		0.13	0.00	0.00	
Lower River		**bank (H) mean**				**0.86**	**0.36**	**0.18**		**0.11**	**0.00**	**0.00**	
Lower River	SK040	**bar**	51			**0.08**	**0.07**	**0.00**			**0.07**		
Middle River	SK090	bank	59		1.46	2.48		0.86		0.74	0.17	0.15	
Middle River	SK090	bank	58		1.00	1.61		0.96		0.21	0.00	0.00	
Middle River	SK070	bank	55			0.64	0.13	0.07	0.31	0.25	0.07	0.08	0.00
Middle River		**bank mean**			**1.23**	**1.58**	**0.13**	**0.63**	**0.31**	**0.40**	**0.08**	**0.08**	**0.00**
Middle River	SK070	**bank (H)**	56			**0.04**	**0.04**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Middle River	SK090	bar	57		0.10	1.55		1.18			0.36	0.16	
Middle River	SK070	bar	54			0.34	0.05	0.03	0.17	0.11	0.03	0.00	0.00
Middle River		**bar mean**			**0.10**	**0.95**	**0.05**	**0.60**	**0.17**	**0.11**	**0.19**	**0.08**	**0.00**
Upper River	SK100	backwater	17W	2.13			5.58		0.91	0.40	0.47	0.47	0.00
Upper River	SK110	backwater	27	0.56			1.13		0.40		0.00	0.00	0.00
Upper River	SK100	backwater	17M	3.79			5.78		0.64	0.07	0.00	0.00	0.00
Upper River	SK100	backwater	17E	3.03			2.29		3.89	0.33	0.05	0.08	0.00
Upper River		**backwater mean**		**2.38**			**3.69**		**1.46**	**0.27**	**0.13**	**0.14**	**0.00**
Upper River	SK120	bank	62	0.55	1.71	1.39	1.03	0.71	0.21	0.21	0.05	0.03	0.00
Upper River	SK120	bank	60	0.21	0.97	1.67	1.91	1.06	0.24	0.52	0.00	0.10	0.00
Upper River	SK100	bank	18	1.41			3.07		1.52	0.52	0.34	0.14	0.00
Upper River	SK110	bank	28	0.72			1.83		0.36	0.45	0.03	0.10	0.00
Upper River		**bank mean**		**0.73**	**1.34**	**1.53**	**1.96**	**0.89**	**0.58**	**0.42**	**0.11**	**0.09**	**0.00**
Upper River	SK120	**bank (H)**	61	**0.72**	**3.03**	**1.91**	**1.16**	**0.84**	**0.34**	**0.19**	**0.09**	**0.03**	**0.00**
Upper River	SK110	bar	20				0.60				0.92	0.38	0.00
Upper River	SK100	bar	25				0.83					0.00	0.00
Upper River		**bar mean**					**0.72**				**0.92**	**0.19**	**0.00**
Sauk	SA010	backwater	65		0.10					0.00			
Sauk	SA010	bank	64		0.00	0.05		0.00		0.14			
Sauk	SA010	bar	63		0.00			0.00		0.00			

Reach		Unit #	Week	Chin0+ catch	mean Chin0+/pt.	@stds Chin0+/pt.	# grid points
SK100	bank	18	9	41	1.41	2.95	29
SK110	backwater	27	9	5	0.56	0.83	9
SK110	bank	28	9	21	0.72	1.86	29
SK120	bank	60	9	7	0.21	0.59	33
SK120	bank (H)	61	9	23	0.72	1.53	32
SK120	bank	62	9	21	0.55	1.48	38
SK100	backwater	17E	9	118	3.03	5.8	39
SK100	backwater	17M	9	53	3.79	3.38	14
SK100	backwater	17W	9	96	2.13	4.54	45
SK090	bar	57	11	3	0.10	0.3	30
SK090	bank	58	11	28	1.00	3.34	28
SK090	bank	59	11	54	1.46	3.22	37
SK120	bank	60	11	32	0.97	1.93	33
SK120	bank (H)	61	11	97	3.03	3.99	32
SK120	bank	62	11	65	1.71	2.76	38
SA010	bar	63	11	0	0.00	0	21
SA010	bank	64	11	0	0.00	0	21
SA010	backwater	65	11	4	0.10	0.37	40
SK040	bank	50	13	30	1.15	1.38	26
SK040	bar	51	13	2	0.08	0.27	25
SK050	bank (H)	52	13	28	0.88	2.03	32
SK050	bank (H)	53	13	28	0.85	2.61	33
SK070	bar	54	13	10	0.34	0.54	29
SK070	bank	55	13	18	0.64	0.93	28
SK070	bank (H)	56	13	1	0.04	0.18	28
SK090	bar	57	13	45	1.55	2.36	29
SK090	bank	58	13	45	1.61	3.11	28
SK090	bank	59	13	77	2.48	3.68	31
SK120	bank	60	13	55	1.67	3.23	33
SK120	bank (H)	61	13	61	1.91	4.34	32
SK120	bank	62	13	53	1.39	1.69	38
SA010	bar	63	13	1	0.05	0.22	20
SA010	bank	64	13	1	0.05	0.21	21
SK100	bank	18	15	89	3.07	8.03	29
SK110	bank	20	15	6	0.60	1.2	10
SK100	bar	25	15	15	0.83	1.12	18
SK110	backwater	27	15	9	1.13	1.36	8
SK110	bank	28	15	53	1.83	3.09	29
SK040	bank	50	15	26	1.00	2.11	26
SK040	bar	51	15	2	0.07	0.26	27
SK050	bank (H)	52	15	4	0.12	0.41	33
SK050	bank (H)	53	15	20	0.61	1.2	33
SK070	bar	54	15	2	0.05	0.23	37
SK070	bank	55	15	3	0.13	0.45	23
SK070	bank (H)	56	15	1	0.04	0.18	28
SK120	bank	60	15	63	1.91	3.65	33
SK120	bank (H)	61	15	37	1.16	1.86	32
SK120	bank	62	15	39	1.03	1.51	38
SK100	backwater	17E	15	87	2.29	5.34	38
SK100	backwater	17M	15	52	5.78	6.3	9
SK100	backwater	17W	15	223	5.58	9.79	40

Reach		Unit #	Week	Chin0+ catch	mean Chin0+/pt.	@stds Chin0+/pt.	# grid points
SK040	bank	50	17	12	0.46	1.01	26
SK040	bar	51	17	0	0.00	0	30
SK050	bank (H)	52	17	8	0.24	0.6	33
SK050	bank (H)	53	17	4	0.12	0.41	33
SK070	bar	54	17	1	0.03	0.17	35
SK070	bank	55	17	2	0.07	0.27	27
SK070	bank (H)	56	17	2	0.07	0.26	28
SK090	bar	57	17	33	1.18	1.81	28
SK090	bank	58	17	27	0.96	1.66	28
SK090	bank	59	17	25	0.86	1.49	29
SK120	bank	60	17	35	1.06	1.91	33
SK120	bank (H)	61	17	27	0.84	2.17	32
SK120	bank	62	17	27	0.71	1.05	38
SA010	bar	63	17	0	0.00	0	22
SA010	bank	64	17	0	0.00	0	21
SK100	bank	18	19	44	1.52	2.71	29
SK110	backwater	27	19	4	0.40	0.66	10
SK110	bank	28	19	10	0.36	0.85	28
SK070	bar	54	19	6	0.17	0.56	35
SK070	bank	55	19	9	0.31	0.76	29
SK070	bank (H)	56	19	0	0.00	0	28
SK120	bank	60	19	8	0.24	0.69	33
SK120	bank (H)	61	19	11	0.34	0.73	32
SK120	bank	62	19	8	0.21	0.47	38
SK100	backwater	17E	19	148	3.89	7.03	38
SK100	backwater	17M	19	9	0.64	1.29	14
SK100	backwater	17W	19	41	0.91	2.43	45
SK100	bank	18	21	14	0.52	1.34	27
SK110	bank	28	21	13	0.45	1.33	29
SK050	bank (H)	52	21	4	0.13	0.54	32
SK050	bank (H)	53	21	3	0.09	0.29	33
SK070	bar	54	21	4	0.11	0.39	36
SK070	bank	55	21	7	0.25	0.78	28
SK070	bank (H)	56	21	0	0.00	0	27
SK090	bank	58	21	6	0.21	0.62	28
SK090	bank	59	21	29	0.74	1.93	39
SK120	bank	60	21	17	0.52	1.05	33
SK120	bank (H)	61	21	6	0.19	0.39	32
SK120	bank	62	21	8	0.21	0.61	38
SA010	bar	63	21	0	0.00	0	23
SA010	bank	64	21	3	0.14	0.35	21
SA010	backwater	65	21	0	0.00	0	38
SK100	backwater	17E	21	13	0.33	0.97	39
SK100	backwater	17M	21	1	0.07	0.26	14
SK100	backwater	17W	21	17	0.40	1.18	43
SK100	bank	18	23	10	0.34	0.71	29
SK110	bank	20	23	12	0.92	1.49	13
SK110	backwater	27	23	0	0.00	0	9
SK110	bank	28	23	1	0.03	0.18	29
SK040	bank	50	23	0	0.00	0	26
SK040	bar	51	23	2	0.07	0.25	29

Reach		Unit #	Week	Chin0+ catch	mean Chin0+/pt.	@stds Chin0+/pt.	# grid points
SK050	bank (H)	52	23	0	0.00	0	33
SK050	bank (H)	53	23	0	0.00	0	33
SK070	bar	54	23	1	0.03	0.16	36
SK070	bank	55	23	2	0.07	0.26	28
SK070	bank (H)	56	23	0	0.00	0	27
SK090	bar	57	23	10	0.36	0.81	28
SK090	bank	58	23	0	0.00	0	28
SK090	bank	59	23	6	0.17	0.45	35
SK120	bank	60	23	0	0.00	0	33
SK120	bank (H)	61	23	3	0.09	0.38	32
SK120	bank	62	23	2	0.05	0.22	38
SK100	backwater	17E	23	2	0.05	0.22	39
SK100	backwater	17M	23	0	0.00	0	14
SK100	backwater	17W	23	21	0.47	1.2	45
SK100	bank	18	25	4	0.14	0.34	29
SK110	bank	20	25	6	0.38	0.78	16
SK100	bar	25	25	0	0.00	0	16
SK110	backwater	27	25	0	0.00	0	9
SK110	bank	28	25	3	0.10	0.3	29
SK050	bank (H)	52	25	0	0.00	0	32
SK050	bank (H)	53	25	0	0.00	0	4
SK070	bar	54	25	0	0.00	0	24
SK070	bank	55	25	2	0.08	0.39	25
SK070	bank (H)	56	25	0	0.00	0	27
SK090	bar	57	25	4	0.16	0.37	25
SK090	bank	58	25	0	0.00	0	28
SK090	bank	59	25	5	0.15	0.43	34
SK120	bank	60	25	3	0.10	0.3	30
SK120	bank (H)	61	25	1	0.03	0.17	32
SK120	bank	62	25	1	0.03	0.16	38
SK100	backwater	17E	25	3	0.08	0.27	38
SK100	backwater	17M	25	0	0.00	0	9
SK100	backwater	17W	25	20	0.47	1.47	43
SK110	backwater	27	36	0	0.00	0	9
SK110	bank	28	36	0	0.00	0	28
SK120	bank	60	36	0	0.00	0	31
SK120	bank (H)	61	36	0	0.00	0	31
SK120	bank	62	36	0	0.00	0	38
SK100	backwater	17E	36	0	0.00	0	20
SK100	backwater	17M	36	0	0.00	0	4
SK100	backwater	17W	36	0	0.00	0	20
SK100	bank	18	38	0	0.00	0	24
SK110	bank	20	38	0	0.00	0	17
SK100	bar	25	38	0	0.00	0	15
SK070	bar	54	38	0	0.00	0	33
SK070	bank	55	38	0	0.00	0	22
SK070	bank (H)	56	38	0	0.00	0	19

APPENDIX 3

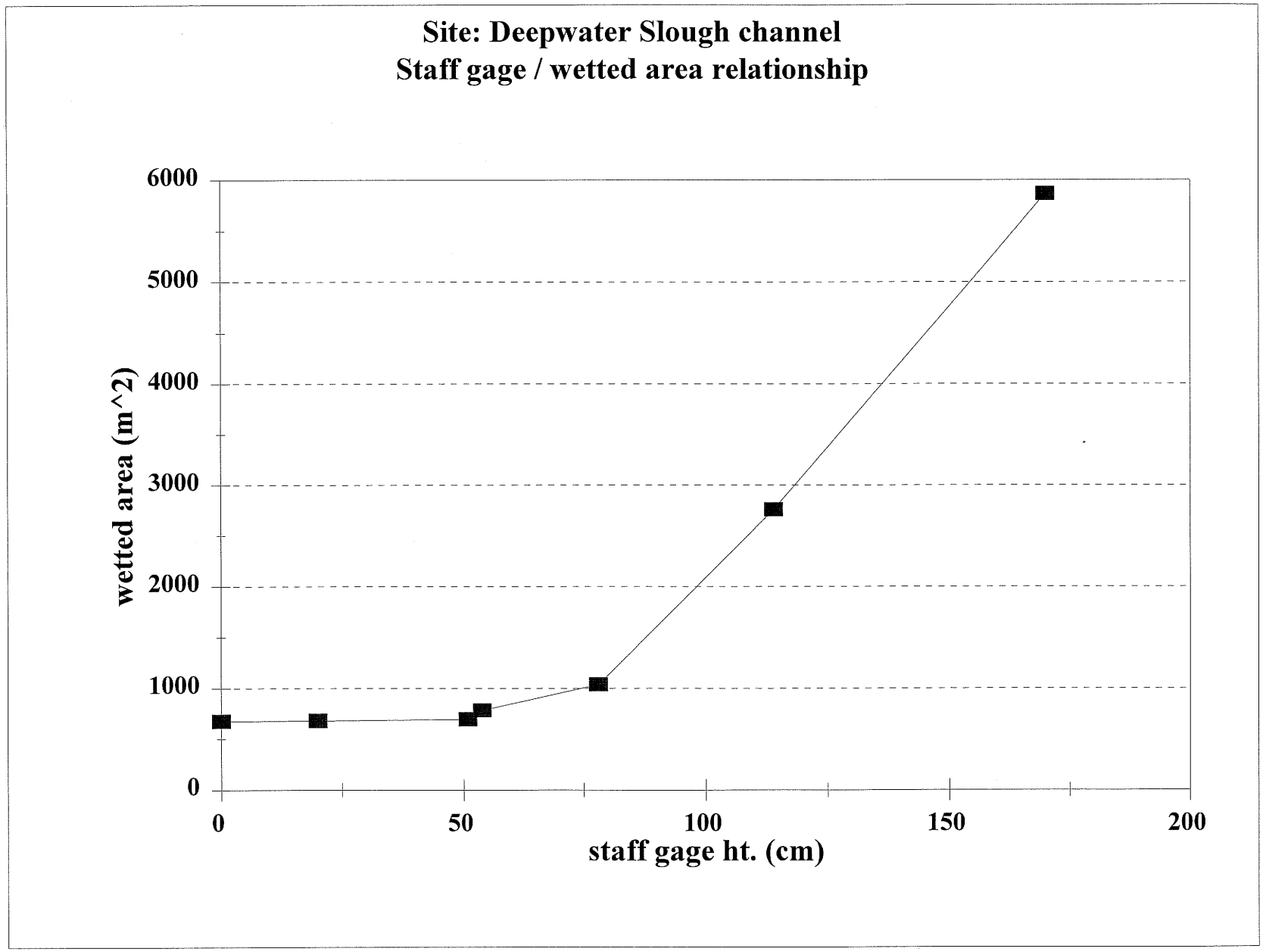
APPENDIX 3 (Continued).

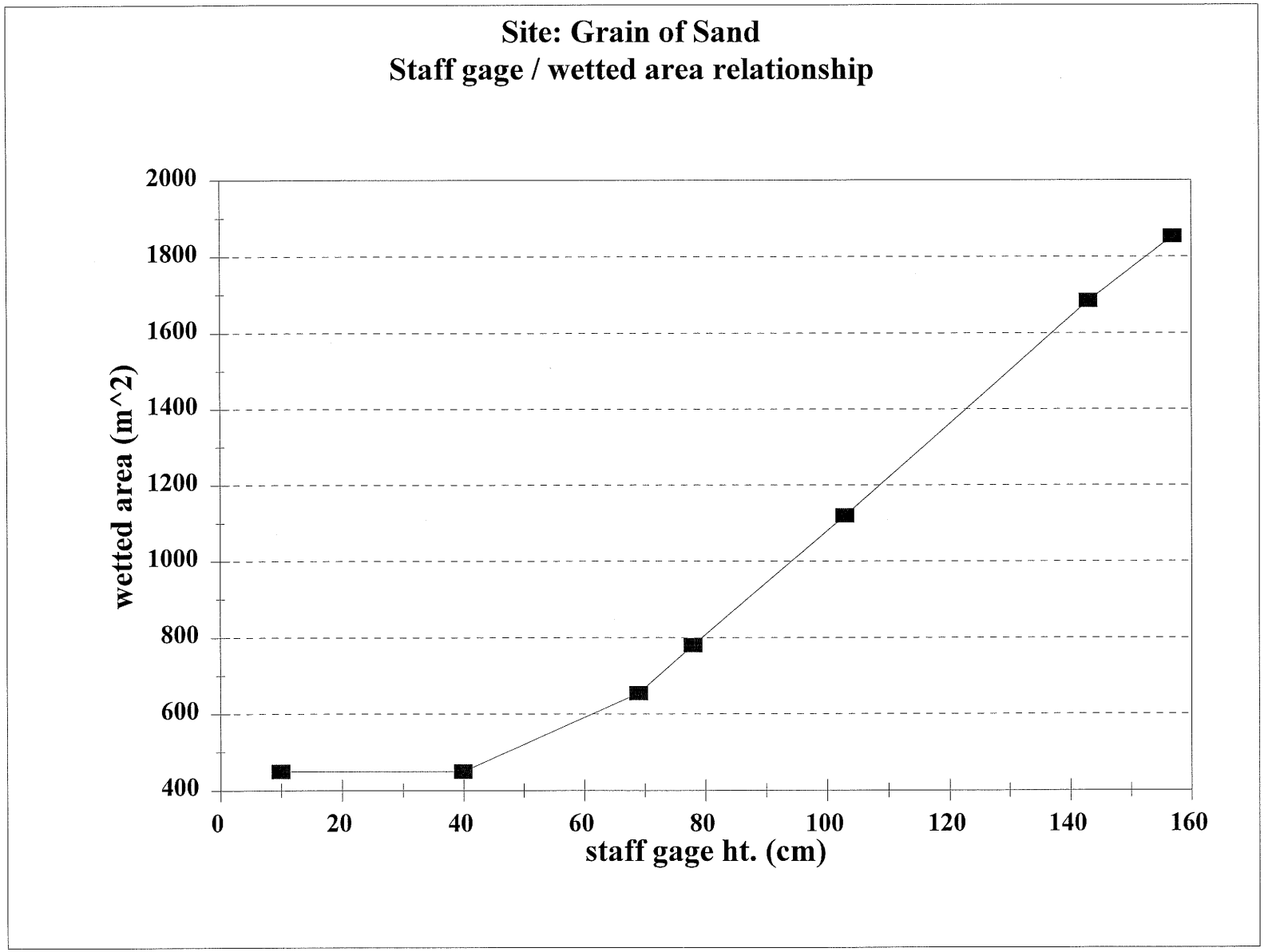
Unit	Week	9	11	13	15	17	19	21	23	25
WASH EDDY WEST	mean	40.3			41.8		48.8	52.9	49.6	59.7
(SK100)	SD	2.1			2.6		5.0	4.1	5.2	9.6
Upper River	*N*	30			49		30	16	20	20
MIXMASTER BANK	mean		41.2	41.8		43.1		44.6	53.7	62.0
(SK090)	SD		2.3	2.4		4.4		3.2	8.7	2.4
Middle River	*N*		56	30		22		32	6	4
FABER'S BANK	mean		40.4	42.1		42.2		52.3		
(SK090)	SD		2.3	3.3		3.1		5.1		
Middle River	*N*		28	30		27		6		
FABER'S BAR	mean	41.0		40.7		43.4		49.5		55.0
(SK090)	SD	1.0		2.3		3.7		4.5		8.0
Middle River	*N*	3		28		23		8		3
PRESSENTIN RIPRAP	mean			43.0	46.0	44.0				
(SK070)	SD									
Middle River	*N*			1	1	1				
MILL CREEK BANK	mean			43.8	41.0	41.0	45.4	46.1	42.5	61.0
(SK070)	SD			3.3	0.0	2.8	3.9	6.6	2.1	8.5
	N			19	2	2	9	7	2	2
LAKE HOLE BAR	mean			40.3	40.0	39.0	49.8	47.8	66.0	
(SK070)	SD			3.3	0.0		7.9	5.0		
Middle River	*N*			10	2	1	5	4	1	
PIPELINE BANK	mean			42.6	43.1	46.5		42.3		
(SK050)	SD			3.5	4.1	3.4		2.1		
Lower River	*N*			28	18	4		3		
RIVER FRONT PK BANK	mean			40.8	40.0	44.6		57.0		
(SK050)	SD			2.9	1.2	6.3		0.8		
Lower River	*N*			26	4	7		4		
HWY 9 BAR	mean			45.0	45.7				56.0	
(SK040)	SD			7.1	3.8				8.5	
Lower River	*N*			2	3				2	

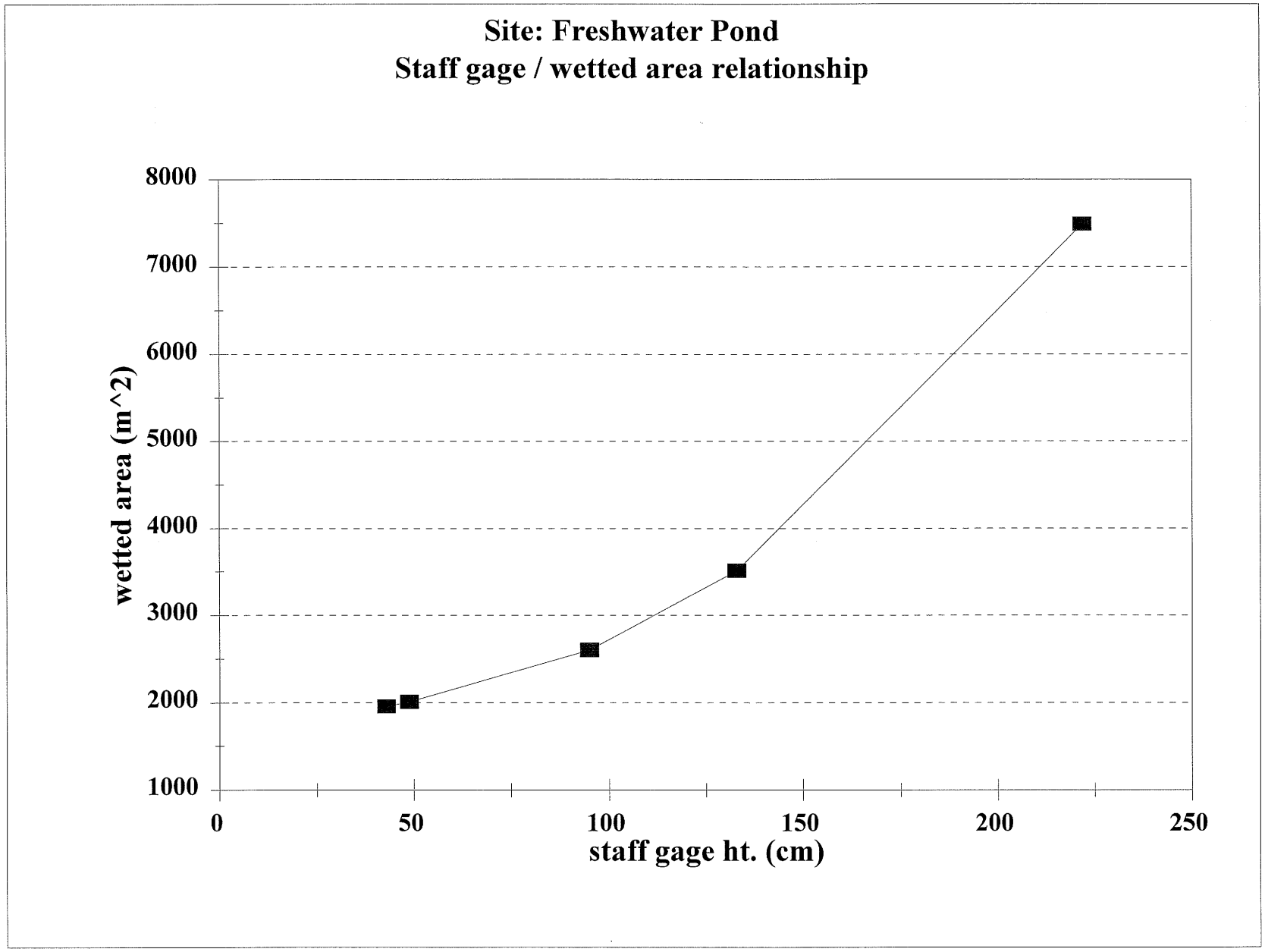
APPENDIX 3. Summary of wild chinook age 0+ fork length from mainstem habitat.

Unit Name (reach) group	Week in 1995		9	11	13	15	17	19	21	23	25
SHOVELSPUR BANK		mean	41.7	42.2	42.6	41.3	44.0			50.5	59.0
(SK120)		SD	3.0	3.8	3.3	3.3	3.7	NA	55.0	16.3	
Upper River		*N*	23	30	30	60	27	362	417	2	1
ALMA RIPRAP		mean	42.2	42.7	43.0	40.5	43.0	44.2	52.0	51.3	61.0
(SK120)		SD	2.7	3.3	3.3	2.9	3.3	4.1	5.9	1.5	
Upper River		*N*	25	30	30	30	27	13	6	3	1
COPPER BANK		mean	41.6	41.4	40.6	40.8	44.1	47.9	50.2	0	59.5
(SK120)		SD	2.1	2.3	1.7	2.5	3.1	4.0	5.1		2.1
Upper River		*N*	7	32	30	30	30	8	17		2
TAYLOR BANK		mean	40.3			43.0		45.7	47.8	36.0	49.3
(SK110)		SD	1.7			2.5		3.8	7.5		3.1
Upper River		*N*	21			30		10	13	1	3
MM BACKWATER		mean	36.8			39.9		44.0			
(SK110)		SD	2.4			1.7		4.2			
Upper River		*N*	5			8		4			
POWERLINE BAR		mean	40.8							45.6	
(SK110)		SD	3.3							4.6	
Upper River		*N*	6							12	
FORGOTTEN BAR		mean				40.3					
(SK100)		SD				1.8					
Upper River		*N*				15					
BANK BELOW SUTTER		mean	40.9			44.0		45.6	47.7	50.3	55.0
(SK100)		SD	2.2			3.2		4.6	5.4	5.9	7.9
Upper River		*N*	32			30		28	14	10	4
WASH EDDY EAST		mean	40.0			39.2		43.0	44.7	40.5	49.0
(SK100)		SD	1.8			2.1		3.4	2.7	6.4	3.6
Upper River		*N*	32			11		77	6	2	3
WASH EDDY MIDL		mean						42.4	44.0		
(SK100)		SD						3.2			
Upper River		*N*						9	1		

APPENDIX 4


Site: Deepwater Slough channel
Staff gage / wetted area relationship
wetted area (m^2)
6000
5000
4000
3000
2000
1000
0
0
50
100
150
200
staff gage ht. (cm)


Site: Grain of Sand
Staff gage / wetted area relationship
wetted area (m^2)
2000
1800
1600
1400
1200
1000
800
600
400
0
20
40
60
80
100
120
140
160
staff gage ht. (cm)


Site: Freshwater Pond
Staff gage / wetted area relationship
8000
7000
6000
5000
4000
3000
2000
1000
wetted area (m^2)
0
50
100
150
200
250
staff gage ht. (cm)

APPENDIX 5

APPENDIX 5

Key for species / age class abbreviations used in appendix tables:

chin0+	*Oncorhynchus tshawytscha*, age 0+
chin0+ad	Adipose fin clipped *Oncorhynchus tshawytscha*, age 0+
chin1+	*Oncorhynchus tshawytscha*, age 1+
coho0+	*Oncorhynchus kisutch*, age 0+
coho1+	*Oncorhynchus kisutch*, age 1+
chum0+	*Oncorhynchus keta*, age 0+
sock1+	*Oncorhynchus nerka*, age 1+
Dolly V.	*Salvelinus malma*, any age
trout0+	*Oncorhynchus mykiss* or *O. clarki*, age 0+
rb1+ or >	*Oncorhynchus mykiss*, age 1+ or greater, but not adult steelhead
ct1+ or >	*Oncorhynchus clarki*, age 1+ or greater
whitefish	*Prosopium williamsoni*, any age
Cottid sp.	genus *Cottus*, species not identified
3spine	*Gasterosteus acluleatus*
St.flounder	*Platichthys stellatus*
sucker	genus *Catostomus*, species not identified
Lk.chub	*Couesius plumbeus*
Peamth	*Mylocheilus caurinus*
Sh.perch	*Cymatogaster aggregata*
Y.perch	*Perca flavescens*
S.Smelt	*Hypomesus pretiosus pretiosus*, any age

Key for site names used in appendix tables:

Site	Description
BrSl-diked	Fyke trap sample from Brown Slough upstream of the cross levee.
BrSl-lb	Fyke trap sample from the leftbank barrow channel on the Skagit bay side of the Brown Slough cross levee.
Cattail-low	Fyke trap sample from the outlet channel of lower Cattail channel.
Cattail-up	Fyke trap sample from the outlet channel of upper Cattail channel.
DWbs (e+w)	Beach seine sample from DWbs-e and DWbs-w combined.
DWbs-e	Beach seine sample collected in the eastern lobe of the pond formed at the head end of the Deepwater Slough site.
DWbs-w	Beach seine sample collected in the western lobe of the pond formed at the head end of the Deepwater Slough site.
DWtr	Fyke trap sample from the outlet channel of the Deepwater Slough site.
FWPbs-n	Beach seine sample collected in the northern pond at the Freshwater Pond site.
FWPbs-s	Beach seine sample collected in the southern pond at the Freshwater Pond site.
FWPtr	Fyke trap sample from the outlet channel of the Freshwater Pond site.
GRbs	Beach seine sample collected in the pond at the Grain of Sand site.
GRtr	Fyke trap sample from the outlet channel of the Grain of Sand site.
IKAbs	Beach seine sample collected at low tide in the impounded area imediately upstream of the Fyke trap site at upper Ika channel.
IKAdwn	Fyke trap sample from the outlet channel of the downstream Ika marsh channel
IKAup	Fyke trap sample from the outlet channel of the upstream Ika marsh channel site. This sample includes the round-haul of impounded area immediately upstream of the trap site at low tide.
NF#6	Beach seine sample collected along a RB sandbar in the main channel of the North Fork Skagit River (RM 1.0) near Fishtown.
NF#7	Beach seine sample collected in the RB blind channel of the North Fork Skagit River (RM 1.0) near Fishtown.
SF#4	Beach seine sample collected along a RB sandbar in the main channel of South Fork Skagit River (RM 7.7) near Conway.
TM	Fyke trap sample from the outlet channel of the Tom Moore site.

1995 Beach Seine Catch Data - Salmon and Trout

SITE	DATE	year	week	chin0+	chin0+ad	chin1+	coho0+	coho1+	chum0+	sock1+	Dolly V.	trout0+	rb1+ or >	ct1+ or >
DWbs (e+w)	04/17/95	1995	16	4	0	0	0	10	2	0	0	0	0	0
DWbs (e+w)	05/15/95	1995	20	44	0	0	0	30	91	0	0	0	0	0
DWbs (e+w)	05/30/95	1995	22	5	0	0	0	1	3	0	0	0	0	0
DWbs (e+w)	07/17/95	1995	29	0	1	0	10	0	0	0	0	0	0	0
DWbs (e+w)	08/01/95	1995	31	0	0	0	0	0	0	0	0	0	0	0
DWbs (e+w)	08/12/95	1995	32	0	0	0	0	0	0	0	0	0	0	0
DWbs-e	02/16/95	1995	7	9	0	0	0	0	0	3	0	0	0	1
DWbs-e	02/17/95	1995	7	0	0	0	0	0	0	4	0	0	0	0
DWbs-e	03/20/95	1995	12	6	0	0	0	0	0	0	0	0	0	0
DWbs-e	04/03/95	1995	14	23	0	0	0	0	6	0	0	0	0	0
DWbs-w	02/16/95	1995	7	0	0	0	0	0	0	0	0	0	0	0
DWbs-w	02/17/95	1995	7	1	0	0	0	0	0	0	0	0	0	2
DWbs-w	03/20/95	1995	12	1	0	0	0	0	0	0	0	0	0	1
DWbs-w	04/03/95	1995	14	11	0	0	0	0	6	0	0	0	0	0
FWPbs-n	03/07/95	1995	10	64	0	0	0	0	0	0	0	0	0	0
FWPbs-n	04/18/95	1995	16	170	0	0	0	0	67	0	0	0	0	0
FWPbs-n	05/16/95	1995	20	137	0	0	0	8	26	0	0	0	0	0
FWPbs-n	05/31/95	1995	22	18	0	0	0	2	12	0	0	0	0	0
FWPbs-n	06/14/95	1995	24	3	0	0	0	0	0	0	0	0	0	0
FWPbs-n	07/18/95	1995	29	0	0	0	0	0	0	0	0	0	0	0
FWPbs-n	08/15/95	1995	33	0	0	0	0	0	0	0	0	0	0	0
FWPbs-s	03/07/95	1995	10	20	0	0	0	0	1	0	0	0	0	0
FWPbs-s	04/18/95	1995	16	55	0	0	0	0	59	0	0	0	0	0
FWPbs-s	05/16/95	1995	20	103	0	0	0	12	9	0	0	0	0	0
FWPbs-s	05/31/95	1995	22	11	0	0	0	18	46	0	0	0	0	0
FWPbs-s	06/14/95	1995	24	25	0	0	0	5	0	0	0	0	0	0
FWPbs-s	07/18/95	1995	29	0	0	0	0	0	0	0	0	0	0	0
FWPbs-s	08/15/95	1995	33	0	0	0	0	0	0	0	0	0	0	0
GRbs	02/17/95	1995	7	14	0	0	0	0	0	0	0	0	0	0
GRbs	03/06/95	1995	10	34	0	0	0	0	0	0	0	0	0	0
GRbs	03/20/95	1995	12	5	0	0	0	0	1	0	0	0	0	0
GRbs	04/03/95	1995	14	49	0	0	0	0	201	0	0	0	0	0
GRbs	04/17/95	1995	16	12	0	0	1	0	110	0	0	0	0	0
GRbs	05/15/95	1995	20	7	0	0	2	0	58	0	0	0	0	0

1995 Beach Seine Catch Data - Salmon and Trout

SITE	DATE	year	week	chin0+	chin0+ad	chin1+	coho0+	coho1+	chum0+	sock1+	Dolly V.	trout0+	rb1+ or >	ct1+ or >
GRbs	07/17/95	1995	29	0	0	0	0	0	0	0	0	0	0	0
GRbs	08/01/95	1995	31	0	0	0	0	0	0	0	0	0	0	0
GRbs	08/12/95	1995	32	0	0	0	0	0	0	0	0	0	0	0
IKAbs	04/05/95	1995	14	14	0	0	0	0	88	0	0	0	0	0
IKAbs	05/17/95	1995	20	10	0	0	0	212	28	0	0	0	0	0
IKAbs	06/15/95	1995	24	75	0	0	0	25	2	0	1	0	0	0
NF#6	04/17/95	1995	16	0	0	0	0	0	0	0	0	0	0	0
NF#6	04/17/95	1995	16	0	0	0	0	0	2	0	0	0	0	0
NF#6	04/17/95	1995	16	0	0	0	0	0	1	0	0	0	0	0
NF#6	04/19/95	1995	16	0	0	0	0	0	1	0	0	0	0	0
NF#6	04/19/95	1995	16	0	0	0	0	0	11	0	0	0	0	0
NF#6	04/19/95	1995	16	0	0	0	0	0	68	0	0	0	0	0
NF#7	04/17/95	1995	16	0	0	0	0	0	10	0	0	0	0	0
NF#7	04/19/95	1995	16	19	0	0	0	0	312	0	0	0	0	0
SF#4	04/18/95	1995	16	3	0	0	0	0	34	0	0	0	0	0

1995 Beach Seine Catch Data - Species other than salmon and trout

SITE	DATE	year	week	whitefish	Cottid sp	3spine	St.flound	sucker	Lk.chub	Peamth	Sh.perch	Y.perch	S.Smelt
DWbs (e+w)	04/17/95	1995	16	0	0	7	0	0	5	122	0	0	0
DWbs (e+w)	05/15/95	1995	20	0	0	45	0	0	858	0	0	0	0
DWbs (e+w)	05/30/95	1995	22	0	0	5	0	0	0	0	0	0	0
DWbs (e+w)	07/17/95	1995	29	0	0	0	0	0	0	0	0	0	0
DWbs (e+w)	08/01/95	1995	31	0	0	0	0	0	0	0	0	0	0
DWbs (e+w)	08/12/95	1995	32	0	0	225	0	25	0	0	0	0	0
DWbs-e	02/16/95	1995	7	0	0	29	0	0	4	3	0	0	0
DWbs-e	02/17/95	1995	7	0	0	10	0	0	0	0	0	0	1
DWbs-e	03/20/95	1995	12	0	0	10	0	0	0	0	0	0	0
DWbs-e	04/03/95	1995	14	1	0	4	0	0	0	0	0	0	0
DWbs-w	02/16/95	1995	7	0	0	25	0	0	0	0	0	0	0
DWbs-w	02/17/95	1995	7	0	0	8	0	0	4	0	0	0	0
DWbs-w	03/20/95	1995	12	0	0	0	0	1	1	0	0	0	0
DWbs-w	04/03/95	1995	14	0	1	2	0	0	1	0	0	0	0
FWPbs-n	03/07/95	1995	10	0	0	345	1	0	1	0	0	0	0
FWPbs-n	04/18/95	1995	16	0	0	7500	0	0	10	0	0	0	0
FWPbs-n	05/16/95	1995	20	0	10	1236	12	0	150	0	0	0	0
FWPbs-n	05/31/95	1995	22	0	3	53	1	0	1	0	0	0	0
FWPbs-n	06/14/95	1995	24	0	0	501	0	0	0	0	0	0	0
FWPbs-n	07/18/95	1995	29	0	0	250	0	0	75	0	0	0	0
FWPbs-n	08/15/95	1995	33	0	0	300	4	0	0	0	2	0	0
FWPbs-s	03/07/95	1995	10	0	0	35	1	0	0	0	0	0	2
FWPbs-s	04/18/95	1995	16	0	0	632	0	0	0	0	0	0	0
FWPbs-s	05/16/95	1995	20	0	2	81	0	2	8	0	0	0	0
FWPbs-s	05/31/95	1995	22	0	1	31	0	0	0	0	0	0	0
FWPbs-s	06/14/95	1995	24	0	0	0	0	0	0	0	0	0	0
FWPbs-s	07/18/95	1995	29	0	0	500	0	0	0	0	0	0	0
FWPbs-s	08/15/95	1995	33	0	0	150	0	0	0	0	0	0	0
GRbs	02/17/95	1995	7	0	0	0	11	0	6	0	0	0	0
GRbs	03/06/95	1995	10	0	0	41	0	0	4	0	0	0	0
GRbs	03/20/95	1995	12	0	0	4	0	0	24	0	0	0	0
GRbs	04/03/95	1995	14	0	0	41	0	0	6	0	0	0	0
GRbs	04/17/95	1995	16	2	0	10	0	0	11	3	0	0	0
GRbs	05/15/95	1995	20	0	0	15	0	1	0	0	0	0	0

1995 Beach Seine Catch Data - Species other than salmon and trout

SITE	DATE	year	week	whitefish	Cottid sp	3spine	St.flound	sucker	Lk.chub	Peamth	Sh.perch	Y.perch	S.Smelt
GRbs	07/17/95	1995	29	0	0	250	0	0	0	0	0	0	0
GRbs	08/01/95	1995	31	0	0	300	0	0	0	0	0	0	0
GRbs	08/12/95	1995	32	0	0	74	0	0	0	0	0	0	0
IKAbs	04/05/95	1995	14	0	0	17	0	0	0	0	0	0	0
IKAbs	05/17/95	1995	20	0	4	0	0	0	5	0	0	0	0
IKAbs	06/15/95	1995	24	0	0	0	0	0	0	0	0	0	0
NF#6	04/17/95	1995	16	0	0	0	1	0	0	0	0	0	0
NF#6	04/17/95	1995	16	0	0	0	0	0	0	0	0	0	0
NF#6	04/17/95	1995	16	0	0	0	4	0	0	0	0	0	0
NF#6	04/19/95	1995	16	0	0	0	6	0	0	0	0	0	0
NF#6	04/19/95	1995	16	0	0	0	8	0	0	0	0	0	0
NF#6	04/19/95	1995	16	0	0	0	0	0	0	0	0	0	0
NF#7	04/17/95	1995	16	0	0	5	0	0	0	0	0	0	0
NF#7	04/19/95	1995	16	0	0	0	0	0	0	0	0	0	0
SF#4	04/18/95	1995	16	0	1	1	2	0	0	0	0	0	0

1995 Fyke Trap Catch Data - Salmon and Trout

SITE	DATE	year	week	chin0+	chin0+ad	chin1+	coho0+	coho1+	chum0+	sock1+	Dolly V.	trout0+	rb1+ or >	ct1+ or >
BrSl-diked	04/20/95	1995	16	62	0	0	0	2	14	0	0	0	0	1
BrSl-diked	05/03/95	1995	18	9	0	0	0	1	0	0	0	0	0	0
BrSl-diked	05/18/95	1995	20	113	0	1	0	0	106	0	0	0	0	0
BrSl-diked	06/02/95	1995	22	0	0	0	0	0	0	0	0	0	0	0
BrSl-diked	06/13/95	1995	24	1	0	0	0	0	0	0	0	0	0	0
BrSl-lb	03/09/95	1995	10	48	0	0	0	0	0	0	0	0	0	0
BrSl-lb	03/23/95	1995	12	161	0	0	0	0	50	0	0	0	0	0
BrSl-lb	04/06/95	1995	14	154	0	0	0	0	110	0	0	0	0	0
BrSl-lb	04/20/95	1995	16	60	0	0	0	0	53	0	0	0	0	0
BrSl-lb	05/03/95	1995	18	197	0	0	0	0	118	0	0	0	0	0
BrSl-lb	05/18/95	1995	20	47	0	0	0	16	63	0	0	0	0	0
BrSl-lb	06/02/95	1995	22	1	0	0	0	0	0	0	0	0	0	0
BrSl-lb	06/13/95	1995	24	0	0	0	0	0	0	0	0	0	0	0
Cattail-low	03/08/95	1995	10	0	0	0	0	0	0	0	0	0	0	0
Cattail-low	03/22/95	1995	12	1	0	0	0	0	4	0	0	0	0	0
Cattail-up	04/05/95	1995	14	1	0	0	0	0	0	0	0	0	0	0
Cattail-up	04/19/95	1995	16	4	0	0	0	0	1	0	0	0	0	0
Cattail-up	05/17/95	1995	20	10	0	0	1	2	0	0	0	0	0	0
Cattail-up	06/01/95	1995	22	6	0	0	0	2	0	0	1	0	0	0
Cattail-up	06/15/95	1995	24	0	0	0	0	0	0	0	0	0	0	0
DWtr	02/16/95	1995	7	2	0	0	0	0	0	0	0	0	1	0
DWtr	02/17/95	1995	7	1	0	0	0	0	0	3	0	0	4	0
DWtr	03/06/95	1995	10	1	0	0	0	0	0	0	0	0	1	0
DWtr	03/20/95	1995	12	4	0	0	0	0	0	0	0	0	4	0
DWtr	04/03/95	1995	14	26	0	0	0	0	0	0	0	0	2	0
DWtr	04/17/95	1995	16	17	0	0	0	0	6	0	0	0	0	0
DWtr	05/15/95	1995	20	33	0	0	0	1	43	0	1	0	0	0
DWtr	05/30/95	1995	22	3	0	0	0	0	0	0	1	0	1	0
DWtr	06/12/95	1995	24	3	0	0	0	0	0	0	0	0	0	0
DWtr	06/26/95	1995	26	0	0	0	0	0	0	0	0	0	0	0
DWtr	07/17/95	1995	29	1	0	0	0	0	0	0	0	0	0	0
DWtr	08/01/95	1995	31	0	0	0	1	0	0	0	0	0	0	0
DWtr	08/12/95	1995	32	0	0	0	2	0	0	0	0	0	0	0
FWPtr	03/07/95	1995	10	138	0	0	0	0	0	0	0	0	0	0
FWPtr	04/18/95	1995	16	0	0	0	0	0	1	0	0	0	0	0

1995 Fyke Trap Catch Data - Salmon and Trout

SITE	DATE	year	week	chin0+	chin0+ad	chin1+	coho0+	coho1+	chum0+	sock1+	Dolly V.	trout0+	rb1+ or >	ct1+ or >
FWPtr	05/16/95	1995	20	9	0	0	0	0	4	0	0	0	0	0
FWPtr	05/31/95	1995	22	12	0	0	0	0	1	0	0	0	0	0
FWPtr	06/14/95	1995	24	16	0	0	0	0	2	0	0	0	0	0
FWPtr	07/18/95	1995	29	0	0	0	0	0	0	0	0	0	0	0
FWPtr	08/15/95	1995	33	0	0	0	0	0	0	0	0	0	0	0
GRtr	02/17/95	1995	7	4	0	0	0	0	0	0	0	0	0	1
GRtr	03/06/95	1995	10	3	0	0	0	0	0	0	0	0	0	0
GRtr	03/20/95	1995	12	5	0	0	0	0	2	0	0	0	0	0
GRtr	04/03/95	1995	14	62	0	0	0	0	350	0	0	0	0	0
GRtr	04/17/95	1995	16	9	0	0	0	0	571	0	0	0	1	0
GRtr	05/15/95	1995	20	2	0	0	0	0	91	0	1	0	2	0
GRtr	05/30/95	1995	22	5	0	0	0	3	0	0	0	0	3	0
GRtr	06/12/95	1995	24	0	0	0	0	2	0	0	0	1	0	1
GRtr	06/26/95	1995	26	0	0	0	0	0	0	0	0	0	0	0
GRtr	07/17/95	1995	29	0	0	0	4	0	0	0	0	0	0	0
GRtr	08/01/95	1995	31	0	0	0	0	0	0	0	0	0	0	0
GRtr	08/12/95	1995	32	0	0	0	2	0	0	0	0	0	0	0
IKAdwn	03/22/95	1995	12	46	0	1	0	0	16	1	1	0	0	0
IKAdwn	04/09/95	1995	14	30	0	0	0	0	161	0	0	0	0	0
IKAdwn	04/19/95	1995	16	10	0	0	0	0	20	0	0	0	0	0
IKAdwn	05/17/95	1995	20	98	0	0	0	103	315	0	0	0	3	0
IKAdwn	06/01/95	1995	22	5	0	0	0	9	7	0	0	0	0	0
IKAdwn	06/15/95	1995	24	0	0	0	0	0	1	0	0	0	0	0
IKAdwn	08/14/95	1995	33	0	0	0	0	0	0	0	0	0	0	0
IKAup	03/22/95	1995	12	161	0	0	0	0	109	0	0	1	0	0
IKAup	04/05/95	1995	14	5	0	0	0	0	0	0	0	0	0	0
IKAup	04/19/95	1995	16	52	0	0	0	1	413	0	0	0	0	0
IKAup	05/17/95	1995	20	11	0	0	0	213	38	0	0	0	2	0
IKAup	06/01/95	1995	22	0	0	0	0	0	0	0	0	0	0	0
IKAup	06/15/95	1995	24	75	0	0	0	25	2	0	7	0	0	0
IKAup	08/14/95	1995	33	0	0	0	0	0	0	0	0	0	0	0
TM	03/07/95	1995	10	15	0	0	0	0	1	0	0	0	0	0
TM	04/18/95	1995	16	10	0	0	0	0	0	0	0	0	0	0
TM	05/16/95	1995	20	1	0	0	0	0	44	0	0	0	0	0
TM	05/31/95	1995	22	10	0	0	0	14	40	0	0	0	0	1

1995 Fyke Trap Catch Data - Salmon and Trout

SITE	DATE	year	week	chin0+	chin0+ad	chin1+	coho0+	coho1+	chum0+	sock1+	Dolly V.	trout0+	rb1+ or >	ct1+ or >
TM	06/14/95	1995	24	0	0	0	0	0	0	0	0	0	0	0
TM	08/15/95	1995	33	0	0	0	0	0	0	0	0	0	0	0

1995 Fyke Trap Catch Data - Species other than salmon and trout

SITE	DATE	year	week	whitefish	Cottid sp	3spine	St.flound	sucker	Lk.chub	Peamth	Sh.perch	Y.perch	S.Smelt
BrSl-diked	04/20/95	1995	16	0	7	65	0	0	0	0	0	0	93
BrSl-diked	05/03/95	1995	18	0	7	1	0	0	0	0	6	0	0
BrSl-diked	05/18/95	1995	20	0	91	3075	11	0	0	0	100	0	370
BrSl-diked	06/02/95	1995	22	0	10	5000	0	0	0	0	0	0	0
BrSl-diked	06/13/95	1995	24	0	na	na	0	0	0	0	0	0	0
BrSl-lb	03/09/95	1995	10	0	2	125	0	0	0	0	0	0	20
BrSl-lb	03/23/95	1995	12	0	0	197	0	0	0	0	0	0	10
BrSl-lb	04/06/95	1995	14	0	0	1940	0	0	0	0	0	0	87
BrSl-lb	04/20/95	1995	16	0	12	340	0	0	0	0	0	0	88
BrSl-lb	05/03/95	1995	18	0	100	500	5	0	0	0	6	0	0
BrSl-lb	05/18/95	1995	20	0	150	2000	30	0	0	0	1200	0	0
BrSl-lb	06/02/95	1995	22	0	10	2600	0	0	0	0	150	0	0
BrSl-lb	06/13/95	1995	24	0	0	2000	0	0	0	0	150	0	0
Cattail-low	03/08/95	1995	10	0	0	0	0	0	0	0	0	0	0
Cattail-low	03/22/95	1995	12	0	0	0	0	0	0	0	0	0	0
Cattail-up	04/05/95	1995	14	0	0	11	0	0	0	0	0	0	0
Cattail-up	04/19/95	1995	16	0	0	10	1	0	0	0	0	0	0
Cattail-up	05/17/95	1995	20	0	0	24	0	0	0	0	0	0	0
Cattail-up	06/01/95	1995	22	0	2	1	0	0	0	0	0	0	0
Cattail-up	06/15/95	1995	24	0	9	5	0	0	0	0	0	0	0
DWtr	02/16/95	1995	7	0	2	1	0	0	4	2	0	0	0
DWtr	02/17/95	1995	7	0	11	3	0	0	0	3	0	0	0
DWtr	03/06/95	1995	10	0	3	0	0	0	0	0	0	0	0
DWtr	03/20/95	1995	12	7	6	4	0	0	0	0	0	0	0
DWtr	04/03/95	1995	14	0	6	0	0	0	0	0	0	0	0
DWtr	04/17/95	1995	16	0	20	0	0	0	0	0	0	0	0
DWtr	05/15/95	1995	20	0	33	0	0	1	0	0	0	2	0
DWtr	05/30/95	1995	22	0	93	0	0	0	0	5	0	0	0
DWtr	06/12/95	1995	24	0	107	0	0	0	0	0	0	0	0
DWtr	06/26/95	1995	26	0	17	0	0	0	0	0	0	0	0
DWtr	07/17/95	1995	29	0	0	0	0	0	0	0	0	0	0
DWtr	08/01/95	1995	31	0	4	0	0	0	0	0	0	0	0
DWtr	08/12/95	1995	32	0	55	0	0	0	0	0	0	0	0
FWPtr	03/07/95	1995	10	0	0	0	1	0	0	0	0	0	0
FWPtr	04/18/95	1995	16	0	0	1	0	0	0	0	0	0	0
FWPtr	05/16/95	1995	20	0	2	3	0	1	0	0	0	0	0

1995 Fyke Trap Catch Data - Species other than salmon and trout

SITE	DATE	year	week	whitefish	Cottid sp	3spine	St.flound	sucker	Lk.chub	Peamth	Sh.perch	Y.perch	S.Smelt
FWPtr	05/31/95	1995	22	0	118	0	1	2	0	0	0	0	0
FWPtr	06/14/95	1995	24	0	3	5	0	0	0	0	0	0	0
FWPtr	07/18/95	1995	29	0	4	5	0	0	0	0	1	0	0
FWPtr	08/15/95	1995	33	0	3	1	0	0	0	0	1	0	0
GRtr	02/17/95	1995	7	0	0	0	0	0	12	3	0	0	0
GRtr	03/06/95	1995	10	0	0	0	0	0	0	0	0	0	0
GRtr	03/20/95	1995	12	0	0	1	0	0	1	0	0	0	0
GRtr	04/03/95	1995	14	0	0	0	0	0	0	0	0	0	0
GRtr	04/17/95	1995	16	0	0	1	0	0	0	0	0	0	0
GRtr	05/15/95	1995	20	0	2	0	0	0	0	18	0	0	0
GRtr	05/30/95	1995	22	0	0	0	0	0	0	0	0	0	0
GRtr	06/12/95	1995	24	0	28	0	0	0	0	0	0	0	0
GRtr	06/26/95	1995	26	0	4	1	0	0	0	0	0	0	0
GRtr	07/17/95	1995	29	0	0	0	0	0	0	0	0	0	0
GRtr	08/01/95	1995	31	0	5	2	0	0	0	0	0	0	0
GRtr	08/12/95	1995	32	0	2	1	0	0	0	0	0	0	0
IKAdwn	03/22/95	1995	12	0	1	2	1	0	0	0	0	0	0
IKAdwn	04/09/95	1995	14	0	6	15	0	0	0	0	0	0	0
IKAdwn	04/19/95	1995	16	0	0	0	0	0	0	0	0	0	0
IKAdwn	05/17/95	1995	20	0	40	0	1	0	1	0	0	0	0
IKAdwn	06/01/95	1995	22	0	24	5	1	0	0	3	1	0	0
IKAdwn	06/15/95	1995	24	0	0	5	0	0	0	0	0	0	0
IKAdwn	08/14/95	1995	33	0	53	0	12	0	0	0	4	0	0
IKAup	03/22/95	1995	12	0	5	20	1	0	0	0	0	0	0
IKAup	04/05/95	1995	14	0	0	6	0	0	0	0	0	0	0
IKAup	04/19/95	1995	16	0	0	137	0	0	0	0	0	0	0
IKAup	05/17/95	1995	20	0	4	0	0	0	5	0	0	0	0
IKAup	06/01/95	1995	22	0	1	0	0	0	0	0	0	0	0
IKAup	06/15/95	1995	24	0	1	4	0	0	0	0	0	0	0
IKAup	08/14/95	1995	33	0	1	0	0	2	0	0	2	0	1
TM	03/07/95	1995	10	0	0	30	0	0	0	0	0	0	0
TM	04/18/95	1995	16	0	0	400	0	0	0	0	0	0	0
TM	05/16/95	1995	20	0	13	85	0	0	1	1	6	0	0
TM	05/31/95	1995	22	0	25	46	0	1	0	0	0	0	0
TM	06/14/95	1995	24	0	4	11	0	0	0	0	0	0	0
TM	08/15/95	1995	33	0	0	15	2	0	0	0	3	0	0

APPENDIX 6

Key for site names used in appendix tables:

Site	Description
BrSl-lb	Fyke trap sample from the leftbank barrow channel on the Skagit bay side of the Brown Slough cross levee.
Brown Slough	Beach seine samples from large blind channel habitat of Brown Slough. Data from Beamer and LaRock (1995).
DWbs (e+w)	Beach seine sample from DWbs-e and DWbs-w combined.
DWtr	Fyke trap sample from the outlet channel of the Deepwater Slough site.
FWPtot	Samples collected in all Freshwater Pond site habitats . Records only occur when complete trap and beach seine data are collected on the same date and tide.
GRtot	Samples collected in all Grain of Sand site habitats. Records only occur when complete trap and beach seine data are collected on the same date and tide.
IKAtot	Combined samples from the Ika marsh channel sites. Records only occur when complete trap and beach seine data are collected on the same date and tide.
TM	Fyke trap sample from the outlet channel of the Tom Moore site.

SITE	Gear	DATE	year	week	Chin (age 0+) per ha. @MLW
DWbs (e+w)	beachseine	04/17/95	1995	16	105.3
DWbs (e+w)	beachseine	05/15/95	1995	20	1157.9
DWbs (e+w)	beachseine	05/30/95	1995	22	131.6
DWbs (e+w)	beachseine	07/17/95	1995	29	0.0
DWbs (e+w)	beachseine	08/01/95	1995	31	0.0
DWbs (e+w)	beachseine	08/12/95	1995	32	0.0
Brown Slough	beachseine	04/13/95	1995	15	4102.4
Brown Slough	beachseine	04/21/95	1995	16	534.9
Brown Slough	beachseine	05/03/95	1995	18	1360.3
Brown Slough	beachseine	05/10/95	1995	19	1417.5

Site	Date	Year	Management Week	Ending Gage level (cm)	Tidal Drop (cm)	Chinook age 0+ catch	Recovery Efficiency RE	Chinook age 0+ Population	Chinook age 0+ egress	Mean Low Tide (MLW) Area (m^2)	Chin (age 0+) per ha. @MLW
DWtr	01/24/92	1992	4			0	0.55	0	0	1068	0.0
DWtr	02/05/92	1992	6			0	0.55	0	0	1068	0.0
DWtr	02/25/92	1992	9			4	0.55	7	4	1068	30.6
DWtr	03/12/92	1992	11			132	0.55	240	132	1068	1011.2
DWtr	03/24/92	1992	13			49	0.55	89	49	1068	375.4
DWtr	04/07/92	1992	15			31	0.55	56	31	1068	237.5
DWtr	04/21/92	1992	17			47	0.55	85	47	1068	360.1
DWtr	05/05/92	1992	19			29	0.55	53	29	1068	222.2
DWtr	05/19/92	1992	21			165	0.55	300	165	1068	1264.0
DWtr	06/02/92	1992	23			81	0.55	147	81	1068	620.5
DWtr	06/16/92	1992	25			58	0.55	105	58	1068	444.3
DWtr	06/30/92	1992	27			20	0.55	36	20	1068	153.2
DWtr	07/17/92	1992	29			0	0.55	0	0	1068	0.0
DWtr	08/04/92	1992	32			1	0.55	2	1	1068	7.7
DWtr	08/18/92	1992	34			2	0.55	4	2	1068	15.3
DWtr	09/01/92	1992	36			1	0.55	2	1	1068	7.7
DWtr	09/12/92	1992	37			0	0.55	0	0	1068	0.0
DWtr	09/29/92	1992	40			0	0.55	0	0	1068	0.0
DWtr	10/12/92	1992	42			0	0.55	0	0	1068	0.0
DWtr	10/30/92	1992	44			0	0.55	0	0	1068	0.0
DWtr	11/11/92	1992	46			0	0.55	0	0	1068	0.0
DWtr	11/26/92	1992	48			0	0.55	0	0	1068	0.0
DWtr	12/15/92	1992	51			0	0.55	0	0	1068	0.0
DWtr	12/29/92	1993	1			0	0.55	0	0	1068	0.0
DWtr	02/11/93	1993	7			6	0.55	11	6	1068	46.0
DWtr	02/25/93	1993	9			7	0.55	13	7	1068	53.6
DWtr	03/25/93	1993	13			37	0.55	67	37	1068	283.5
DWtr	04/13/93	1993	16			51	0.55	93	51	1068	390.7
DWtr	04/27/93	1993	18			20	0.55	36	20	1068	153.2
DWtr	06/22/93	1993	26			33	0.55	60	33	1068	252.8
DWtr	03/21/94	1994	13			14	0.55	25	14	1068	107.3
DWtr	04/27/94	1994	18			118	0.55	215	118	1068	904.0
DWtr	02/16/95	1995	7			2	0.55	4	2	1068	15.3
DWtr	02/17/95	1995	7			1	0.55	2	1	1068	7.7
DWtr	03/06/95	1995	10			1	0.55	2	1	1068	7.7
DWtr	03/20/95	1995	12			4	0.55	7	4	1068	30.6
DWtr	04/03/95	1995	14			26	0.55	47	26	1068	199.2
DWtr	04/17/95	1995	16			17	0.55	31	17	1068	130.2
DWtr	05/15/95	1995	20			33	0.55	60	33	1068	252.8
DWtr	05/30/95	1995	22			3	0.55	5	3	1068	23.0
DWtr	06/12/95	1995	24			3	0.55	5	3	1068	23.0
DWtr	06/26/95	1995	26			0	0.55	0	0	1068	0.0
DWtr	07/17/95	1995	29			1	0.55	2	1	1068	7.7
DWtr	08/01/95	1995	31			0	0.55	0	0	1068	0.0
DWtr	08/12/95	1995	32			0	0.55	0	0	1068	0.0
FWPtot	02/05/92	1992	6	60		1	0.31	3	1	1960	11.5
FWPtot	02/25/92	1992	9	60		20	0.31	65	17	1960	244.4
FWPtot	04/21/92	1992	17	30		436	0.43	1,014	193	1960	4188.5
FWPtot	05/05/92	1992	19	50		174	0.37	475	52	1960	2158.9
FWPtot	05/19/92	1992	21	40		383	0.42	903	6	1960	4575.9
FWPtot	06/02/92	1992	23	42		167	0.41	405	7	1960	2029.3
FWPtot	06/16/92	1992	25	35		34	0.43	79	1	1960	398.3
FWPtot	06/30/92	1992	27	60		12	0.31	39	0	1960	198.7
FWPtot	07/17/92	1992	29	37		9	0.43	21	9	1960	60.9
FWPtot	08/04/92	1992	32	36		0	0.43	0	0	1960	0.0
FWPtot	08/18/92	1992	34	30		0	0.43	0	0	1960	0.0
FWPtot	09/01/92	1992	36	37		0	0.43	0	0	1960	0.0
FWPtot	09/12/92	1992	37	28		0	0.43	0	0	1960	0.0
FWPtot	09/29/92	1992	40	42		0	0.41	0	0	1960	0.0
FWPtot	12/15/92	1992	51	45		0	0.40	0	0	1960	0.0
FWPtot	04/27/93	1993	18	43		482	0.41	1,185	96	1960	5555.4
FWPtot	06/22/93	1993	26	39		81	0.43	188	4	1960	940.7
FWPtot	03/07/95	1995	10	55		222	0.34	658	138	1960	2654.9
FWPtot	04/18/95	1995	16	37		225	0.43	523	0	1960	2669.7
FWPtot	05/16/95	1995	20	72		249	0.24	1,038	9	1960	5247.4
FWPtot	05/31/95	1995	22	73		41	0.24	171	12	1960	810.4
FWPtot	06/14/95	1995	24	56		44	0.33	133	16	1960	595.8
FWPtot	07/18/95	1995	29	35		0	0.43	0	0	1960	0.0
FWPtot	08/15/95	1995	33	31		0	0.43	0	0	1960	0.0
GRtot	04/20/92	1992	17		84	538	0.30	1,781	182	962	16624.5
GRtot	05/04/92	1992	19		62	64	0.22	287	24	962	2730.2
GRtot	05/18/92	1992	21		68	111	0.24	454	33	962	4371.4
GRtot	06/01/92	1992	23		89	62	0.32	194	42	962	1577.9
GRtot	06/15/92	1992	25		71	10	0.26	39	9	962	313.3

Site	Date	Year	Management Week	Ending Gage level (cm)	Tidal Drop (cm)	Chinook age 0+ catch	Recovery Efficiency RE	Chinook age 0+ Population	Chinook age 0+ egress	Mean Low Tide (MLW) Area (m^2)	Chin (age 0+) per ha. @MLW
GRtot	06/29/92	1992	27		91	1	0.33	3	1	962	21.4
GRtot	08/03/92	1992	32		57	0	0.21	0	0	962	0.0
GRtot	08/31/92	1992	36		96	0	0.34	0	0	962	0.0
GRtot	04/26/93	1993	18		78	161	0.28	574	24	962	5715.9
GRtot	05/25/93	1993	22		14	5	0.07	71	17	962	565.8
GRtot	06/23/93	1993	26		27	40	0.10	408	27	962	3963.5
GRtot	04/25/94	1994	18		28	177	0.10	1,743	126	962	16808.6
GRtot	02/17/95	1995	7		87	18	0.31	58	4	962	556.7
GRtot	03/06/95	1995	10		58	37	0.21	177	3	962	1809.5
GRtot	03/20/95	1995	12		90	10	0.32	31	5	962	269.3
GRtot	04/03/95	1995	14		48	111	0.17	641	62	962	6019.4
GRtot	04/17/95	1995	16		116	21	0.42	50	9	962	430.4
GRtot	05/15/95	1995	20		97	9	0.35	26	2	962	247.6
GRtot	07/17/95	1995	29		103	0	0.37	0	0	962	0.0
GRtot	08/01/95	1995	31	na		0	na	0	0	962	0.0
GRtot	08/12/95	1995	32		81	0	0.29	0	0	962	0.0

Site	Date	Year	Management Week	Ending Gage level (cm)	Tidal Drop (cm)	Chinook age 0+ catch	Recovery Efficiency RE	Chinook age 0+ Population	Bankfull Channel Area (m^2	Chin (age 0+) per ha. of bankfull channel
BrSl-lb	03/09/95	1995	10			48	0.94	51	1962	260.3
BrSl-lb	03/23/95	1995	12			161	0.94	171	1962	873.0
BrSl-lb	04/06/95	1995	14			154	0.94	164	1962	835.0
BrSl-lb	04/20/95	1995	16			60	0.94	64	1962	325.3
BrSl-lb	05/03/95	1995	18			197	0.94	210	1962	1068.2
BrSl-lb	05/18/95	1995	20			47	0.94	50	1962	254.8
BrSl-lb	06/02/95	1995	22			1	0.94	1	1962	5.4
BrSl-lb	06/13/95	1995	24			0	0.94	0	1962	0.0
IKAtot	03/08/95	1995	10		125	22	0.17	126	2373	530.6
IKAtot	03/22/95	1995	12		192	207	0.27	767	2373	3230.8
IKAtot	04/05/95	1995	14		112	49	0.16	306	2373	1290.6
IKAtot	04/19/95	1995	16		142	62	0.23	269	2373	1134.5
IKAtot	05/17/95	1995	20		155	109	0.27	404	2373	1701.2
IKAtot	06/01/95	1995	22		85	5	0.16	31	2373	131.7
IKAtot	06/15/95	1995	24		197	75	0.27	278	2373	1170.6
IKAtot	08/14/95	1995	33		116	0	0.16	0	2373	0.0
TM	01/08/92	1992	2	54		0	0.24	0	1024	0.0
TM	01/23/92	1992	4	57		0	0.20	0	1024	0.0
TM	02/06/92	1992	6	54		5	0.24	21	1024	202.0
TM	02/24/92	1992	9	52		118	0.27	442	1024	4320.7
TM	03/11/92	1992	11	27		39	0.58	67	1024	657.6
TM	03/25/92	1992	13	6		37	0.74	50	1024	488.3
TM	04/08/92	1992	15	19		4	0.68	6	1024	57.5
TM	04/22/92	1992	17	10		10	0.74	14	1024	132.0
TM	05/06/92	1992	19	28		18	0.57	32	1024	310.2
TM	05/20/92	1992	21	21		7	0.65	11	1024	104.5
TM	06/03/92	1992	23	26		0	0.59	0	1024	0.0
TM	06/17/92	1992	25	19		0	0.68	0	1024	0.0
TM	07/01/92	1992	27	30		0	0.54	0	1024	0.0
TM	07/18/92	1992	29	20		0	0.67	0	1024	0.0
TM	08/05/92	1992	32	70		0	0.15	0	1024	0.0
TM	09/02/92	1992	36	50		0	0.29	0	1024	0.0
TM	09/28/92	1992	40	44		0	0.37	0	1024	0.0
TM	10/13/92	1992	42	54		0	0.24	0	1024	0.0
TM	10/28/92	1992	44	129		0	0.15	0	1024	0.0
TM	11/12/92	1992	46	124		0	0.15	0	1024	0.0
TM	11/27/92	1992	48	110		0	0.15	0	1024	0.0
TM	12/16/92	1992	51	36		0	0.47	0	1024	0.0
TM	02/10/93	1993	7	66		0	0.15	0	1024	0.0
TM	02/26/93	1993	9	8		11	0.74	15	1024	145.2
TM	03/26/93	1993	13	55		203	0.23	886	1024	8649.3
TM	04/14/93	1993	16	27		3	0.58	5	1024	50.6
TM	04/28/93	1993	18	47		20	0.33	61	1024	593.3
TM	06/21/93	1993	26	63		5	0.15	33	1024	325.5
TM	06/25/94	1994	26	5		13	0.74	18	1024	171.6
TM	03/07/95	1995	10	36		15	0.47	32	1024	313.9
TM	04/18/95	1995	16	60		10	0.17	60	1024	585.8
TM	05/16/95	1995	20	42		1	0.39	3	1024	24.9
TM	05/31/95	1995	22	19		10	0.68	15	1024	143.8
TM	06/14/95	1995	24	39		0	0.43	0	1024	0.0
TM	08/15/95	1995	33	37		0	0.45	0	1024	0.0

APPENDIX 7

Trawl Skagit Bay trawl samples collected in 1995.

Total tows 65

Date	Location	Depth (ft)	Time Set	Time Haul	Duration	Chinook	Coho	Chum	Sockeye	Steelhead	Trout	Dolly
						65	0	0	0	0	0	0
05/04/95	W of Kikitt, sight of Deception	30	11:23 AM	11:38 AM	15	6						
05/04/95	Pt of Kikitt		11:53 AM	12:03 PM	10							
05/04/95	N of Alda spit	12	12:36 PM	12:46 PM	10							
05/04/95	S of Alda spit	25	01:00 PM	01:20 PM	20							
05/04/95	Continue S past Alda spit		01:25 PM	01:45 PM	20							
05/04/95	Sneeoosh between seal rock & beach		02:12 PM	02:22 PM	10							
				Totals	85	6	0	0	0	0	0	0
08/10/95	W Hope Is. - E Hope Is.		09:59 AM	10:08 AM	9	6						
08/10/95	E Hope Is. - W Hope Is		10:15 AM	10:25 AM	10							
08/10/95	W Hope Is. - E Hope Is. more inshore		10:32 AM		28							
08/10/95	E Kikit - W Skagit Is.		11:10 AM	11:30 AM	20							
08/10/95	Ala Spit			aborted								
08/10/95	Ala Spit N side		11:55 AM	12:15 PM	20							
				Totals	87	6	0	0	0	0	0	0
09/01/95	Seal Rock - W. Hope Is.		09:59 AM	10:10 AM	11	6						
09/01/95	W 'Skagit Is. - N Kikit		10:28 AM	10:52 AM	24							
09/01/95	Kikit - Skagit Is. South side		11:10 AM	11:40 AM	30							
09/01/95	NE Hope Is. - NW Hope Is.		12:00 PM	12:30 PM	30							
09/01/95	Sneeosh south		12:55 PM	01:15 PM	20							
09/01/95	Sneeosh - south of islands		01:30 PM	02:00 PM	30							
				Totals	145	6	0	0	0	0	0	0
09/29/95	Cornet Pt., inside (NW)		08:21 AM	08:34 AM	13	10						
09/29/95	Cornet, further in Skagit Bay		08:41 AM	08:51 AM	10							
09/29/95	Skagit Island, North side heading E		09:03 AM	09:13 AM	10							
09/29/95	Skagit Island, North side heading W		09:23 AM	09:33 AM	10							
09/29/95	Ala spit, W around pt and S to park		09:50 AM	10:10 AM	20							
09/29/95	Sneeosh		10:24 AM	10:34 AM	10							
09/29/95	Sneeosh		10:43 AM	10:53 AM	10							
09/29/95	Sneeosh		11:00 AM	11:10 AM	10							
09/29/95	Lone Tree launch to Kikit Island		11:18 AM	11:28 AM	10							
09/29/95	Kikit SE - SW		11:37 AM	11:55 AM	18							
				Totals	121	10	0	0	0	0	0	0
10/20/95	Ala spit, off -> in		09:13 AM	09:21 AM	8	9						
10/20/95	Ala spit, in - off		09:27 AM	09:35 AM	8							
10/20/95	Hope Is N side		09:42 AM	09:58 AM	16							
10/20/95	Hope Is E end > N		10:06 AM	10:15 AM	9							
10/20/95	Kikit Is - Skagit Is S side		10:26 AM	10:40 AM	14							
10/20/95	Kikit across channel to end Skagit Is		10:48 AM	10:59 AM	11							
10/20/95	Kaktit Is - Kikit Is N side, stopped across ch		11:07 AM	11:17 AM	10							
10/20/95	E Kikit Is -> W Kikit Is		11:26 AM	11:42 AM	16							
10/20/95	Inside Kikit Is across Smilk @ 285degrees		11:48 AM	12:00 PM	12							
				Totals	104	9	0	0	0	0	0	0

Trawl Skagit Bay trawl samples collected in 1995.

Total tows 65

Date	Location	Depth (ft)	Time Set	Time Haul	Duration	Sticklebac	Sculpin	Perch	Flatfish	Smelt	Herring	Sand-lance	pricklebac	baitfish (larval)	*cottidae*	Juvenile rockfish/ crab	Inverts		Other	
						10	5	153	20	601	1140	96	44	0	2	10	2079			
05/04/95	W of Kikitt, sight of Deception	30	11:23 AM	11:38 AM	15	0				150	0	0		0			1000	shrimp, gr	1	rockfish
05/04/95	Pt of Kikitt		11:53 AM	12:03 PM	10	1				100	1	2							1	grunt sculpin
05/04/95	N of Alda spit	12	12:36 PM	12:46 PM	10	0				12	0	0					3	jellyfish	2	rockfish
05/04/95	S of Alda spit	25	01:00 PM	01:20 PM	20	0				15	0	0					2	anemone, jellyfish		
05/04/95	Continue S past Alda spit		01:25 PM	01:45 PM	20	0				5	0	1							1	sailfin sculpin
05/04/95	Sneeoosh between seal rock & beach		02:12 PM	02:22 PM	10	0				7	0	0					1	*Cancer pr*	1	rockfish
				Totals	85	1	0	0	0	289	1	3	0	0	0	0	1006	0	6	
08/10/95	W Hope Is. - E Hope Is.		09:59 AM	10:08 AM	9	1														
08/10/95	E Hope Is. - W Hope Is		10:15 AM	10:25 AM	10															
08/10/95	W Hope Is. - E Hope Is. more inshore		10:32 AM		28															
08/10/95	E Kikit - W Skagit Is.		11:10 AM	11:30 AM	20			1									2	jellyfish		
08/10/95	Ala Spit			aborted																
08/10/95	Ala Spit N side		11:55 AM	12:15 PM	20			2	6		38	2	22		1				46	
				Totals	87	1	0	3	6	0	38	2	22	0	1	0	2	0	46	
09/01/95	Seal Rock - W. Hope Is.		09:59 AM	10:10 AM	11	1											3	smal star, 6 grapes, 2 l. resocata		
09/01/95	W 'Skagit Is. - N Kikit		10:28 AM	10:52 AM	24						2									
09/01/95	Kikit - Skagit Is. South side		11:10 AM	11:40 AM	30	1					2									
09/01/95	NE Hope Is. - NW Hope Is.		12:00 PM	12:30 PM	30															
09/01/95	Sneeosh south		12:55 PM	01:15 PM	20			2	1		252	43					2	crab		
09/01/95	Sneeosh - south of islands		01:30 PM	02:00 PM	30		1	70	2		49						1	crab		
				Totals	145	2	1	72	3	0	305	43	0	0	0	0	6	0	0	
09/29/95	Cornet Pt., inside (NW)		08:21 AM	08:34 AM	13												2	jellyfish		
09/29/95	Cornet, further in Skagit Bay		08:41 AM	08:51 AM	10												10	jellyfish		
09/29/95	Skagit Island, North side heading E		09:03 AM	09:13 AM	10						3					2	10	jellyfish		
09/29/95	Skagit Island, North side heading W		09:23 AM	09:33 AM	10												2	jellyfish		
09/29/95	Ala spit, W around pt and S to park		09:50 AM	10:10 AM	20		1				60					2		jellyfish		
09/29/95	Sneeosh		10:24 AM	10:34 AM	10						2									
09/29/95	Sneeosh		10:43 AM	10:53 AM	10															
09/29/95	Sneeosh		11:00 AM	11:10 AM	10															
09/29/95	Lone Tree launch to Kikit Island		11:18 AM	11:28 AM	10															
09/29/95	Kikit SE - SW		11:37 AM	11:55 AM	18											1	1	jellyfish		
				Totals	121	0	1	0	0	0	65	0	0	0	0	5	25	0	0	
10/20/95	Ala spit, off -> in		09:13 AM	09:21 AM	8															
10/20/95	Ala spit, in - off		09:27 AM	09:35 AM	8															
10/20/95	Hope Is N side		09:42 AM	09:58 AM	16															
10/20/95	Hope Is E end > N		10:06 AM	10:15 AM	9					5	5									
10/20/95	Kikit Is - Skagit Is S side		10:26 AM	10:40 AM	14	1				1	31								3	spiny lumpsucker + 2
10/20/95	Kikit across channel to end Skagit Is		10:48 AM	10:59 AM	11		1	3	1		21						1	crab	6	pipefish
10/20/95	Kaktit Is - Kikit Is N side, stopped across ch		11:07 AM	11:17 AM	10	1			1		78									
10/20/95	E Kikit Is -> W Kikit Is		11:26 AM	11:42 AM	16					17	24									
10/20/95	Inside Kikit Is across Smilk @ 285degrees		11:48 AM	12:00 PM	12						163									
				Totals	104	2	1	3	2	23	322	0	0	0	0	0	1	0	9	

APPENDIX 8

APPENDIX 8. Daily summaries of beach seining activity and catches; northern Skagit Bay, 1995

SUMMARY

174 Sets
10 Sample dates

Cumulative catch for 1995	Species
377	Chinook
381	Coho
20604	Chum
539	Sockeye
6	Steelhead
22	Trout
8	Dolly Varden
282	Stickleback
551	Sculpin
6727	Perch
3168	Flatfish
8060	Smelt
6397	Herring
4063	Sandlance
351	Gunnel/prickleback
3	Larval baitfish
0	Misc. Baitfish
400	Juv. Rock/Cottid
10	Shrimp
87	Inverts
227	Other

Summary — Date 11-May-95
22 sets

05:52 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
52	Chinook	0.00	0.00	2.36
28	Coho	0.00	0.00	1.27
13121	Chum	0.87	0.99	596.41
11	Sockeye	0.00	0.00	0.50
0	Steelhead	0.00	0.00	0.00
2	Trout	0.00	0.00	0.09
1	Dolly Varden	0.00	0.00	0.05
1	Stickleback	0.00		0.05
25	Sculpin	0.00		1.14
270	Perch	0.02		12.27
56	Flatfish	0.00		2.55
41	Smelt	0.00		1.86
835	Herring	0.06		37.95
150	Sandlance	0.01		6.82
79	Gunnel/prickleback	0.01		3.59
0	Larval baitfish	0.00		0.00
0	Misc. Baitfish	0.00		0.00
400	Juv. Rock/Cottid	0.03		18.18
0	Shrimp	0.00		0.00
0	Inverts	0.00		0.00
2	Other	0.00		0.09

Summary — Date 19-May-95
28 sets

06:26 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
34	Chinook	0.00	0.00	1.21
329	Coho	0.04	0.04	11.75
7204	Chum	0.83	0.90	257.29
402	Sockeye	0.05	0.05	14.36
0	Steelhead	0.00	0.00	0.00
2	Trout	0.00	0.00	0.07
0	Dolly Varden	0.00	0.00	0.00
17	Stickleback	0.00		0.61
86	Sculpin	0.01		3.07
260	Perch	0.03		9.29
34	Flatfish	0.00		1.21
141	Smelt	0.02		5.04
87	Herring	0.01		3.11
0	Sandlance	0.00		0.00
52	Gunnel/prickleback	0.01		1.86
3	Larval baitfish	0.00		0.11
0	Misc. Baitfish	0.00		0.00
0	Juv. Rock/Cottid	0.00		0.00
0	Shrimp	0.00		0.00
0	Inverts	0.00		0.00
22	Other	0.00		0.79

Summary — Date 08-Jun-95
24 sets

07:07 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
84	Chinook	0.03	0.24	3.50
15	Coho	0.00	0.04	0.63
236	Chum	0.07	0.66	9.83
3	Sockeye	0.00	0.01	0.13
3	Steelhead	0.00	0.01	0.13
12	Trout	0.00	0.03	0.50
4	Dolly Varden	0.00	0.01	0.17
60	Stickleback	0.02		2.50
66	Sculpin	0.02		2.75
2056	Perch	0.64		85.67
21	Flatfish	0.01		0.88
73	Smelt	0.02		3.04
348	Herring	0.11		14.50
11	Sandlance	0.00		0.46
112	Gunnel/prickleback	0.04		4.67
0	Larval baitfish	0.00		0.00
0	Misc. Baitfish	0.00		0.00
0	Juv. Rock/Cottid	0.00		0.00
10	Shrimp	0.00		0.42
76	Inverts	0.02		3.17
9	Other	0.00		0.38

Summary — Date 16-Jun-95
18 sets

03:20 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
52	Chinook	0.04	0.29	2.89
4	Coho	0.00	0.02	0.22
33	Chum	0.03	0.19	1.83
82	Sockeye	0.06	0.46	4.56
3	Steelhead	0.00	0.02	0.17
2	Trout	0.00	0.01	0.11
2	Dolly Varden	0.00	0.01	0.11
10	Stickleback	0.01		0.56
20	Sculpin	0.02		1.11
294	Perch	0.22		16.33
15	Flatfish	0.01		0.83
411	Smelt	0.31		22.83
144	Herring	0.11		8.00
242	Sandlance	0.18		13.44
0	Gunnel/prickleback	0.00		0.00
0	Larval baitfish	0.00		0.00
0	Misc. Baitfish	0.00		0.00
0	Juv. Rock/Cottid	0.00		0.00
0	Shrimp	0.00		0.00
0	Inverts	0.00		0.00
1	Other	0.00		0.06

Summary — Date 30-Jun-95
18 sets

04:05 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
61	Chinook	0.03	0.54	3.39
5	Coho	0.00	0.04	0.28
7	Chum	0.00	0.06	0.39
37	Sockeye	0.02	0.33	2.06
0	Steelhead	0.00	0.00	0.00
2	Trout	0.00	0.02	0.11
1	Dolly Varden	0.00	0.01	0.06
37	Stickleback	0.02		2.06
57	Sculpin	0.03		3.17
251	Perch	0.13		13.94
10	Flatfish	0.01		0.56
168	Smelt	0.08		9.33
1275	Herring	0.64		70.83
21	Sandlance	0.01		1.17
33	Gunnel/prickleback	0.02		1.83
0	Larval baitfish	0.00		0.00
0	Misc. Baitfish	0.00		0.00
0	Juv. Rock/Cottid	0.00		0.00
0	Shrimp	0.00		0.00
0	Inverts	0.00		0.00
17	Other	0.01		0.94

APPENDIX 8 (cont'd)

Summary — Date 19-Jul-95
20 sets

04:12 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
64	Chinook	0.02	0.94	3.20
0	Coho	0.00	0.00	0.00
0	Chum	0.00	0.00	0.00
4	Sockeye	0.00	0.06	0.20
0	Steelhead	0.00	0.00	0.00
0	Trout	0.00	0.00	0.00
0	Dolly Varden	0.00	0.00	0.00
103	Stickleback	0.03		5.15
51	Sculpin	0.02		2.55
485	Perch	0.16		24.25
74	Flatfish	0.02		3.70
378	Smelt	0.12		18.90
215	Herring	0.07		10.75
1545	Sandlance	0.50		77.25
71	Gunnel/prickleback	0.02		3.55
0	Larval baitfish	0.00		0.00
0	Misc. Baitfish	0.00		0.00
0	Juv. Rock/Cottid	0.00		0.00
0	Shrimp	0.00		0.00
0	Inverts	0.00		0.00
80	Other	0.03		4.00

Summary — Date 18-Aug-95
16 sets

04:17 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
12	Chinook	0.00	0.71	0.75
0	Coho	0.00	0.00	0.00
3	Chum	0.00	0.18	0.19
0	Sockeye	0.00	0.00	0.00
0	Steelhead	0.00	0.00	0.00
2	Trout	0.00	0.12	0.13
0	Dolly Varden	0.00	0.00	0.00
20	Stickleback	0.00		1.25
10	Sculpin	0.00		0.63
853	Perch	0.13		53.31
15	Flatfish	0.00		0.94
3563	Smelt	0.55		222.69
1664	Herring	0.26		104.00
353	Sandlance	0.05		22.06
1	Gunnel/prickleback	0.00		0.06
0	Larval baitfish	0.00		0.00
0	Misc. Baitfish	0.00		0.00
0	Juv. Rock/Cottid	0.00		0.00
0	Shrimp	0.00		0.00
6	Inverts	0.00		0.38
2	Other	0.00		0.13

Summary — Date 31-Aug-95
12 sets

04:18 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
15	Chinook	0.00	1.00	1.25
0	Coho	0.00	0.00	0.00
0	Chum	0.00	0.00	0.00
0	Sockeye	0.00	0.00	0.00
0	Steelhead	0.00	0.00	0.00
0	Trout	0.00	0.00	0.00
0	Dolly Varden	0.00	0.00	0.00
8	Stickleback	0.00		0.67
187	Sculpin	0.05		15.58
528	Perch	0.14		44.00
7	Flatfish	0.00		0.58
238	Smelt	0.06		19.83
1432	Herring	0.37		119.33
1485	Sandlance	0.38		123.75
2	Gunnel/prickleback	0.00		0.17
0	Larval baitfish	0.00		0.00
0	Misc. Baitfish	0.00		0.00
0	Juv. Rock/Cottid	0.00		0.00
0	Shrimp	0.00		0.00
0	Inverts	0.00		0.00
1	Other	0.00		0.08

Summary — Date 18-Sep-95
11 sets

03:03 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
3	Chinook	0.00	1.00	0.27
0	Coho	0.00	0.00	0.00
0	Chum	0.00	0.00	0.00
0	Sockeye	0.00	0.00	0.00
0	Steelhead	0.00	0.00	0.00
0	Trout	0.00	0.00	0.00
0	Dolly Varden	0.00	0.00	0.00
24	Stickleback	0.00		2.18
46	Sculpin	0.01		4.18
1729	Perch	0.20		157.18
2934	Flatfish	0.34		266.73
3047	Smelt	0.36		277.00
397	Herring	0.05		36.09
255	Sandlance	0.03		23.18
1	Gunnel/prickleback	0.00		0.09
0	Larval baitfish	0.00		0.00
0	Misc. Baitfish	0.00		0.00
0	Juv. Rock/Cottid	0.00		0.00
0	Shrimp	0.00		0.00
5	Inverts	0.00		0.45
89	Other	0.01		8.09

Summary — Date 27-Oct-95
5 sets

00:44 Hours:Mins elapsed time

# caught	Species	% catch by no.	% salmonids	catch / set
0	Chinook	0.00		0.00
0	Coho	0.00		0.00
0	Chum	0.00		0.00
0	Sockeye	0.00		0.00
0	Steelhead	0.00		0.00
0	Trout	0.00		0.00
0	Dolly Varden	0.00		0.00
2	Stickleback	0.15		0.40
3	Sculpin	0.23		0.60
1	Perch	0.08		0.20
2	Flatfish	0.15		0.40
0	Smelt	0.00		0.00
0	Herring	0.00		0.00
1	Sandlance	0.08		0.20
0	Gunnel/prickleback	0.00		0.00
0	Larval baitfish	0.00		0.00
0	Misc. Baitfish	0.00		0.00
0	Juv. Rock/Cottid	0.00		0.00
0	Shrimp	0.00		0.00
0	Inverts	0.00		0.00
4	Other	0.31		0.80

APPENDIX 9

APPENDIX 9

Beach Seine Skagit Bay beach seine samples conducted in 1995.

DATE	950511	950511	950511	950511	950511	950511	950511	950511	950511	950511	950511
Daily set #	1	2	3	4	5	6	7	8	9	10	11
Location	Hoypus Pt	Pt of Hoyp	Pt of Hoyp	Pt of Hoyp	Pt of Hoyp	Skagit Is,	Skagit Is,	Skagit Is,	Kiket, W e	Kiket, E /	Kiket, E / S
Depth (ft)											
Time Set	09:08 AM	09:30 AM	09:45 AM	10:00 AM	10:10 AM	10:30 AM	10:55 AM	11:10 AM	11:25 AM	11:45 AM	12:00 PM
Chinook	1	1	5	0	0	2	13	0	0	1	3
Coho	1	0	0	0				0			
Chum	1500	2400	0	200	2200	250	15	6	500	1900	1200
Sockeye		2									
Steelhead											
Trout											
Dolly Vard	n										
Sticklebac											
Sculpin					5	2		1			
Perch	6				50	20	2		150		40
Flatfish					1				10	5	5
Smelt											
Herring	10	100			100					500	100
Sandlance					150						
Gunnel/pri	4	5		20		10	5		15	5	15
Larval baitfish											
Misc. Baitfish											
Juv. Rock/	100	200		100							
Shrimp											
Inverts											
Other	1	1									
Notes:	other = gre pipefish		sandy/muddy bottom			Stone cliff, little beach		<=Bottle 1	Bottle=>2		

DATE	950511	950511	950511	950511	950511	950511	950511	950511	950511	950511	950511
Daily set #	12	13	14	15	16	17	18	19	20	21	22
Location	Ala spit	Ala spit	Ala spit	Ala spit, e	Hope Is, S	Hope Is, N	Hope Is, N	Hope Is, N	Hope Is. In	Hope Is. In	Hope Is. Inn, S of ram
Depth (ft)											
Time Set	01:00 PM	01:05 PM	01:15 PM	01:55 PM	01:45 PM	01:55 PM	02:10 PM	02:20 PM	02:40 PM	02:50 PM	03:00 PM
Chinook	0	0	1	0	1	0	4	1	5	7	7
Coho	0	0		0		0	6	10	2	2	7
Chum	300	400	50	300	100	200	150	50	200	600	600
Sockeye										8	1
Steelhead											
Trout			1						1		
Dolly Vard										1	
Sticklebac									1		
Sculpin					1	10		6			
Perch								2			
Flatfish				30			3	2			
Smelt									1		40
Herring				10		15					
Sandlance											
Gunnel/pri											
Larval bait											
Misc. Baitf											
Juv. Rock/											
Shrimp											
Inverts											
Other											
Notes:	mis-set		net held in place, open, 3 min.							Dolly = 24" same site as previous	
										2 of chinook had chum	
	not collected >									< not colle	All but 70mm fish colle

APPENDIX 9

Beach Seine Skagit Bay beach seine samples conducted in 1995.

DATE	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519
Daily set #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Location	Hoypus Pt.	Hoypus N	Hoypus N	Hoypus N	Hoypus S	Hoypus S	Hoypus, N	Hoypus, N	Hoypus, ac	Hoypus N	Skagit Is.	Skagit Is.	Kiket Is N	Kiket, E en	Hope Is, S
Depth (ft)															
Time Set	08:19 AM	08:30 AM	08:45 AM	08:52 AM	09:05 AM	09:19 AM	09:40 AM	09:50 AM	10:00 AM	10:25 AM	10:35 AM	10:45 AM	10:55 AM	11:10 AM	11:10 AM
Chinook	1	7	2	0	0	0	0	0	5	0	1	0	0	0	0
Coho		25	1					4	11		2		2		2
Chum	150	20	23	20	385	20		150	1750	30		25	400		40
Sockeye									400				2		
Steelhead															
Trout													1		
Dolly Vard n															
Sticklebac															
Sculpin	1	2			5	15				2					8
Perch					5										105
Flatfish			5												1
Smelt								20							
Herring	5				3			13				25			
Sandlance															
Gunnel/pri	1			1											
Larval baitf sh		3													
Misc. Baitfi h															
Juv. Rock/ ottid															
Shrimp															
Inverts															
Other															2
Notes:									sockeye GR count 30+						crab

DATE	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519	950519
Daily set #	16	17	18	19	20	21	22	23	24	25	26	27	28
Location	Hope Is, a	Hope Is, ac	Hope Is, N	Hope Is. In	Ala spit, po	Ala spit, ju	Ala, near pi	Ala, near pi	Ala, main c	Hope Is.	Hope Is., a	Hope Is., a	Hope Is. N. @ buoys
Depth (ft)													
Time Set	11:40 AM	11:55 AM	12:26 PM	12:35 PM	12:55 PM	01:05 PM	01:41 PM	01:50 PM	01:55 PM	02:15 PM	02:45 PM	02:45 PM	02:45 PM
Chinook	0	1	2	0	4	7	1	1	0	0	0	2	0
Coho	2	3	4	2	233	3	13		1	1		19	1
Chum	350	6	600	40	25	20			45	1975	100	750	280
Sockeye													
Steelhead													
Trout										1			
Dolly Vard													
Sticklebac		2		15									
Sculpin		5		10						5	8	25	
Perch		10		30							60	50	
Flatfish		20		5					3				
Smelt				3				10	8	100			
Herring								6	35				
Sandlance													
Gunnel/pri									12	10	12		16
Larval baitf													
Misc. Baitfi													
Juv. Rock/													
Shrimp													
Inverts													
Other				20									
Notes:				small crab		126 mm CK = hatchery			coho 16.5 inches				

APPENDIX 9

Beach Seine Skagit Bay beach seine samples conducted in 1995.

DATE	950608	950608	950608	950608	950608	950608	950608	950608	950608	950608	950608
Daily set #	1	2	3	4	5	6	7	8	9	10	11
Location	Hope Is N	Ala Spit N	Ala Spit W	Similk	Skagit Is	Lone Tree	Hope Is In	Hope Is In	Hope Is In	Hope Is In	Hope Is In
Depth (ft)											
Time Set	08:00 AM	08:16 AM	08:22 AM	08:40 AM	09:25 AM	10:32 AM	10:45 AM	10:58 AM	11:17 AM	11:29 AM	11:45 AM
Chinook	0	0	0	0	0	0	0	0	1	0	0
Coho											5
Chum			2	21				62	2		
Sockeye											
Steelhead									2	1	
Trout		2									
Dolly Vard n											
Sticklebac		20					4		1		20
Sculpin	5		6	2	6	6		2	8	12	8
Perch	1			395		17				525	
Flatfish	3		4		3			5	3		
Smelt	10						4				
Herring							62				
Sandlance				10						1	
Gunnel/pri kleback						4		79	1	18	4
Larval baitfish											
Misc. Baitfish											
Juv. Rock/ ottid											
Shrimp				10							
Inverts	3	1	3	3	2			56		4	2
Other					2		2				
Notes:	crab		pipefish	crab	2greenling,2crab		greenling	crab		crab	crab

DATE	950608	950608	950608	950608	950608	950608	950608	950608	950608	950608	950608	950608	950608
Daily set #	12	13	14	15	16	17	18	19	20	21	22	23	24
Location	Hope Is In	Ala spit	Ala spit	Ala spit	Ala spit	Hoypus @	Hoypus ar	Hoypus N	Skagit Is N	Skagit Is N	Lone Tree	Lone Tree	Hope Is In
Depth (ft)													
Time Set	12:00 PM	12:25 PM	12:36 PM	12:48 PM	12:55 PM	01:13 PM	01:48 PM	01:51 PM	02:02 PM	02:12 PM	02:24 PM	02:33 PM	03:07 PM
Chinook	0	1	0	2	0	0	3	1	3	0	28	9	36
Coho		1			1						2	1	5
Chum		49	30		4	6	45	12	1			1	1
Sockeye			1										2
Steelhead													
Trout		4			2		2		1		1		
Dolly Vard	4												
Sticklebac	6			3								6	
Sculpin	5	3		3									
Perch								38	5		83	42	950
Flatfish	2				1								
Smelt						17	40		2				
Herring				3		44	210	28	1				
Sandlance													
Gunnel/pri	2					1		3					
Larval bait													
Misc. Baitf													
Juv. Rock/													
Shrimp													
Inverts									1	1			
Other					3						1		1
Notes:					pipefish				crab	crab	pipefish		pipefish

APPENDIX 9

Beach Seine Skagit Bay beach seine samples conducted in 1995.

DATE	950616	950616	950616	950616	950616	950616	950616	950616	950616	950616	950616
Daily set #	1	2	3	4	5	6	7	8	9	10	11
Location	Lone Tree	Lone Tree	Lone Tree	Hoypus @	Ala spit N	Ala spit N	Ala spit N	Ala spit N	Ala spit N	Ala spit N	Hope Is In
Depth (ft)											
Time Set	06:50 AM	06:55 AM	07:09 AM	07:27 AM	07:44 AM	07:54 AM	07:59 AM	08:05 AM	08:15 AM	08:23 AM	08:40 AM
Chinook	2		3		1		3	3		5	2
Coho				1							1
Chum			7	15	3		1		1	1	2
Sockeye			3	7				5		62	
Steelhead		1	1								
Trout											
Dolly Vard	n										2
Sticklebac	2						2	3			
Sculpin	9	2					2	5	2		
Perch	11					84					
Flatfish											2
Smelt					6	24				63	
Herring	1				4	16				16	
Sandlance				240			2				
Gunnel/pri	kleback										
Larval baitf	sh										
Misc. Baitfi	h										
Juv. Rock/	*ottid*										
Shrimp											
Inverts											
Other		1									
Notes:	91mm Ck ad-clipped						15 ft deep		12 ft deep		
::											

DATE	950616	950616	950616	950616	950616	950616	950616
Daily set #	12	13	14	15	16	17	18
Location	Hope Is In	Hope Is In	Lone Tree	Lone Tree	Lone Tree	Lone Tree	Lone Tree N+
Depth (ft)							
Time Set	08:55 AM	09:00 AM	09:17 AM	09:29 AM	09:40 AM	09:54 AM	10:10 AM
Chinook	11	4	2		4	1	11
Coho							2
Chum				1		2	
Sockeye			1	2	2		
Steelhead		1					
Trout					2		
Dolly Vard							
Sticklebac	3						
Sculpin							
Perch		184			15		
Flatfish	1	12					
Smelt			223	30		65	
Herring			82			25	
Sandlance							
Gunnel/pri							
Larval baitf							
Misc. Baitfi							
Juv. Rock/							
Shrimp							
Inverts							
Other							
Notes:							460mm coho
::							

APPENDIX 9

Beach Seine Skagit Bay beach seine samples conducted in 1995.

DATE	950630	950630	950630	950630	950630	950630	950630	950630	950630	950630	950630
Daily set #	1	2	3	4	5	6	7	8	9	10	11
Location	Lone Tree	Lone Tree	Lone Tree	Lone Tree	Lone Tree	Hoypus @	Ala spit	Ala spit	Hope Is. In	Hope Is. In	Hope Is In
Depth (ft)											
Time Set	06:40 AM	06:50 AM	07:00 AM	07:10 AM	07:20 AM	07:50 AM	08:05 AM	08:15 AM	08:40 AM	08:50 AM	09:00 AM
Chinook	8	3	3	1			10	10	1		1
Coho	1						1	1			
Chum							1			1	
Sockeye	1			1			32			1	
Steelhead											
Trout	1										
Dolly Vard n									1		
Sticklebac	3				7				12	1	
Sculpin		2	30	2	2					2	
Perch				40						2	5
Flatfish					1			1	6		
Smelt	40	1	5					80			
Herring	18		570	310	360	2		15			
Sandlance						20					
Gunnel/pri kleback										1	
Larval baitfish											
Misc. Baitfish											
Juv. Rock/ ottid											
Shrimp											
Inverts											
Other									6	2	6
Notes:	160mm CK not collect.						126mm CK not collect		crab	crab	crab

DATE	950630	950630	950630	950630	950630	950630	950630
Daily set #	12	13	14	15	16	17	18
Location	Hope Is In	Hope Is In	Hope Is. In	Hope Is. In	Hope Is. In	Hope Is. In	Lone Tree
Depth (ft)							
Time Set	09:10 AM	09:25 AM	09:40 AM	09:55 AM	10:10 AM	10:30 AM	10:45 AM
Chinook			13			7	4
Coho			2				
Chum	2	3					
Sockeye						2	
Steelhead							
Trout			1				
Dolly Vard							
Sticklebac	12	2					
Sculpin	4	4			5	3	3
Perch		2			2		200
Flatfish		1			1		
Smelt		2		40			
Herring							
Sandlance	1						
Gunnel/pri		4			3		25
Larval bait							
Misc. Baitf							
Juv. Rock/							
Shrimp							
Inverts							
Other		2					1
Notes:						crab	

APPENDIX 9

Beach Seine Skagit Bay beach seine samples conducted in 1995.

DATE	950719	950719	950719	950719	950719	950719	950719	950719	950719	950719	950719
Daily set #	1	2	3	4	5	6	7	8	9	10	11
Location	Lone Tree	Lone Tree	Ala spit	Ala spit	Ala spit	Ala spit	Hoypus S	Hoypus S	Hoypus S	Hoypus S	Hoypus S
Depth (ft)											
Time Set	07:36 AM	07:50 AM	08:08 AM	08:17 AM	08:33 AM	08:45 AM	09:05 AM	09:24 AM	09:35 AM	09:49 AM	10:00 AM
Chinook	1	2						4	1	5	3
Coho											
Chum											
Sockeye											1
Steelhead											
Trout											
Dolly Vard	n										
Sticklebac			2						6	6	
Sculpin		7				1				15	2
Perch	15	30			18		7	10	30	20	17
Flatfish	1	4	4						15	40	8
Smelt	8			15	6				200	4	
Herring	2		3	8	8		35	4	10		
Sandlance	40	150	120	700	510				5		
Gunnel/pri	kleback	15				1	6	11	20	6	
Larval baitf	sh										
Misc. Baitfi	h										
Juv. Rock/	*ottid*										
Shrimp											
Inverts											
Other	5			11		2	8	9		20	10
Notes:	crab			crab		crab	crab	crab		crab	crab

DATE	950719	950719	950719	950719	950719	950719	950719	950719	950719
Daily set #	12	13	14	15	16	17	18	19	20
Location	Hoypus S	Ala spit	Ala spit	Ala spit	Ala spit	Ala spit	Hope Is. In	Hope Is. In	Hope Is. In
Depth (ft)									
Time Set	10:14 AM	10:34 AM	10:45 AM	10:53 AM	11:00 AM	11:16 AM	11:30 AM	11:38 AM	11:48 AM
Chinook	8	8	1		7	1	8	6	9
Coho									
Chum									
Sockeye	2					1			
Steelhead									
Trout									
Dolly Vard									
Sticklebac					2	2	50	15	20
Sculpin	5	5					4	12	
Perch	45					9	8	150	126
Flatfish						2			
Smelt	30	10	100					5	
Herring	10	80		50		5			
Sandlance				5					15
Gunnel/pri	12								
Larval baitf									
Misc. Baitfi									
Juv. Rock/									
Shrimp									
Inverts									
Other	15								
Notes:	crab								

APPENDIX 9

Beach Seine Skagit Bay beach seine samples conducted in 1995.

DATE	950818	950818	950818	950818	950818	950818	950818	950818	950818	950818	950818
Daily set #	1	2	3	4	5	6	7	8	9	10	11
Location	Lone Tree	Lone Tree	Lone Tree	Hope Is. In	Hope Is. In	Hope Is. In	Hope Is. In	Ala Spit	Ala Spit	Ala Spit	Ala Spit
Depth (ft)											
Time Set	09:59 AM	10:09 AM	10:20 AM	10:35 AM	10:50 AM	11:01 AM	11:15 AM	11:34 AM	12:06 PM	12:20 PM	12:34 PM
Chinook		1		1					3	3	
Coho											
Chum		1			1				1		
Sockeye											
Steelhead											
Trout										1	
Dolly Vard n											
Sticklebac						1	1		5		3
Sculpin	2				3	1					
Perch	20	115	71	18	46	35	39	10	142	41	100
Flatfish				3	2	6	3				1
Smelt		3		528	13	236	6	244	170		821
Herring								13	20	6	6
Sandlance					15	14	70				175
Gunnel/pri kleback		1									
Larval baitf sh											
Misc. Baitfi h											
Juv. Rock/ ottid											
Shrimp											
Inverts	4	1						1			
Other	1							1			
Notes:	O= poache	Invert = crab						O= pipefish.	Invert = k. crab		

DATE	950818	950818	950818	950818	950818
Daily set #	12	13	14	15	16
Location	Ala Spit	Hoypus - a	Hope Is. E.	Lone Tree	Lone Tree
Depth (ft)					
Time Set	12:59 PM	10:34 AM	01:25 PM	02:08 PM	02:16 PM
Chinook	1		2		1
Coho					
Chum					
Sockeye					
Steelhead					
Trout					1
Dolly Vard					
Sticklebac			3	2	5
Sculpin			2	1	1
Perch	34		122	13	47
Flatfish					
Smelt	38		1486	3	15
Herring	9		1610		
Sandlance	47		24	2	6
Gunnel/pri					
Larval baitf					
Misc. Baitfi					
Juv. Rock/					
Shrimp					
Inverts					
Other					
Notes:					

APPENDIX 9

Beach Seine Skagit Bay beach seine samples conducted in 1995.

DATE	950831	950831	950831	950831	950831	950831	950831	950831	950831	950831	950831	950831
Daily set #	1	2	3	4	5	6	7	8	9	10	11	12
Location	Hoypus N	Hoypus N+	Hoypus N.	Skagit Is.	Skagit Is.	Skagit Is.	Ala Spit	Ala Spit	Ala Spit	Ala inside	Hope Is In	Hope Is Inn NE
Depth (ft)												
Time Set	09:22 AM	09:40 AM	10:12 AM	10:30 AM	11:01 AM	11:18 AM	12:12 PM	12:19 PM	12:32 PM	01:04 PM	01:22 PM	01:40 PM
Chinook				10		1	1	2	1			
Coho												
Chum												
Sockeye												
Steelhead												
Trout												
Dolly Vard n												
Sticklebac							1	5		1		1
Sculpin	2		1	4	3	2	1	1			3	170
Perch	182	88	2	11	58	22	11	11	17	14	112	
Flatfish	1				1							5
Smelt			1	124	79	1	27		2	3		1
Herring		2		1113	21	1					294	1
Sandlance		1264		130	10						81	
Gunnel/pri kleback											2	
Larval baitf sh												
Misc. Baitfi h												
Juv. Rock/ ottid												
Shrimp												
Inverts												
Other		1										
Notes:		purple rock crab		#4,5,6 set same location, all fish held								

APPENDIX 9

Beach Seine Skagit Bay beach seine samples conducted in 1995.

DATE	950918	950918	950918	950918	950918	950918	950918	950918	950918	950918	950918
Daily set #	1	2	3	4	5	6	7	8	9	10	11
Location	Hoypus pil	Skagit Is N	Skagit Is N	Ala spit	Ala spit	Ala spit	Hope Is In	Hope Is In	Hope Is In	Hope Is In	Lone Tree launch
Depth (ft)											
Time Set	11:02 AM	11:34 AM	11:45 AM	12:00 PM	12:15 PM	12:38 PM	12:55 PM	01:10 PM	01:27 PM	01:40 PM	02:05 PM
Chinook				1				3			
Coho											
Chum											
Sockeye											
Steelhead											
Trout											
Dolly Vard n											
Sticklebac								12	12		
Sculpin	1	2				1		4	9	5	24
Perch	18	33	2	169	70	87	44	223	249	310	524
Flatfish						1	2	9	7	11	
Smelt	2274	2		102	342	89	6	70	2	14	3
Herring	138					3	2				
Sandlance	37	20	20		37	140					
Gunnel/pri kleback		1									
Larval baitf sh											
Misc. Baitfi h											
Juv. Rock/ ottid											
Shrimp											
Inverts	1		2		2						
Other	crab		crab		crab		40			46	3
Notes:		lots of clea	clear jelly				post-larv baitfish			post-larv b	post-larv baitfish

APPENDIX 9

Beach Seine

Skagit Bay beach seine samples conducted in 1

DATE	951027	951027	951027	951027	951027	Engine break-down
Daily set #	1	2	3	4	5	
Location	Hoypus	Ala spit	Ala Spit - o	Ala Spit - o	Ala Spit - inside	
Depth (ft)						
Time Set	08:38 AM	08:50 AM	09:01 AM	09:09 AM	09:22 AM	
Chinook						
Coho						
Chum						
Sockeye						
Steelhead						
Trout						
Dolly Vard	n					
Sticklebac			2	2		
Sculpin	1	1			3	
Perch	4			1		
Flatfish		1	1	2		
Smelt		92				
Herring	80	35				
Sandlance	2	2	1	1		
Gunnel/pri	kleback					
Larval baitf	sh					
Misc. Baitfi	h					
Juv. Rock/	*ottid*					
Shrimp						
Inverts						
Other		1	1	1	3	
Notes:	lots of jellyf	lots of mysids				
		lumpsucke	lingcod, s	pipefish	pipefish	

APPENDIX 10

Comparison of fhe first three sample dates (5/11, 5/19, and 6/8/95), all sites combined for chinook fork-length. The analysis indicates that there is a significant difference between the samples.

Grouping variable is DATE
Analysis variable is FL

Group Means and Standard Deviations

19950511: mean= 87	s.d.= 17.03298	n= 50
19950519: mean= 94.90909	s.d.= 21.51796	n= 33
19950608: mean= 76.7619	s.d.= 11.59624	n= 84

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	48914.50	166			
Treatment	8720.53	2	4360.27	17.79	<.001
Error	40193.96	164	245.09		

Error term used for comparisons = 245.09 with 164 d.f.

Newman-Keuls Multiple Comp.	Difference	P	Q	Critical q (.05)
Mean(19950519) -Mean(19950608) =	18.1472	3	7.979	3.351 *
Mean(19950519) -Mean(19950511) =	7.9091	2	3.186	2.797 *
Mean(19950511) -Mean(19950608) =	10.2381	2	5.178	2.797 *

Homogeneous Populations, groups ranked

Gp 1 refers to =19950511
Gp 2 refers to =19950519
Gp 3 refers to =19950608

```
Gp Gp Gp
 3  1  2
---
   ---
      ---
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of fisrst four sample dates (5/11, 5/19, 6/8, and 6/16/95), all sites combined, for chinook fork-length. The analysis indicates that there are significant differences between the samples, over time.

Grouping variable is DATE
Analysis variable is FL

Group Means and Standard Deviations

19950511: mean= 87	s.d.= 17.03298	n= 50
19950519: mean= 94.90909	s.d.= 21.51796	n= 33
19950608: mean= 76.7619	s.d.= 11.59624	n= 84
19950616: mean= 81.07843	s.d.= 13.26928	n= 51

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	57931.13	217			
Treatment	8933.47	3	2977.82	13.01	<.001
Error	48997.65	214	228.96		

Error term used for comparisons = 228.96 with 214 d.f.

Newman-Keuls Multiple Comp.	Difference	P	Q	Critical q (.05)
Mean(19950519) -Mean(19950608) =	18.1472	4	8.256	3.671 *
Mean(19950519) -Mean(19950616) =	13.8307	3	5.786	3.345 *
Mean(19950519) -Mean(19950511) =	7.9091	2	3.296	2.793 *
Mean(19950511) -Mean(19950608) =	10.2381	3	5.357	3.345 *
Mean(19950511) -Mean(19950616) =	5.9216	2	2.781	2.793
Mean(19950616) -Mean(19950608) =	4.3165	2	2.273	2.793

Homogeneous Populations, groups ranked

Gp 1 refers to =19950511
Gp 2 refers to =19950519
Gp 3 refers to =19950608
Gp 4 refers to =19950616

```
Gp Gp Gp Gp
 3  4  1  2
   ------
------
         ---
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of the chinook fork-length samples collected after May, 1995. Analysis indicates significant differences in mean length between the first four sample, and no difference between the last three.

Grouping variable is DATE
Analysis variable is FL

Group Means and Standard Deviations

19950608:	mean= 76.7619	s.d.= 11.59624	n= 84
19950616:	mean= 81.07843	s.d.= 13.26928	n= 51
19950630:	mean= 93.42373	s.d.= 10.35775	n= 59
19950719:	mean= 99.2381	s.d.= 8.051677	n= 63
19950818:	mean= 118.1818	s.d.= 17.92662	n= 11
19950831:	mean= 122.2667	s.d.= 13.83818	n= 15
19950918:	mean= 115.3333	s.d.= 5.131601	n= 3

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	87254.51	285			
Treatment	51100.50	6	8516.75	65.72	<.001
Error	36154.00	279	129.58		

Error term used for comparisons = 129.58 with 279 d.f.

Newman-Keuls Multiple Comp.		Difference	P	Q	Critical q (.05)	
Mean(19950831)	-Mean(19950608) =	45.5048	7	20.168	4.211	*
Mean(19950831)	-Mean(19950616) =	41.1883	6	17.421	4.068	*
Mean(19950831)	-Mean(19950630) =	28.8430	5	12.392	3.893	*
Mean(19950831)	-Mean(19950719) =	23.0286	4	9.958	3.662	*
Mean(19950831)	-Mean(19950918) =	6.9334	3	1.362	3.337	
Mean(19950831)	-Mean(19950818) =	4.0849	(Do not test)			
Mean(19950818)	-Mean(19950608) =	41.4199	6	16.048	4.068	*
Mean(19950818)	-Mean(19950616) =	37.1034	5	13.866	3.893	*
Mean(19950818)	-Mean(19950630) =	24.7581	4	9.365	3.662	*
Mean(19950818)	-Mean(19950719) =	18.9437	3	7.202	3.337	*
Mean(19950818)	-Mean(19950918) =	2.8485	(Do not test)			
Mean(19950918)	-Mean(19950608) =	38.5714	5	8.155	3.893	*
Mean(19950918)	-Mean(19950616) =	34.2549	4	7.163	3.662	*
Mean(19950918)	-Mean(19950630) =	21.9096	3	4.599	3.337	*
Mean(19950918)	-Mean(19950719) =	16.0952	2	3.384	2.787	*
Mean(19950719)	-Mean(19950608) =	22.4762	4	16.754	3.662	*
Mean(19950719)	-Mean(19950616) =	18.1597	3	11.977	3.337	*
Mean(19950719)	-Mean(19950630) =	5.8144	2	3.987	2.787	*
Mean(19950630)	-Mean(19950608) =	16.6618	3	12.186	3.337	*
Mean(19950630)	-Mean(19950616) =	12.3453	2	8.021	2.787	*
Mean(19950616)	-Mean(19950608) =	4.3165	2	3.021	2.787	*

Homogeneous Populations, groups ranked

Gp 1 refers to =19950608
Gp 2 refers to =19950616
Gp 3 refers to =19950630
Gp 4 refers to =19950719
Gp 5 refers to =19950818
Gp 6 refers to =19950831
Gp 7 refers to =19950918

```
Gp Gp Gp Gp Gp Gp Gp
 1  2  3  4  7  5  6
                ---------
---
   ---
      ---
         ---
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of mean chinook fork-length for all sites, by sample date.
Analysis suggests a significant difference between samples over time, except that the final three samples are not significantly different.

Grouping variable is DATE
Analysis variable is FL

Group Means and Standard Deviations

19950511:	mean= 87	s.d.= 17.03298	n= 50
19950519:	mean= 94.90909	s.d.= 21.51796	n= 33
19950608:	mean= 76.7619	s.d.= 11.59624	n= 84
19950616:	mean= 81.07843	s.d.= 13.26928	n= 51
19950630:	mean= 93.42373	s.d.= 10.35775	n= 59
19950719:	mean= 99.2381	s.d.= 8.051677	n= 63
19950818:	mean= 118.1818	s.d.= 17.92662	n= 11
19950831:	mean= 122.2667	s.d.= 13.83818	n= 15
19950918:	mean= 115.3333	s.d.= 5.131601	n= 3

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	117532.50	368			
Treatment	52345.78	8	6543.22	36.14	<.001
Error	65186.73	360	181.07		

Error term used for comparisons = 181.07 with 360 d.f.

Newman-Keuls Multiple Comp.		Difference	P	Q	Critical q (.05)	
Mean(19950831)	-Mean(19950608) =	45.5048	9	17.061	4.419	*
Mean(19950831)	-Mean(19950616) =	41.1883	8	14.737	4.317	*
Mean(19950831)	-Mean(19950511) =	35.2667	7	12.590	4.196	*
Mean(19950831)	-Mean(19950630) =	28.8430	6	10.483	4.054	*
Mean(19950831)	-Mean(19950519) =	27.3576	5	9.233	3.881	*
Mean(19950831)	-Mean(19950719) =	23.0286	4	8.424	3.650	*
Mean(19950831)	-Mean(19950918) =	6.9334	3	1.152	3.327	
Mean(19950831)	-Mean(19950818) =	4.0849	(Do not test)			
Mean(19950818)	-Mean(19950608) =	41.4199	8	13.576	4.317	*
Mean(19950818)	-Mean(19950616) =	37.1034	7	11.730	4.196	*
Mean(19950818)	-Mean(19950511) =	31.1818	6	9.840	4.054	*
Mean(19950818)	-Mean(19950630) =	24.7581	5	7.923	3.881	*
Mean(19950818)	-Mean(19950519) =	23.2727	4	7.025	3.650	*
Mean(19950818)	-Mean(19950719) =	18.9437	3	6.093	3.327	*
Mean(19950818)	-Mean(19950918) =	2.8485	(Do not test)			
Mean(19950918)	-Mean(19950608) =	38.5714	7	6.899	4.196	*
Mean(19950918)	-Mean(19950616) =	34.2549	6	6.060	4.054	*
Mean(19950918)	-Mean(19950511) =	28.3333	5	5.009	3.881	*
Mean(19950918)	-Mean(19950630) =	21.9096	4	3.891	3.650	*
Mean(19950918)	-Mean(19950519) =	20.4242	3	3.560	3.327	*
Mean(19950918)	-Mean(19950719) =	16.0952	2	2.862	2.781	*
Mean(19950719)	-Mean(19950608) =	22.4762	6	14.173	4.054	*
Mean(19950719)	-Mean(19950616) =	18.1597	5	10.132	3.881	*
Mean(19950719)	-Mean(19950511) =	12.2381	4	6.791	3.650	*
Mean(19950719)	-Mean(19950630) =	5.8144	3	3.373	3.327	*
Mean(19950719)	-Mean(19950519) =	4.3290	2	2.117	2.781	
Mean(19950519)	-Mean(19950608) =	18.1472	5	9.283	3.881	*
Mean(19950519)	-Mean(19950616) =	13.8307	4	6.506	3.650	*
Mean(19950519)	-Mean(19950511) =	7.9091	3	3.706	3.327	*
Mean(19950519)	-Mean(19950630) =	1.4854	2	0.718	2.781	
Mean(19950630)	-Mean(19950608) =	16.6618	4	10.309	3.650	*
Mean(19950630)	-Mean(19950616) =	12.3453	3	6.786	3.327	*
Mean(19950630)	-Mean(19950511) =	6.4237	2	3.512	2.781	*
Mean(19950511)	-Mean(19950608) =	10.2381	3	6.024	3.327	*
Mean(19950511)	-Mean(19950616) =	5.9216	2	3.127	2.781	*
Mean(19950616)	-Mean(19950608) =	4.3165	2	2.556	2.781	

Comparison of mean chinook fork-length for all sites, by sample date (Cont'd).

Homogeneous Populations, groups ranked

```
Gp  1  refers to =19950511
Gp  2  refers to =19950519
Gp  3  refers to =19950608
Gp  4  refers to =19950616
Gp  5  refers to =19950630
Gp  6  refers to =19950719
Gp  7  refers to =19950818
Gp  8  refers to =19950831
Gp  9  refers to =19950918

               Gp Gp Gp Gp Gp Gp Gp Gp Gp
                3  4  1  5  2  6  9  7  8
                                  ---------
                            ------
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                     ---
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of mean chinook fork-length, between sites, for individuals collected on 5/11/95. Analysis suggests no significant difference between sites.

Grouping variable is SITE
Analysis variable is FL

Group Means and Standard Deviations

HOYPUS: mean= 79.66666	s.d.= 15.62903	n= 6
HOPEIS: mean= 91.6	s.d.= 16.4408	n= 5
HOPEISINN: mean= 88.95	s.d.= 17.49128	n= 20
SKAGITIS: mean= 84.53333	s.d.= 17.35703	n= 15

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	12921.16	45			
Treatment	587.94	3	195.98	0.67	0.577
Error	12333.22	42	293.65		

Error term used for comparisons = 293.65 with 42 d.f.

Newman-Keuls Multiple Comp.	Difference	P	Q	Critical q (.05)
Mean(HOPEIS) -Mean(HOYPUS) =	11.9333	4	1.626	3.786
Mean(HOPEIS) -Mean(SKAGITIS) =	7.0667	(Do not test)		
Mean(HOPEIS) -Mean(HOPEISINN) =	2.6500	(Do not test)		
Mean(HOPEISINN) -Mean(HOYPUS) =	9.2833	(Do not test)		
Mean(HOPEISINN) -Mean(SKAGITIS) =	4.4167	(Do not test)		
Mean(SKAGITIS) -Mean(HOYPUS) =	4.8667	(Do not test)		

Homogeneous Populations, groups ranked

Gp 1 refers to =HOYPUS
Gp 2 refers to =HOPEIS
Gp 3 refers to =HOPEISINN
Gp 4 refers to =SKAGITIS

```
Gp Gp Gp Gp
 1  4  3  2
------------
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of mean chinook fork-length, between sites, for individuals collected on 5/19/95. Analysis suggests a significant difference between mean length observed at Ala and Hope Is. sites.

Grouping variable is SITE
Analysis variable is FL

Group Means and Standard Deviations

ALA: mean= 107.3333	s.d.= 22.70496	n= 12
HOYPUS: mean= 91.93333	s.d.= 17.42111	n= 15
HOPEIS: mean= 77	s.d.= 16.47726	n= 5

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	14587.50	31			
Treatment	3581.90	2	1790.95	4.72	0.017
Error	11005.60	29	379.50		

Error term used for comparisons = 379.50 with 29 d.f.

Newman-Keuls Multiple Comp.	Difference	P	Q	Critical q (.05)
Mean(ALA) -Mean(HOPEIS) =	30.3333	3	4.137	3.494 *
Mean(ALA) -Mean(HOYPUS) =	15.4000	2	2.887	2.893
Mean(HOYPUS) -Mean(HOPEIS) =	14.9333	2	2.099	2.893

Homogeneous Populations, groups ranked

Gp 1 refers to =ALA
Gp 2 refers to =HOYPUS
Gp 3 refers to =HOPEIS

```
Gp Gp Gp
 3  2  1
   ------
------
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of mean chinook fork-length, between sites, for individuals collected on 6/8/95. Analysis suggests no significant difference between sites.

Grouping variable is SITE
Analysis variable is FL

Group Means and Standard Deviations

HOPEISINN: mean= 74.72973	s.d.= 8.792828	n= 37
LONETREE: mean= 73.5946	s.d.= 5.063263	n= 37

Independent group t-test on FL

Test for equality of variance: F= 3.02 p=<.001 DF= 36 , 36

Equal variance:	Calculated t=	0.68 with	72 D.F.	p=0.498
Unequal variance:	Calculated t=	0.68 with	58.0 D.F.	p=0.499

Since the p-value for equality of variance is low, (less than 0.05) use the Unequal variance t-test results.

Comparison of mean chinook fork-length, between sites, for individuals collected on 6/16/95. Analysis suggests a significant difference between the mean length observed at Ala and the other two sites.

Grouping variable is SITE
Analysis variable is FL

Group Means and Standard Deviations

ALA: mean= 93.25	s.d.= 11.00516	n= 12
HOPEISINN: mean= 74.70588	s.d.= 9.339196	n= 17
LONETREE: mean= 79.36364	s.d.= 12.98917	n= 22

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	8803.69	50			
Treatment	2532.82	2	1266.41	9.69	<.001
Error	6270.87	48	130.64		

Error term used for comparisons = 130.64 with 48 d.f.

Newman-Keuls Multiple Comp.	Difference	P	Q	Critical q (.05)
Mean(ALA) -Mean(HOPEISINN) =	18.5441	3	6.085	3.425 *
Mean(ALA) -Mean(LONETREE) =	13.8864	2	4.788	2.846 *
Mean(LONETREE) -Mean(HOPEISINN) =	4.6578	2	1.785	2.846

Homogeneous Populations, groups ranked

Gp 1 refers to =ALA
Gp 2 refers to =HOPEISINN
Gp 3 refers to =LONETREE

```
Gp Gp Gp
 2  3  1
------
      ---
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of mean chinook fork-length, between sites, for individuals collected on 6/30/95. Analysis suggests no significant difference between sites.

Grouping variable is SITE
Analysis variable is FL

Group Means and Standard Deviations

ALA: mean= 96.85	s.d.= 11.82003	n= 20
HOPEIS: mean= 93.45	s.d.= 11.02855	n= 20
HOPEISINN: mean= 86.5	s.d.= 3.535534	n= 2
LONETREE: mean= 90.17647	s.d.= 6.77528	n= 17

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	6222.41	58			
Treatment	509.94	3	169.98	1.64	0.191
Error	5712.47	55	103.86		

Error term used for comparisons = 103.86 with 55 d.f.

Newman-Keuls Multiple Comp.	Difference	P	Q	Critical q (.05)
Mean(ALA) -Mean(HOPEISINN) =	10.3500	4	1.937	3.750
Mean(ALA) -Mean(LONETREE) =	6.6735	(Do not test)		
Mean(ALA) -Mean(HOPEIS) =	3.4000	(Do not test)		
Mean(HOPEIS) -Mean(HOPEISINN) =	6.9500	(Do not test)		
Mean(HOPEIS) -Mean(LONETREE) =	3.2735	(Do not test)		
Mean(LONETREE) -Mean(HOPEISINN) =	3.6765	(Do not test)		

Homogeneous Populations, groups ranked

Gp 1 refers to =ALA
Gp 2 refers to =HOPEIS
Gp 3 refers to =HOPEISINN
Gp 4 refers to =LONETREE

```
Gp Gp Gp Gp
 3  4  2  1
------------
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of mean chinook fork-length, between sites, for individuals collected on 7/19/95. Analysis suggests a significant difference between mean length observed at Hope Is. Inn and the other sites.

Grouping variable is SITE
Analysis variable is FL

Group Means and Standard Deviations

ALA: mean= 102.1176	s.d.= 5.441534	n= 17
HOYPUS: mean= 101.7	s.d.= 8.492102	n= 20
HOPEISINN: mean= 94.13043	s.d.= 5.971937	n= 23

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	3484.56	59			
Treatment	855.99	2	427.99	9.28	<.001
Error	2628.57	57	46.12		

Error term used for comparisons = 46.12 with 57 d.f.

Newman-Keuls Multiple Comp.	Difference	P	Q	Critical q (.05)
Mean(ALA) -Mean(HOPEISINN) =	7.9872	3	5.200	3.405 *
Mean(ALA) -Mean(HOYPUS) =	0.4176	2	0.264	2.833
Mean(HOYPUS) -Mean(HOPEISINN) =	7.5696	2	5.156	2.833 *

Homogeneous Populations, groups ranked

Gp 1 refers to =ALA
Gp 2 refers to =HOYPUS
Gp 3 refers to =HOPEISINN

```
Gp Gp Gp
 3  2  1
   ------
---
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of mean chinook fork-length, between sites, for individuals collected on 8/18/95. Analysis suggests no significant difference between sites.

Grouping variable is SITE
Analysis variable is FL

Group Means and Standard Deviations

ALA: mean= 111.7143	s.d.= 13.5119	n= 7
HOYPUS: mean= 110	s.d.= 0	n= 1
LONETREE: mean= 136	s.d.= 20.07486	n= 3

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	3213.64	10			
Treatment	1312.21	2	656.11	2.76	0.123
Error	1901.43	8	237.68		

Error term used for comparisons = 237.68 with 8 d.f.

Newman-Keuls Multiple Comp.	Difference	P	Q	Critical q (.05)
Mean(LONETREE) -Mean(HOYPUS) =	26.0000	3	2.065	4.041
Mean(LONETREE) -Mean(ALA) =	24.2857	(Do not test)		
Mean(ALA) -Mean(HOYPUS) =	1.7143	(Do not test)		

Homogeneous Populations, groups ranked

Gp 1 refers to =ALA
Gp 2 refers to =HOYPUS
Gp 3 refers to =LONETREE

```
Gp Gp Gp
 2  1  3
---------
```

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.

Comparison of mean chinook fork-length, between sites, for individuals collected on 8/30/95. Analysis suggests no significant difference between sites.

Grouping variable is SITE
Analysis variable is FL

Group Means and Standard Deviations

ALA: mean= 112.75	s.d.= .9574271	n= 4
SKAGITIS: mean= 125.7273	s.d.= 14.77898	n= 11

Independent group t-test on FL

Test for equality of variance: F=238.27 p=<.001 DF= 10 , 3

Equal variance:	Calculated t=	-1.71 with	13 D.F.	p=0.110
Unequal variance:	Calculated t=	-2.90 with	10.0 D.F.	p=0.016

Since the p-value for equality of variance is low, (less than 0.05) use the Unequal variance t-test results.