New table. Nitrate, silicate, SRP, DOC, DON, POC and PON datasets used for each river sampling location.

		Nitrate	Silicate	SRP	DOC	DON	POC	PON
Yenisey	**Igarka**	GEMS/WATER (143)	GEMS/WATER (151)	GEMS/WATER (92)				
	Dudinka	OGSNK/GSN (56) A-GRO (56) PARTNERS (17)	A-GRO (56) PARTNERS (17)	OGSNK/GSN (56) A-GRO (56)	A-GRO (56) PARTNERS (16)	A-GRO (56) PARTNERS (17)	PARTNERS (16) A-GRO (10)	PARTNERS (16) A-GRO (10)
Lena	**Zhigansk**	A-GRO (56) PARTNERS (17)	A-GRO (57) PARTNERS (17)	A-GRO (57)	A-GRO (57) PARTNERS (17)	A-GRO (56) PARTNERS (17)	PARTNERS (17) A-GRO (10)	PARTNERS (17) A-GRO (10)
	Kyusur	GEMS/WATER (71) OGSNK/GSN (59) Publication (1)	GEMS/WATER (70) Publication (1)	GEMS/WATER (60) OGSNK/GSN (57)				
	Stolb	GEMS/WATER (94) Publication (1)	GEMS/WATER (114) Publication (3)	GEMS/WATER (27) Publication (1)				
Ob	**Salekhard**	GEMS/WATER (533) PARTNERS (17) A-GRO (52)	GEMS/WATER (366) A-GRO (52) PARTNERS (17)	OGSNK/GSN (57) A-GRO (52)	A-GRO (52) PARTNERS (17)	A-GRO (52) PARTNERS (16)	PARTNERS (15) A-GRO (10)	PARTNERS (15) A-GRO (10)
Mackenzie	**Tsiigehtchic**	A-GRO (57) PARTNERS (17) Publication (2)	A-GRO (57) GEMS/WATER (48) PARTNERS (17) Publication (2)	GEMS/WATER (84) A-GRO (57)	A-GRO (57) PARTNERS (17) Publication (1)	A-GRO (57) PARTNERS (17)	PARTNERS (14) A-GRO (13)	PARTNERS (14) A-GRO (13)
Yukon	**Pilot Station**	USGS (67) A-GRO (47) PARTNERS (3)	USGS (158) A-GRO (47) PARTNERS (3)	USGS (54) A-GRO (47)	USGS (67) A-GRO (47) PARTNERS (11)	A-GRO (47) PARTNERS (15)	PARTNERS (16) A-GRO (13)	PARTNERS (16) A-GRO (13)
Pechora	**Oksino**	OGSNK/GSN (155)		OGSNK/GSN (156)				
Northern Dvina	**Ust'Pinega**	GEMS/WATER (481)	GEMS/WATER (400)	GEMS/WATER (337)				
	Arkhangelsk	OGSNK/GSN (170)		OGSNK/GSN (171)				
Kolyma	**Kolymskoye**	GEMS/WATER (134)		GEMS/WATER (84)				
	Cherskii	OGSNK/GSN (40) PARTNERS (17) A-GRO (13)	PARTNERS (17) A-GRO (13)	OGSNK/GSN (40) A-GRO (13)	Publication (64) PARTNERS (17) A-GRO (13)	PARTNERS (17) A-GRO (13)	PARTNERS (16) A-GRO (10)	PARTNERS (16) A-GRO (10)
Indigirka	**Chokurdakh**	OGSNK/GSN (60)		OGSNK/GSN (60)				
All rivers		**2436**	**1683**	**1618**	**509**	**380**	**160**	**160**

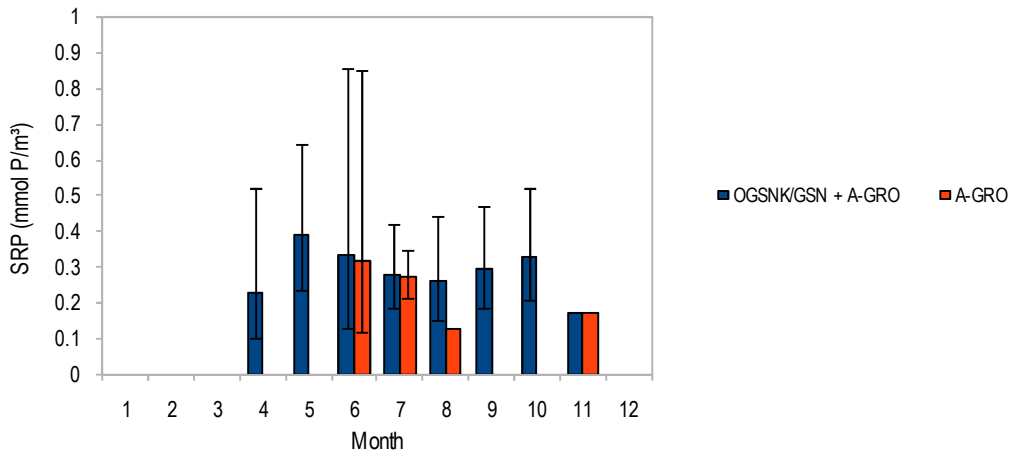

Figure 1. Monthly-binned concentrations of riverine SRP for the Yenisey River (at Dudinka). Bars with no standard deviations indicate single values. No filled bars indicate no data available.

New table 2. Annual primary production (total and new), riverine nitrate flux and contribution of riverine nitrate to new primary production for the High Arctic Ocean and its river-influenced shelf seas. In the last three columns, the average (between brackets) is given along with the average ± standard deviation.

	PP (TgC)[1]	f-ratio[1]	PPnew (TgC)[1]	Riverine nitrate flux (10^9gN)	Riverine nitrate flux in carbon equivalent (TgC)	Riverine nitrate contribution to PPnew (%)
High Arctic Ocean	>329	0.2	>65.8	213.7-50.8 (97.7)	0.29-1.2 (0.55)	<0.44-1.8 (0.83)
Barents Sea	136	0.5	68	9.6-2.5 (4.7)	0.01-0.05 (0.03)	0.01-0.07 (0.04)
White Sea	2	0.24	0.48	6.4-2.8 (5.1)	0.02-0.04 (0.03)	4.2-8.3 (6.7)
Kara Sea	37	0.24	8.9	112.8-19.9 (42.4)	0.11-0.64 (0.24)	1.2-7.2 (2.7)
Laptev Sea	16	0.25	4	47.3-11.7 (23)	0.07-0.27 (0.13)	1.7-6.7 (3.2)
East-Siberian Sea	30	0.25	7.5	11.2-2.65 (5.7)	0.01-0.06 (0.03)	0.13-0.8 (0.4)
Bering Shelf	>300	0.32	96	37.1-12.3 (19)	0.07-0.21 (0.11)	0.07-0.22 (0.11)
Beaufort Sea	8	0.24	1.9	26.4-11.3 (16.8)	0.06-0.15 (0.09)	3.1-7.9 (4.7)

[1]From Sakshaug (2004)

List of figures captions

Figure 1. Monthly-binned concentrations of riverine nitrate, SRP, silicate, DOC and DON for the North-American and Eurasian rivers. Bars with no standard deviations indicate single values. No filled bars indicate no data available.

Figure 2. Monthly-binned concentrations of riverine POC and PON for the North-American and Eurasian rivers. Bars with no standard deviations indicate single values. No filled bars indicate no data available.

Figure 3. Monthly flux estimates of riverine nitrate, SRP, silicate, DOC and DON for the North-American and Eurasian rivers.

Figure 4. Monthly flux estimates of riverine POC and PON for the North-American and Eurasian rivers.

Figure 5. Annual lateral influx of SRP (10^9 gP), nitrate (10^9 gN) and silicate (10^9 gSi) from Bering Strait, 8 circumarctic rivers (see text for details) and the Barents Sea.

Figure 6. N:P (top panels) and Si:N (bottom panels) molar flux ratios computed from monthly flux estimates for the North-American and Eurasian rivers.

Figure 7. Contribution of riverine nitrate to new primary production.

Figure 8. Fraction of riverine SRP and silicate consumed by phytoplankton in case all riverine nitrate is taken up. Note there were no silicate data for the Pechora River (Barents Sea).