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Susan C. Gammisch

Virginia Institute of Marine Science

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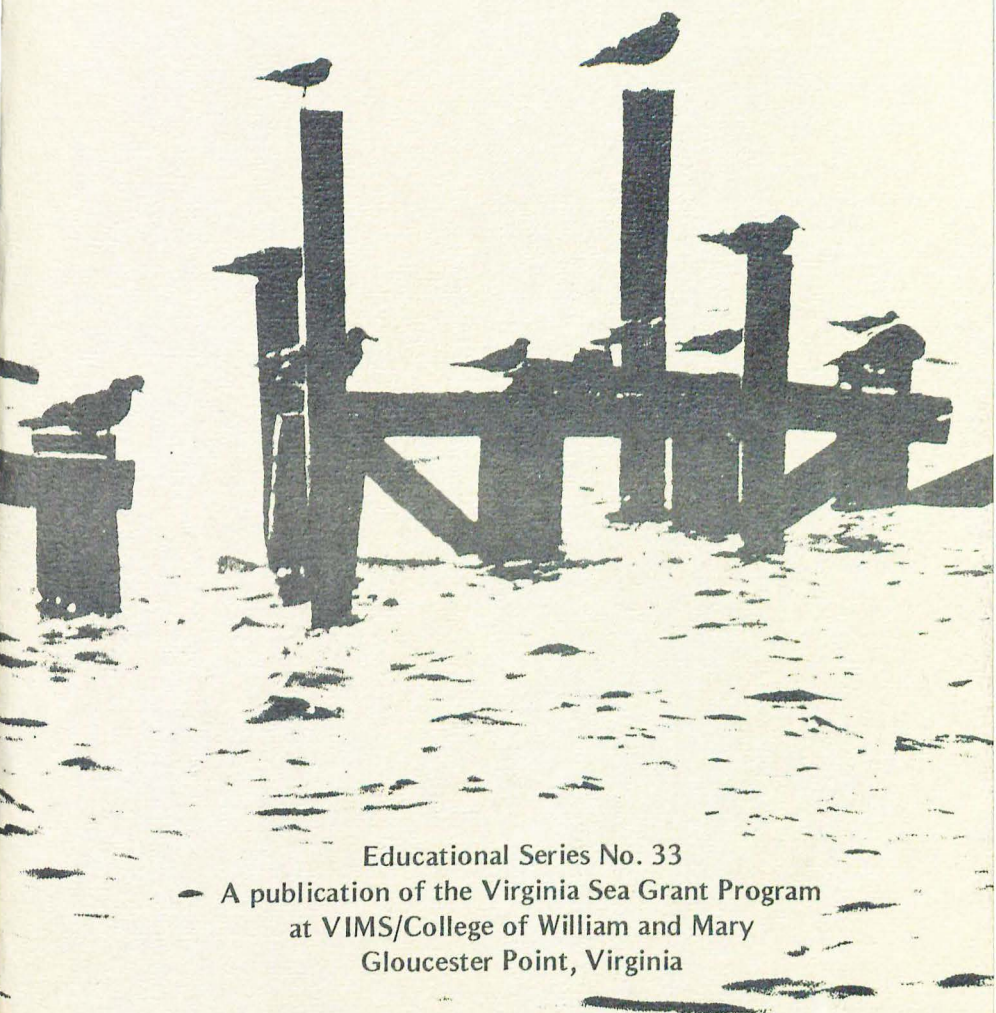
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Marine Education Field Trip Sites in Virginia

Susan C. Gammisch



Educational Series No. 33

A publication of the Virginia Sea Grant Program
at VIMS/College of William and Mary
Gloucester Point, Virginia

MARINE EDUCATION FIELD TRIP SITES
IN VIRGINIA

Compiled by

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Educational Series No. 33

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- Arrigoni, Ed. October, 1976. Seashore Field Tripping Safety Check List. Sea Grant Newsletter. University of Hawaii Sea Grant College Program.
- Castagna, Mike. Some Suggestions for Successful Field Trips. Virginia Institute of Marine Science, Wachapreague, VA.
- Ellett, Virginia. 1971. Mathematics and Science Field Trip Guide. Mathematics and Science Center, 2200 Mountain Road, Glen Allen, VA.

The Virginia Sea Grant Program at the Virginia Institute of Marine Science provides services in the areas of marine research, advisory services and education. Educational efforts include graduate studies, professional and technical instruction, continuing education, K-12 formal and informal education, publications, audiovisual aids and information dissemination.

Teachers, students and administrators are cordially invited and encouraged to make use of the variety of marine education materials available through the Virginia Sea Grant Program at VIMS.

The Marine Education Center at VIMS is home port for the national Marine Education Materials System (MEMS), a collection of over 1800 lesson plans, field guides, curriculum packages, lab guides and other educational materials. The Center also contains several hundred audiovisual aids. Ample reference materials are available in VIMS' 34,000-volume marine science library. A member of the education staff will be happy to provide assistance to educators in selecting appropriate materials and arranging for their use.

VIMS offers introductory level marine education workshops and more advanced graduate level course work in the marine sciences. A cooperative arrangement between the School of Marine Science and the School of Education of the College of William and Mary brings to the program a unique combination of scientific and educational expertise.

SUGGESTIONS FOR SUCCESSFUL FIELD TRIPS

Preparation

The effectiveness of a field trip will be proportional to the care with which it is planned. The planning may be done by the pupils under the guidance of the teacher. The pupils should explain the need for the trip, list the objectives and particular problems to be solved and establish an atmosphere of pleasant anticipation. Specific information that is to be gathered, rules to govern the conduct of the trip and the specific responsibilities for designated committees should be clearly defined.

A list of the materials to be gathered, needs to be made and the proper containers for transporting the collection of specimens should be provided. Living animals collected must be given proper care. Only the needed number should be taken. Whenever possible, plants and animals that have been used should be returned to their natural habitat by the pupils.

Discuss details of the tour with the contact person for the host organization. State the total number of persons, expected time of arrival and departure, the group's background and interests and other pertinent data.

Visit the organization prior to the scheduled date for the trip, if feasible.

Follow field trip procedures as outlined by your school administration. Be alert to policy regarding permission slips, notification of parents, et cetera.

Arrange for transportation.

If there are special tour rules to be followed (wearing a personal flotation device or safety goggles, staying close to the guide, following the guide's specific instructions, observing posted rules), clarify them completely with the students.

Safety Precautions

Probably the most important consideration is the safety of all involved participants. The following safety rules and procedures apply to most outdoor excursions to seashore sites where swimming is not involved. Longer field trips and/or activities involving special equipment, such as boat cruises, require additional safety rules. The main objective is to help the students develop an acute awareness of potential dangers on field trips and help generate a highly positive attitude toward safety procedures. The result will contribute to a safe, fun and valuable outdoor experience for our students.

Preliminary Considerations

The teacher or leader should invite parents or other concerned adults to the field trip. (Their mere presence has a significant dampening effect upon any proclivities toward rambunctiousness.) A brief memorandum explaining the field trip should be sent to parents along with the permission slip.

The availability of a first-aid kit is a requirement. For emergency aid, teachers should be aware of the closest available telephone and closest rescue personnel.

Buses, vans and cars parked at unguarded areas should not contain any valuables and should always be locked. Do not leave any belongings exposed. Put all loose items you will not be using in the trunk.

The students should be impressed thoroughly with the idea of staying with the group and not wandering off. An unobtrusive count of the students should be made frequently; definitely a roll check when departing a site.

A buddy system should be used, so youngsters are aware of each other's presence during the field trip. These "buddies" should sit together on the bus.

Students should know what to do in the event of separation from the group during a field trip, such as the safest route of return and whom to contact.

Seashore Considerations

Check appropriate tide tables. See that you have a good low tide at convenient times.

Plan your travel time so that you are at the beach before low tide. It's much better to be there as the tide is falling (at least two hours before low) than rushing around trying to collect on an incoming tide. Remember, if you are going to an area by boat, provide plenty of time for loading and unloading, and for a slow ride to the beach. More collecting trips are ruined by arriving late than by any other reason, except for the weather.

Be sure you carry all the equipment necessary, but don't overload. Remember, it takes time and effort to transfer a lot of equipment from place to place. Choose your equipment wisely and pack it in compact, easy to carry packages. If the equipment is bulky, be sure it has hand holds or litter poles fastened to it for easy carrying. Be sure the equipment is secured so it will not be spilled overboard when being transferred to and from boats.

Fixatives and other chemicals should be packed in plastic containers.

A good rule about equipment is to take only what can be carried by the group without making second trips. Make each student responsible for part of the equipment.

Be sure you are adequately clothed for comfort. Suggested apparel: bathing suit or shorts, longsleeved shirt or sweatshirt, wading shoes and a billed cap. You should also carry long trousers, a towel, a jacket and/or foulweather gear when necessary. Avoid fancy broadbrimmed hats that blow off easily. Be sure to carry some insect repellent. It is extremely comforting to have a complete change of dry clothes left on shore.

Leave valuables and jewelry on shore. Settings often fall out of rings when immersed in water or during net handling. Avoid carrying pencils, notebooks and glasses in shirt pockets. An amazing amount of equipment is lost overboard this way. Don't wear anything you are not willing to get wet and muddy.

Carry lunches and water. It is wise to carry lunches in a waterproof container.

Remember, seawater and beach sand are corrosive. If cameras or delicate instruments are carried, they should be adequately protected in a waterproof container and/or plastic bags.

Anyone can become sunburned, so if a long period of time in the sun is planned, the students should be made aware of this possibility. Pre-sun lotions containing PABA can be very helpful.

What to Bring?

Desirable items for each individual:

A complete change of clothing left on shore (travel clothing)	Towel
Notebook, pencils, 3 x 5 cards or labels	Lunches

Desirable items for class:

Life preserver for every member of the party	Chart of the area
Thermometers (at least one spare)	Salinity bottles
Large tray	Drinking water

Optional equipment for each individual (depending on specimens to be observed, collected and preserved):

Hand trowel or large spoon	Binoculars
Burlap or plastic bags for dry specimens or to protect live specimens from drying	Cameras
	Field guides

Follow-up Activities

After the trip, reinforce the experience by appropriate review and activities. The stimulation and new interests brought out by the trip provide fine teaching advantages. Build upon them through encouraging spontaneous comments and discussions. Avoid killing interests by compulsory write-ups and homework. If any students are sufficiently interested, however, let them do special studies or projects.

Send a thank-you note to the contact person and/or the guide as soon as possible, or even better, to his/her boss.

- - -

BACK BAY NATIONAL WILDLIFE REFUGE
Box 6128
Virginia Beach, VA 23456

A game refuge where wildlife (ducks, gulls and sandpipers and other shore-birds) may be seen seasonally. Ecological study areas includes Atlantic Ocean beach, sand dunes and freshwater marsh. A small museum of mounted bird specimens and old decoys has been established.

- - -

CHARLES C. STEIRLY HERON ROOKERY
c/o Division of Parks
1201 Washington Building
Richmond, VA 23219
(804) 786-2132

The Charles S. Steirly Heron Rookery is located in a dense swamp. It is surrounded by timber; brush and briars are prevalent throughout. When visiting the area, hip boots are recommended. It was donated to the state in order to preserve one of the few remaining rookeries in Virginia. The natural area is about 5 miles (8.1 kilometers) northeast of the town of Waverly in Sussex County. From Waverly, take Route 40 north to 613, then take 613 east to 603. Follow 603 north a short distance over the Blackwater Bridge to a logging road. Travel east approximately 1 miles (2.4 kilometers) along this logging road to the rookery.

Other Pertinent Information

Contact Person: No manager at park site. May contact Tom Blackstock in Park's Central Office for details as needed.

Days and Hours Facility is Available: Daylight hours only.

Length of Program or Tour: N/A

Number of Participants Able to Accommodate: N/A

Age Level for Participants: Any age

Advance Notice Necessary: Not required

Costs: None

- - -

THE CHESAPEAKE BAY FOUNDATION
c/o Mathematics & Science Center
2401 Hartman St.
Richmond, VA 23223
(804) 788-4454

Estuarine field trips throughout Virginia and Maryland with mobile canoe fleet. Includes all safety and collecting equipment, plus instructor. CBF also has 4 field stations in Maryland.

Other Pertinent Information

Contact Person: William S. Portlock

Days and Hours Facility is Available: March - Mid December, flexible hours (usual 9:30-4:30)

Length of Program or Tour: Day or overnight

Number of Participants Able To Accommodate: 26 (including instructor)

Age Level for Participants: 12 years and older

Advance Notice Necessary: 4 weeks

Costs:

Individual Rates: \$16.00 per day

Group Rates: Minimum fare trip 18 (\$288)

Comments: Please write for teacher package of materials.

- - -

CHINCOTEAGUE NATIONAL WILDLIFE REFUGE
Box 62
Chincoteague, VA 23336
(804) 336-6122

The Chincoteague National Wildlife Refuge is located on the Virginia portion of Assateague Island. Assateague is one of a series of barrier islands located off the Virginia Coast.

Other Pertinent Information

Contact Person: Paul Benvenuti or James H. Kenyon

Days and Hours Facility is Available: / Open Daily April through October. 4:00 a.m. - 10:00 p.m., November thru March, Sunrise - Sunset

Length of Program or Tour: 1 hour

Number of Participants Able to Accommodate: Auditorium Programs - 80; Guided walks - 25.

Age Level for Participants: Any age

Advance Notice Necessary: One month

Costs: None

- - -

CHIPPOKES PLANTATION STATE PARK
Route 1, Box 213
Surry, VA 23883
(804) 294-3625

This 1400-acre plantation, over 300 years old, was one permanent English colony originally owned by the Royal Governor William Berkeley in the 1600's. There is a Visitor Center overlooking the James River where an indepth history of the plantation can be observed. A Mansion built around 1854 to 1857 can be observed in it's entirety, with furnishings of the Victorian period and 18th and 19th centuries. The land that is open for farming is being leased for modern cultivation of peanuts, corn and various grains. This is also the site for the Pork, Peanut and Pine Festival held in July each year.

Other Pertinent Information

Contact Person: Mr. Carl Huskey, Park Superintendent

Days and Hours Facility is Available: Memorial Day to Labor Day

Length of Program or Tour: 1 hour

Number of Participants Able To Accommodate: 100

Age Level for Participants: Any age

Advance Notice Necessary: 1 week

Costs: \$1.00/car or truck parking fee
\$5.00/bus

Mansion Admission: \$.75/adult
\$.50/child
Age 6 and under free

- - -

CITY OF RICHMOND, DIVISION OF WASTEWATER TREATMENT
1400 Brander Street
Richmond, VA 23224
(804) 780-4412

Secondary wastewater treatment facility, primary sedimentation, step aeration secondary system, solids denaturing.

Other Pertinent Information

Contact Person: Mr. B. E. Gregory

Days and Hours Facility is Available: Monday - Thursday 9:00 a.m. - 3:00 p.m.

Length of Program or Tour: 1 hour

Number of Participants Able To Accommodate: 15

Age Level for Participants: 10 and up

Advance Notice Necessary: 2 days

Costs: NA

- - -

CITY OF RICHMOND WATER PURIFICATION PLANT
3420 Douglasdale Road
Richmond, VA 23221
(804) 780-6286

A 66 million gallons per day plant engaged in the production of potable water, using the James River as a raw water source. Process includes coagulation, settling, filtration and aeration as well as chlorination, fluoridation and pH adjustment.

Other Pertinent Information

Contact Person: C. M. Rogers/L. E. Pleasants

Days and Hours Facility is Available: Monday - Friday 9:00 a.m. to 3:00 p.m.

Costs: \$1.00/car or truck parking fee
\$5.00/bus

Mansion Admission: \$.75/adult
\$.50/child
Age 6 and under free

- - -

CITY OF RICHMOND, DIVISION OF WASTEWATER TREATMENT
1400 Brander Street
Richmond, VA 23224
(804) 780-4412

Secondary wastewater treatment facility, primary sedimentation, step aeration secondary system, solids denaturing.

Other Pertinent Information

Contact Person: Mr. B. E. Gregory

Days and Hours Facility is Available: Monday - Thursday 9:00 a.m. - 3:00 p.m.

Length of Program or Tour: 1 hour

Number of Participants Able To Accommodate: 15

Age Level for Participants: 10 and up

Advance Notice Necessary: 2 days

Costs: NA

- - -

CITY OF RICHMOND WATER PURIFICATION PLANT
3420 Douglasdale Road
Richmond, VA 23221
(804) 780-6286

A 66 million gallons per day plant engaged in the production of potable water, using the James River as a raw water source. Process includes coagulation, settling, filtration and aeration as well as chlorination, fluoridation and pH adjustment.

Other Pertinent Information

Contact Person: C. M. Rogers/L. E. Pleasants

Days and Hours Facility is Available: Monday - Friday 9:00 a.m. to 3:00 p.m.

Length of Program or Tour: 45 minutes to 1 hour
Number of Participants Able To Accommodate: 30 per group
Age Level for Participants: Any age
Advance Notice Necessary: One week
Costs: None

- - -

COLONIAL NATIONAL HISTORICAL PARK
P. O. Box 210
Yorktown, VA 23690
(804) 898-3400

A National Historical Park with sites at Jamestown and Yorktown.

Other Pertinent Information

Contact Person: Ron Beaman
Days and Hours Facility is Available:
Length of Program or Tour: 2 hours
Number of Participants Able to Accommodate: 40
Age Level for Participants: Grades 1-12
Advance Notice Necessary: 2 to 3 weeks
Costs: None

- - -

COURSEY SPRING TROUT REARING STATION
Rt. 1
Millboro, VA 24460
(703) 925-2343

A state-operated cold water hatchery rearing catchable rainbow, brook and brown trout stocked in Virginia's streams throughout the Commonwealth.

Other Pertinent Information

Contact Person: Tom Gunter
Days and Hours Facility is Available: Monday - Sunday 8:00 a.m. - 3:00 p.m.

Length of Program or Tour: 2 hours
Number of Participants Able To Accommodate: N/A
Age Level for Participants: 1-100
Advance Notice Necessary: 3 days
Costs: None

- - -

DEEPWATER TERMINAL
5000 Deepwater Terminal Road
Richmond, VA 23234
(804) 275-9248

Stevedoring of ships from all over the world; tugboat and warehousing.

Other Pertinent Information

Contact Person: Doris Johnson
Days and Hours Facility is Available: Monday - Friday, 8:00 a.m. -
4:30 p.m.
Length of Program or Tour: No organized programs or tours
Number of Participants Able To Accommodate: N/A
Age Level for Participants: Must be 18
Advance Notice Necessary: 1 week
Costs: None

- - -

FRONT ROYAL FISH CULTURE STATION
Fort Valley Road, Box 256
Strasburg, VA 22657
(703) 635-5350

Full time fish hatchery involved with the hatching and rearing of
northern pike, muskellunge, walleye, smallmouth bass, striped bass and
striped bass X white bass hybrids. Owned and operated by the Virginia
Commission of Game and Inland Fisheries.

Other Pertinent Information

Contact Person: Kenneth D. Mitchell, Mgr.

Days and Hours Facility is Available: Weekdays 8:00 a.m. - 4:00 p.m.

Length of Program or Tour: No organized tours

Number of Participants Able To Accommodate: Small group

Age Level for Participants: Any age

Advance Notice Necessary: 3 days

Costs: None

Comments: It must be noted that because of the culture methods used for warmwater and coolwater fish, many fish may be present on the facility, but few can be seen. This hatchery uses earthen ponds and thus fish can and do hide from visitors easily.

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GREAT DISMAL SWAMP NATIONAL WILDLIFE REFUGE

P. O. Box 349
Suffolk, VA 23434
(804) 539-7479

This refuge was established to protect this diverse wetland habitat. Areas of study include a 3,100 acre natural lake, several distinct wetland plant communities, peat soils, highly acidic water, unique geology and hydrology and a diverse animal population. The effects of logging, drainage on a wetland environment and fire damage are readily observed throughout the 102,000-acre refuge.

Other Pertinent Information

Contact Person: Charles Pelizza, Outdoor Recreation Planner

Days and Hours Facility is Available: Refuge: Dawn to Dusk year round. Office: Monday thru Friday, 7:30 a.m. - 4:00 p.m.

Length of Program or Tour: General tour - 3 hours, slide program - 1 hour, special tour or program upon request

Number of Participants Able to Accommodate: 20

Age Level for Participants: Any age

Advance Notice Necessary: At least 2 weeks

Costs: None

- - -

THE GULLER FISH CULTURAL STATION
Box 157
Sugar Grove, VA 24375

Rainbow, brook and brown trout; smallmouth bass; and red breast sunfish are reared at this station.

- - -

HARRISON LAKE NATIONAL FISH HATCHERY
Route 2, Box 341
Charles City, VA 23030
(804) 829-2421

The hatchery rears largemouth bass, channel catfish, bluegill, striped bass and walleye pike for stocking in state and federally owned waters in Virginia and six other states. A visitor center features aquarium displays and informational exhibits.

Other Pertinent Information

Contact Person: Alan Blair

Days and Hours Facility is Available: Weekdays 9:00 a.m. - 4:00 p.m.;
Saturday and Sunday (Apr. 1 - Oct. 31) 8:00 a.m. - 1:00 p.m.

Length of Program or Tour: Varies from one hour

Number of Participants Able To Accommodate: 100

Age Level for Participants: Any age

Advance Notice Necessary: One week

Costs: None

- - -

THE ISLAND MUSEUM OF CHINCOTEAGUE
Beach Road, P. O. Box 4
Chincoteague, VA 23336
(804) 336-6117

Formerly called The Oyster Museum, this facility now focuses on the seafood industry and the heritage and history of the area.

Other Pertinent Information

Contact Person: Nicki West

Days and Hours Facility is Available: Daily from Memorial Day through Labor Day, 11 a.m. to 5 p.m.

Length of Program or Tour: Self-Guided

Number of Participants Able To Accommodate: 40

Age Level for Participants: Any age

Advance Notice Necessary: In off season

Costs:

Individual Rates: \$1.00 Adults, \$.25 Children

Group Rates: \$.15 school children, \$.25 adult tour groups

- - -

JAMESTOWN FESTIVAL PARK
P. O. Box JF
Williamsburg, VA 23187
(804) 229-1607

Adjacent to the original site at Jamestown Island, Jamestown Festival Park commemorates the first permanent English settlement in the New World, which was established in 1607. Full-scale reproductions of the three ships, James Fort, an Indian Village and operating pottery mill recreate 17th century Jamestown. Revolving exhibits and audiovisual displays are found in Old and New World Pavilions. Costumed interpreters are stationed in each of the outdoor exhibit areas. Information Center provides orientation and travel information.

Other Pertinent Information

Contact Person: (Mrs.) Debi Jarvis

Days and Hours Facility is Available: Daily 9:00 a.m. to 5:00 p.m.
Closed January 1 and December 25. Ask about extended summer hours.

Length of Program or Tour: 2 hours -- Self-guided walking tour begins in Information Center.

Number of Participants Able To Accommodate: N/A

Age Level for Participants: Any age

Advance Notice Necessary: Strongly recommended

Costs:

Individual Rates: Adult \$3.50 Child 7-12 \$1.75

Group Rates: Adult \$3.00 Student (K-College) \$1.25

Comments: Under age 7 free; Season's Pass and Combination Ticket available with nearby Yorktown Victory Center.

- - -

KENNETH E. RICE MEMORIAL MUSEUM
29 Harris Creek Road
Hampton, VA 23669
(804) 851-3180

Large collection of Miocene Epoch fossil shells and bones. The pit offers excellent fossil collecting in the Miocene Yorktown formation. A great number of invertebrate phyla and classes can be found. Dominant invertebrates include gastropods, pelecypods, corals and sand dollars. Vertebrate fossils are represented by occasional sharks' teeth and fragments of whale bone. This pit has yielded numerous well-preserved specimens.

Other Pertinent Information

Contact Person: Madeline Rice

Days and Hours Facility is Available: Monday thru Saturday 9:30 a.m. to 4:00 p.m.

Length of Program or Tour: 1 to 8 hours.

Number of Participants Able To Accommodate: 300

Age Level for Participants: 6 years and up

Advance Notice Necessary: 1 week

Costs:

Individual Rates: \$1.00 per hour per person

Group Rates: \$1.00 per student (time variable)

- - -

KING AND QUEEN FISH CULTURAL STATION

Stevensville, VA 23161

Rearing and hatching of largemouth bass, bluegill, redear sunfish and crappie.

- - -

THE MARINERS MUSEUM
J. Clyde Morris Boulevard
Newport News, VA 23606
(804) 595-0368

The most extensive nautical collection in this country. Exhibits include ship models, figureheads, a small boat collection, navigational instruments and hundreds of famous marine paintings and prints.

Tour Information

Contact: Education Department

Tour Days and Hours: Daily from 9:00 a.m. to 5:00 p.m.; Sunday from 12 noon to 5:00 p.m.

Length of Tour: 1 1/2 to 2 hrs

Number Able to Accommodate: Any number

Age Level: All ages

Advance Notice: 2-3 weeks

Other Information

General Admission:

Adults	\$1.50
Children	\$.75

Group Rates (15 or more):

Adults	\$.75
Children	\$.50

- - -

MARINE SCIENCE CONSORTIUM
Box 16 Enterprise Street
Wallops Island, VA 23337
(804) 824-5636

The Center is located near Wallops Island, Virginia on the Eastern Shore and consists of classrooms, laboratories, workshops, dormitories, cafeteria, library, bookstore, laundry and recreation room. The Consortium owns and operates Research vessels and several Boston Whalers and small boats which are used in academic programs.

Oceanographic-sampling gear and instruments are available for course work and research projects. Faculty from member colleges and universities in Pennsylvania, Washington, D.C., and W. Virginia teach the courses.

Other Pertinent Information

Contact Person: Bennett Anderson, Director

Days and Hours Facility is Available: Summer (May - Aug.)

Length of Program or Tour: Each session (3 credit hour course) lasts three weeks, five sessions per summer.

Number of Participants Able To Accommodate: Several hundreds of students

Age Level for Participants: College; graduated high school seniors; adults

Advance Notice Necessary: Two separate registrations are required: (1) an application to the Wallops Island Marine Science Center and (2) an application to one of the member schools to register for credit and to pay tuition. Applications for all sessions should be submitted at least three weeks prior to the course beginning.

Costs: The basic fee to the Consortium is \$105 per week per 3 week course, which covers food, lodging and station fees; tuition charges are separate and should be paid to the member school.

Comments: Courses include Intro. to Oceanography, Marine Biology, Field Methods, Marine Geology, Marine Invertebrates, Ichthyology, Wetlands Ecology, Marine Ecology, Microbiology, Chemical Oceanography, Ornithology, Art, etc.

- - -

Precollege Program
MARINE SCIENCE CONSORTIUM
Box 16 Enterprise Street
Wallops Island VA 23337
(804) 824-5636

The Center is located on the Eastern Shore of Virginia near Chinocoteague and in close proximity to salt marshes, estuaries and barrier island beaches. Facilities include dormitories, laboratories/classrooms, a dining hall, administrative offices, maintenance shops and recreational areas. The consortium owns and operates a fleet of research vessels and an array of oceanographic field equipment for use in its academic programs. The Consortium's

instructors will conduct the laboratory and field trip exercises. The level of instruction is geared to the grade level and science background of the students.

Contact Person: Bennett Anderson, Director

Days and Hours Facility is Available: Fall: September-November;
Spring: March-June; Summer: July-August.

Length of Program or Tour: 3-day program (Sunday 4:00 p.m. to Wednesday 1:00 p.m. or Wednesday 4:00 p.m. to Saturday 1:00 p.m.); 1 to 2 week long courses in the summer; other field trips as arranged on half-day to several day basis.

Number of Participants Able To Accommodate: 80 pre-college participants

Age Level for Participants: Grades 6 - 12; adults

Advance Notice Necessary: First-come, first-served basis; telephone reservation accepted and deposit required.

Costs: Fees cover room, board, instruction and use of the facilities.

Rates: \$105.00 per student; \$95.00 per supervisor
(\$100.00 non-refundable deposit required)

Comments: Science units offered: research cruise, coastal geology, dune ecology, marsh ecology, study of nearshore zone, navigation, chemistry, microbiology, ornithology, wildlife, etc.

- - -

MARION FISH CULTURAL STATION
Route 1, Box 107
Marion, VA 24354
(703) 783-4860

Hatching and rearing of rainbow, brook and brown trout. Hatching and spawning time September - December.

- - -

MATHEMATICS AND SCIENCE CENTER
2401 Hartman Street
Richmond, VA 23223
(804) 788-4454

Provides enrichment education and teacher inservice training for the public schools of Richmond and the counties of Chesterfield,

Goochland, Hanover and Henrico. Classes are available to outside student groups on a limited basis throughout the school year. Aquarium and Spider Museum exhibits are open to the public during regular Center hours.

Other Pertinent Information

Contact Person: Vicki Price Clark

Days and Hours Facility is Available: 9:00 a.m. - 4:00 p.m. Monday - Friday during school year; please call for summer schedule

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Length of Program or Tour: Varies with lesson, generally 60 - 90 minutes

Number of Participants Able To Accommodate: 30 per class

Age Level for Participants: 2nd grade to adult

Advance Notice Necessary: Groups MUST be scheduled 2 - 4 weeks in advance

Costs:

Individual Rates: \$1.00 adults, \$.75 senior citizens, \$.50 per child

Group Rates: \$.40 per student per class attended

- - -

MONTEBELLO TROUT REARING STATION
Montebello, Virginia 24464
(804) 377-2418

Brook, Rainbow & Brown Trout fingerlings are reared to catchable size. Picnic shelter with restrooms available.

Other Pertinent Information

Contact Person: Ralph W. Cash, Hatchery Superintendent.

Days and Hours Facility is Available: Daily 8:00 a.m. - 4:00 p.m.

Length of Program or Tour: According to interest

Number of Participants Able To Accommodate: N/A

Age Level for Participants: K-ADULT

Advance Notice Necessary: Required for guided tour

- - -

NAVAL BASE
Norfolk, VA 23511

Tours of various naval vessels are available for visitation on weekends from 1 to 4:30 pm. Included in the tour is a stop at the Hampton Roads Naval Museum. Located in historic Pennsylvania House, one of the original 1907 Jamestown Expositions, the museum offers a self-guided review of the development of the Navy in the Tidewater area. This attraction may also be visited separately - either individually or in a group.

Tour Information

Contact: Paul Stamas

Tour Days and Hours: Monday through Friday 8:00 a.m. to 2:30 p.m.
Weekends 9:00 a.m. to 2:30 p.m.

Length of Tour: 1 hour

Number Able to Accommodate: Up to 3 busloads

Age Level: All ages

Advance Notice: 2 weeks

- - -

NAVAL SURFACE WEAPONS CENTER
Commander
Dahlgren, VA 22448
(703) 663-8154

The Naval Surface Weapons Center is the Naval Material Command's largest research and development center in terms of personnel and second largest in terms of dollars. NSWC is located at Dahlgren, Virginia, and White Oak, Maryland.

The mission of the Center is to support the Navy's Surface Forces as "the principal RDT&E center for surface ship weapons systems, ordnance, mines and strategic systems support." In carrying out this mission, NSWC performs warfare analysis, research, design, development, test and evaluation, systems integration and fleet engineering services.

Other Pertinent Information

Contact Person: Amos W. Clary/Jennifer H. Wilkins, Public Affairs Office

Days and Hours Facility is Available: Monday through Friday, 9:00 a.m. - 3:30 p.m.

Length of Program or Tour: Up to 4 hours

Number of Participants Able To Accommodate: 15-50

Age Level for Participants: High school and older

Advance Notice Necessary: 1 month

Costs: None

- - -

NORFOLK SCHOOL OF BOATBUILDING
P. O. Box 371
Norfolk, Va. 23501
(804) 627-7266

A non-profit educational institution dedicated to the traditional arts and skills of wooden boatbuilding, offering a one-year program in small craft construction. Both traditional and contemporary techniques are taught.

Other Pertinent Information

Contact Person: Enno Reckendorf, Administrator

Days and Hours Facility is Available: Monday - Friday 8:00 a.m. to 4:00 p.m.

Length of Program or Tour: Suited to group, 30 to 60 minutes

Number of Participants Able To Accommodate: Up to 12 in a group, one group at a time

Age Level for Participants: 6 to 96+

Advance Notice Necessary: 1 week

Costs: None

- - -

PARKER'S MARSH NATURAL AREA
c/o Division of Parks
1201 Washington Building
Richmond, Virginia 23219
(804) 786-2132

This projection of land is bordered on the south by Onancock Creek, on the north by Back Creek and on the west by Chesapeake Bay. Parkers Marsh is accessible by boat or by wading across the "Thorofare," a canal connecting Back and Onancock Creeks. No camping is allowed. Access to the Onancock area from U. S. Route 13, the backbone of the Eastern Shore, is easy via State Routes 178 and 179. A secondary road leads to a launching site on the north shore of Onancock Creek. This same road, marked 655, offers the only possible land access to Parker's Marsh.

Other Pertinent Information

Contact Person: No manager at park site. May contact Tom Blackstock in Park's Central Office for details as needed.

Days and Hours Facility is Available: Daylight hours only.

Length of Program or Tour: N/A

Number of Participants Able To Accommodate: N/A

Age Level for Participants: Any age

Advance Notice Necessary: N/A

Costs: None

- - -

PENINSULA NATURE AND SCIENCE CENTER
524 J. Clyde Morris Boulevard
Newport News, Virginia 23061
(804) 595-1900

Virginia's natural history exhibits - aquarium, live wild animals, dioramas; self-guided woodland ecology trail; planetarium; observatory; astronomy exhibits; physics/technology exhibits - TV Studio, energy bicycle, computers. Gift Shop; Public and School Programs; Newsletter, Volunteer Program.

Other Pertinent Information

Contact Person: Mrs. Harlene O'Sullivan, Reservations Coordinator

Days and Hours Facility is Available: 9-5 Monday-Saturday; 1-5 Sunday; 7-9 Thursday evening.

Length of Program or Tour: 1-4 hours by arrangement for groups

Number of Participants Able To Accommodate: N/A

Age Level for Participants: All Ages

Advance Notice Necessary: At least 1 month for group reservations recommended

Costs:

Rates vary depending on group arrangement. Call for rates.

Comments: School Programs available - Teacher's Guide with descriptions upon request. Public Programs - Weekends, including spec. birthday parties.

- - -

PORTSMOUTH LIGHTSHIP MUSEUM
London Slip - Water Street
P. O. Box 248
Portsmouth, VA 23705
(804) 393-8741

SHIP - built in 1915. Served several stations in the Lightship Service. The Ship is 101' 10" in length, 25' 8" beam, 11' 4" draft and is a 360-ton displacement vessel. The ship, as a major museum piece, itself, exhibits artifacts relating to lightship service, including photographs, uniforms and Coast Guard equipment.

Other Pertinent Information

Contact person: Alice C. Hanes, Curator (804) 393-8591

Days and Hours Facility is Available: Tuesday - Saturday 10:00 a.m. to 4:45 p.m.; Sunday - 2:00 p.m. to 4:45 p.m.. Closed Monday, Christmas, New Year's Day. Open Thanksgiving Day 2:00 - 5:00 p.m.

Length of Program or Tour: 15 minutes to half hour, depending on interest of visitor. Guided tours for groups available upon request.

Number of Participants Able To Accommodate: 20 - 25 at one time

Age Level for Participants: Any age

Advance Notice Necessary: For groups and guided tours

Costs: None

- - -

PORTSMOUTH NAVAL SHIPYARD MUSEUM
2 High Street
P. O. Box 248
Portsmouth, Virginia 23705
(804) 393-8591

Exhibits include uniforms, ship models, flags, arms of all types from early muskets to the Polaris missile and early regional maps and prints. A model of Portsmouth 1776 and a working model of the Nation's first drydock are also on exhibit.

Other Pertinent Information

Contact Person: Alice C. Hanes, Curator

Days and Hours Facility is Available: Tuesday - Saturday 10:00 a.m. - 5:00 p.m.; Sunday 2:00 p.m. to 5:00 p.m. Closed Monday, Christmas Day. Open Thanksgiving Day 2:00 to 5:00 p.m.

Length of Program or Tour: 30 minutes or more, depending on visitor

Number of Participants Able To Accommodate: 25 per group.

Age Level for Participants: All ages, tours not recommended below 3rd grade level.

Advance Notice Necessary: For tours only

Costs: None

- - -

SEASHORE STATE PARK
2500 Shore Drive
Virginia Beach, VA 23451
(804) 481-2131 Office
(804) 481-4836 Visitor Center

A natural area where the topography is a mixture of forested dunes and swampy lowlands. Birds and animals are free to roam the entire area and enter or leave the area as they desire. Nature trails have been

developed for self-guided walks. An Environmental Education Center is available to provide indoor space for study or lecture.

Other Pertinent Information

Contact Person: Gary W. Shifflett, Chief Ranger/Interpreter

Days and Hours Facility is Available: Monday-Sunday, 9:00 a.m. - 5:00 p.m.

Length of Program or Tour: conducted walks approximately 1 hour long are available Memorial Day-Labor Day.

Number of Participants Able To Accommodate: 50

Age Level for Participants: Any Age

Advance Notice Necessary: Two (2) weeks

Costs: Memorial Day-Labor Day \$1.00/car, \$5.00/bus

- - -

SWIFT CREEK WATER TREATMENT PLANT
Rt. 2, Box 250-A
Midlothian, VA 23113

Water treatment plant layout, treatment and control of distribution system are explained on tour.

- - -

VIRGINIA DIVISION OF MINERAL RESOURCES
Natural Resources Building
P. O. Box 3667
Charlottesville, VA 22903
(804) 293-5121

Numerous hallway exhibits show the uses and availability of topographic maps, mineral resources, geologic maps, geophysical surveys, geochemical investigations and earthquake information. A sales office is maintained for Virginia topographic and geologic maps and reports. Tours of the division can be arranged upon request.

Other Pertinent Information

Contact Person: Harry Webb or Information Services Section

Days and Hours Facility is Available: Monday through Friday 9:00 a.m. - 4:00 p.m.

Length of Program or Tour: Arranged on request.

Number of Participants Able To Accommodate: 20

Age Level for Participants: Any age

Advance Notice Necessary: 1 week

Costs: None

Comments: The Division makes its research data available on minerals and energy resources; distribution of rock types; gravity, magnetics and radioactivity surveys; earthquake vents; test borings; and mineral identification. A library of geological and cartographic information on the state is maintained for in-office use. The topographic mapping program for the state is coordinated by the Division. A free list of publications is available on request.

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VIRGINIA STATE WATER CONTROL BOARD
P. O. Box 11143
2111 Hamilton Street
Richmond, Virginia 23230
(804) 257-0943

Laboratory to see analytical equipment used in the collection and testing of water, aquatic life and sediments. Samples for testing are collected throughout the State by field crews.

Other Pertinent Information

Contact Person: Thomas M. Felvey

Days and Hours Facility is Available: Monday through Friday 8:15 a.m.
- 5:00 p.m.

Length of Program or Tour: 1 hour

Number of Participants Able To Accommodate: 12

Age Level of Participants: High School or College

Advance Notice Necessary: 1 week

Costs: None

- - -

WATERMEN'S MUSEUM
P. O. Box 531
Water Street
Yorktown, VA 23690
(804) 887-2641

The Watermen's Museum tells the story of Virginia's working watermen, who for generations have worked the rivers and tributaries of the Chesapeake Bay year round, harvesting its abundant products. Indoor exhibits include work boat models and displays that show the challenge of the life and skills the men use in crabbing, oystering, clamming and fishing during the changing seasons. Outdoors visit the work boats, try your hand at tonging for oysters or raising a sail.

Other Pertinent Information

Contact Person: Marion Bowditch

Days and Hours Facility is Available: April - September, Thursday - Saturday 10:00 a.m. - 4:00 p.m., Sunday 1:00 - 4:00 p.m.; other times by appointment

Length of Program or Tour: 1 hour (it can be longer, depending upon the number of hands-on projects desired)

Number of Participants Able To Accommodate: 45

Age Level for Participants: Elementary - High school

Advance Notice Necessary: For special hands-on programs, but not just for a tour of the facility during hours of operation.

Costs: Donations accepted.

Comments: For student tours we bait crab pots and put them in the water, let them try their hand at pound net fishing and tonging for oysters. We show the groups how to pick crabs and open oysters. They may also interview local watermen.

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WESTMORELAND STATE PARK
Route 1 Box 53-H
Montross, VA 22520
(804) 493-8821

Westmoreland is a Virginia State Park in Westmoreland County along the coast of the Potomac. Although both American history and natural history play important roles in the park, the most prominent feature

is the geological history preserved in the Horsehead Cliffs. Park visitors frequently discover shark's teeth and fossils along the beach dating back as far as the Cretaceous Period. The Nature Center offers information and displays on the flora and fauna of the area as well as the geologic history.

Other Pertinent Information

Contact Person: Bill Petree, Chief Ranger

Days and Hours Facility is Available: Summer season runs from Memorial Day to Labor Day, when the Center will be open every day. Other hours or days can be arranged for visitors.

Length of Program or Tour: No set program. Can cater to the needs of the group, depending on staff availability.

Number of Participants Able To Accommodate: Outdoor amphitheater can seat about 250. Guided tours can accommodate up to 40 people.

Age Level for Participants: Nature Center is geared toward the elementary - junior high students. Programs and tours can be fit to any age.

Advance Notice Necessary: 1 week

Costs: parking fees: \$1.00/car, \$5.00/bus for daylight hours from Memorial Day to Labor Day.

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WHARTON'S WHARF HARBOR CRUISES 530-12th Street Newport News, VA 23607 (804) 245-1533

A two-hour cruise of the world's largest natural harbor or all-day Intracoastal Waterway Cruise may be scheduled for your class. Special student discount rates March 1 - June 1 (minimum of 30 students). Expert commentary. Both entertaining and educational.

Cruise Information

Contact: Cruise Directors

Cruise Day and Hours: March 15 to Good Friday - By reservation. Good Friday thru June 1 - 10:00 a.m. for 2 hour cruise.

Length of Cruises: 2 hours, or 8 hours for Intracoastal Waterway Cruise.

Number Able To Accommodate: 135

Advance Notice: Reservation and deposit required - minimum of 30 students for 2 hour cruise/minimum of 90 for 8 hour cruise

Cost: 2 hour cruise (minimum of 30 students)
- under Grade 6 \$3.00
- 7th Grade & over \$4.50
Intracoastal Waterway Cruise (minimum of 90 students)
- per student \$19.50

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WRECK ISLAND NATURAL AREA
c/o Division of State Parks
1201 Washington Building
Richmond, Virginia 23219
(804) 786-2132

This offshore island lies in Northampton County, some 7 miles (11.3 kilometers) east of Oyster, Virginia, and forms a link in the chain of barrier islands separating the Eastern Shore from the Atlantic. The island is approximately 3 miles (4.8 kilometers) long and about $\frac{1}{2}$ mile (0.8 kilometers) wide. Only one-fifth of the island can be considered high ground, the remainder being salt marshes interlaced with a maze of pools and creeks. Dunes facing the ocean rise to only ten or twelve feet. This island, as well as the rest of the barrier islands, is a haven for wildlife; otters, minks, raccoons and numerous shorebirds use it as a nesting ground. The flora consists of stunted wax-myrtle and a variety of beach grasses. The island does not support human life, and herein lies its importance. It is a refuge; an example of unmanipulated ecology. No camping is allowed. (The island is accessible only by boat, principally from Oyster).

Contact Person: No manager at Park site. May contact Tom Blackstock in Park's Central Office for details as needed.

Days and Hours Facility is Available: Daylight hours only

Length of Program or Tour: N/A

Number of Participants Able To Accommodate: N/A

Age Level for Participants: Any age

Advance Notice Necessary: Not required

Costs: None

- - -

WYTHEVILLE NATIONAL FISH HATCHERY
Route 2, Box 300
Max Meadows, VA 23460
(703) 637-3212

Modern fish hatchery in operation. Hatching time for various trout species is September through December.

Tour Information

Contact: Hatchery Manager

Tour Days and Hours: Open 7 days a week from 7:30 a.m. to 4:00 p.m.

Length of Tour: 1 hour

Number Able To Accommodate: 35-40

Age Level: Any age

Advance Notice: 2 weeks

- - -

YORK RIVER STATE PARK
Rt. 4, Box 329F
Williamsburg, VA 23185
(804) 564-9057

Environmental education programs in estuarine and freshwater systems; special programs can be scheduled for any area of natural science.

Other Pertinent Information

Contact Person: G. Warren Wahl, II, James E. Jones, Irvine T. Wilson

Days and Hours Facility is Available: 2 to 4 hours in length - 9:00 a.m. to 5:00 p.m. daily

Length of Program or Tour: 2 to 4 hours

Number of Participants Able To Accommodate: 20 per interpreter

Age Level for Participants: Any age

Advance Notice Necessary: 2 to 4 days

Costs: \$1.00 per person per 2-hour canoe trip - \$2.00 per person per 4-hour canoe trip

- - -

YORKTOWN SHIPWRECK PROJECT
P. O. Box 424, Yorktown, VA 23690
In Yorktown, at the intersection of Degrasse
and Water Streets, on the waterfront
(804) 898-0002

A shipwreck from the Battle of Yorktown, 1781, is being excavated within the protection of a steel cofferdam and the enclosed water is being filtered to clarify it. A pier provides public access to the site, and diving operations are conducted on an almost continuous basis. This is the first time such an excavation within a cofferdam has been attempted and is the first underwater excavation to be accessible to the public.

Other Pertinent Information

Contact Person: Margie DuBay

Days and Hours Facility is Available: Wednesday through Sunday, 10:00 a.m. - 6:00 p.m. from Memorial Day to Labor Day

Length of Program or Tour: Approximately 15 minutes

Number of Participants Able To Accommodate: As a tour, no limits, if participation is desired, individual arrangements must be made

Age Level for Participants: Same as above

Advance Notice Necessary: Tours, one week; participation, two weeks minimum

Costs:

Individual Rates:	\$1.00 adults
	.50 children
Group Rates:	.75 each

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YORKTOWN VICTORY CENTER
P. O. Box 1976
Yorktown, VA 23940
(804) 887-1776

Saluting the decisive 1781 allied victory which ended the Revolution, the Yorktown Victory Center characterizes the Revolutionary times through audiovisual displays and original artifacts and furnishings.

Focus is now one mile distant, on a sunken warship 500 feet off Yorktown waterfront currently undergoing excavation by archaeologists. Site of cofferdam is open for public viewing.

Other Pertinent Information

Contact Person: (Mrs.) Patricia Procopi

Days and Hours Facility is Available: Daily 9:00 a.m. - 5:00 p.m.
Closed January 1 and December 25. Ask about extended summer hours.

Length of Program or Tour: 1 hour - Tour begins on Liberty Street, continues through Gallery, ends with film, all preparing for visit to battlefield.

Number of Participants Able To Accommodate: Several busloads

Age Level for Participants: Any age

Advance Notice Necessary: Strongly recommended

Costs:

Individual Rates: Adult \$3.50, Child \$1.75

Group Rates: Adult \$3.00, Student K-College \$1.25

Comments: Under 7 free. Season's Pass and Combination Ticket available with nearby Jamestown Festival Park.