

TR-099

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URI/GSO

Cruise Report - R/V Trident

Cruise TR-099

Schedule

Depart Narragansett: June 6, 1971 at 1530  
Arrive Narragansett: June 18, 1971 at 1130

Region Investigated

Continental shelf off New Jersey between 38°15'N and 39°45'N (depth 10-100 fm)  
Plus route through Hudson Canyon and Narragansett Bay.

Total days of cruise

13 days

Scientific Party

C.E. McClennen, Chief Scientist, Graduate Student GSO, URI  
M.A. Hampton, Prof. of Geology, URI  
D.L. Johnson, Graduate Student, GSO, URI  
R. Pierce, Graduate Student, GSO, URI  
J.W. Vogel, Graduate Student, GSO, URI  
A.B. Buddington, Marine Technician, GSO, URI  
M. Weishan, Marine Technician, GSO, URI  
J. Parker, Marine Technician, GSO, URI  
W.R. Davis, National Marine Water Quality Laboratory  
R. Laplan, National Marine Water Quality Laboratory

Scientific Objectives

1. Check bathymetry on continental shelf.
2. Measure near bottom current velocities with moored recording meters.
3. Determine relationship of shelf morphology to the surface and subsurface sediment cover.
4. Determine the acoustical structure of the top 30 meters of sediment.
5. Test the operation of the URI vibratory Corer and collect samples. *- [B] same as before*
6. Determine the present sedimentary environment of the shelf.
7. Daily hydrocasts for oxygen, temperature, salinity, phosphate, arsenate and arsenite determinations.
8. Sample collection for trace metal (Iron, zinc, cobalt, silver, chromium, scandium, samarium, and antimony) determinations from associated water column/zooplankton and sediment/inf fauna for National Marine Water Quality Laboratory.
9. Sample collection of sediments for humic acid and other organic component analysis.
10. *Bottom photographs*
11. *Core cores (14)*

Stations List

See attached sheets.

Continuous Observations

See attached sheets

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## Preliminary Results

Sand ripples were photographed in selected areas in association with 3 meter high sand waves detected with the Precision Echo Sounder. Most photographs gave little indication of ripple or sediment motion due to waves or currents. Box cores up to 18 inches deep and Vibra cores up to 1.5 meters indicate that surface sediments are quite similar over most of the shelf but the subsurface sediments show considerable variation.

The preliminary impression of the high resolution seismic reflection survey carried on at 5.0 KHz is that there is considerable nearly horizontal layering which does not parallel the surface morphology. Depression filling, irregular deposition, erosion and outcrops were all indicated in various limited areas, some of which seemed related to the surface morphology. The current meter data is not expected in before Fall 1971.

The trace metal analyses and organic components of the sediments will also take considerable time to work up.

The preliminary results of the study done by D.L. Johnson indicate that on the continental shelf, arsenate concentrations are similar to those found in the open ocean at comparable depths (ie 0-100 meters). Some arsenite was detected, but most arsenic was present as arsenate.



# N.M.L. SUMMARY CRUISE REPORT STATION LIST

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STATION NO.	DATE	STATION TYPE	LAT.		LONG.		DEPTH		PHYSIOG. AREA
			START	END	START	END	START	END	
10	6/8/71	<u>Vibracore</u> VC-2	38°34.6'	--	74°02.2'	--	55M	-	N.J. Shelf
11	6/9/71	Hydro cast	38°36.6'	38°39.5'	73°09.7'	73°09.7'	366M	-	
		Grab sample							
12	6/10/71	Hydrocast	39°36.0'	39°34.5'	73°50.0'	73°49.0'	29M	29M	
		Plankton Tow							
		<u>Vibracore</u> VC-3							
13	6/10/71	<u>Vibracore</u> VC-4	39°20.2'	--	73°50.0'	--	38M		
14	"	<u>Vibracore</u> VC-5	39°22.5'	--	73°03.0'	--	58M		
15	6/10/71	<u>Vibracore</u> VC-6	39°13.6'	--	72°33.0'	--	133M		
		Grab sample							
16	6/11/71	Hydrocast	<del>38°</del> 39°57.2'	--	73°16.0'	--	79M		
		<u>Vibracore</u> VC-7							
		Grab							
		Plankton Tow							
17	"	<u>Vibracore</u> VC-8	38°59.0'	--	73°11.5'	--	64M		
18	"	<u>Vibracore</u> VC-9	38°53.5'	--	73°13.0'	--	86M		

# N.M.L. SUMMARY CRUISE REPORT STATION LIST

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STATION NO.	DATE	STATION TYPE	LAT.		LONG.		LAT.		LONG.		DEPTH		PHYSIOG. AREA
			START	END	START	END	START	END	START	END	START	END	
19	6/11/71	<u>Vibracore VC-10</u>	38°50.6'	--	73°09.6'	--	--	--	--	--	71M	--	N.J. Shelf
20	"	<u>Vibracore VC-11</u>	38°51.5'	--	73°39.0'	--	--	--	--	--	44M	--	
21	"	<u>Vibracore V-12</u>	38°53.5'	--	73°40.0'	--	--	--	--	--	51M	--	
22	6/12/71	Hydrocast	39°37.0'	--	73°31.0'	--	--	--	--	--	44M	--	
		Plankton Tow											
		Grab sample											
		<del>Box Core</del> <u>BC-1</u>											
23	"	<del>Box Core</del> <u>BC-2</u>	39°29.0'	--	72°58.5'	--	--	--	--	--	59M	--	
24	"	<del>Box Core</del> <u>BC-3</u>	39°24.7'	--	72°51.7'	--	--	--	--	--	73M	--	
25	"	<del>Box Core</del> <u>BC-4</u>	39°25.0'	--	72°49.2'	--	--	--	--	--	66M	--	
26	"	<del>Box Core</del> <u>BC-5</u>	39°15.0'	--	72°33.8'	--	--	--	--	--	144M	--	
27	"	<del>Box Core</del> <u>BC-6</u>	39°09.4'	--	72°40.5'	--	--	--	--	--	143M	--	
		Grab											
28	"	<del>Box Core</del> <u>BC-7</u> <u>Box Core (failed)</u>	38°50.7'	--	73°08.5'	--	--	--	--	--	73M	--	

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STATION NO.	DATE	STATION TYPE	LAT.		LONG.		DEPTH		PHYSIOG. AREA
			START	END	START	END	START	END	
29	6/13/71	Plankton Tow	38°21.5'	--	73°45.5'	--	92M	-	N.J. Shelf
		Hydrocast							
		Grab sample							
		Box Core <del>BC-7</del>							
30	"	Box Core <del>BC-8</del>	38°45.0'	--	73°52.5'	--	41M		
31	"	Box Core <del>BC-9</del>	38°38.0'	--	74°20.0'	--	40M		
32	"	Box Core <del>BC-10</del>	38°54.5'	--	74°08.0'	--	32M		
		Plankton Tow							
33	"	Box Core <del>BC-11</del>	38°55.4'	--	74°08.3'	--	44M		
34	"	Box Core <del>BC-12</del>	39°03.5'	--	74°05.0'	--	31M		
35	6/14/71	Box Core <del>BC-13</del>	38°51.2'	--	73°08.2'	--	75M		
		Camera							
36	"	Camera	38°53.8'	--	73°13.0'	--	82M		
37	"	Camera	38°56.5'	--	73°14.5'	--	73M		
		Hydrocast							

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STATION NO.	DATE	STATION TYPE	LAT.		LONG.		DEPTH		PHYSIOG. AREA
			START	END	START	END	START	END	
38	6/14/71	Camera	38°29.2'	--	73°34.0'	--	82M	--	N.J. Shelf
		Grab Sample							
39	"	Camera	38°32.3'	--	73°59.0'	--	51M		
40	"	Camera	38°38.0'	--	74°20.0'	--	39M		
41	6/15/71	Hydrocast	39°22.5'	39°21.6'	72°25.0'	72°25.0'	137M		
		Grab sample							
		Camera							
		Plankton Tow							
42	6/16/71	Camera	39°32.3'	--	73°31.5'	--	42M		
43	"	Camera	39°29.0'	--	73°02.5'	--	66M		
		Hydrocast							
		<del>Vibracore</del> VC-13	39°28.2'		73°03.3'		68M		
44	"	Camera	39°21.6'	--	72°58.2'	--	73M		
45	"	Camera	39°03.7'	39°03.4'	74°04.0'	74°04.9'	31M		
		Retrieve current meter							
46	6/17/71	Camera	38°56.8'	--	73°14.8'	--	82M		

13 V.C.

14 B.C.

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STATION NO.	DATE	STATION TYPE	LAT.		LONG.		DEPTH		PHYSIOG. AREA
			START	END	START	END	START	END	
47	6/17/71	Camera	39° 14.9'	--	72° 34.6'	--	143M	-	N.J. Shelf
		Retrieve Current Meter							

*Under One Cruise Permit (STATION # 8 of 38° 56.5' N 73° 14.0' W)  
 Original June 7, 1971*



# N.M.L. SUMMARY CRUISE REPORT UNDERWAY OBSERVATIONS

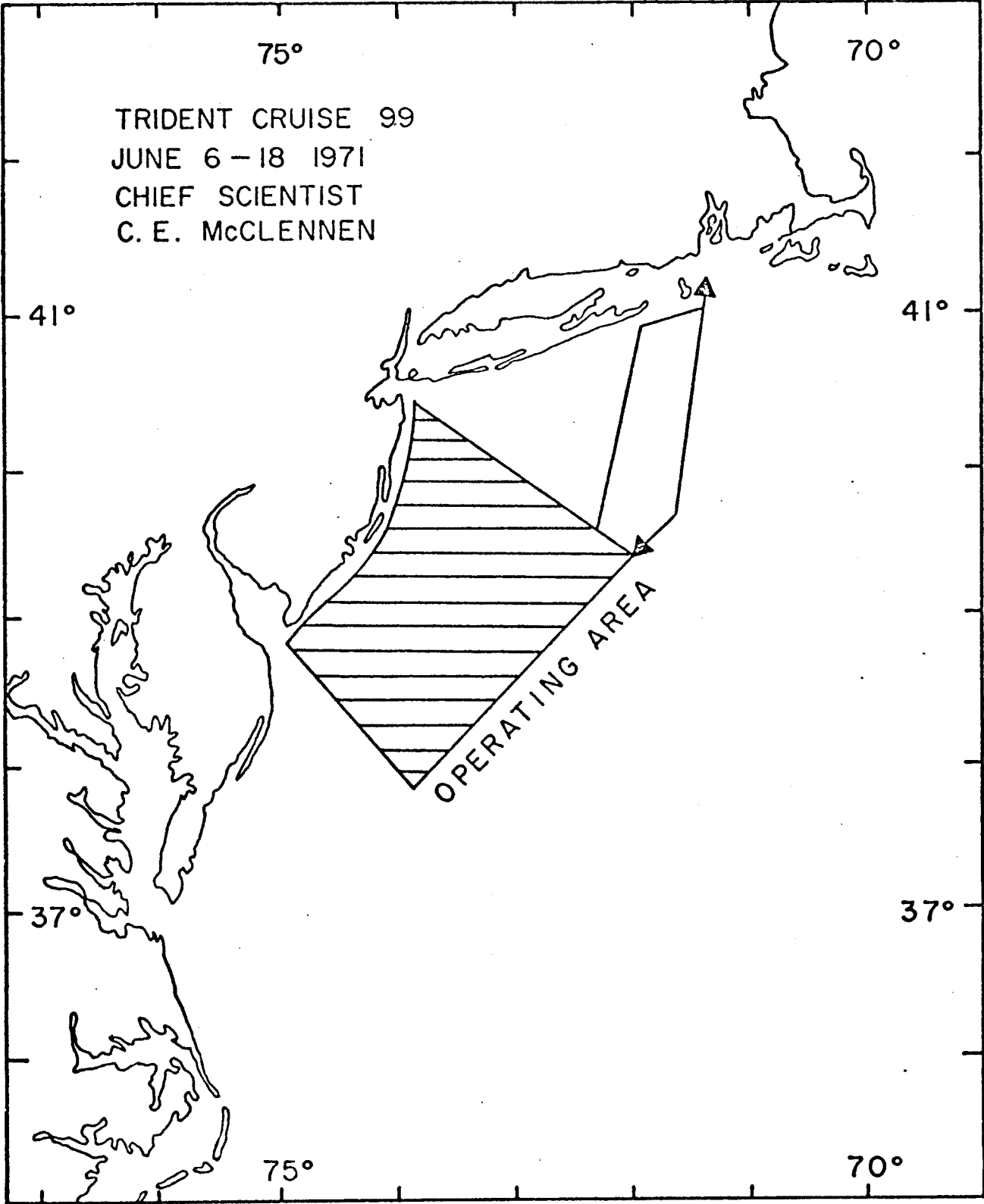
SHIP RAV Trident CRUISE NO. TR-099 PAGE 1

UNDERWAY OBSERVATION	DATE START	TIME	DATE END	TIME	DESCRIPTION	PHYSIOG. AREA
Bathymetry	6/7/71	0400	6/18/71	0820	12KH <sub>z</sub> wide beam	N.J. Shelf
						Plus return to Narr.
Seismic Reflection	6/7/71	2335	6/8/71	0645	5.0 KH <sub>z</sub> ORE Model 140	N.J. Shelf
	6/8/71	1025	6/8/71	1344	"	
	"	1445	6/9/71	0513	"	
	6/9/71	0730	6/10/71	0651	"	
	6/10/71	1622	"	1953	"	
	"	2021	6/11/71	0700	"	
	6/11/71	1406	"	1632	"	
	"	1825	6/12/71	0603	"	
	6/12/71	1015	"	1252	"	
	"	1614	"	1743	"	
	"	1843	"	1924	"	
	"	1955	"	2310	"	
	6/13/71	0016	6/13/71	0508	"	
	"	0726	"	1045	"	

# N.M.L. SUMMARY CRUISE REPORT UNDERWAY OBSERVATIONS

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UNDERWAY OBSERVATION	DATE START	TIME	DATE END	TIME	DESCRIPTION	PHYSIOG. AREA
Seismic Reflection	6/13/71	1120	6/13/71	1358	5.0 KH <sub>z</sub> ORE Model 140	N.J. Shelf
	"	1445	"	1635		
	"	2055	6/14/71	0121		
	6/14/71	0638	"	1030		
	6/14/71	1145	"	1430		
	"	1530	"	1806		
	"	1857	6/15/71	1040		
	6/15/71	1310	"	2136		
	"	2235	6/16/71	0207	PAR	
	6/16/71	1110	"	1638	5.0 KH <sub>z</sub> ORE Model 140	
	"	2237	6/17/71	0226	PAR	
	6/17/71	1648	6/18/71	0403	5.0 KH <sub>z</sub> ORE Model 140	
	6/18/71	0510	"	0820	PAR	



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R/V TRIDENT CRUISE TR-099

CRUISE DATES: 6 JUNE - 18 JUNE 1971

STATION LISTING

STA. NO.	DATE - 1971	LATITUDE	LONGITUDE	GRAB	CORE	TYPE OF STATION				
						TOW	HYDRO	BT	CAMERA	CM
1	6 June	41° 27.0'N	071° 25.0'W	S						
2	"	41° 13.0'N	071° 28.0'W	S						
3	"	40° 49.0'N	071° 30.0'W	S						
4	6 June	40° 30.0'N	071° 38.0'W	S						
5	7 June	40° 03.0'N	071° 45.0'W	S						
6	"	39° 40.8'N	071° 52.0'W	S			X			
7	"	39° 14.0'N	072° 34.4'W					X		L
8	"	38° 56.5'N	073° 14.5'W					X		L
9	7 June	39° 03.5'N	074° 04.5'W					X		L
9a	8 June	39° 06.0'N	074° 04.4'W	S	V	X	X			
10	"	38° 34.6'N	074° 02.2'W		V					
11	9 June	38° 36.6'N	073° 09.7'W	S			X			
12	10 June	39° 36.0'N	073° 50.0'W		V	X	X			
13	"	39° 20.2'N	073° 50.0'W		V					
14	"	39° 22.5'N	073° 03.0'W		V					
15	10 June	39° 13.6'N	072° 33.0'W	S	V					
16	11 June	38° 57.2'N	073° 16.0'W	S	V	X	X			
17	"	38° 59.0'N	073° 11.5'W		V					
18	"	38° 53.5'N	073° 13.0'W		V					
19	"	38° 50.6'N	073° 09.6'W		V					
20	"	38° 51.5'N	073° 39.0'W		V					
21	11 June	38° 53.5'N	073° 40.0'W		V					
22	12 June	39° 37.0'N	073° 31.0'W	S	B	X	X			
23	"	39° 29.0'N	072° 58.5'W		B					
24	12 June	39° 24.7'N	072° 51.7'W		B					

GRAB: S=Smith McIntyre sampler

CORE: V=Vibro-corer; B=Box corer

TOW: Plankton tow X=Station

HYDRO &amp; BT (Bathythermograph): X=station

CURRENT METER: L= CURRENT METER LAUNCHED

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R/V TRIDENT CRUISE TR-099

CRUISE DATES: 6 JUNE - 18 JUNE 1971

STATION LISTING (continued)

STA. NO.	DATE - 1971	LATITUDE	LONGITUDE	TYPE OF STATION						
				GRAB	CORE	TOW	HYDRO	BT	CAMERA	CM
25	12 June	39° 25.0'N	072° 49.2'W		B					
26	"	39° 15.0'N	072° 33.8'W		B					
27	"	39° 09.4'N	072° 40.5'W	S	B					
28	12 June	NO STATION								
29	13 June	38° 21.5'N	073° 45.5'W	S	B	X	X			
30	"	38° 45.0'N	073° 52.5'W		B					
31	"	38° 38.0'N	074° 20.0'W		B					
32	"	38° 54.5'N	074° 08.0'W		B	X				
33	"	38° 55.4'N	074° 08.3'W		B					
34	13 June	39° 03.5'N	074° 05.0'W		B					
35	14 June	38° 51.2'N	073° 08.2'W		B				X	
36	"	38° 53.8'N	073° 13.0'W						X	
37	"	38° 56.5'N	073° 14.5'W				X		X	
38	"	38° 29.2'N	073° 34.0'W	S					X	
39	"	38° 32.3'N	073° 59.0'W						X	
40	14 June	38° 38.0'N	074° 20.0'W						X	
41	15 June	39° 22.5'N	072° 25.0'W	S		X	X		X	
42	16 June	39° 32.3'N	073° 31.5'W						X	
43	"	39° 29.0'N	073° 02.5'W		V		X		X	
44	"	39° 21.6'N	072° 58.2'W						X	
45	16 June	39° 03.7'N	074° 04.0'W						X	R
46	17 June	38° 56.8'N	073° 14.8'W						X	
47	"	39° 14.9'N	072° 34.6'W						X	R

GRAB: S= SMITH MCINTYRE SAMPLER; 15 SAMPLES.

CORE: B=BOX CORE; V=VIBRO-CORER; 26 CORES.

TOW: X=PLANKTON TOW, 7 TOWS

HYDRO: X=HYDROCAST; 10 HYDROCASTS.

BT: X=EXPENDABLE BATHYTHERMOGRAPH STATION;  
3 STATIONSCAMERA: X=BOTTOM PHOTOGRAPH STATION; 13  
STATIONSCM: R=CURRENT METER RETRIEVED, 1 INSTRUMENT  
L=CURRENT METER LAUNCHED AT EACH  
LOCATION