

Table A1. Salinity of near-surface water at high slack tide. Measured with a YSI Model 33 salinity-conductivity-temperature meter. Tidal datum is mean lower low water; mean higher high water at Aberdeen, Washington (the nearest reference station) is 3.0 m.

Date measured (if later than sampling)	Water- sample locality	Nearest landmark (field number denotes nearby tree; Figs. A1, A5)	Time sampled	Salinity (parts per thousand)	Remarks
<i>Copalis River, 2 August 1992, predicted high tide 3.17 m at Aberdeen at 1708</i>					
7-Oct-92	F-55A	F-133	1635	15	
7-Oct-92	F-55B	F-38	1642	13	
7-Oct-92	F-55C	F-39	1645	15	
7-Oct-92	F-55D	F-100 to F-103	1650	16	
7-Oct-92	F-55E	F-127	1655	8	
<i>Copalis River, 22 September 1992, predicted high tide 2.53 m at Aberdeen at 1043</i>					
	F-238A	Highway 109	1110	9	
	F-239	F-114 to F-116	1114	9	
	F-240	F-131, F-132	1119	8	
	F-241	F-38	1122	8	
	F-242	F-100 to F-103	1131	8	
	F-243	F-111	1137	8	
	F-244	upstream of island	1144	6	
	F-245	F-100	1147	6	
	F-246	F-100 to F-103	1150	8	
<i>Chehalis River, 12 January 1998, predicted high tide 3.6 m at Aberdeen; river discharge about 270 m³/s, or about 160 m³/s below the mean for 12 January (summed for USGS stations 12031000, 1203500, and 12037400, on the Chehalis, Satsop, and Wynoochee Rivers, respectively)</i>					
12-Jan-1998		Mouth of Elliott Slough		4	
<i>South Fork Willapa River, 9 September 1992, predicted high tide 2.56 m at Aberdeen at 1251</i>					
7-Oct-92	F-208	F-181	1323	2	
7-Oct-92	F-209	F-181 and F-179	1329	3	
7-Oct-92	F-210	F-177	1332	2	
7-Oct-92	F-211	F-183	1336	4	
7-Oct-92	F-212	“ugly tree”	1341	8	
7-Oct-92	F-213	F-185	1349	11	
7-Oct-92	F-214	F-172	1354	13	
7-Oct-92	F-215	F-184	1400	15	
7-Oct-92	F-216	F-170	1406	16	
<i>South Fork Willapa River, 24 September 1992, predicted high tide 3.02 m at Aberdeen at 1223</i>					
	F-253	F-170	1209	17	
	F-254	F-184	1215	16	
	F-255	F-171 to F-174	1221	12	
	F-256	F-185	1227	10	
	F-259	F-178	1300	0	
	F-260	F-179, F-181	1301	1	Roots inundated
	F-261	F-187	1306	6	

Table A1, continued

Date measured (if later than sampling)	Water- sample locality	Nearest landmark (field number denotes nearby tree; Figs. A1, A5)	Time sampled	Salinity (parts per thousand)	Remarks
	F-262	F-179, F-181	1315	1	
	F-263	F-178	1320	0	
	F-264		1327	0	

Table A2. Living trees cored at Copalis River, Grays Harbor, and Willapa Bay. See Figures A1-A8 for locations plotted on airphotos.

Stream	Tree	Tag number	Tag location	Diameter (cm)	Multiple cores	Distance from channel (m)	Remarks	Collectors ^a
<i>Copalis River estuary</i>								
Copalis River	F-100	83		109	8		Tree COP-1 of Jacoby <i>et al.</i> (1997)	BB,JS,GJ
Copalis River	F-101	74		71				BB,JS
Copalis River	F-102	90		59				BB,JS
Copalis River	F-103	81		110				BB,JS
Copalis River	F-104	75		128				BB,JS
Copalis River	F-105	77		139				BB,JS
Copalis River	F-106	86		103			20 m N of F-105	BB,JS
Copalis River	F-107	97	NW	117	B		Soil wetter than at neighboring trees	BB,JS
Copalis River	F-108	85	S	77	2			BB,JS
Copalis River	F-109	88	N	61	2			BB,JS
Copalis River	F-110	98	S	59				BB,JS
Copalis River	F-111	96	SW	156	3	on bank	Top broken off; tree COP-2 of Jacoby <i>et al.</i> (1997)	BB,JS,GJ
Copalis River	F-112	76		113	2	2		BB,JS
Copalis River	F-113	78	SE	154	4		Tree COP-3 of Jacoby <i>et al.</i> (1997)	BB,JS,GJ
Copalis River	F-114	84	NNW	52	2			BB,PA,BA
Copalis River	F-115	79	NW	37	2			BB,PA,BA
Copalis River	F-116	89	N	44	2	2	Buried spruce stump exposed in nearby bank	BB,PA,BA
Copalis River	F-117	80	W	131				BB,PA,BA
Copalis River	F-118	91	N	91	3		20 m E of F-107	BB,PA,BA
Copalis River	F-119	92	W	53				BB, PA, BA
Copalis River	F-120	93	E	48				BB, PA, BA
Copalis River	F-121	87	SW	55				BB, PA, BA
Copalis River	F-122	94	WNW	93	6			BB, PA, BA
Copalis River	F-123	82	SE	79				BB, PA, BA
Copalis River	F-124	95	ESE	78	3			BB, PA, BA
Copalis River	F-125		W	70				BB, PA, BA

Table A2, continued

Stream	Tree	Tag number	Tag location	Diameter (cm)	Multiple cores	Distance from channel (m)	Remarks	Collectors ^a
Copalis River	F-126	28	W	59	2			BB, PA, BA
Copalis River	F-127	20	S	168			On upland soil, but roots as much as 0.6 m below high tide of 2 August 1992	BB, PA, BA
Copalis River	F-128	29	W	114				BB, PA, BA
Copalis River	F-129	21	W	102				BB, PA, BA
Copalis River	F-130	30	S	58		2		BB, PA, BA
Copalis River	F-131	19	ENE	63		5		BB, PA, BA
Copalis River	F-35	25	W	83		on bank		BB,BA
Copalis River	F-36	4	N	62		6		BB,BA
Copalis River	F-37	22	N	63		5	Bank 6 m to NW has 0.5 m mud above dead spruce roots decimeters in diameter	BB,BA
Copalis River	F-38	8	NE	57		5		BB,BA
Copalis River	F-39	12	NNE	85		on bank		BB,BA
Copalis River	F-40	26	NE	102		on bank		BB,BA
<i>Grays Harbor</i>								
Blue Slough	57	57	ESE	130			On nurse log	SB,RL,JCM,FT
Blue Slough	58	58	NNW	132			On nurse log; 2 m SW of tree 57	SB,RL,JCM,FT
Blue Slough	F-9			85		15-20		BA,JS
Chehalis River near Blue Slough	59	59	NE	95		20		SB,RL,JCM,FT
Chehalis River near Blue Slough	60	60	ESE	87			7 m W of tree 59, beside leaning redcedar	SB,RL,JCM,FT
Chehalis River near Blue Slough	61	61	SW	59		15		SB,RL,JCM,FT
Chehalis River near Blue Slough	62	62	NNW	64.5			8 m from tree 61; beside redcedar 30 cm in diameter	SB,RL,JCM,FT
Chehalis River near Blue Slough	63	63		101		on bank		SB,RL,JCM,FT
Chehalis River near Blue Slough	64	64	ESE	51.5			Near tree 63, gnarled branch 10 m off ground	SB,RL,JCM,FT
Chehalis River near Cosmopolis	73	73		109		20	Near and inland from spruce having 153-cm diameter and rotten interior	SB,TH,TP
Chehalis River near Cosmopolis	74	74		121		10		SB,TH,TP

Table A2, continued

Stream	Tree	Tag number	Tag location	Diameter (cm)	Multiple cores	Distance from channel (m)	Remarks	Collectors ^a
Chehalis River near Cosmopolis	75	75		100		20		SB,TH,TP
Chehalis River near Higgins Island	55	55	WSW	115	3	30	Beside living redcedar	SB,TM, FT
Chehalis River near Higgins Island	56	56	WNW	90		30	5 m W of tree 55	RL
Elliott Slough	53	53	NE	90				SB,RL,JCM
Elliott Slough	54	54	NNE	90		on bank	Buried spruce roots exposed in nearby bank	SB,RL,JCM
Elliott Slough	54b			80			Down Elliott Slough from tree 54, on opposite side of tidal creek	SB,RL,JCM
Johns River	F-221	51	NE	92		5	7 ppt at 1335, 19 Sept 1992	BB,LA
Johns River	F-222	34	NE	80		11	8.5 ppt at 1412, 19 Sept 1992	BB,LA
Johns River	F-223	37	E	110			6 m from slough; 8.5 ppt at 1520, 19 Sept 1992	BB,LA
Johns River	F-3	5	N	140		on bank		BB,BA
Johns River	F-4	10	N	140				BB,BA
near Mox Chuck Slough	F-31	11	SE	105		10		BB,BA
near Mox Chuck Slough	F-32	7	NW	100		10		BB,BA
Peels Slough	F-24	9	W	71		>50		BB,BA
Peels Slough	F-25			90		>50		BB,BA
Peels Slough	F-26			73		>50		BB,BA
Peels Slough	F-27	17	N	93		>50		BB,BA
Peels Slough	F-28	14	N	98	2	>50		BB,BA
Peels Slough	F-30			81		>50		BB,BA
Chehalis River near Cosmopolis	76	76		100.5		15	NE bank of small slough	SB,RL
Chehalis River near Cosmopolis	77	77		110			Bank of small slough, 50 m from river	SB,RL
Chehalis River near Cosmopolis	78	78		125		30	Bank of small slough	SB,RL
Chehalis River near Cosmopolis	79	79		71		3	Bank of slough	SB,RL,FT
Chehalis River	80	80		136			20 m up small slough	SB,RL,FT
Chehalis River	97	97		112		15		SB,RL,FT
Mox Chuck Slough, south branch	96	96		101		0		SB,RL,FT
Mox Chuck Slough, south branch	95	95		100				SB,RL,FT
Chehalis River	38	38		85	2			BB,SB,RL,BA
Chehalis River	301	301		109	2	10		BB,SB,RL,BA
Chehalis River	302	302		96	2			BB,SB,RL,BA
Mox Chuck Slough, south branch	303	303		103	2			BB,SB,RL,BA

Table A2, continued

Stream	Tree	Tag number	Tag location	Diameter (cm)	Multiple cores	Distance from channel (m)	Remarks	Collectors ^a
Chehalis River	304	304		87	2			BB,SB,RL,BA
Chehalis River	305	305		109	2	15		BB,SB,RL,BA
Chehalis River	306	306		105		20		BB,SB,RL,BA
<i>Willapa Bay</i>								
Bear River	F-188	38	NW	94		3		BB,LA
Bear River	F-189	42	NNW	90		0		BB,LA
Bear River	F-190	48	N	108		8		BB,LA
Bear River	F-191	33	SW	110		0		BB,LA
Bear River	F-192	55	SW	120		on bank		BB,LA
Bear River	F-193	41	NE	120		2		BB,LA
Naselle River	F-197	50	W	177		4		BB,LA
Naselle River	F-198	34	W	153	2	12		BB,LA
Naselle River	F-199	40	W	80	2	20		BB,LA
Naselle River	F-200	30	W?	178			10 m from small slough	BB,LA
Naselle River	F-201	21	W	120			1 m from small slough	BB,LA
Naselle River	F-202	45	W?	155		6		BB,LA
Niawiakum River	F-194	18	W		2	8		BB,LA
Niawiakum River	F-195	28	NW	70		0		BB,LA
Niawiakum River	F-196	36	NW?	95		10		BB,LA
South Fork Willapa River	F-170	56	SE	73	3	7	One large lower limb	BB,LA
South Fork Willapa River	F-171	3	NW		2	10-15		BB,LA
South Fork Willapa River	F-172	67	SW	53	2		15 m WNW of F-171	BB,LA
South Fork Willapa River	F-173	68		53		4		BB,LA
South Fork Willapa River	F-174	2	N	61		on bank	7 m S of F-173	BB,LA
South Fork Willapa River	F-175	65	NW	70		3		BB,LA
South Fork Willapa River	F-176	66	NW	110		0.3		BB,LA
South Fork Willapa River	F-177	5	NE	91	7	20	15 m NNW of F-178; tree WL-77 of Jacoby <i>et al.</i> (1997)	BB,LA,GJ
South Fork Willapa River	F-178	57	E	82		15		BB,LA
South Fork Willapa River	F-179	99	N	151	7	2	One large limb 6 m from base; tree WL-79 of Jacoby <i>et al.</i> (1997)	BB,LA,GJ
South Fork Willapa River	F-180	64	W	78	2	8		BB,LA

Table A2, continued

Stream	Tree	Tag number	Tag location	Diameter (cm)	Multiple cores	Distance from channel (m)	Remarks	Collectors ^a
South Fork Willapa River	F-181	63	N	138	9		One large limb 3.5 m from base; tree WL-81 of Jacoby <i>et al.</i> (1997)	BB,LA,GJ
South Fork Willapa River	F-182	72	NE	80				BB,LA
South Fork Willapa River	F-183	18	NE	100	5	20	Tree WL-83 of Jacoby <i>et al.</i> (1997)	BB,LA,GJ
South Fork Willapa River	F-184	8	N	111	2			BB,LA
South Fork Willapa River	F-185	73	SE	82	2	2		BB,LA
South Fork Willapa River	F-186	62	SSE	86		7		BB,LA
South Fork Willapa River	F-187	61		101	2	15		BB,LA
Willapa River	F-203	39	SW	94	3	4		BB,LA
Willapa River	F-204	53	E	97			5 m from narrow slough	BB,LA
Willapa River	F-205	32	W	72		1		BB,LA
Willapa River	F-206	44	SE	98		2		BB,LA
Willapa River	F-207	29	NE	124		4		BB,LA

^a BA, Brian Atwater; BB, Boyd Benson; FT, Faith Taylor; JCM, Juan Carlos Moya; JS, John Shulene; LA, Lorin Amidon; PA, Patricia Atwater; RL, Roger Lewis; SB, Sarah Brown; TH, Taber Hersum; TP, Tatiana Pinegina

Table A3. Ring counts from living trees at Copalis River, Grays Harbor, and Willapa Bay. See Figures A1-A8 for locations plotted on airphotos.

Stream	Tree	Core	Grow- ing season cored	Diam- eter (cm)	Length of countable core (cm)	Length normal- ized to radius	Center most ring ^a	Number of counted rings	Esti- mated proxim- ity to center ^b	Apparent year of earliest counted ring	Earliest likely year of center ring ^c	Remarks
<i>Copalis River estuary</i>												
Copalis River	F-100		1992	109				331		1662	1654	Three cores crossdated by Jacoby <i>et al.</i> (1997); earliest ring 1654
Copalis River	F-101		1992	71	37	1.04	t26	253		1740	1730	
Copalis River	F-102		1992	59	26	0.88	t23	97	nc 5	1896	1891	
Copalis River	F-103		1992	110	49	0.89	n	210		1783		
Copalis River	F-104		1992	128	35	0.55		178		1815		Length and ring count exclude broken inner 12 cm
Copalis River	F-105		1992	139	42	0.60		195		1798		Length and ring count include broken inner 8 cm with rings 1 cm wide
Copalis River	F-106		1992	103				216	nc 5	1777	1772	
Copalis River	F-107 B		1992	117	36	0.62	n	256		1737		
Copalis River	F-108 A		1992	77	29	0.75	t24	216	nc 5	1777	1772	Length and ring count include broken inner 5 cm
Copalis River	F-108 B		1992	77	21	0.55		200		1793		Length and ring count exclude broken inner 5 cm
Copalis River	F-109		1992	61	29	0.95	t28	231		1762	1752	Better of two cores
Copalis River	F-110		1992	59	30	1.02		220		1773	1760	Length and ring count exclude broken inner 2 cm
Copalis River	F-111		1992	156				295		1698		
Copalis River	F-112 B		1992	113	39	0.69		246		1747		Length and ring count exclude broken inner 16 cm
Copalis River	F-113 D		1992	154				303		1690	1675	Two cores crossdated by Jacoby <i>et al.</i> (1997); earliest ring 1675
Copalis River	F-114 A		1992	52	19	0.73	t18	159		1834	1824	Better of two cores
Copalis River	F-115 A		1992	37	17	0.92	t12	155	nc 5	1838	1833	Better of two cores
Copalis River	F-116 A		1992	44	20	0.91	t20	115	nc 2	1878	1876	Better of two cores
Copalis River	F-117		1992	131	60	0.92	t61	202		1791	1781	
Copalis River	F-118 B		1992	91	30	0.66		230		1763		Length and ring count exclude broken inner 20 cm; best of three cores

Table A3, continued

Stream	Tree	Core	Grow- ing season cored	Diam- eter (cm)	Length of countable core (cm)	Length normal- ized to radius	Center most ring ^a	Number of counted rings	Esti- mated proxim- ity to center ^b	Apparent year of earliest counted ring	Earliest likely year of center ring ^c	Remarks
Copalis River	F-119		1992	53	22	0.83	t21	64		1929	1919	
Copalis River	F-120		1992	48	28	1.17	t27	233	nc 5	1760	1755	
Copalis River	F-121		1992	55	27	0.98	t21	209	nc 2	1784	1782	
Copalis River	F-122 D		1992	93				286		1707		
Copalis River	F-122 E		1992	93				278		1715		Inner part of core broken
Copalis River	F-122 F		1992	93				270		1723		
Copalis River	F-123		1992	79	27	0.68		156		1837	1810	Length and ring count exclude broken inner 10 cm with about 20 rings
Copalis River	F-124 C		1992	78	24	0.62	t22	161		1832		In field, estimated 250-270 rings
Copalis River	F-125		1992	70	29	0.83	t26	244		1749		Length and ring count include break 17 cm inward from bark
Copalis River	F-126 B		1992	59	34	1.15	t29	238	nc 1	1755	1754	
Copalis River	F-127		1992	168	60	0.71	n	156		1837	1810	Length and ring count exclude about 20 broken inner rings averaging about 1 cm wide
Copalis River	F-128		1992	114	39	0.68	n	87		1906		Length and ring count exclude broken inner 5 cm, containing about 10 rings
Copalis River	F-129		1992	102	20	0.39	n	50		1943		
Copalis River	F-130		1992	58	26	0.90		131		1862		Innermost rings approaching tangent?
Copalis River	F-131		1992	63	27	0.86	t24	212	nc 2	1781	1779	
Copalis River	F-35		1992	83	41	0.99	t37	297	nc 5	1696	1691	240 rings in outer 14 cm
Copalis River	F-36		1992	62	30	0.97	t28	248	nc 2	1745	1743	Length and ring count include broken inner 5 cm
Copalis River	F-37		1992	63	24	0.76	t27	183		1810		Length and ring count exclude broken inner 5 cm
Copalis River	F-38		1992	57	29	1.02	c24	230	c	1763	1763	
Copalis River	F-39		1992	85	44	1.04	t42	137		1856	1846	
Copalis River	F-40		1992	102	45	0.88	t38	225		1768		Length and ring count include broken inner 12 cm
<i>Grays Harbor</i>												
Chehalis River area, along Blue Slough		57	1997	130	51	0.78	n	109		1889	1860	Inner 20 rings mostly 5 mm wide

Table A3, continued

Stream	Tree	Core	Grow- ing season cored	Diam- eter (cm)	Length of countable core (cm)	Length normal- ized to radius	Center most ring ^a	Number of counted rings	Esti- mated proxim- ity to center ^b	Apparent year of earliest counted ring	Earliest likely year of center ring ^c	Remarks
Chehalis River area, along Blue Slough		58	1997	132	13	0.19	n	40		1958		Center rotten
Chehalis River area, along Blue Slough		F-9	1992	85	22	0.52	n	47		1946		
Chehalis River area, along Elliott Slough		53	1997	90	42	0.93	t42	64		1934	1920	
Chehalis River area, along Elliott Slough		54	1997	90	44	0.98	n	65		1933	1920	Inner rings approaching tangent
Chehalis River area, along Elliott Slough		54b	1997	80	46	1.15	t38	70	nc 5	1928	1923	
Chehalis River area, near Mox Chuck Slough		F-31	1992	105	55	1.05	n	67		1926		Length and count exclude 3 cm of core inward of break
Chehalis River area, near Mox Chuck Slough		F-32	1992	100	17	0.34		73		1920		Length and count exclude broken inner 18 cm, which contains about 50 rings and reaches tangent within 5 rings of center
Chehalis River area, near Peels Slough		F-24	1992	71	30	0.85	n	55		1938		
Chehalis River area, near Peels Slough		F-25	1992	90	28	0.62	n	34		1959		Best of three cores
Chehalis River area, near Peels Slough		F-26	1992	73	36	0.99	t34	53	nc 2	1940	1938	
Chehalis River area, near Peels Slough		F-27	1992	93	45	0.97	t41	77	nc 5	1916	1911	
Chehalis River area, near Peels Slough		F-28 B	1992	98	37	0.76		125		1868		Length and count exclude broken inner 7 cm; narrow rings approach tangent at 37 cm inward from bark; better of two cores
Chehalis River area, near Peels Slough		F-30	1992	81	31	0.77	n	158		1835		Length and count exclude broken inner 3 cm; core compressed
Chehalis River near Blue Slough		59	1997	95	47	0.99	n	151		1847	1830	Inner 10 rings approaching tangent, 2-3 mm wide
Chehalis River near Blue Slough		60	1997	87	44	1.01	t38	193		1805	1795	
Chehalis River near Blue Slough		61	1997	59	43	1.46	c25	207	c	1791	1791	
Chehalis River near Blue Slough		62	1997	64.5	45	1.40	t27	204		1794	1784	

Table A3, continued

Stream	Tree	Core	Grow- ing season cored	Diam- eter (cm)	Length of countable core (cm)	Length normal- ized to radius	Center most ring ^a	Number of counted rings	Esti- mated proxim- ity to center ^b	Apparent year of earliest counted ring	Earliest likely year of center ring ^c	Remarks
Chehalis River near Blue Slough		63	1997	101	43	0.84	n	65		1933		
Chehalis River near Blue Slough		64	1997	51.5	43	1.67	t32	193		1805	1795	
Chehalis River near Cosmopolis		73	1997	109	49	0.90	n	78		1920	1910	Inner 35 cm contains 28 rings
Chehalis River near Cosmopolis		74	1997	121	53	0.87	n	90		1908		Ring width varies little in core
Chehalis River near Cosmopolis		75	1997	100	43	0.85	n	56		1942		Ring width varies little in core
Chehalis River near Higgins Island		55 -2	1997	115	46	0.79	n	102		1896		
Chehalis River near Higgins Island		55 -3	1997	115	53	0.92	n	211		1787	1760	Innermost rings 4 mm wide
Chehalis River near Higgins Island		56	1997	90	42	0.93	n	160		1838		Inner 60 rings average 1 mm wide
Johns River	F-221		1992	92	38	0.83	t38	98	nc 5	1895	1890	
Johns River	F-222		1992	80	23	0.58	n	53		1940		Center rotten
Johns River	F-223		1992	110	40	0.73	n	123		1870		
Johns River	F-3		1992	140	46	0.66		151		1842		Length and count exclude 17 cm and 25 rings interior to break
Johns River	F-4		1992	140	34	0.49		88		1905		
<i>Willapa Bay</i>												
Bear River	F-188		1992	94	47	1.00	n	58		1935		
Bear River	F-189		1992	90	41	0.91	t38	149	nc 2	1844	1842	
Bear River	F-190		1992	108	36	0.67	n	41		1952		
Bear River	F-191		1992	110	46	0.84	t41	85	nc 5	1908	1903	
Bear River	F-192		1992	120	19	0.32	n	60		1933		Center rotten
Bear River	F-193		1992	120	44	0.73	n	82		1911		
Naselle River	F-197		1992	177	30	0.34		93		1900		Center rotten
Naselle River	F-198 A		1992	153	46	0.60	n	180		1813		
Naselle River	F-199 A		1992	80	23	0.58		150		1843		Length and ring count exclude 13 inner rings that include tangent rings within 2 or 3 of center
Naselle River	F-199 B		1992	80	43	1.08	t37	153		1840	1830	
Naselle River	F-200		1992	178				181		1812		
Naselle River	F-201		1992	120	46	0.77	n	58		1935		
Naselle River	F-202		1992	155				200		1793		Center rotten; count estimated in field
Niawiakum River	F-194 A		1992		45		n	191		1802		
Niawiakum River	F-194 B		1992		43		t43	185	nc 5	1808	1803	
Niawiakum River	F-195		1992	70	33	0.94	t32	46		1947	1937	

Table A3, continued

Stream	Tree	Core	Grow- ing season cored	Diam- eter (cm)	Length of countable core (cm)	Length normal- ized to radius	Center most ring ^a	Number of counted rings	Esti- mated proxim- ity to center ^b	Apparent year of earliest counted ring	Earliest likely year of center ring ^c	Remarks
Niawiakum River	F-196		1992	95	43	0.91	n	108		1885		
South Fork Willapa River	F-170 A		1992	73	27	0.74	t23	161	nc 2	1832	1830	
South Fork Willapa River	F-170 B		1992	73	31	0.85	r21	150		1843	1840	Count limited by knot at reversal in ring direction
South Fork Willapa River	F-170 C		1992	73	23	0.63		130		1863		Length and ring count exclude broken inner 15 cm that contains at least 12 rings, some tangent
South Fork Willapa River	F-171		1992		46		t43	179		1814	1804	Better of two cores
South Fork Willapa River	F-172 A		1992	53	16	0.60		72		1921		Length and ring count exclude broken inner 8 cm
South Fork Willapa River	F-172 B		1992	53	22	0.83	t20	96	nc 2	1897	1895	
South Fork Willapa River	F-173		1992	53	29	1.09	t24	58		1935	1925	
South Fork Willapa River	F-174		1992	61	29	0.95	t29	113		1880	1870	
South Fork Willapa River	F-175		1992	70	30	0.86		61		1932		
South Fork Willapa River	F-176		1992	110	43	0.78	n	54	i	1939		Inner 20 rings average 1 cm wide
South Fork Willapa River	F-177		1992	91				321		1672	1651	Seven cores crossdated by Jacoby <i>et al.</i> (1997); earliest ring 1651
South Fork Willapa River	F-178		1992	82	41	1.00	n	70		1923	1910	
South Fork Willapa River	F-179		1994	151				322		1673	1621	Seven cores crossdated by Jacoby <i>et al.</i> (1997); earliest ring 1621
South Fork Willapa River	F-180 A		1992	78				272	nc 1	1721	1720	
South Fork Willapa River	F-180 B		1992	78				250		1743		Broken
South Fork Willapa River	F-181		1992	138				354		1639		Nine cores crossdated by Jacoby <i>et al.</i> (1997); earliest ring 1652
South Fork Willapa River	F-182		1992	80	35	0.88		122		1871		Length and ring count exclude broken inner 6 cm containing 18 rings
South Fork Willapa River	F-183		1992	100				334		1659	1659	Five cores crossdated by Jacoby <i>et al.</i> (1997); earliest ring 1659
South Fork Willapa River	F-184 A		1992	111	45	0.81	n	199		1794		
South Fork Willapa River	F-184 B		1992	111	45	0.81	n	206		1787		
South Fork Willapa River	F-185 A		1992	82	24	0.59		172		1821		Length and ring count exclude 23 rings inward of break located 172 rings from bark
South Fork Willapa River	F-185 B		1992	82	43	1.05	t42	220	nc 2	1773	1771	

Table A3, continued

Stream	Tree	Core	Grow- ing season cored	Diam- eter (cm)	Length of countable core (cm)	Length normal- ized to radius	Center most ring ^a	Number of counted rings	Esti- mated proxim- ity to center ^b	Apparent year of earliest counted ring	Earliest likely year of center ring ^c	Remarks
South Fork Willapa River	F-186		1992	86	43	1.00	c41	135	c	1858	1858	
South Fork Willapa River	F-187 A		1992	101	41	0.81	t41	197		1796	1786	Better of two cores
Willapa River	F-203 A		1992	94	40	0.85	t38	242		1751		
Willapa River	F-203 B		1992	94	43	0.91	t42	223	nc 5	1770		Outer 1.5 cm contains 60 rings, so thin that additional ones may be missing on this radius
Willapa River	F-203 C		1992	94	45	0.96	n	246		1747	1740	Best core from F-203
Willapa River	F-204		1992	97	22	0.45	n	159		1834		In field, noted another 34 rings in soft interior
Willapa River	F-205		1992	72	32	0.89	t30	149		1844	1834	
Willapa River	F-206		1992	98	47	0.96	t45	253		1740	1730	
Willapa River	F-207		1992	124	46	0.74	n	215		1778		Inner 13 cm contains 20 rings

^a c, center ring (pith) in intact core; n, not obviously close to pith; t, core tangent to curved rings probably near pith; numerals denote distance inward from bark, in centimeters

^b c, reached center; nc, near center, with numeral showing number of remaining rings estimated from ring width and curvature

^c Rough estimates rounded to the nearest 10 years to avoid implying unwarranted precision

Figure A1 Benson and others

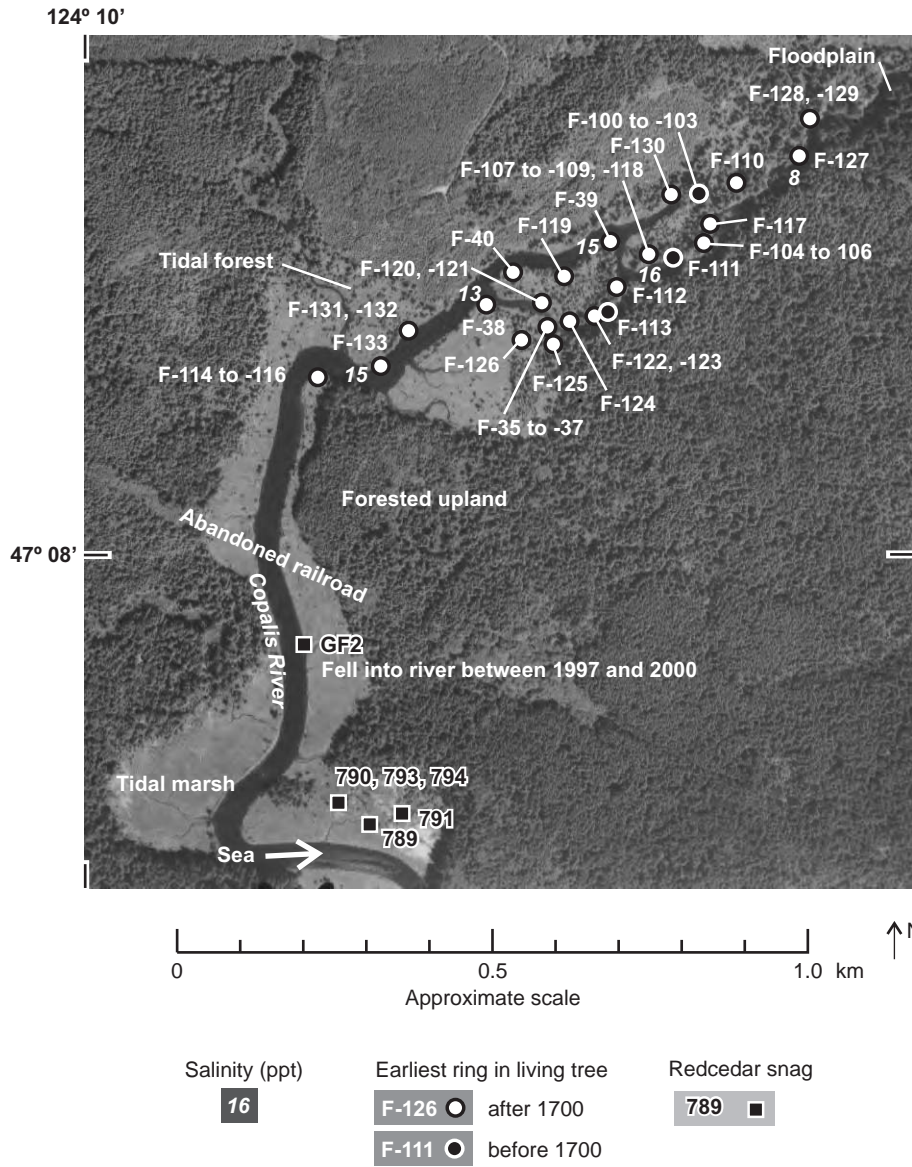


Figure A1. Index map for trees cored along the Copalis River. Photo shows area in the Moclips 7.5-minute quadrangle.

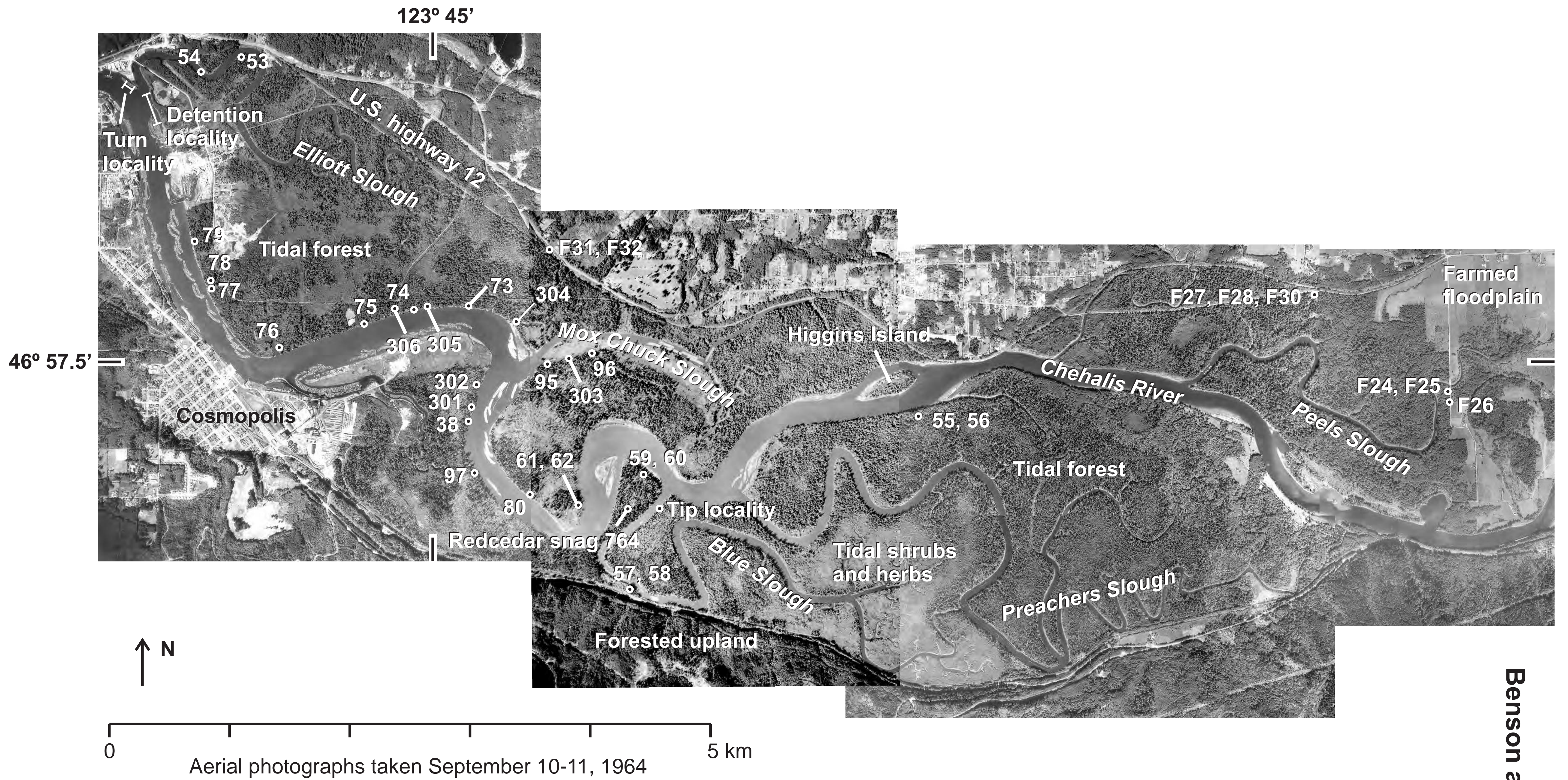


Figure A2. Index map for trees cored along the Chehalis River, Grays Harbor. Photo shows area in the Aberdeen and Central Park 7.5-minute quadrangles.

Figure A3
Benson and others

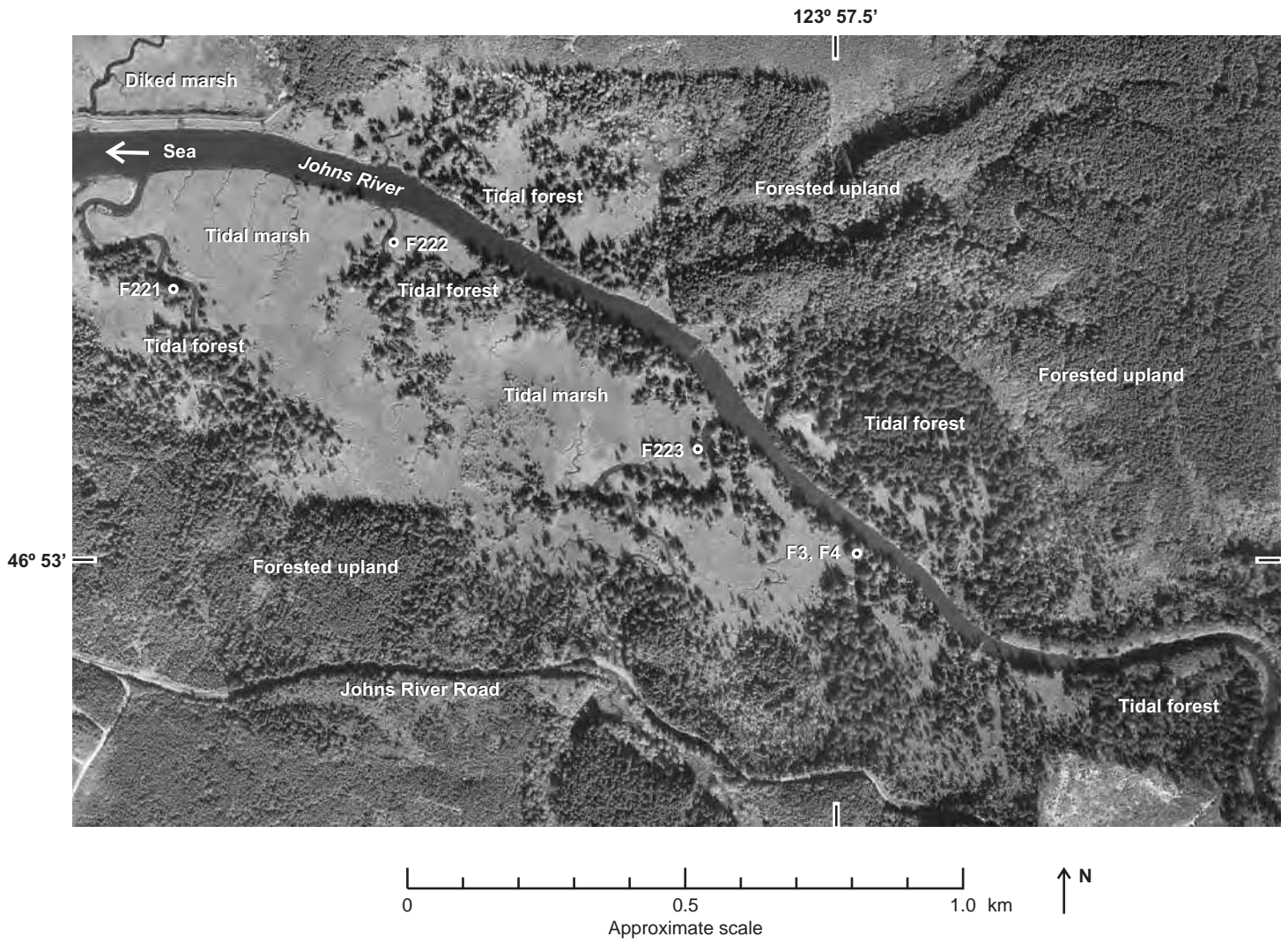


Figure A3. Index map for trees cored along the Johns River, Grays Harbor. Photo shows area in the Hoquiam 7.5-minute quadrangle.

Figure A4
Benson and others

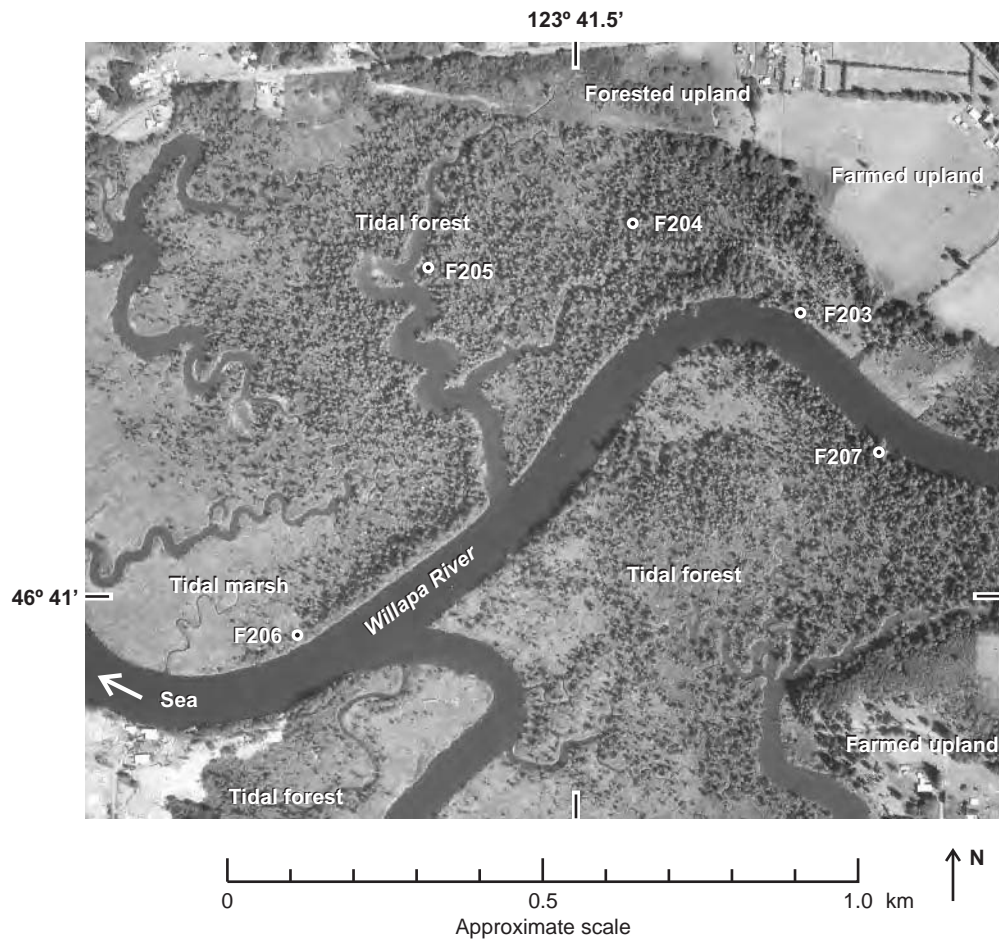


Figure A4. Index map for trees cored along the main fork of the Willapa River, Willapa Bay. Photo shows area in the Raymond 7.5-minute quadrangle.

Figure A5
Benson and others

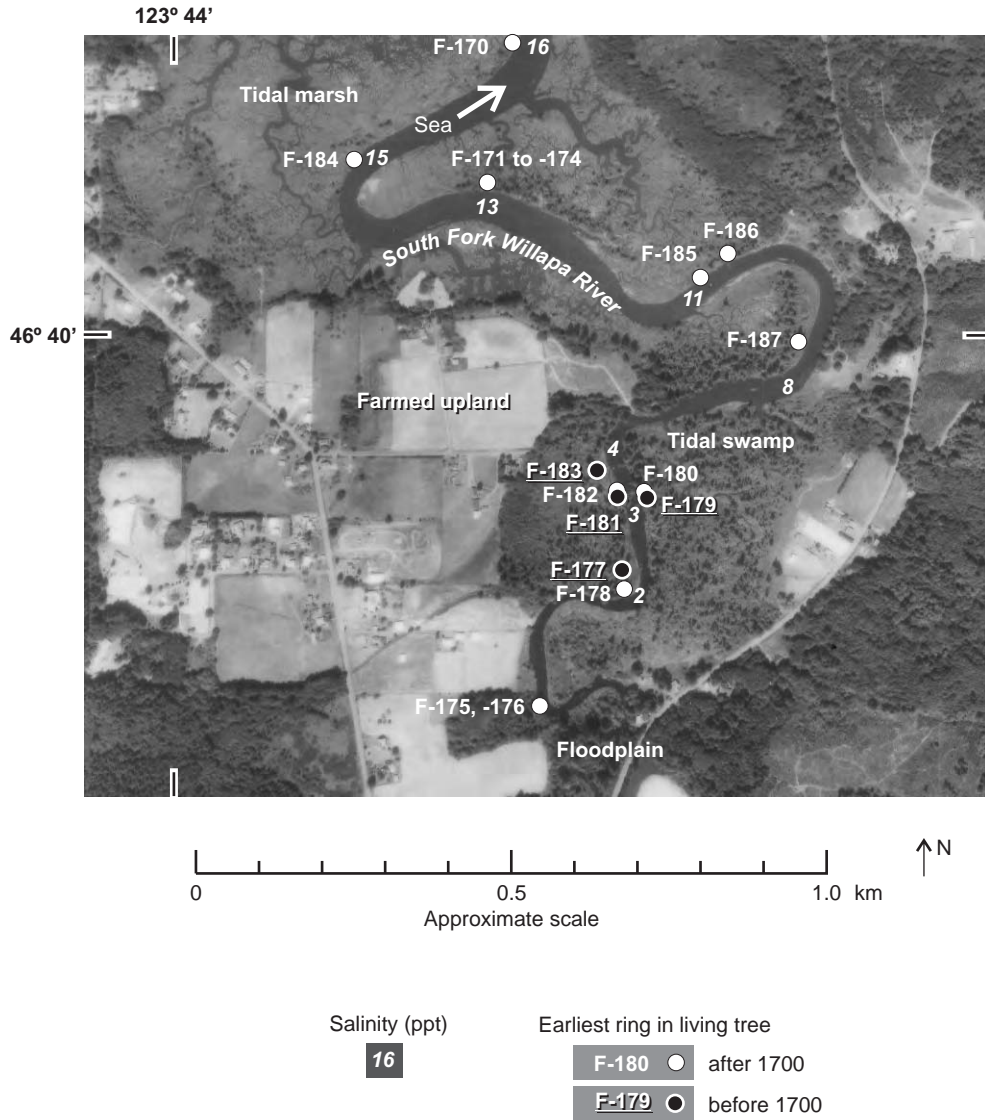


Figure A5. Index map for trees cored along the South Fork Willapa River, Willapa Bay. Photo shows area in the Raymond 7.5-minute quadrangle.

Figure A6
Benson and others

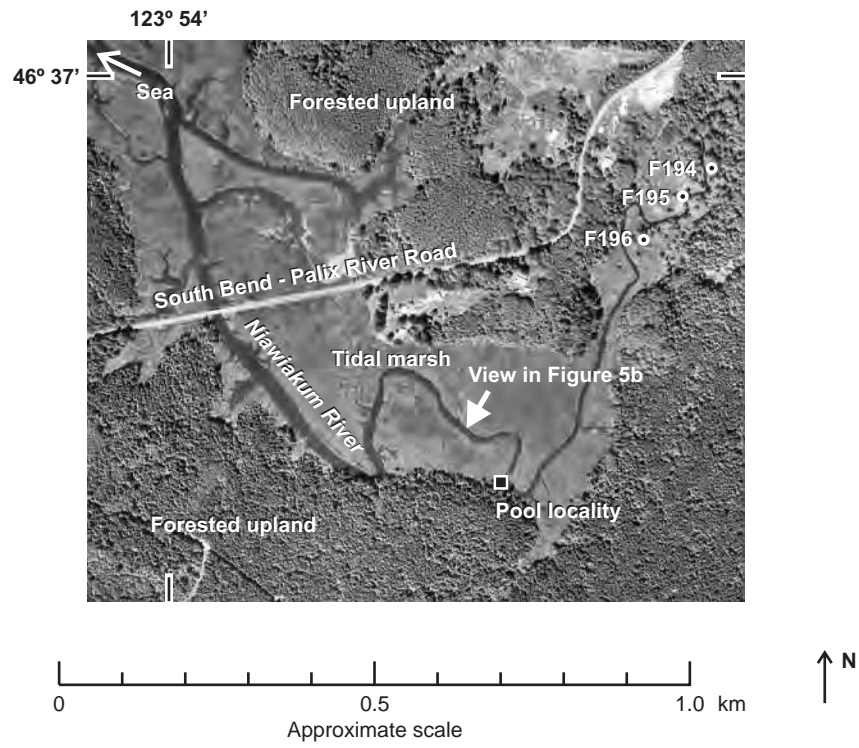


Figure A6. Index map for trees cored along the Niawiakum River, Willapa Bay. Photo shows area in the Nemah 7.5-minute quadrangle.

Figure A7
Benson and others

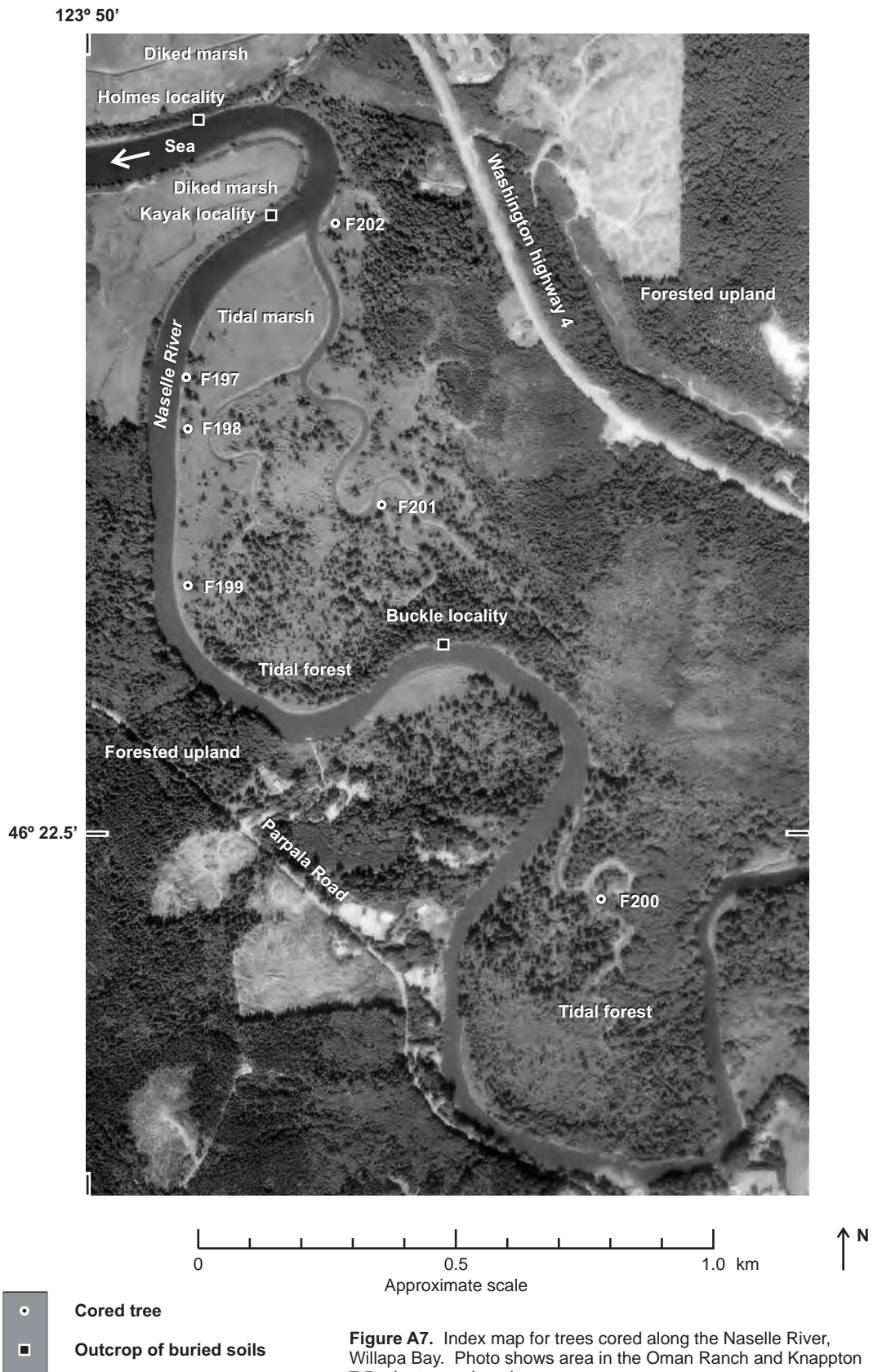


Figure A8
Benson and others

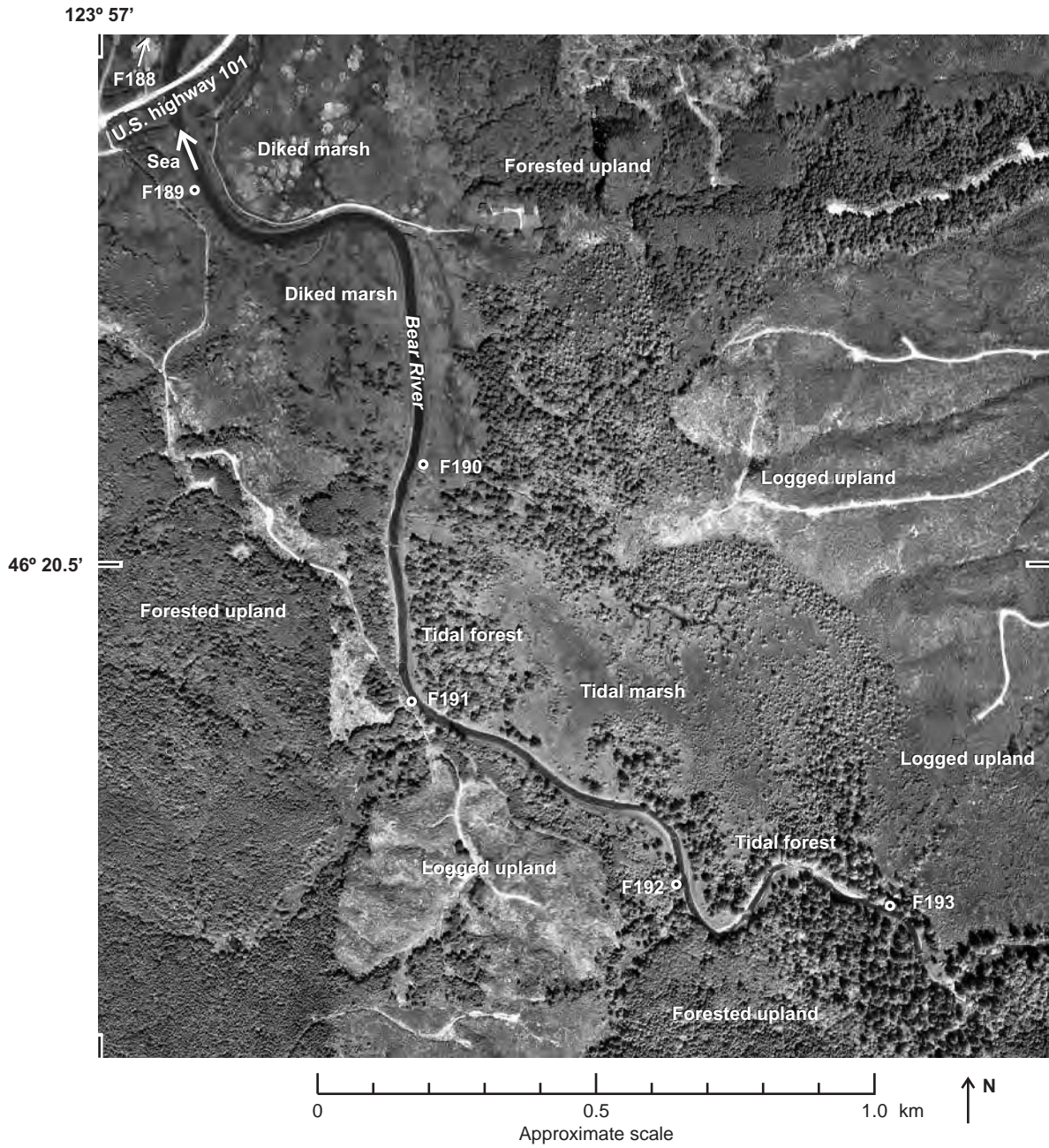


Figure A8. Index map for trees cored along the Bear River, Willapa Bay. Photo shows area in the Chinook 7.5-minute quadrangle.