Selected Material from Other Earlier Papers and Reports

Earlier Support for the Important Role of Inorganic Tripton

"Limnological and statistical issues for monitoring the impact of a lake source cooling facility: Cayuga Lake, NY" Matthews *et al*. 2002. Lake and Reservoir Management. 18: 239 - 256.

- "TP and SD compromised as trophic indicators for this system because of the contribution of tripton"
- potential impact analysis targets Chl instead
- PP:Chl ratio as a diagnostic
  - greater on shelf
  - greater contributions of tripton on shelf

Limnological and Statistical Issues for Monitoring the Impact of a Lake Source Cooling Facility: Cayuga Lake, NY[1]

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ABSTRACT

Earlier Support for the Important Role of Inorganic Tripton

"Patterns and impacts of inorganic tripton in Cayuga Lake"
Effler *et al*. 2002. Hydrobiologia 482: 137-150.

- TP and SD compromised as metrics of trophic state by inorganic tripton contributions
- early (1999 and 2000) direct measurements of inorganic particles PAV_m (by SAX) defined later
- greater tripton levels on the shelf compared to pelagic
- speculation on high self flushing rate preventing locally high phytoplankton growth, and Chl, on shelf

Patterns and impacts of inorganic tripton in Cayuga Lake *

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Abstract

Introduction

Sediment Origins

Variations in sediment sources and yields in the Finger lakes and Catskill regions of New York

Nagle *et al.* 2007. Hydrological Processes. 21: 282-838.

objective: quantify the proportional contributions of surface and bank erosion to sediment yield in streams of the southern Cayuga Lake Basin

Methods:

- Cayuga Lake tributaries
  - Cayuga Inlet
  - Fall Creek (plus Virgil Cr.)
  - Sixmile Creek
  - Salmon Creek
- Cs^{137} as a tracer

Results:

Tributary	Physiographic Setting	% Sediment Loading from Bank Erosion	Yield (t kg^{-2}/yr^{-1})
Six Mile	relatively extensive glaciolacustrine	76	203/138 (2000, 2001)
Fall Creek	relatively extensive glaciolacustrine	52	42 (Forest H.)
Cayuga Inlet	relatively extensive glaciolacustrine	76	--
Salmon Creek	limited glaciolacustrine	53	--
Virgil	limited glaciolacustrine		57

- bank erosion important
- management implications

Variability and Causes

- large differences in sediment yield between tributaries attributable to varying contributions from bank erosion
- current problems with excessive sedimentation in Cayuga Lake are in part a consequence of the elimination of extensive wetland, originally at the southern end
  - extensive channelization also, particularly the lower end of Cayuga inlet

Net Sedimentation in Southern Cayuga Lake

- long-term decreases in sediment loading observed in many streams/rivers nationally from changes in agriculture
- dating of lake cores (net sedimentation) do not support this for southern Cayuga Lake tributaries
- Yager (2001) sediment dating – multiple sites extending from the south to mid-lake
  - pre-settlement < 1mm yr^{-1} (radiocarbon)
  - 2.4 - 6 mm yr^{-1}, from Pb_{210} (since 1900)
  - 2.4-8.1 mm yr^{-1}, from Cs_{137} (since 1950)
- Hairston *et al*. (2001) – 5.8 mm yr^{-1} (1963-1994)