

1 Supplementary Table S1. Summary of collection details and the Sediment Accumulation Rate (SAR) for all sediment cores collected within
2 the SoG for this study. Data not available = na.

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Collection date	Location	Station	Longitude (°W)	Latitude (°N)	Water depth (m)	SAR (g cm⁻² yr⁻¹)
2003-06-19	N	GVRD 1	124.6	49.6	169	0.08
2003-06-18	S	GVRD 2	123.3	49.3	76	0.26
2002-12-19	S	GVRD 3	123.3	49.2	83	1.30
2002-12-20	S	GVRD 4	123.3	49.1	84	na
2002-12-20	S	GVRD 5	123.5	49.2	388	0.64
2003-06-18	S	GVRD 6	123.3	48.9	187	2.70
2003-12-06	S	GVRD 7	123.4	49.1	233	0.32
2007-07-08	N	GVRD 8	123.9	49.4	214	0.10
2007-07-12	N	GVRD 9	124.1	49.5	365	0.17
2007-07-09	N	GVRD 10	124.9	49.8	310	0.05
2007-07-11	N	GVRD 11	124.6	49.7	336	0.12
2007-07-11	N	GVRD 12	124.4	49.4	328	0.12
2007-07-12	N	GVRD 13	124.2	49.4	326	0.12
2007-07-13	S	GVRD 14	123.6	49.4	160	0.23
2007-07-14	S	GVRD 15	123.5	49.1	296	1.73
2007-11-06	S	GVRD 16	123.3	49.0	210	0.98
2007-11-06	N	GVRD 17	124.0	49.4	410	0.21
2007-11-29	S	GVRD 18	123.1	48.9	157	0.30
2007-11-29	S	GVRD 20	123.8	49.3	365	0.10
2007-12-01	N	GVRD 21	125.1	50.0	260	0.11
2007-12-01	N	GVRD 22	124.2	49.6	373	0.23

4 Supplementary Table S2. Summary of location details for river and sediment trap sampling
 5 locations, as well as the locations of atmospheric, aquaculture, pulp mill, and wastewater
 6 facility stations that provided N data for this study.

Sample Type	Location	Longitude (°W)	Latitude (°N)
River Station	Campbell River	125.3	50.0
River Station	Englishman River	124.3	49.3
River Station	Fraser River	123.1	49.1
River Station	Nanaimo River	123.9	49.1
River Station	Oyster River	125.1	49.9
River Station	Squamish River	123.2	49.7
Sediment Trap Mooring	SOGS	123.4	49.0
Sediment Trap Mooring	SOGN	124.9	49.8
Atmospheric	Campbell River	125.2	50.0
Atmospheric	Nanaimo	124.0	49.2
Atmospheric	Victoria	123.4	48.4
Atmospheric	Saturna	123.1	48.8
Aquaculture	AQ 137	125.2	50.2
Aquaculture	AQ 547	125.2	50.2
Aquaculture	AQ 138	125.2	50.2
Aquaculture	AQ 216	125.4	50.2
Aquaculture	AQ 1770	125.3	50.1
Aquaculture	AQ 221	123.9	49.7
Aquaculture	AQ 332	123.9	49.6
Aquaculture	AQ 408	123.8	49.6
Aquaculture	AQ 412	123.9	49.6
Aquaculture	AQ 746	123.9	49.6
Aquaculture	AQ 572	123.7	49.6
Aquaculture	AQ 304	125.0	50.3
Aquaculture	AQ 1698	124.1	49.8
Aquaculture	AQ 1697	124.1	49.8
Pulp Mill	PM1	124.5	49.9
Pulp Mill	PM2	123.2	49.4
Pulp Mill	PM3	122.9	49.2
Pulp Mill	PM4	124.0	49.2
Pulp Mill	PM5	123.1	49.8
Pulp Mill	PM6	123.7	48.9
Wastewater facility	W1	122.9	49.2
Wastewater facility	W2	123.2	49.2
Wastewater facility	W3	123.2	49.3
Wastewater facility	W4	122.8	49.2
Wastewater facility	W5	123.1	49.1

8 Supplementary Table S3. Nitrogen isotope composition of sediment cores both at the
9 sediment-water (surface) and at the location determined to be where PN is buried.

Station	Location	$\delta^{15}\text{N}$ (‰, surface)	$\delta^{15}\text{N}$ (‰, buried)
GVRD 1	N	6.4	6.8
GVRD 2	S	4.7	4.6
GVRD 3	S	2.1	3.7
GVRD 4	S	3.7	3.4
GVRD 5	S	6.0	5.0
GVRD 6	S	5.7	5.6
GVRD 7	S	5.6	5.3
GVRD 8	N	6.2	6.5
GVRD 9	N	7.0	6.7
GVRD 10	N	7.1	7.1
GVRD 11	N	7.1	7.3
GVRD 12	N	7.2	7.5
GVRD 13	N	7.0	7.6
GVRD 14	S	6.5	6.1
GVRD 15	S	5.8	5.8
GVRD 16	S	5.7	5.7
GVRD 17	N	6.9	6.6
GVRD 18	S	6.5	5.9
GVRD 20	S	6.1	6.4
GVRD 21	N	7.0	7.3
GVRD 22	N	6.7	6.1

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