Sampling protocol: Large-volume seawater samples were drawn from the 20m intake pipe at the Natural Energy Laboratory in Kona, Hawaii (19.727oW, 156.063oN) in February 2013. The samples were filtered to remove bacteria and small particles using a cleaned (10% HCl) Suporflow dual-stage (0.8m and 0.2 m) Gelman polyether sulfone (PES) cartridge filter (Chisolm-Pall) fitted to an Advanta stainless-steel housing. The high molecular weight dissolved organic matter fraction (HMWDOM) was collected using two spiral wound ultrafiltration systems consisting of a stainless-steel centripetal pump and membrane housings and a fluorinated high-density polyethylene reservoir. Each system was plumbed with Teflon tubing and PVDF valves, and fitted with two ultrafiltration membranes (Osmonics GE-H4040C; Separation Engineering) that nominally retain organic matter with a relative molecular weight >1 kDa (**>** 99% rejection of vitamin B12 ). Membranes were cleaned using isopropanol, detergent (0.01% micro), HCl (0.01 M), and NaOH (0.01 M); stored in sodium azide (0.55 mM); and rinsed with water immediately before use. Approximately 32,241 liters of seawater were concentrated over a period of 14 days. Each day, samples (~1150 L per system) were concentrated to 20 L, filtered through a 0.2mm PES cartridge filter (Propor demi-cap) into a fluorinated HDPE carboy and stored in a -20oC freezer. The sample was cooled, but did not freeze during storage. The following day, this concentrate was combined with the new day’s concentrate, reduced in volume to 20L, and again stored at -20oC. This process was repeated daily. At the end of the sampling period, the pooled samples were frozen, and returned to Woods Hole for further processing. Dissolved organic carbon measurements showed 22% of TOC was recovered in the concentrate. In Woods Hole, samples were thawed, filtered through a 0.2 mm PES filter, then filtered again through a stirred cell system fitted with a 30 kD cellulose fiber (ultracell) filter to remove viruses. Samples were desalted by a smaller ultrafiltration system fitted with Osmonics GE-E4010 filters. Twenty liters of sample was concentrated to 2L, to which 2L of ultra-pure water was added. The diluted sample was again reduced in volume to 2L, and the process repeated a total of 12 times, until the no visible precipitate was observed with the addition of sample to 10 mg/mL silver nitrate. Desalted samples were lyophilized to a fluffy white powder.