The Dynamics of the Microbial Population LTER Database								
Year Released to Public	2003							
Distribution URL for file	http://links.baruch.sc.edu/data/accessfiles/5_Year_Microbial_Population_Study_as_measured_by_ATP_1981_1985.zip							
DATASET TITLE:	**The Dynamics of the Microbial Population as Measured by the Quantification of adenosine 5′-triphosphate (ATP) at Three Sampling Locations Within the North Inlet Estuary, Georgetown, SC: 1981-1985 LTER Database**							
INVESTIGATOR INFORMATION :	**Investigator 1**	**Investigator 2**	**Data Manager**					
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Data Set Credit	**Supported by the National Science Foundation, Long-Term Ecological Research Program (LTER), under grants DEB 8012165 and BSR 8514326.**							
DATA FILE INFORMATION:	***This condensed metadata is from the original, more extensive metadata*** created on 7/15/2003 by Ginger Ogburn-Matthews. If needed, the original may be accessed at: **http://links.baruch.sc.edu/Data/LTERATP/metadata/LTERATP.FINAL.ADOBE.pdf** Links and email addresses in the original have not been updated as those locations and people may no longer be available. The data manager identified on this page should be contacted for any questions about the data.							
Data File Name	5_Year_Microbial_Population_Study_as_measured_by_ATP_1981_1985.zip							
Beginning Date	17-Mar-1981							
End Date	31-Mar-1985							
Number of Data Records	15090							
RESEARCH LOCATION:	Clambank Creek (CB)	Oyster Landing(OL)	Town Creek (TC)	North Inlet Estuary				
Geographic Description	The Clambank Creek monitoring site is located roughly in the center of the North Inlet. The site is surrounded by a Spartina marsh and drains associated uplands. Salinity ranges from 0 to 36. The bottom is mostly comprised of oyster shell hash and some fine sediment. This site is considered pristine and is influenced by its close proximity to the Inlet mouth. Clambank Creek monitoring site: 33.20'0" Lat., 79.11'33" Long.	The Oyster Landing monitoring site is considered a fairly pristine and undisturbed area. Samples are collected at the end of the Oyster Landing pier. The pier stretches into the upper reaches of Crab Haul Creek in the mid-western portion of North Inlet. The creek drains pine forested uplands and wetlands. Salinity can range from 0 to 36 parts per thousand and average tidal flux is approximately 1.4 m. The creek has an average depth of ~2 m MHW and an average width of ~150m MHW at the sample site. The bottom is mostly comprised of oyster shell hash with some fine sediment and detritus. Oyster Landing monitoring site (in Crab Haul Creek): 33.21'2" Lat., 79.11'27" Long.	The Town Creek monitoring site is located the closest to the ocean, in the mouth of North Inlet just behind the southern tip of Debidue Island. Salinities are dominated by the oceanic conditions. The current velocities are the strongest here, and the bottom is comprised of course sand with some shell hash. Town Creek monitoring site: 33.19'38" Lat., 79.10'0" Long.	These three tidal marsh creeks reside in the North Inlet Estuary. The North Inlet Estuary lies east of the uplands of Hobcaw Barony (also known as the Belle W. Baruch Property). To the north of the Estuary is the Debordieu Colony Property. The Estuary is located in Georgetown County, South Carolina.				
Location Bounding Box								
West Bounding Coordinate				-79.192				
East Bounding Coordinate				-79.167				
North Bounding Coordinate				33.35				
South Bounding Coordinate				33.327				
OR if single point location								
Latitude	33.20'0"	33.21'2"	33.19'38"					
Longitude	79.11'33"	79.11'27"	79.10'0"					
Elevation								
TAXONOMIC COVERAGE:								
Taxonomic Protocols								
Organisms studied	microbial organism, marine microorganisms							

KEYWORD INFORMATION

KEYWORDS: adenosine 5′-triphosphate, atp, marine microorganisms, microbial biomass, microbial population, luciferin, luciferase, bacteria, phytoplankton, coastal, estuarine, estuary, long-term, long-term ecological research, lter, tidal creek, marsh, salt marsh, clambank creek, coastal, crab haul creek, east coast, georgetown county, north inlet estuary, oyster landing, south carolina, southeast coast, town creek, usa, upper water column, daily

ABSTRACT:

Abstract

Water samples were collected daily at approximately 10:00 AM, from a depth of 50 cm at three stations, and transported immediately to the laboratory. The three stations included Town Creek (TC), Oyster Landing (OL), and Clambank Creek (CB). Twenty milliliter aliquots were extracted in duplicates or triplicates from each sample using sterile techniques. These extractions were filtered, frozen, and later analyzed on an SIA 3000 photometer to determine quantities of adenosine 5′-triphosphate (ATP). Increases and decreases in measured ATP indicated both seasonal and tidal changes occurring within portions of the microbial community.

Purpose

The purpose of this portion of the Long Term Ecological Research study was to form a well-defined data set of microbial data for the North Inlet Estuary and for comparative purposes to other data sets collected within the boundaries of the North Inlet LTER site. Further, patterns and control of organic accumulation (biomass) in the water column, surface layers, and substrate were studied in relation to time or natural and induced stresses or disturbances.

METHODS:

Feild Collection Procedures and Protocol (Overall Field Collection Protocol)

Water samples were collected daily at approximately 10:00 AM, from a depth of 50 centimeters at three tidal creek stations, and transported immediately to the laboratory. Sampling sites included Oyster Landing (OL), Town Creek (TC), and Clambank Creek (CB). Usually only one 1-liter bottle of tidal creek water was collected from each site. See the LTER Daily Water Sample (LTERDWS) published metadata for more information about other water chemistry analyses that were completed on this same water sample.

Labratory Proecedures and Protocols (ATP Extraction and Analysis)

Adenosine triphosphate (ATP) was extracted in triplicate from each site's 1-liter water sample. Three 20-milliliter aliquots were filtered through sterilized Whatman GF/F 0.7 micron filters. These extractions were filtered, frozen, and later analyzed on an SIA 3000 photometer to determine quantities of adenosine 5′-triphosphate (ATP). Each filter was placed in 5 milliliter of tris buffer which was boiling in a sand bath. The filter was boiled for 5 minutes to fully release the ATP into the tris buffer. When cool, the vial containing the tris buffer and the ATP was restored to its original level by the addition of sterile filtered water. This replaced any liquid lost to evaporation during the boiling. Analysis was done on an SAI integrating photometer in the peak height mode using luciferin purchased from Sigma Chemical Corp.

VARIABLE DESCRIPTIONS:

Variable Name	Variable Description	Units	Measurement Scale	Code Information	Number Type
Site		CB, TC, OL	nominal	CB(Clambank Creek), TC (Town Creek), OL(Oyster Landing)	
Date		1-12/Month, 1-31/Day, 1981-1985/Year	datetime		
N		1-3/sample size	interval		integer
ATP Mean		0.0496-10.5163/nanograms per milliliter	ratio		real
ATP Standard Error		0.0000-2.1425/nanograms per milliliter	ratio		real
ATP		0.0107-7.8390/nanograms per milliliter	ratio		real