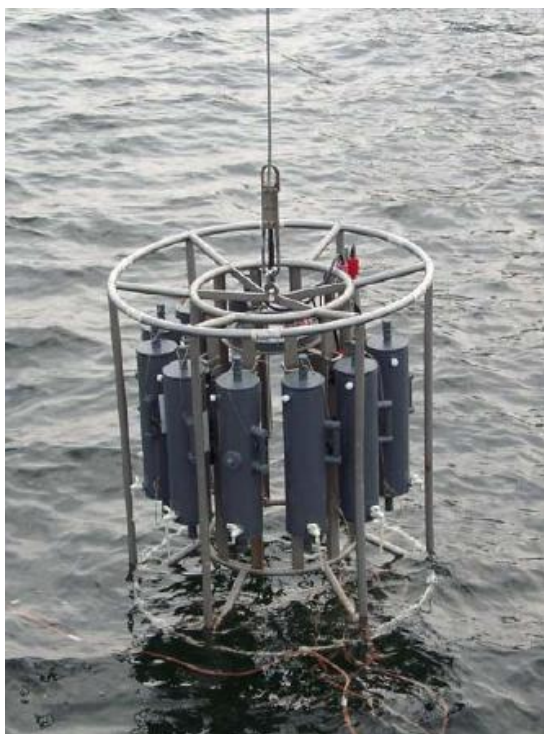


德国 HYDRO-BIOS 公司—多通道水样采集器

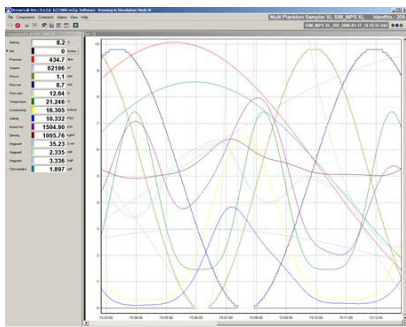
Multi Water Sampler



MWS 多通道水样采集器用于在水体中进行水样分层采集工作。它由一组坚固的、装有 12/24 个支架的不锈钢阵列组成，支架上可以安装容量为 1.7~10L 的采样瓶，用来在一次操作中完成 12/24 个不同深度水样的采集工作。多通道水样采集器装有一个马达驱动的自动释放装置，上面集成一个压力传感器，传感器的测量范围可根据用户的工作要求进行选择。工作水深：3000 米，6000 米。整套系统工作时电量消耗极少，并且可以在温度为-40℃~+85℃的极端环境中正常工作。

MWS 多通道水样采集器可以由甲板控制单元上的控制按钮控制，进行在线实时采样；也可按照预先设定的采样深度间隔进行离线自容式采样。

多通道水样采集器控制单元



OceanLab 数据处理软件



甲板单元

选配件：

CT-组件，完全整合在多通道水样采集器的驱动单元上，由一个电导率传感器、一个温度传感器和一个电路板组成。

各种参数的传感器，如温度、盐度、叶绿素、浊度等

容量 16M 为数据存储器

技术参数：

尺寸	MWS12: 直径 110cm, 高度 125cm (1.7L、2.5L、5L) MWS12: 直径 110cm, 高度 140cm (10L, PWS 版本) MWS12: 直径 110cm, 高度 160cm (10L, FreeFlow 版本) MWS24: 直径 180cm, 高度 160cm
空重	MWS12: 约 75kg (1.7L、2.5L、5L, 不带采样瓶) MWS12: 约 85kg (10L, PWS 版本, 不带采样瓶) MWS12: 约 95kg (10L, FreeFlow 版本, 不带采样瓶) MWS24: 约 200kg (不带采样瓶)
最大操作水深	标准配置: 3000 米; 可选配置: 6000 米
阵列	不锈钢材质
马达单元	由钛制成, 电池供电 (3×DL123A/3V)

甲板控制单元	金属舱室；带一个控制采样器开关的按钮；显示采样瓶序号、压力和电池状态带发光二极管背景灯的液晶显示屏；与 PC 机的接口为 RS232；由 85-260V 交流电或电池
压力传感器	0-3000dbar $\pm$ 0.1%f.s.（标准）；0-6000dbar $\pm$ 0.1%f.s.（可选）

独特之处：

- √操作简单
- √双向通信
- √工作水深：3000 米，6000 米
- √长距离（>6000 米）遥感数据传输
- √电量消耗极低
- √水下单元有电池操作，电缆中最高电压仅有 5V
- √电子单元可在温度为-40℃~+85℃的环境中正常工作
- √获 CE 国际质量管理标准体系认证，高品质保证

MWS 多通道水样采集器订购信息：

436 912/436913 MWS 12 多通道水样采集器

带微处理器和外置电池组的马达驱动单元；
 集成压力传感器；
 通过 PC 机控制的可程式深度依赖性采样间隔；
 16 兆数据存储器；
 带甲板控制单元，85-260V 交流电或电池供电；
 可安装采样瓶：12 只，1.7L、2.5L、5L、10L（注意：采样瓶需单独订购）

436 924 MWS 24 多通道水样采集器

带微处理器和外置电池组的马达驱动单元；
 集成压力传感器；
 通过 PC 机控制的可程式深度依赖性采样间隔；
 16M 数据存储器；
 带甲板控制单元，85-260V 交流电或电池供电；
 可安装采样瓶：24 只，10L（注意：采样瓶需单独订购）

HYDRO-BIOS 多通道水样采集器代表文献：

1. Gradinger, Jiirgen Lenz, 1989. Picocyanobacteria in the high Arctic. Marine Ecology. Progress series. 52:99-101.
2. R. R. Gradinger, M. E. M. Baumann, 1991. Distribution of phytoplankton communities in relation to the large-scale hydrographical regime in the Fram Strait. Marine Biology. 111(2), 311-321.
3. R. J. Gowen, B.M. Stewart, D.K. Mills and P. Elliott, 1994. Regional differences in stratification and its effect on phytoplankton production and biomass in the northwestern Irish Sea. Journal

of Plankton Research.17(4):753-769.

- 4.R.J. Gowen, G. McCullough, M. Dickey-Collas and G.S. Kleppel,1997.Copepod abundance in the western Irish Sea: relationship to physical regime, phytoplankton production and standing stock.Journal of Plankton Research.20(2):315-330.
- 5.K. Richardson, S.H. Jónasdóttir, S.J. Hay, A. Christoffersen,1999.Calanus finmarchicus egg production and food availability in the Faroe–Shetland Channel and northern North Sea: October–March.Fisheries Oceanography.8(1):153–162.
- 6.M. Trimmer, R. J. Gowen, B. M. Stewart, D. B. Nedwell,1999.The spring bloom and its impact on benthic mineralisation rates in western Irish Sea sediments.Marine Ecology Progress series.185:37-46.
- 7.Harri T. Kankaanpää, Vesa O. Sipilä, Jorma S. Kuparinen, Jennifer L. Ott, and Wayne W. Carmichael ,1999.Nodularin analyses and toxicity of a Nodularia spumigena (Nostocales, Cyanobacteria) water-bloom in the western Gulf of Finland, Baltic Sea, in August 1999.Phycologia.40(3):268-274.
- 8.Andrea M. Sass, Henrik Sass, Marco J. L. Coolen, Heribert Cypionka, and Jörg Overmann,2001.Microbial Communities in the Chemocline of a Hypersaline Deep-Sea Basin (Urania Basin, Mediterranean Sea).Applied and Environmental Microbiology.67(12):5392-5402.
- 9.Victor W Truesdale, Günther Nausch, Alex Baker,2001.The distribution of iodine in the Baltic Sea during summer.Marine Chemistry.74(2–3):87–98.
- 10.Ann K. Manske, Jens Glaeser, Marcel M. M. Kuypers and Jörg Overmann,2005.Physiology and Phylogeny of Green Sulfur Bacteria Forming a Monospecific Phototrophic Assemblage at a Depth of 100 Meters in the Black Sea.Applied and Environmental Microbiology.71(12):8049-8060.
- 11.Maik Inthorn, Michiel Rutgers van der Loeff, Matthias Zabel,2006.A study of particle exchange at the sediment–water interface in the Benguela upwelling area based on $^{234}\text{Th}/^{238}\text{U}$ disequilibrium.Deep Sea Research Part I: Oceanographic Research Papers.53(11):1742–1761.
- 12.Tim J. Waite, Victor W. Truesdale, Jon Olafsson,2006.The distribution of dissolved inorganic iodine in the seas around Iceland.Marine Chemistry.101(1–2):54–67.
- 13.MAJANEVA Markus, AUTIO Riitta, HUTTUNEN Maija, KUOSA Harri, KUPARINEN Jorma,2009.Phytoplankton monitoring: the effect of sampling methods used during different stratification and bloom conditions in the Baltic Sea.Boreal environment research.14(2):313-322.
- 14.Bertics, Victoria J., Löscher, C. R., Salonen, I., Dale, Andy W., Gier, Jessica, Schmitz, R.A. and Treude, Tina,2013.Occurrence of benthic microbial nitrogen fixation coupled to sulfate reduction in the seasonally hypoxic Eckernförde Bay, Baltic Sea.Biogeosciences(BG).10(3):1243-1258.
- 15.W. DAVISON,1977.Sampling and handling procedures for the polarographic measurement of oxygen in hypolimnetic waters.Freshwater Biology.7(4):393–401.
- 16.Austin B. M. Egbo,1978.Seasonal variations in the density of a small West African lake.Hydrobiologia.61(3):195-203.
- 17.Dr. U. Zaiss, P. Winter, H. Kaltwasser,1982.Microbial methane oxidation in the River

Saar. *Journal of Basic Microbiology*.22(2):139–148.

18.V.F. Samanidou & I.N. Papadoyannis,1992.Study of heavy metal pollution in the waters of Axios and Aliakmon rivers in northern Greece.*Journal of Environmental Science and Health . Part A: Environmental Science and Engineering and Toxicology*.27(3):587-601.

19.Nilgün Kazancı, Reiner-Hartmut Plasa, Eike Neubert & Afife İzbirak,1992.On the limnology of Lake Köycegiz (SW Anatolia).*Zoology in the Middle East*.6(1):109-126.

20.Eduardo González-Mazo, Jesus María Forja, Abelardo Gómez-Parra ,1998.Fate and Distribution of Linear Alkylbenzene Sulfonates in the Littoral Environment.*Environ. Sci. Technol.*.32(11):1636–1641.

21.V.M León, E González-Mazo, A Gómez-Parra,2000.Handling of marine and estuarine samples for the determination of linear alkylbenzene sulfonates and sulfophenylcarboxylic acids.*Journal of Chromatography A*.889(1-2):211–219.

22.Claus-Peter Stelzer,2001.RESOURCE LIMITATION AND REPRODUCTIVE EFFORT IN A PLANKTONIC ROTIFER.*Ecology*.82(9):2521–2533.

23.Udo Noack, Thomas Geffke, Ramani Balasubramanian, Jutta Papenbrock, Mike Braune, Dirk Scheerbaum,2004.Effects of the Herbicide Metazachlor on Phytoplankton and Periphyton Communities in Outdoor Mesocosms.*Acta hydrochimica et hydrobiologica*.31(6):482–490.

24.L. R. Rodríguez-Gallego, N. Mazzeo, J. Gorga, M. Meerhoff, J. Clemente, C. Kruk, F. Scasso, G. Lacerot, J. García, F. Quintans,2004.The effects of an artificial wetland dominated by free-floating plants on the restoration of a subtropical, hypertrophic lake.*Lakes & Reservoirs: Research & Management*.9(3-4):203–215.

25.Kristina Samuelsson, Johnny Berglund, and Agneta Andersson,2006.Factors structuring the heterotrophic flagellate and ciliate community along a brackish water primary production gradient.*Journal of Plankton Research*.28(4):345-359.

26.George Kehayias, Ekaterini Chalkia, Stavroula Chalkia, George Nistikakis, Ierotheos Zacharias, Anastasios Zotos,2008.Zooplankton dynamics in the upstream part of Stratos reservoir (Greece).*Biologia*.63(5):699-710.

27.MAJANEVA Markus, AUTIO Riitta, HUTTUNEN Maija, KUOSA Harri, KUPARINEN Jorma,2009.Phytoplankton monitoring: the effect of sampling methods used during different stratification and bloom conditions in the Baltic Sea.*Boreal environment research*.14(2):313-322.