

**Supplementary Table S1:** Data compiled for this study. The region, sites, longitude, latitude, sampling period, data points (n), radiolabeled tracer used to determine prokaryotic heterotrophic production and reference for the data is provided.

Region	Sampling sites	Latitude	Longitude	Sampling Period	n	radiolabeled tracer	Reference
All major oceans	All major oceans	Global circumnavigation		Dec. 2010-Jul. 2011	1052	Leucine	Gasol et al. Unpubl.
Atlantic Ocean	Atlantic Meridional Transect	49°N-52°S	14°W - 58°W	Apr.-May 1996	274	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Bermuda Time Series station	32°N	64°W	1991-2011	2420	Thymidine	<a href="http://bats.bios.edu/">http://bats.bios.edu/</a>
Atlantic Ocean	Eastern North Atlantic Ocean	47°N - 60°N	20°W	May-Jul. 1989	196	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Eastern North Atlantic Ocean	47°N - 60°N	20°W	May-Jun. 1990	81	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Eastern North Atlantic Ocean	50°N	17°W	May-90	70	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Eastern North Atlantic Ocean	48°N	9°W	Jun. 1991	79	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Eastern North Atlantic Ocean	48°N	9°W	Jun. 1992	95	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Eastern North Atlantic Ocean	45°N-50°N	5°W-15°W	Oct. 1995	222	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Eastern North Atlantic Ocean	42°N	10°W	Mar-Arpr. 1998	98	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Eastern North Atlantic Ocean	60°N	22°W	Jun.-Jul. 1998	88	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Eastern North Atlantic Ocean	35°N - 63°N	13°W - 35°W	Sept. 2002	198	Leucine	Reinthaler et al. 2013
Atlantic Ocean	Eastern North Atlantic Ocean	5°N - 35°N	20°W- 42°W	Nov.-Dec. 2005	142	Leucine	Reinthaler et al. 2013
Atlantic Ocean	North Sea	52°N - 54°N	1°E-4°E	Apr. 1998	80	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	North Sea	42°N - 59°N	1°E-4°E	Jun. 1999	98	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Atlantic Ocean	Sargasso Sea	30-32°N	64-69°W	Jun. 2004 - Aug. 2005	1361	Thymidine/Leucine	<a href="http://science.whoi.edu/users/olga/eddies/">http://science.whoi.edu/users/olga/eddies/</a>
Atlantic Ocean	Subtropical Atlantic Ocean	5°S - 25°N	5°W- 25°W	Nov.-Dec. 2006	150	Leucine	Reinthaler et al. 2013
Atlantic Ocean	Subtropical Atlantic Ocean	5°S - 25°N	5°W- 25°W	Dec. 2007- Jan. 2008	151	Leucine	Reinthaler et al. 2013
Atlantic Ocean	Western North Atlantic Ocean	38°N - 65°N	30°W - 70°W	May. 2003	160	Leucine	Reinthaler et al. 2013
Atlantic Ocean	Western North Atlantic Ocean	46°N - 60°N	18°W- 21°W	Apr.-Jul. 1989	389	Thymidine/Leucine	<a href="http://usjgofs.whoi.edu/">http://usjgofs.whoi.edu/</a>
Caribbean Sea	Cariaco Basin	10°N	65°W	Mar. 1996-Nov. 2006	420	Leucine	<a href="http://imars.marine.usf.edu/CAR/">http://imars.marine.usf.edu/CAR/</a>
Arctic Ocean	Chukchi Sea and Canada Basin	65°N - 74°N	151°W- 169°W	May 2002 - Aug. 2004	621	Leucine	Kirchmann et al. 2009
Indian Ocean	Arabian Sea	8°N - 26°N	57°E- 67°E	Aug. - Dec. 1994	239	Thymidine	<a href="http://www.bodc.ac.uk/">www.bodc.ac.uk/</a>
Indian Ocean	Arabian Sea	9°N - 22°N	57°E- 69°E	Jan.-Dec. 1995	1634	Thymidine/Leucine	<a href="http://usjgofs.whoi.edu/">http://usjgofs.whoi.edu/</a>
Mediterranean sea	Ligurian Sea	43°N	7°E	Apr. 1994 - Oct. 1999	501	Thymidine/Leucine	<a href="http://www.obs-vlfr.fr/">www.obs-vlfr.fr/</a>
Mediterranean sea	Eastern Mediterranean sea	31°N-42°N	3°E-22°E	Sept. 1999	195	Leucine	<a href="http://www.obs-vlfr.fr/">www.obs-vlfr.fr/</a>
Pacific Ocean	Equatorial Pacific	12°N - 12°S	140°W	Feb.-Oct. 1992	1562	Thymidine/Leucine	Kirchman et al. 1995
Pacific and Southern Ocean	Pacific and Southern Ocean	60°N - 60°S	160-170°E	No. 2003 - Mar. 2005	857	Leucine	Yokokawa et al. 2013
Southern Ocean	Ross Sea	53°N - 72°S	170°W	Dec. 1997- Mar. 1998	653	Thymidine/Leucine	<a href="http://usjgofs.whoi.edu/">http://usjgofs.whoi.edu/</a>
Southern Ocean	Ross Sea	76.5°S	178°W-169°E	Oct. 1996-Dec. 1997	466	Thymidine/Leucine	<a href="http://usjgofs.whoi.edu/">http://usjgofs.whoi.edu/</a>

## References

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