

1 **Supplementary Information**

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3 **Table S1. Physicochemical parameters of the surface sediments in the northern SCS**

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Sample name	Sampling Position	Seawater depth (m)	Temperature (°C)	NH ₄ ⁺ (μmol/L)	NO ₂ ⁻ (μmol/L)	NO ₂ ⁻ +NO ₃ ⁻ (μmol/L)
407	18°29N/120°00E	1900	2~4	16.50±0.48	0.37±0.02	9.2±0.23
525	19°23N/114°36E	1100	2~4	25.67±0.46	1.06±0.06	13.3±0.24
CF5	19°55N/115°13E	1153	2~4	275.18±1.85	0.68±0.04	259.7±2.37
08CF7	22°70N/119°17E	1301	2~4	42.24±0.83	2.70±0.11	17.1±0.97
425	18°31N/110°59E	1470	2~4	38.79±0.79	0.40±0.02	16.5±0.83
510	19°30N/110°46E	76	19.8	43.11±1.40	0.38±0.03	10.3±0.93
201	21°41N/116°18E	30	21.6	137.03±1.92	0.59±0.08	39.9±2.12

5 Table S2. Statistical analysis of physicochemical parameters and the diversity and abundance of
 6 nitrifying prokaryotes

Environmental parameters	Pearson moment correlation ¹				7
	OTUs	Simpson	Shannon	Chao1	8
Depth	0.72*	-0.47	0.58*	0.29	9
T	-0.82*	0.43	-0.51	-0.37	10
NH ₄ ⁺	-0.03	0.06	-0.21	-0.28	11
NO ₂ ⁻	0.11	-0.12	0.22	0.61*	12
NO ₂ ⁻ +NO ₃ ⁻	0.11	-0.03	-0.09	-0.18	13

16 Pearson moment correlation (r) deduced on the basis of the equation followed: $r = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$.

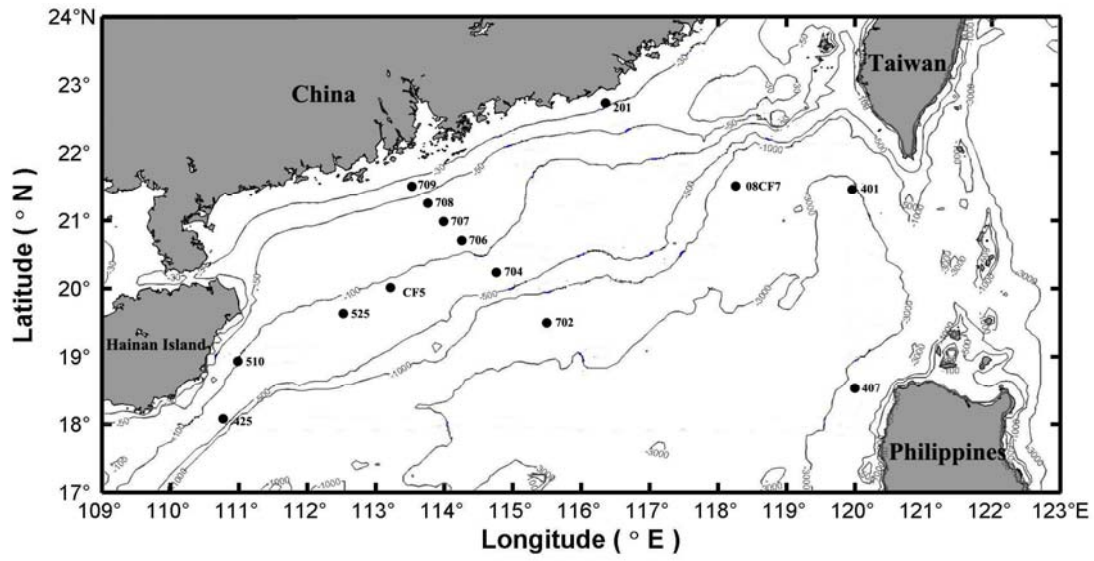
17 Asterisks indicates the significant level at the $P < 0.05$ determined by Excel function TDIST. t value calculated by

18 the following equation: $t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$ (n , the number of sampling sites).

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20 Figure S1 A map showing the sampling sites employed in the current study

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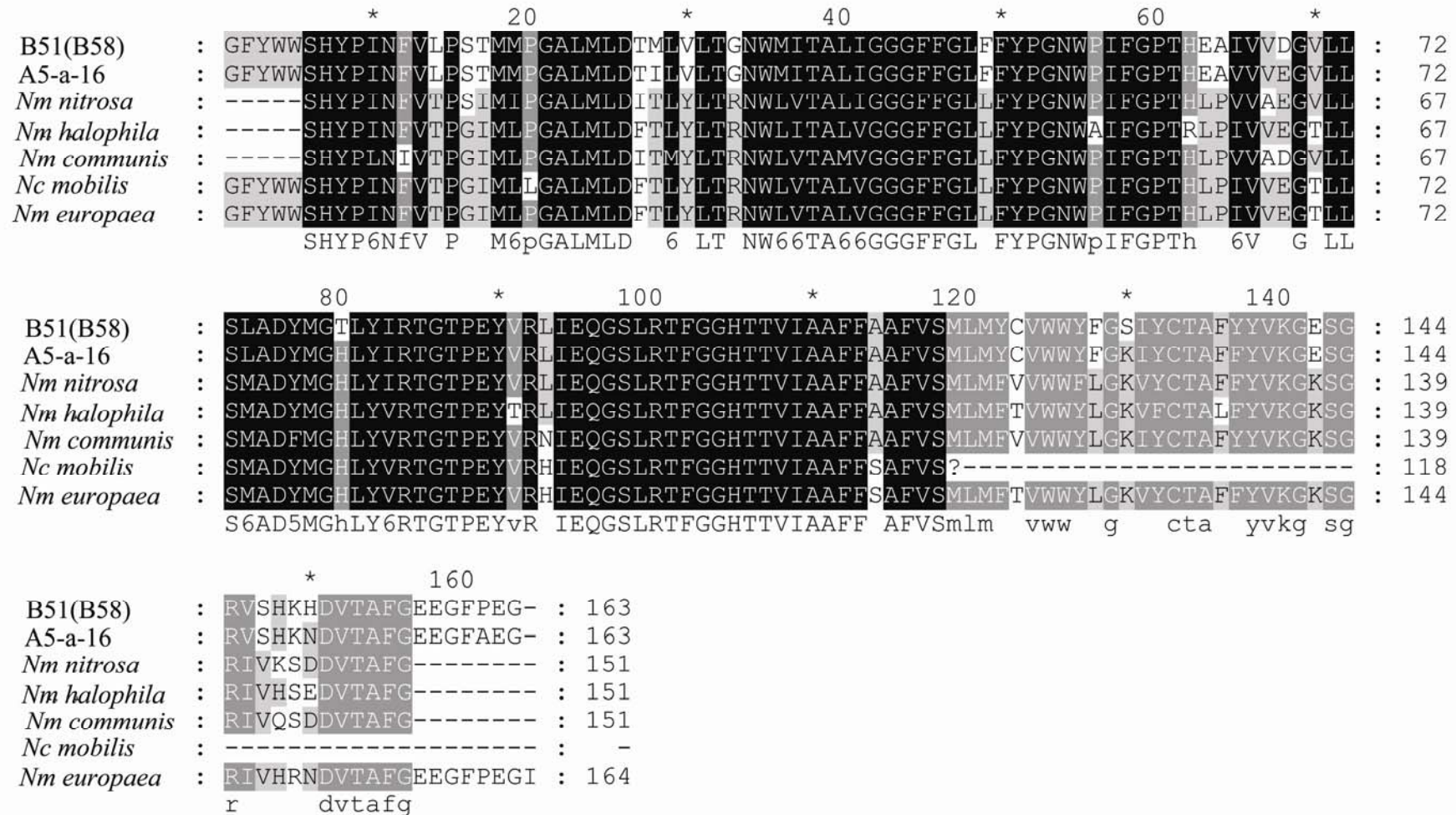


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Fig. S1

24 Figure S2 Alignments of deduced amino acid sequences of AmoA from the A5-16 cluster and other closed lineages.



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26 Nm: *Nitrosomonas*; Nc: *Nitrosococcus*

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