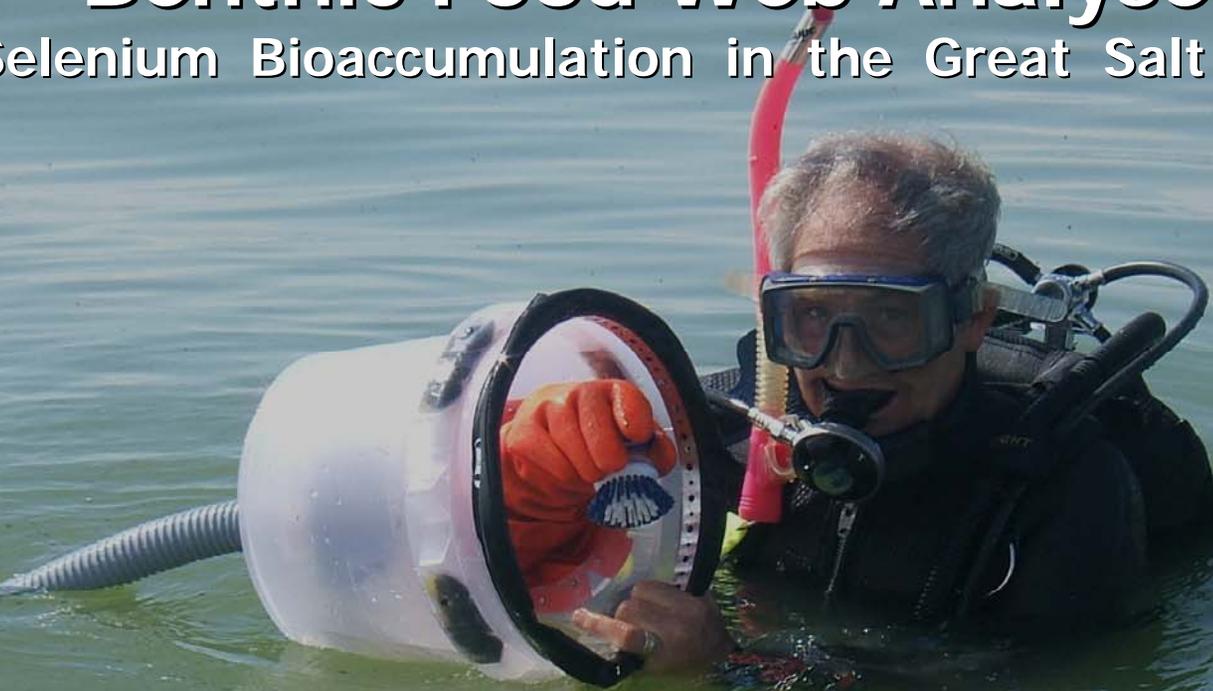


# Benthic Food Web Analyses

## Selenium Bioaccumulation in the Great Salt Lake



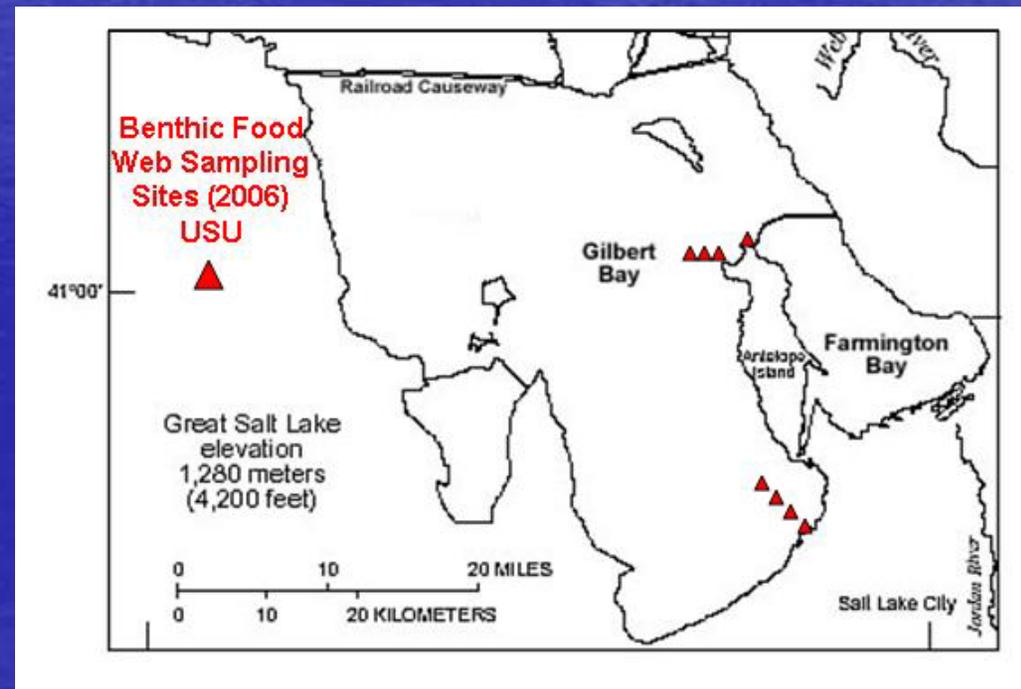
Wayne Wurtsbaugh  
Utah State University  
9 August 2006

# Objectives

- Develop sampling methodology for brine flies and periphyton in benthic habitats of Great Salt Lake
- Collect brine flies, periphyton and water samples for selenium analyses during the nesting period

# Habitats sampled

- Stromatolites
- Sand substrates
- Mud substrates
  
- Nominal Depths
  - 1 m
  - 3 m
  - 5 m
  
- Stations



# Stromatolites

Dominant hard substrate for  
brine fly larvae & pupae



Photo: Dave Liddell

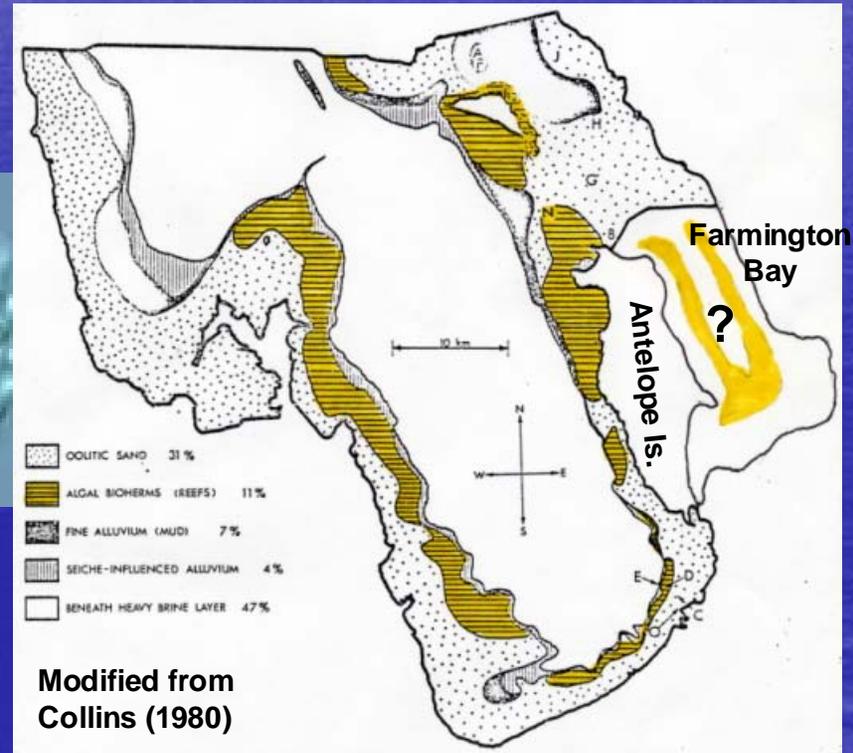
Marine stromatolites

## Distribution

*Aphanothece* sp.  
(cyanobacteria)



Food Web Importance:  
Principal Brine Fly Habitat

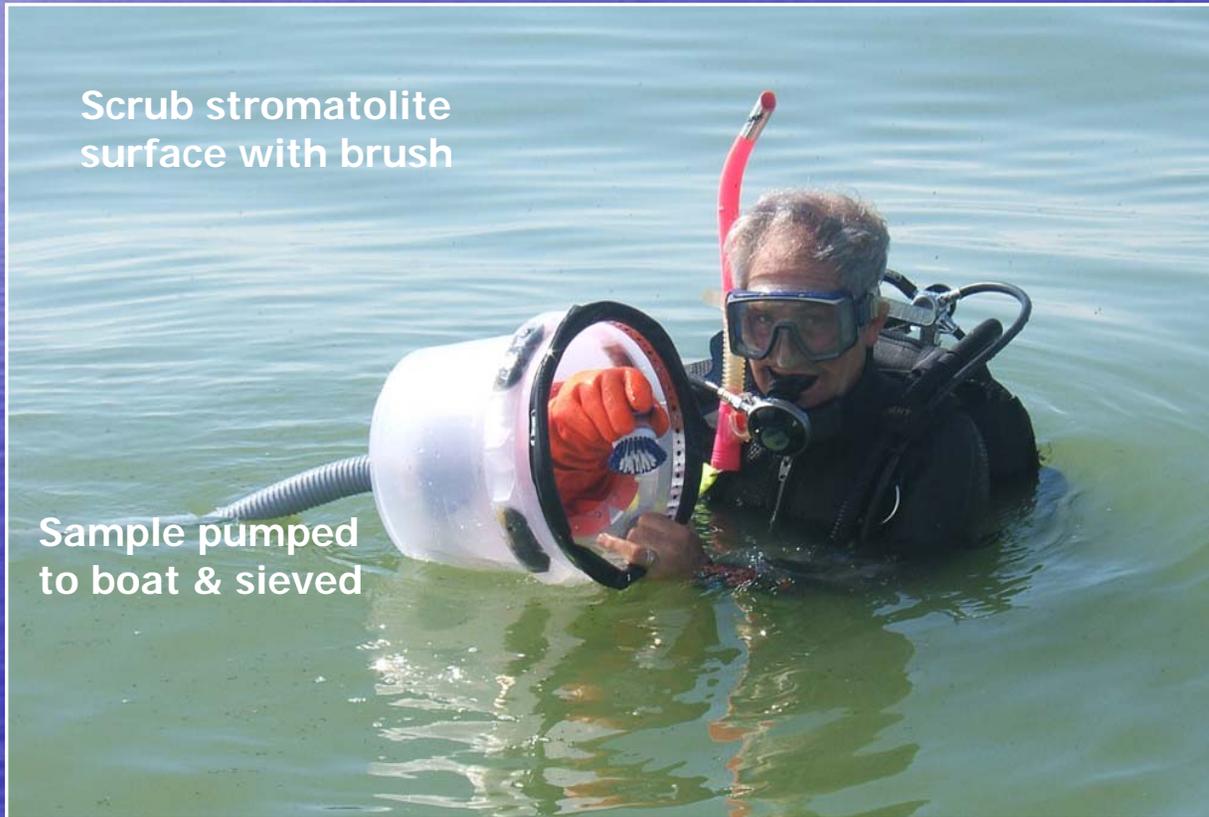


# Methods

**Stromatolites – Bucket Sampler & SCUBA**  
– Visibility 1-2 feet

Scrub stromatolite  
surface with brush

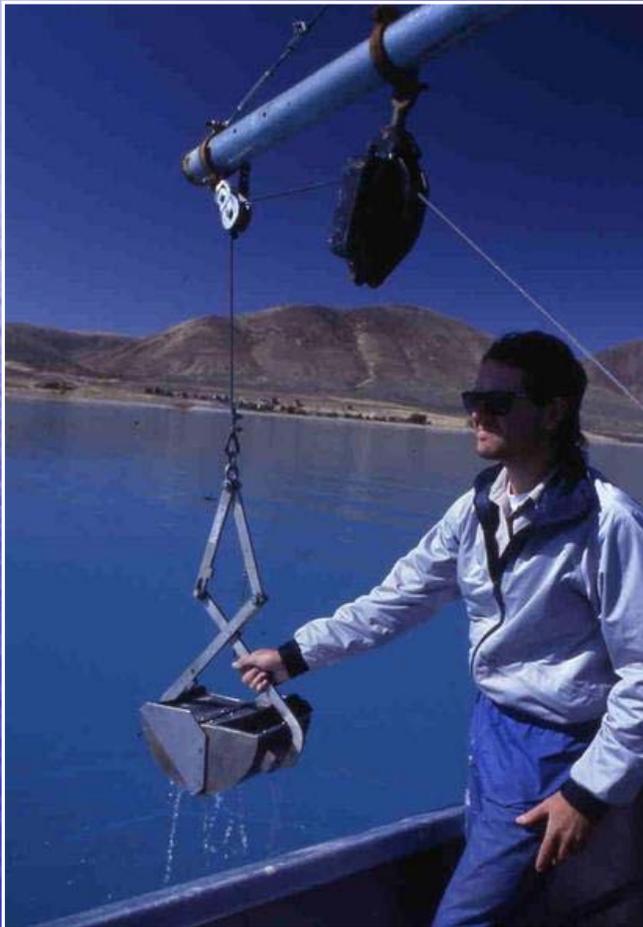
Sample pumped  
to boat & sieved



# Methods

## Soft Substrates

- Ponar dredge
- Sectioned (if intact)
- Sieved on boat



# Methods

## Adult Flies

- Netted over water or on shore
- Frozen on dry ice



## Number of Samples Collected

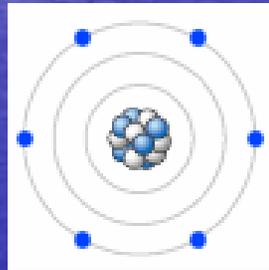
Region	Larvae	Pupae	Adults	Periphyton	Water
Bridger Bay	10	10	3	9	3
South Gilbert	7	7	2	4	4

# Brine fly: Larvae & Pupae Densities\*

Depth (m)	Substrate	Density (Number m <sup>-2</sup> )		
		Larvae	Pupae	Total
1	Mud/sand	40	0	40
	Stromatolite	11,000	6,000	17,000
3-4	Mud/sand	600	0	600
	Stromatolite/sand	10,300	5,500	15,800
5	Mud/Sand	140	60	200

\*Provisional data

# Coming Attraction



**Selenium**