
This trip comes 51 years after a Cape Cod trip in 1968, led by Bob Oldale, Carl Koteff, and Joe Hartshorn, who invited Friends to examine the geology shown on new, detailed geologic maps of the Cape Cod National Seashore. The present trip will visit classic stratigraphic localities that reveal evidence of meltwater processes active in construction of the large glaciodeltaic landforms of the outer Cape. We also will visit fresh pit exposures in the two large recessional moraines and outwash deposits of the western Cape. Interpretation of offshore correlative geology from seismic profiles also will be discussed. Holocene coastal and marine deposits of the Provincetown Hook, Wellfleet Harbor, and Seashore beaches will be visited. Our goal is to provide you with the latest stratigraphic framework of the Cape Cod area, a discussion of this part of the new Quaternary Geologic Map of Massachusetts, and opportunities for imaging and sampling typical sediments so that you are best prepared to teach these details to the next generation. The trip also features discussions about the bedrock surface beneath the Cape, distribution of Coastal Plain sediments on top of rock, history of subsurface studies, drill holes, ongoing contamination studies in aquifer zones, offshore geology, the last marine transgression, and developments in Quaternary geochronology of the area.

This trip covers parts of three days, beginning on FRIDAY at 10:00 AM. On Friday, we will be driving cars; you may join Friday’s trip at a scheduled assembly point when you arrive during the day. On Saturday and Sunday we will be traveling by Bus. On Friday and Saturday, we will examine several sea cliff exposures, morphologic features, and a sand and gravel excavation in the elbow to the fingertips section of Cape Cod (also called the lower Cape). On Sunday, we will visit sand and gravel excavations in the recessional moraines, and outwash plains of the shoulder to elbow section of Cape Cod (also called the upper Cape). If required, a revised list of Friday’s STOPs and scheduled assembly times will be forwarded to you when we finalize trip plans.

**Friday, Day 1**

**10:00 AM: Assemble at Sheraton Four Points, Eastham.** Consolidate cars.

**10:30-11:30 Stop 1. High Head, Truro.** Walk to active dune front.

**11:45-1:00 Stop 2. Pilgrim Heights, Truro.** Hike to Small Swamp kettle and Pilgrim Springs. **LUNCH Stop** (Bring your own bag lunch).


**2:30-3:00 Stop 4. Scenic Drive along Pamet River valley** to sea cliff exposure Wellfleet Plain Deposits.

**3:00-3:30 Stop 4A. Newcomb Hollow beach** sea cliff exposure in Wellfleet Plain deposits.
3:30-4:30 **Stop 5 Great Pond Kettle** and clustered mini-kettles along Ocean View Drive. Return to Eastham.

6:00-8:00 PM Happy Hour, **Registration at Sheraton Four Points.** Posters, and Review slides of the day, Introductory Discussions.

**Saturday, Day 2**

Assembly 7:30 AM at Sheraton Four Points, Board Bus.

**Stop 6. Provincetown beach/dune/and/or Visitors Center.** Spit/dune development and offshore geology discussed.

**Stop 7. Highland Center, Truro.** NPS wave platform; top of Wellfleet delta plain.

**Stop 8. Highland Light, Truro.** Top of Highland delta plain, hike down Highland clay section to beach. Examine sea cliff section to north and Truro Plain section. Walk north on wide beach to Coast Guard beach parking area. Bus picks us up and returns to Highland Light.

**Lunch at Highland Light** museum, restrooms.


**Stop 10. Marconi Station Road.** Short walk along Wellfleet Plain–Eastham Plain contact.

**Stop 11. Lower Cape Sand and Gravel pit, Eastham.** Examine fluvial beds in the Eastham Plain deposits. Discuss and view core into bedrock surface at a depth of 503 ft.

**Stop 12. Coast Guard Beach.** Sea cliff exposure of kettle-fill peat and growth-position tree stumps.

**Stop 13. Doane Rock.** Also called Enos Rock, largest known glacial boulder on Cape Cod.

**Stop 14. National Seashore Visitor's Center** (time permitting).

6:00 pm Happy Hour and 7:00 pm Buffet Dinner at Sheraton Four Points.

**Sunday, Day 3**

Complete hotel checkout by 7:30 AM and drive your own car to CC Canal Visitor’s Center in Sandwich; (50-60 minute drive). By 8:30, Board Bus.

**Stop 16. Glacial Lake Cape Cod spillways** at Cape Cod Canal overview site.

**Stop 17. Cape Cod Aggregates gravel pit, Falmouth.** In Buzzards Bay moraine deposits; entrance via Falmouth Land Trust’s Moraine Trail.

**Stop 18. Colluvial rampart of the Buzzards Bay moraine.** Brick Kiln Rd, Falmouth, Moraine Trail to Long Pond.

**Stop 19. Furrow cutting distal Mashee delta plain deposits.** Handy Cranberry Trust Cranberry Bog excavation in Falmouth.

**Stop 20. P.A. Landers Sand and Gravel pit, Forestdale.** Mashpee Pitted Plain outwash, large kettles.

**Stop 21. Cape Cod Aggregates gravel pit in Sandwich Moraine.** Till overlying proximal Mashpee Plain.

**Return to CC Canal parking.** Optional tour of CC Canal museum by U.S. Army Corp of Engineers staff.
FIELDTRIP STOPS

Friday Stops 1-5   Saturday Stops 6-14   Sunday Stops 15-21
2019 Northeastern Friends of the Pleistocene Annual Meeting
May 31st, June 1st and 2nd, 2019 (Friday-Sunday)
Registration Form

Name________________________________________________________________________
Address_______________________________________________________________________
____________________________________________________________________________
Phone____________________________ Email________________________
Organization/Affiliation_________________________________________________________
Emergency Contact________________________________________________________________
Emergency Contact Phone________________________ Relation__________________________

Saturday/Sunday Box Lunch choice (circle): Local Deli Meat Veggie Gluten Free

Saturday Banquet Buffet (Cape Cod cranberry stuffed chicken breast, Baked fillet of Cod, Roasted Potatoes, Rolls, Salad, Cookies & Brownies). Check here_____ if you need a vegetarian option.

The registration fee for attending the meeting is $140 which covers the cost of trip buses on Sat/Sun, box lunches on Sat/Sun, banquet on Saturday, and the guidebook. If you are bringing additional guests to the banquet, please include number of additional guest/s here _______ and add $43 per person to your check.

Headquarters, banquet, and lodging are at Sheraton Four Points in Eastham and additional lodging in adjacent Ocean Park Inn Cape Cod. Lodging options are $169-$189/night at Four Points, $109-$119/night at Ocean Park. Please request FOP group rate. Lodging reservation deadline of May 1st by 5 PM. Cancellation policies: Four Points-48 Hours Prior to Arrival; Ocean Park Inn-One week Prior to Arrival.

NOTE: Some of the field exposures are down steep cliffs and some require a lengthy hike on the beach. We have space for 90 participants and participation is on a first come, first served basis with a waiting list. Please register by May 15 for our planning purposes.

Also note that ticks, as well as bugs, are an issue on the Cape at this time of year, so take precautions including using repellent containing DEET. Tuck pants in socks, wear light-colored clothing and check your legs often and at the end of the day. Sun screen is also a must.

Payment Information
To help simplify preparations and keep costs down, please pay by check, payable to: Massachusetts Geological Society Memo Line: FOP2019

Send Application form along with check to:
FOP2019
Hager GeoScience, Inc. For more information contact:
596 Main Street Byron Stone Janet Stone
Woburn, MA 01801 860-291-6755 860-526-5957
hgi@hagergeoscience.com bdstone@usgs.gov jrstone@usgs.gov
Friends of the Pleistocene 2019  
Headquarters and Banquet Location

FOUR POINTS BY SHERATON (508-255-5000)

Hotel Amenities
Full-Service hotel
Restaurant on site: Bellamy’s Grill (open for breakfast and dinner)
Indoor Heated Saline Pool (many of the rooms surround the pool)
Fitness Room
Business Center with computers and printer
Food Pantry in lobby
Tennis Courts
Outdoor Pool

Room Amenities
42” Flat screen televisions
Coffee Makers
In-room Safes
Refrigerators
Complimentary wireless internet access

Room Rates: May 31-June 3, 2019
Friday and Saturday Night
Poolside Rooms with two queen beds: $169.00 Per Room, Per Night
Larger rooms with two queen beds: $189.00 Per Room, Per Night
Thursday Night
Poolside Rooms with two queen beds: $129.00 Per Room, Per Night
Larger rooms with two queen beds: $139.00 Per Room, Per Night

OCEAN PARK INN CAPE COD (508-255-1132)

Hotel Amenities
Spacious lawn with grills, picnic tables and hammocks.
Sparkling outdoor pool
Guest laundry facilities
Pet Friendly
Guests can use all of the amenities at the Four Points

Room Amenities
Mini-Refrigerators
Complimentary wireless internet access

Room Rates: May 31-June 3, 2019
Friday and Saturday Night
Rooms with two double beds: $109.00 Per Room, Per Night
Rooms with two queen beds: $119.00 Per Room, Per Night
Thursday Night
Rooms with two double beds: $79.00 Per Room, Per Night
Rooms with two queen beds: $89.00 Per Room, Per Night

Reservations: Guests will be responsible for making their own reservations. There is a two night minimum requirement at the Four Points by Sheraton Eastham. Rooms will be held until the date of May 1, 2019. After that date, any rooms not reserved will be released into public sale. A one night deposit will be charged at time of reservation which is fully refundable as long as guest adheres to the hotel cancellation policies. Lodging reservation deadline of May 1st by 5 PM. Cancellation policies: Four Points-48 Hours Prior to Arrival; Ocean Park Inn-One week Prior to Arrival.