November 25, 2002

Form of Regional Network Nutrients

Structure – A single body will develop, guide, and oversee the network. This steering committee will include representatives of the key partner groups. They will develop a process for decision-making, strategic planning, and implementation.

Type of Organization - The network organization will not have any regulatory or legislative mandate or authority.

Geography - The network will encompass the northeast North American Atlantic bioregion, its boundaries and activities defined by environmental parameters rather than political boundaries.

Governance – The network will operate as a partnership whose member groups agree to comply voluntarily with goals and guidance (e.g., monitoring protocols) developed by the network.

Operating Budget – It is anticipated that the operating budget will be modest and focused on developing the network infrastructure (e.g. hiring part-time staff). Much of the work would rely on "in kind" support from the partner organizations.

Funding Sources – Participating groups will be asked to contribute start-up funding. The network partners will actively seek grants and contracts from public and private sources to maintain the network. This is likely to include working towards the dedication of annual funding from participating government agencies.

Partners – The network will include US and Canadian federal, state, and provincial partners as well as academic and non-profit monitoring groups.

Staffing – The intention is to hire a new part-time dedicated staff person with expertise in data management and web systems. This staff person will work with existing staff in the federal/state and non-profit partner programs to create and maintain the infrastructure of the network.

FUNCTION Nutrients

Scale The network will include coastal watersheds, estuaries, near coastal and offshore environments.

Scope – The sources of monitoring data will include federal, provincial, state, and local government entities as well as non-government monitoring groups.

Program Design and Implementation – For key monitoring parameters and analytes, standardized protocols or performance based protocols will be developed and approved the steering body to ensure the quality of the resulting data. The participating groups will agree to promote and disseminate these protocols, working towards a process that documents the data and ensures its high quality.

Data Management – Data management will include development of a network web page. Web links will be created to the monitoring databases of the participating groups. Members will, to the extent possible, provide spatially georeferenced data. Network participants will also agree to document new monitoring data using a standardized metadata format and to make the metadata available through their individual web sites.

Data Synthesis and Communication - The partners will undertake assessments for specific issues of mutual interest at selected scales. The results will be communicated to the network members through the web and by other means.

Links to Research - The network (partners) will identify research questions arising from the regional monitoring data (e.g., through the data synthesis and analysis process). The network will prioritize these needs and assistance will be sought for the academic community, and other partners in meeting these needs.

Services Provided - The network (partners) will coordinate and administer assessment projects requested and funded by the participating groups.

Nutrients - Supplemental Table

Nutrient Monitoring Parameter	Corresponding Nutrient Monitoring Programs
Nutrients	
Water Column: Nitrogen and Nitrogen Compounds, Phosphorus	Massachusetts Water Resources Authority (MWRA), Friends
(Total Nitrogen, Total Dissolved Nitrogen) (I norganics –	of Casco Bay, Casco Bay Estuary Project, National Coastal
nitrates, nitrites, ammonia, silicate, etc.) (Organics –	Assessment (NCA), NPDES and Aquaculture Permit
phosphorus, etc.)	Monitoring, NAWQA (National Water Quality Assessment
	Program), University of New Hampshire, Plum I sland Long-
	Term Ecological Research Site, State Monitoring Programs,
	ENVI RODAT (Environmental Quality Databank (Environment
	Canada), New Brunswick Community Environmental Monitoring,
	St. Croix Estuary Project (SCEP), Fisheries and Oceans
	Canada, Friends of Medomak Watershed, Penobscot Bay
	Water Quality Monitoring (Maine Maritime Academy),
	Baywatchers (Coalition for Buzzards Bay), Massachusetts
	Ecosystem Assessment Program (MEAP), Narragansett Bay
	Program , New Hampshire Dept. of Environmental Services
	(NHDES), New York Harbor Water Quality Survey
	(NYHWQS), National Estuary Programs (NEPs), University of
	Rhode I sland
	National Acid Deposition Program (Monitoring Stations
	throughout US including New England States)
Air	
Dissolved Oxygen	Massachusetts Water Resources Authority (MWRA), Friends
	of Casco Bay (FOCB), Casco Bay Estuary Project (CBEP),
	NEPs, National Estuarine Research Reserve System (NEERS),
	NCA, MWRA, Penobscot Bay Water Quality Monitoring
	(Maine Maritime Academy), Baywatchers (Coalition for

DO continued	Buzzards Bay), MEAP, NHDES, Long I sland Sound Study (LISS), NYHWQS, Save the Sound, URI, Aquaculture Permit Monitoring
Biological Oxygen Demand Secchi Depth/Turbidity-Light Extinction/Total Suspended Solids	MWRA, NPDES permits FOCB, Citizen Monitoring Programs in New England, New Brunswick Community Environmental Monitoring, MWRA, NHDES, NPDES Permits, MEAP, NEPs, NHDES, Aquaculture
	Permits Monitoring
Primary Productivity	MWRA
Phytoplankton Biomass as Chlorophyll a	FOCB, MWRA, NCA, Gulf of Maine Ocean Observing System (GOMOOS), Marine Resources Monitoring Assessment and Prediction (MARMAP-NMFS), NEERS, Friends of Medomak Watershed, Baywatchers (Coalition for Buzzards Bay), Cape Cod Bay Marine Monitoring, MEAP, NEPs, NHDES, LISS, NYHWQS, Save the Sound, Aircraft Remote Sensing for Chlorophyll <i>a</i> (EPA – Atlantic Ecology Division), URI, Aquaculture Permit Monitoring
Sediment Redox	Aquaculture Permit Monitoring, MWRA
Submerged Aquatic Vegetation (SAV)	State Monitoring Programs (Maine Department of Marine Resources), BBP (Buzzards Bay Project), MEAP, URI, Save the Bay
Benthic Algae/Epiphytic Algal Biomass/Leafy Algae (enteromorpha, ulva, etc.)	BBP
Phytoplankton/ Community Structure	MWRA, Fisheries and Oceans Canada, MARMAP, Kennebunk Water Quality and Phytoplankton Monitoring Program, Mount Desert I sland Water Quality Coalition Monitoring (MDI), Cape Cod Bay Marine Monitoring, LISS, NYHWQS, URI,

	Aquaculture Permit Monitoring
Harmful Algal Blooms	State Shellfish/Public Health Programs, URI , Biotoxin
	Monitoring Program (Canadian Food Inspection Agency),
	Maine Phytoplankton Monitoring Program (U. Maine Coop.
	Extension), Marine Environmental Research Institute, LISS
Macroalgae	SCEP, MEAP
Benthic Community Structure	Aquaculture Permit Monitoring, MWRA, NEPs, NPDES Permit
	Monitoring

Nutrient Enrichment Option¹

Functions of	Simplicity Sophistication			
Network				
Scale	Tidal and subtidal	Near-shore & inshore	Coastal	Watersheds and Blue Water/Ocean
Scope/Reach	State & federal marine monitoring programs	Government and volunteer	Government, volunteer and academic programs	All monitoring data
Program design & implementation	Evaluate based on established protocols	Apply standardized protocols selectively	Amend programs to meet regional needs	Standardized protocols and regional needs
Data management	Rely on current mechanisms	Web links to databases with spatial references & metadata		Distributed & linked (e.g., archival and retrieval)
Data synthesis and communication	Existing level of program activity	Embayment assessments by selected issue	Integrated multi-factor regional assessments	Biogeographical trends and assessment w/active marketing/dissem
Links to research	Spontaneous - no formal connection	Identifies priorities linked to monitoring	Active proponent for regional research	Supports and conducts research (e.g., cause & effect)
Services provided @ fee/consulting	Local scale assessments	Gulfwide assessments	Integrated multivariate assessments	Development of plans, strategies, BMPs, etc.

¹ In a 1999 survey of New England managers by the Coastal States Organization they identified nutrient enrichment as the second most important coastal management issue. Examples of issues raised include eutrophication, harmful algal blooms, runoff (e.g., agricultural, storm-water, septic, etc.), atmospheric nitrogen, etc. See http://ciceet.unh.edu/index_flash.html -- technology and information management report.

Form of Network	Simplicity	Sophistication		
Structure	A single entity (e.g., steering committee)	Jurisdictional boards (e.g., state/provincial)		Tiered state/provincial board engaging all stakeholders & committees (e.g., science, TAC, etc.)
Type of organization	Association w/no legal standing	US/Canadian non-profit		Regional public agency w/federal sanctions & mandates
Geography	Substate	State/Provincial	Regional by political subdivision	Biogrographical
Governance/decision- making	Advisory - optional participation	Voluntary compliance	Consensus	Mandatory
Operating budget	Existing and in-kind	Seed funding	Incremental growth	Major ongoing initiative
Funding sources	Current array of public and private sources	New grants and contracts (e.g., government, foundations,)	Dedicated program resources	Dedicated public and private funds, philanthropy
Partners	State, provincial & federal agencies (US & Canada)	Volunteer Programs	Regional organizations (e.g., RARGOM, GoMOOS)	Government, NGOs, businesses, academia, regional organizations
Staffing	Existing staff dedicate time to network	New part-time staff		Ongoing full-time professional staff of Network