

**Table S1.** List of *Prorocentrum*, *Takayama* and *Karenia* sequences used in phylogenetic analyses. Strain, collection information and GenBank accession number is presented. \* Indicates the sequence used in this study. ND indicates that an information was not determined.

Species	Collection Number	Collection Site	Genbank Accession Number
<i>Prorocentrum balticum</i>	CCMP1260	Gulf of Mexico, North Atlantic Ocean	EU927547
	CCMP1787	Coastal New Zealand	EU927548
<i>Prorocentrum caipirignum</i>	LCA-B4	Arraial do Cabo, Rio de Janeiro, Brazil	KJ960192
	PMHV-1	Cuba	JQ638940
<i>Prorocentrum concavum</i>	DS4F8	Lingshui, Hainan, China	KY010229
	DS4E11	Lingshui, Hainan, China	KY010228
<i>Prorocentrum cordatum</i>	CCMP1329	Great South Bay, Long Island, New York, USA	EU927539
	CCMP2233	Indian River Bay, Delaware, USA	EU927541
	PmiITSC4	Newport River, North Carolina, USA	AF352371
	CCMP695	Florida Everglades, Florida, USA	EU927534
	CCMP2811	New Pass Bridge, Sarasota, Florida, USA	EU927543
	CCAP1136/16	Loch Etive, Argyll, Scotland, UK	FJ823587
	PIPV-1	Bahía de la Paz, Baja California Sur, Mexico	JQ616823
	KMMCC 1181	Tongyeong, Gyeongnam (coast, surface water), South Korea	JX402086
	PMDH01	East China Sea, Fujian Province, China	DQ054538
	CCMP2780	Cape d'Aguilar Marine Reserve, Hong Kong Island, China	EU927542
	CAWD359	Berowra Creek, New South Wales, Australia	MT895109
	IMP BG 450	Paracas Bay, Ica, Peru	OM812998*
<i>Prorocentrum hoffmannianum</i>	CCMP2804	Florida Keys National Marine Sanctuary, Marquesas Keys, Florida, USA	KC622311
	CCMP683	off of Knight Key, Florida, USA	KF885225
<i>P. hoffmannianum</i> (as <i>P. belizeanum</i> )	PBHV-1	Cuba	JQ638934
<i>Prorocentrum lima</i>	CCMP2584	New Meadows River, Maine, USA	EU927517
	CCMP1743	Mahone Bay, Nova Scotia, Canada	EU927508
<i>Prorocentrum mexicanum</i>	VGO835	Almerimar, Almería, Spain	EU244466
<i>Prorocentrum micans</i>	CCMP1589	Narragansett Bay, Rhode Island, USA	EU780638
	CCAP1136/15	Lynn of Lorne, Argyll, Scotland, UK	EU927531
	CCMP690	off of Knight Key, Florida, USA	EU927521
	CCAP1136/18	Lynn of Lorne, Argyll, Scotland, UK	EU927533
	CCCM845	ND	EU927530
<i>Prorocentrum obtusidens</i>	ND	Shengsi Islands, Zhejiang, China	KF998562
	NMBjah045	Ningbo, China	KY290718
<i>Prorocentrum steidingeriae</i>	CCMP687	off of Knight Key, Florida, USA	EU927554
	PXHV-1	Cuba	JQ638938
<i>Prorocentrum triestinum</i>	PT2V	Ría de Vigo, Galicia, Spain	EU244468
	VGO672	Kervoyal, Damgan, Brittany, France	EU244469
	UTEX LB 1657	La Jolla, California, USA	EU927551
	CCMP700	Maquiot Bay, Brunswick, Maine, USA	EU927549
<i>Takayama acrotrocha</i>	MC728-D5	Italy	HM067011
<i>Karenia mikimotoi</i>	KM-FJ	East China Sea	KT733615