ENVIRONMENTAL QUALITY 1975

MARINE CORPS BASE

CAMP LEJEUNE, NORTH CAROLINA

ABOUT THE COVER . . . The purple martin termed by some conservationist as America's most wanted bird because of its voracious appetite for flying insects is found at Camp Lejeune. This bird will eat as many as 2,000 mosquitoes per day and can be attracted by providing good nesting sites. For the past several years, good housing has been provided by suspending gourds from a high pole. Last year, approximately 24 nests were successful in producing broods. In addition to 24 gourd nests this year, five commercially made aluminum houses with a total of 72 nesting compartments have been erected recently at strategic places aboard base. The mosquito has always been a problem in the coastal environment of Camp Lejeune. By enhancing the purple martin nesting site, thereby increasing the total population, it is expected the mosquito population will decrease and somewhat relieve control efforts by insect vector personnel.

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COMPOSITION AND MISSION

Marine Corps Base, Camp Lejeune, the world's most complete Amphibious Training Base, is situated on the southeast coast of North Carolina with a twelve-mile ocean front extending from Bear Inlet to New River Inlet and encompasses approximately 170 square miles of land and water.

Established in 1941 and named in honor of Lieutenant General John A. Lejeune, the base houses four Marine Corps Commands and three Navy Commands: Marine Corps Base; 2d Marine Division, FMF; Force Troops, FMFLant; Marine Corps Air Station (Helicopter), New River; Naval Medical Regional Center; Naval Medical Field Research Laboratory; and Naval Medical Dental Center.

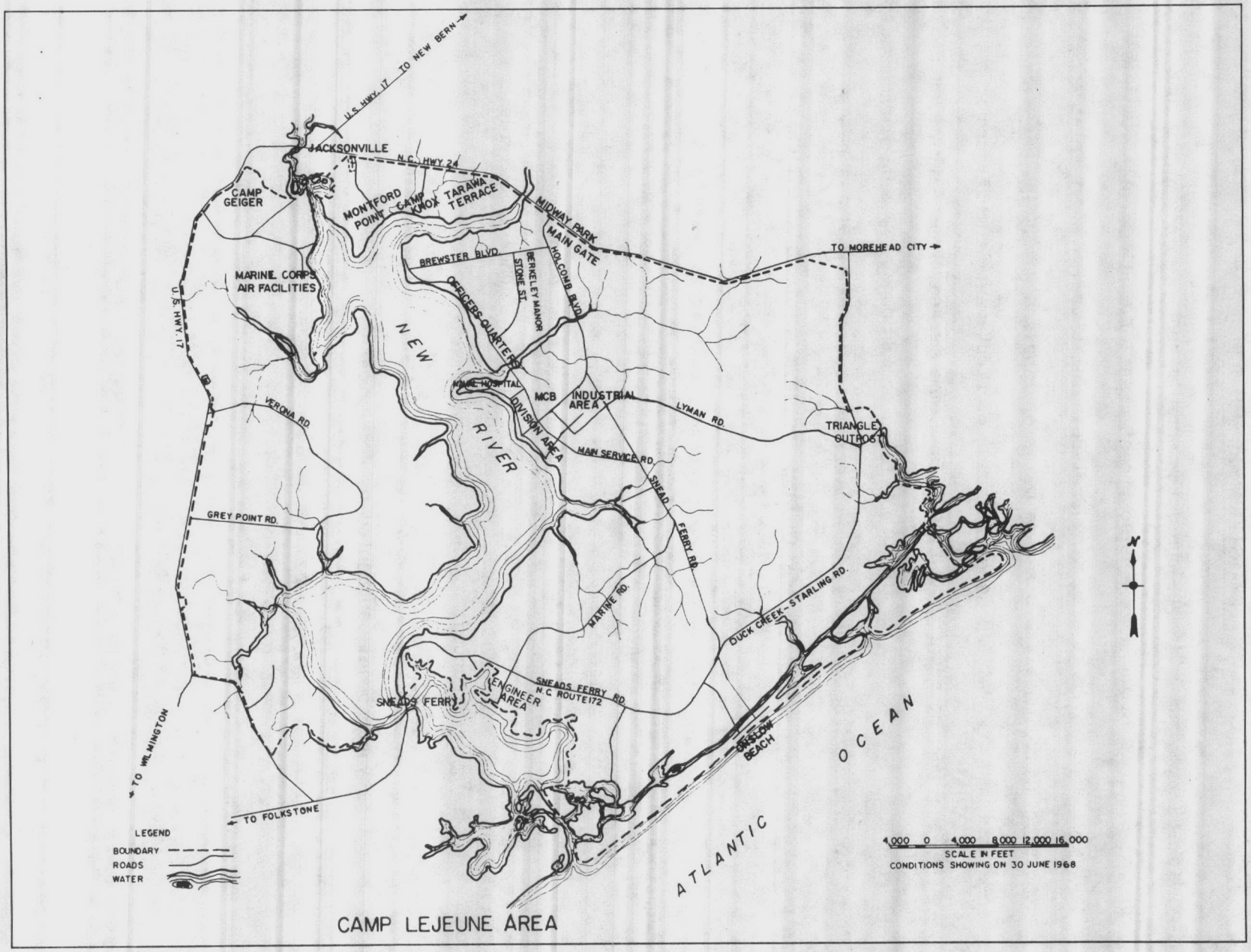
The mission of Marine Corps Base, Camp Lejeune, is as follows:

a. Provide housing, training facilities, logistic support, and certain administrative support for Fleet Marine Force units and other units as assigned.

b. Conduct specialized schools and other training as directed.

c. Receive and process personnel as assigned and conduct individual combat training as directed.

The present military population of Camp Lejeune is approximately 40,000 military personnel, augmented by approximately 4,000 civilian employees. Military dependents are in excess of 32,000 on and off base.



CAMP LEJEUNE AREA

SUMMARY

The Environmental Quality Program for Camp Lejeune continues to progress with the implementation of the National Environmental Policy Act of 1969. In doing so all practical means and measures to protect and enhance environmental quality at this facility are employed.

Air Pollution Control

All open burning has been suspended with the exception of prescribed burning under the forest management plan. In 1973, a boiler fuel conversion project was completed at the Central Heating Plant enabling the plant to burn 100% fuel oil (No. 6) and smoke detectors were installed in smoke stacks at all heating plants.

Water Pollution Control

Sewage - Authorization to discharge permits for all sewage treatment plants were issued by the Environmental Protection Agency (EPA) in 1974, showing that sewage treatment facilities at Camp Lejeune meet EPA standards in all respects.

Oil Pollution - The Oil Spill Prevention, Containment, and Countermeasure Plan was published to establish policy and procedures concerning oil pollution abatement. Since 1973 approximately 70 waste oil storage tanks have been installed at strategic locations throughout the base to be utilized at the unit level. Camp Lejeune has on hand 500 feet of oil containment boom and other equipment that can be used to contain and clean up oil spills.

Soil Erosion - Sedimentation caused by soil erosion is a source of water pollution. To help control this sedimentation tracked vehicles such

as tanks and amphibian tractors are restricted to designated trails and training areas. In a Cooperative Agreement with the Marine Corps Base, the Soil Conservation Service made a survey of all soil conservation problem areas during 1974. Work on some of these problem areas has begun.

Noise Pollution Control

The Hearing Conservation Center of the Base Medical Department is responsible for establishing and maintaining a hearing conservation program. Objectives are to prevent hearing losses before occurrence. In the past two years 50,000 hearing tests were conducted.

Solid Waste Management

All non-recyclable solid waste is placed in the sanitary landfill and covered daily. Compaction equipment has been installed aboard base. This equipment compacts waste thereby reducing the need for dumpsters and resulting in better utilization of the sanitary landfill. A contract has been awarded for the installation of corrugated paper recycling equipment.

Toxic and Hazardous Materials

A new type ultra-low volume sprayer is being used for adult mosquito control. Use of these machines have resulted in the conservation of an estimated 30,000 gallons of fuel oil during the past two years. This also means the environment has been spared this 30,000 gallons of fuel oil.

Environmental Enhancement

Keeping Camp Lejeune attractive requires constant endeavors of all military and civilians that work and visit the base daily. The Nursery and Landscaping Section of Base Maintenance planted in excess of 3,500 flowering trees, shrubs, and flowers in the past three years.

Forest and wildlife resources are an important part of Camp Lejeune's environmental program. These resources are managed using the latest

techniques. Endangered species receive maximum protection.

Education and Training Programs

Guest speaking engagements, accompanied with color slides have been very much in demand by units, school classes and civic organizations. In 1973, 1974, and 1975 one hundred and nine presentations were made to a total of 12,000 people. In addition seven appearances were made on local television wherein subjects related to the environmental program were discussed.

Further, approximately 1,700 Marines of the Motor Transport School Company, Montford Point have attended a slide/lecture presentation on the pollution abatement program. This presentation is a part of their regular classroom time.

Camp Lejeune was host to a natural resources management workshop sponsored by Headquarters, U. S. Marine Corps during the period of 10-13 September 1974.

SPECIFIC PROJECTS AND ACHIEVEMENTS COMPLETED, UNDERWAY, OR PLANNED

In 1973, the Rifle Range outfall line was cleaned and extended into New River to allow better dispersion of effluents.

In 1974, the Courthouse Bay sewage treatment plant outfall line was repaired.

To comply with Environmental Protection Agency regulations, the following proposals were made regarding Camp Lejeune sewage disposals:

a. Seal by-passes at all sewage life stations and sewage treatment plants.

b. Provide high liquid alarm system at all outlying sewage lift stations and sewage treatment plants.

c. Provide standby power at all sewage treatment plants and lift stations.

d. Recycle sludge drying bed liquor at all sewage treatment plants.

e. Provide four additional sludge drying beds at Tarawa Terrace sewage treatment plant.

f. Provide additional anaerobic digestor at Tarawa Terrace sewage treatment plant.

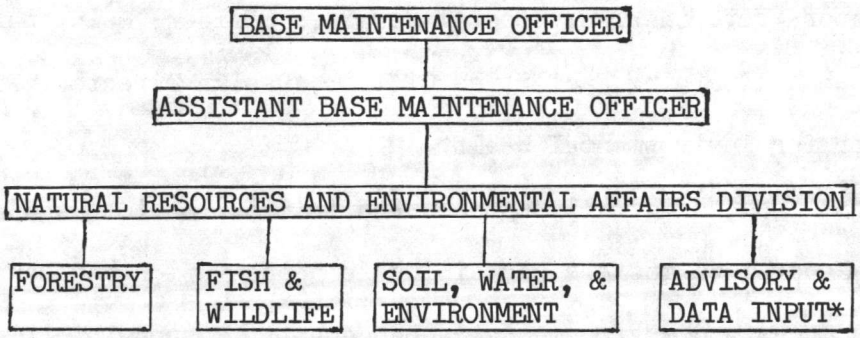
g. Add chlorine contact chamber at Tarawa Terrace sewage treatment plant.

Construction is now underway to upgrade and expand the Camp Geiger sewage treatment plant to accommodate sewage generated at Marine Corps Air Station (Helicopter), New River and to accomplish tertiary treatment. When the project is completed the Air Station sewage treatment plant will be closed.

ORGANIZATION

Responsibility and organization for environmental protection are established in Base Order 11080.2, Subject: Management of Natural Resources; Environmental Quality and Pest Control (Appendix A) and Base Order 11090.1; Subject: Spill Prevention, Containment, and Countermeasure Plan for Oil and Other Hazardous Substances (Appendix B).

The Assistant Chief of Staff, Facilities, exercises staff cognizance over all matters pertaining to environmental protection while the Base Maintenance Officer has direct responsibility for management of environmental affairs. Management is accomplished primarily through the Natural Resources and Environmental Affairs Division of the Base Maintenance Department. However, other divisions of Base Maintenance also provide significant contributions. The Natural Resources and Environmental Affairs Division was organized in October 1972 and a further refinement has been restructured as depicted below.



*This section consists of advisory and coordinating personnel from Base Public Works Department and other divisions of Base Maintenance Department on a collateral duty basis.

NATIONAL ENVIRONMENTAL POLICY ACT

It is the policy of this base to comply with the spirit as well as the letter of the National Environmental Policy Act of 1969. In doing so all practical means and measures to protect and enhance environmental quality at this facility are employed. Every effort is made to plan, initiate, and carry out actions in a manner to avoid or minimize adverse effects on environmental quality.

Action sponsors are required to prepare preliminary environmental assessments on proposed actions. The assessments are reviewed by the Committee for Environmental Enhancement which is composed of the following members: Chairman (as appointed by the Commanding General); Director, Natural Resources and Environmental Affairs Division; Base Wildlife Manager; Representatives from - 2d Marine Division, FMF; Force Troops, FMFLant; and Marine Corps Air Station (Helicopter), New River; and the President, Rod and Gun Club. Advisors to the committee are: Forester; Ecologist; Game Protector; Veterinarian; Special Services Officer; Maintenance Officer; Provost Marshal; Training Facilities Officer; Design Director, Public Works; and Director for Environmental Health.

This committee, originally established in 1962, assists and advises the Commanding General on matters pertaining to conservation and management of natural resources and environmental enhancement. Responsibilities of the committee encompass general cognizance over any phase or facet of the Natural Resources Conservation Program with recommendations provided to the Commanding General for implementation, instructions, procedures, regulations, and programs. The committee determines if the potential for environmental significance or controversy exist and also makes

recommendations on proposed actions.

The committee has reviewed the following: Environmental Impact Assessment concerning the regular utilization of the offshore target and bombing area located at Camp Lejeune by tank and artillery units; and the combining of Brown's Island and this offshore area into a single firing range.

The committe had input into Environmental Impact Assessment of Proposed FY 1977 Military Construction Project P-600, Hospital Replacement, Naval Regional Medical Center, Camp Lejeune, North Carolina and Environmental Impact Statement for FY 1976-77 Family Housing, Marine Corps Base, Camp Lejeune, North Carolina.

AIR POLLUTION CONTROL

On 1 July 1972 all burn dumps were closed with the opening of the sanitary landfill. This action greatly reduced air pollution aboard base. At this time all other open burning was suspended with the exception of prescribed burning under the forest management plan. Forest prescribed burning is done within criteria established by the North Carolina Water and Air Resources.

In June 1973 a boiler fuel conversion project was completed at the central heating plant enabling the plant to burn 100% fuel oil (No. 6) and smoke detectors were installed in smoke stacks at all heating plants.

In the event there is an air pollution emergency in the Camp Lejeune area, certain emergency measures are taken. Base Order 11090.2 (Appendix C) gives detailed instructions for air pollution emergencies.

THIS TYPE INCINERATOR IS NO LONGER IN USE.

WATER POLLUTION CONTROL

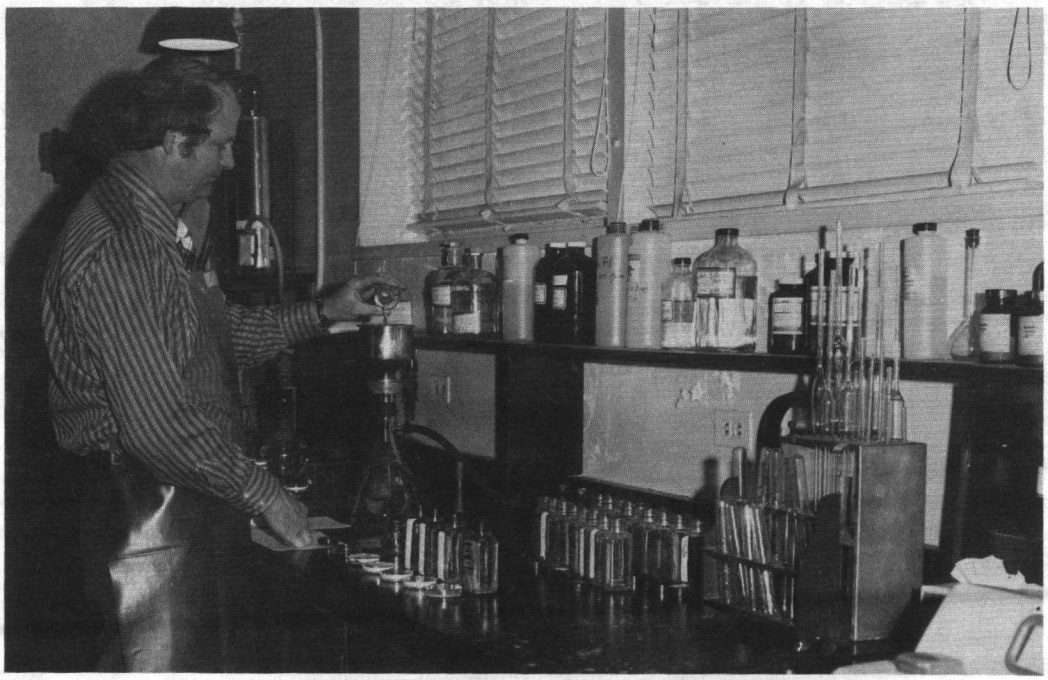
SEWAGE TREATMENT

Secondary treatment is now accomplished at all of the eight sewage treatment plants at Camp Lejeune. Construction of rotating trickling filters at each facility has provided the capability to process waste at a high state of purity, obtaining an efficiency of 90% in relation to the biological oxygen demand and suspended solids, thus assuring that the seven million gallons of waste water that daily flows through the sewage treatment system will not degrade the quality of New River. Continuous attention and control at these sewage plants by qualified personnel assures that effluents meet and exceed requirements of Environmentral Protection Agency (EPA) and water quality standards established by the state of North Carolina. To help improve the qualifications of sewage treatment plant operators, all recently employed personnel are engaged in an intensive two-year on the job training program set up and administered by the Civilian Personnel Office. The final step of this training program requires the employee to pass the Waste Water Treatment Operator Examination (Grade II) administered by the North Carolina Department of Water and Air Resources Twenty-nine sewage treatment plant operators and helpers have passed examinations for certification with grades ranging from I to IV.

On 18 January 1974 the EPA issued the National Pollutant Discharge Elimination System permits to Camp Lejeune authorizing the discharge of sewage effluent from all sewage treatment plants into receiving waters. The sewage treatment plants have their own laboratory where the sewage is analyzed to ensure that effluents meet federal and state specifications. Since 1 July 1974 sampling points established by the EPA have been used to

TAKING WATER SAMPLES (above) AND CHECKING THEM OUT (below)

AN AERIAL VIEW OF THE HADNOT-POINT SEWAGE TREATMENT PLANT
WITH PART OF NEW RIVER IN THE BACKGROUND



CHEMIST PERFORMS BACTERIOLOGICAL TEST ON POTABLE WATER

monitor those waters receiving effluent from base sewage treatment plants. This sampling analysis and subsequent reporting will meet requirements of the EPA and the State of North Carolina.

By checking the map on page 2 it is readily seen that New River is an important factor in the total environment of Camp Lejeune. It is the receiving stream for all effluent from seven sewage treatment plants while the eighth plant at Onslow Beach empties into the Intracoastal Waterway. In order to comply with State and EPA regulations on water quality standards, an intricate and comprehensive monitoring program is required. Water samples from nine established points on New River and the Intracoastal Waterway are taken weekly near the upstream and downstream side of the effluent outfall lines from all sewage treatment plants. During the months June, July, August and September these river samples are taken twice a week. In addition, samples are taken at a number of random sites. These samples are tested for fecal coliform count, suspended solids, biological oxygen demand, dissolved oxygen pH, salinity and temperature. Water samples from the influent and effluent of each sewage treatment plant is also tested weekly.

In order to ensure a more credible monitoring program an employee with a master's degree in chemistry has recently been added to the Soil, Water and Environmental Branch, Natural Resources and Environmental Affairs Division, Base Maintenance Department.

OIL SPILL PREVENTION

A complete basewide survey conducted to determine the extent of oil pollution in maintenance areas, motor pools, etc. revealed some minor soil and water pollution was occurring; action was initiated immediately

ONE OF THE 70 WASTE OIL COLLECTION TANKS INSTALLED BASEWIDE

WASTE OIL COLLECTION TRUCK EMPTYING INTO THE 272,000 GALLON STORAGE TANK

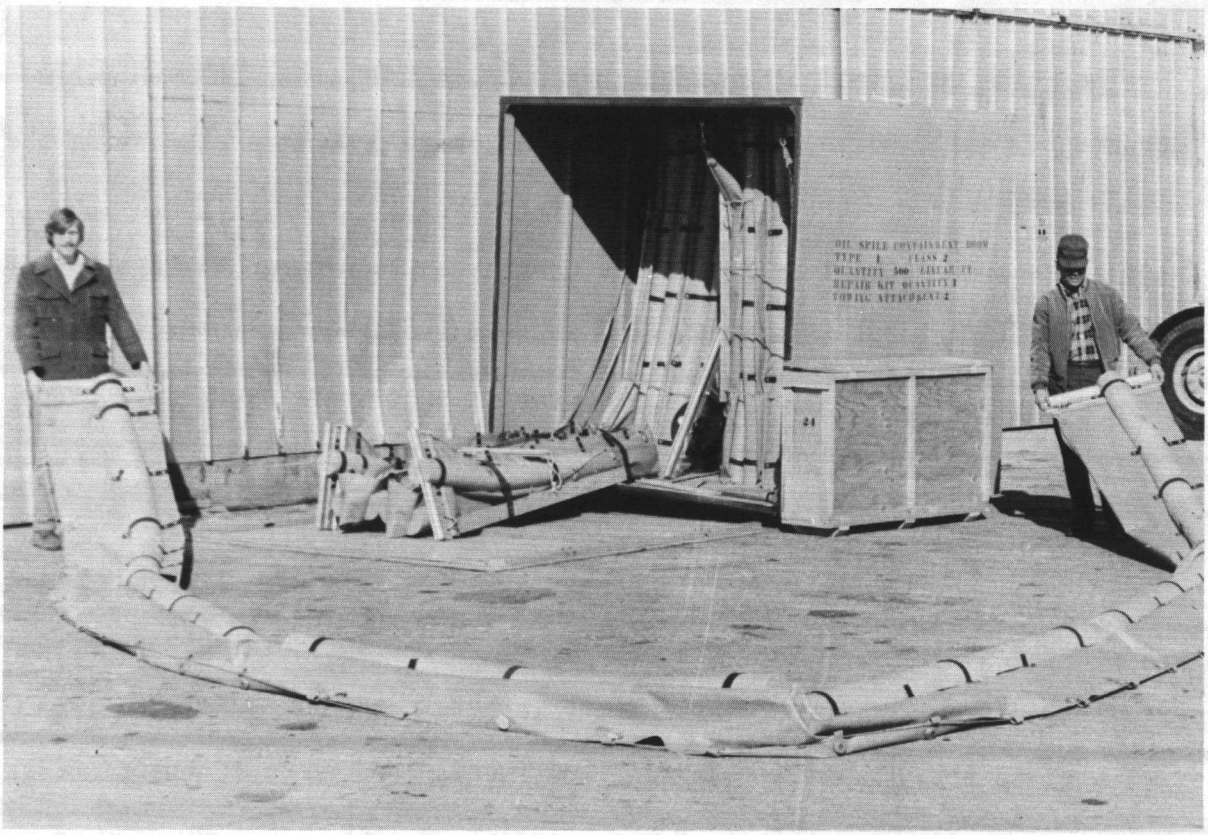
to correct the situation. In addition to a personal explanation of the necessity for preventing oil spillage, time was spent with each unit in these areas instructing in the preparation of oil drip pans for oil dispensing drums and discussing other methods for prevention and containment. In 1973-1975 approximately 70 waste oil storage tanks with capacities of 280 and 550 gallons were modified and installed at different locations for utilization at the unit level.

Base Order 11090.1 (Appendix B) was published implementing the base Spill Prevention, Containment, and Countermeasure Plan for Oil and Other Hazardous Substances. Marine Corps Bulletin 6240 dated 3 April 1974 directed field activities to comply with EPA regulations contained in Federal Register, Volume 38, Number 237, Part II, of 11 December 1973, Subject: Oil Spill Prevention. To satisfy requirements of this bulletin, an engineering investigation was conducted aboard base. A survey and inventory of petroleum storage facilities having an aggragated aboveground storage capacity of 1,320 gallons or more, or any single tank over 600 gallons, or underground storage capacity of 42,000 gallons or more, and non-transportation related facilities were made to identify potential oil spill sites. Fixes were proposed that will either eliminate the potential source or prevent any spill from entering navigable waters. The engineering report prepared by Public Works Department updates Base Order 11090.1. Oil contaminated soil has been replaced in various locations with new soil and reseeded. Further work is planned in the future to improve the appearance of the grounds around maintenance buildings, motor pools, etc.

In the past, most of the waste motor oil collected at Camp Lejeune was used for dust control on unpaved roads and parking lots. This practice has been approved by the Environmental Protection Agency. Now, a 272,000-

gallon tank is available for storing excess waste oil that is not needed for dust abatement. Approximately 131,000 gallons have been stored in the tank. It is expected to use this excess oil for either heating fuel or reclamation.

Marine Corps Bulletin 6240 of 28 August 1973 directs activities to have on hand certain oil containment and cleanup equipment to combat any possible oil spill. Camp Lejeune has a boat, oil skimmer, vacuum truck, sorbent mats, straw, 500 feet of oil containment boom and other equipment that can be used to contain and clean up oil spills. This equipment is located at Base Maintenance and, upon notification, can be transported to the site of an oil spill.



OIL SPILL CONTAINMENT BOOM

SOIL EROSION

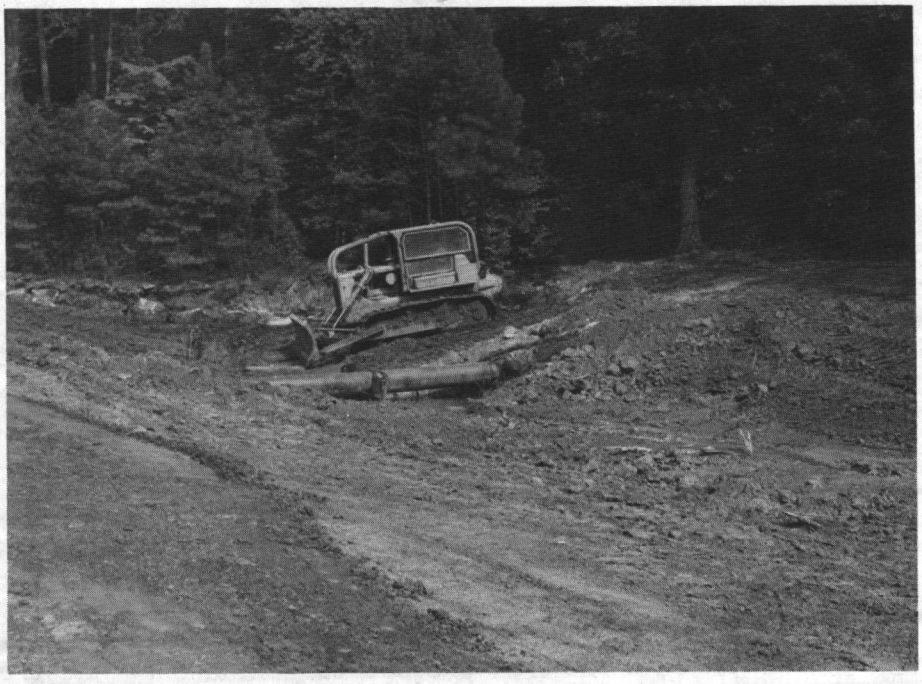
The forces of nature (wind tide and wave action) cause some erosion at Onslow Beach and certain points along the banks of New River. Stone, concrete and masonary rubble from demolished buildings have been used to eliminate part of the New River bank erosion problem. This work has been approved by Wilmington, North Carolina office, U. S. Army Corps of Engineers.

It is recognized that some damage or wear and tear occurs to inland areas due to the nature of military training. For example, natural vegetation is destroyed and soil disturbed, resulting in a potential soil erosion problem. To avoid unnecessary damage incidental to field training, track vehicles have been restricted to designated training areas and access trails.

The Soil Conservation Service, in a Cooperative Agreement with Marine Corps Base made a survey of all soil conservation problem areas during the summer of 1974. Prescriptions were made for 230 different sites and scheduled for accomplishment by priorities over a ten year period. This information was incorporated into the Long Range Multiple-Use Natural Resources Management Plan. Work on some of the problem areas has begun.

An area previously utilized as a heavy equipment compound was released recently from further use and was placed under forest management. Approximately 25 of the total 56 acres had been affected by a slow erosion problem. Slash and longleaf pine seedlings were planted in 1973 over the area for erosion control and site stabilization. The longleaf seedling area was replanted in 1974 to slash pine for better erosion prevention since the percent of survival of the longleaf seedlings was very low.

A COVER OF PINE NEEDLES HELPS CONTROL SOIL EROSION
AFTER BEING DISTURBED BY TRACKED VEHCILES



GRADING AND SUBSEQUENT SEEDING BEING DONE TO CORRECT
A SOIL EROSION PROBLEM

NOISE POLLUTION CONTROL

Sources of noise pollution are many and varied on base. In the Industrial Complex such areas as carpenter shops, metalworking shops, sand blasting, compressed air, heavy equipment, aircraft maintenance areas, and steam plants are sources of noise pollution. Areas and conditions under which military personnel in the field are subjected to noise pollution are: all types of gunfire, rockets, explosives, aircraft, tanks, heavy equipment, and motor vehicles. The Hearing Conservation Center of the Base Medical Department is charged with the responsibility of establishing and maintaining a hearing conservation program. This responsibility is established in Appendix D (Base Order 6260.2, Subject: Marine Corps Base Hearing Conservation Program). The Hearing Conservation Center tests and designates noise hazard areas and conducts approximately 20,000 hearing tests annually. The staff consists of one civilian audiology technician and three Navy EENT (eyes, ears, nose, and throat) technicians.

The objective of the Hearing Conservation Program is to prevent hearing loss before it becomes a problem. If, upon testing, it is found that machinery or equipment emits 90 decibels or more, signs are posted designating it to be a noise hazardous area and personnel in the area are required to wear hearing protective devices while in that area. Also, personnel who work regularly in noise hazardous areas are subjected to annual hearing tests. If it is determined that anyone has a hearing loss, he is tested more often and, if a loss continues, he is assigned work in an area where there is no noise hazard.

A recently completed noise control project was the acoustical treatment of the 2d Marine Division Band rehearsal area. Before treatment, the noise

was well above the safe level. After treatment, tests showed a safe level of 86 decibels.

The Hearing Conservation Center has underway a special audio survey that will eventually involve a large number of personnel at Camp Lejeune. A hearing analysis data collection card will be established for about 25,000 personnel for data processing. This will greatly enhance the hearing conservation program by furnishing detailed hearing records and much needed hearing research data.

HEARING TEST BEING ADMINISTERED

RADIATION POLLUTION CONTROL

No known radiation pollution exist aboard base as no storage, training, or testing involving these materials are conducted at Camp Lejeune.

SOILD WASTE MANAGEMENT

Waste disposal is a laborious and expensive operation as approximately 700,000 cubic yards of garbage and other waste must be disposed of at Camp Lejeune each year. Waste of all kinds is transported to the sanitary landfill for disposal. The sanitary landfill is located on a well drained 40-acre site on Sneads Ferry Road. A large trench approximately 40 feet wide and 12 feet deep is excavated to receive waste material. A bulldozer is used to compact the refuse as it is placed in the trench. At the end of each work day, the filled area is covered with soil, which eliminates insect attraction, fly breeding, and rodent habitat. Shortly following the opening of the sanitary landfill, twenty-one compaction devices were installed in base messhalls. These devices exert a 10-to-1 compression ration making them popular with mess personnel by greatly reducing the laborious task of transporting refuse to waste containers. Basewide requirements of waste containers at messhalls have been reduced by half; the poundage per trip in the dumpmaster truck has been increased; and the space per pound in the sanitary landfill is substantially reduced.

Six additional compaction devices have been installed at selected points aboard base to compress cardboard boxes. This equipment exerts a 4-to-1 compression ratio and is equipped with a 45-cubic yard container which holds approximately 5-1/2 tons of cardboard, further reducing the necessity for waste containers.

A contract was recently awarded for the installation of corrugated paper recycling equipment. Upon completion of the contract, cardboard paper will be recycled rather than buried in the sanitary landfill.

COMPACTION DEVICES HAVE REDUCED THE NEED FOR DUMPSTERS AND RESULTED IN BETTER UTILIZATION OF THE SANITARY LANDFILL

In 1974, two "Pitch In" containers were installed at convenient locations on Holcomb Boulevard. These containers have helped keep Camp Lejeune's roads clean by providing a place for motorists to deposit litter. The volume of trash being removed from these containers indicates heavy utilization.

Another waste item generated is scrap lumber which includes used lumber or boxes not required for the foreseeable needs of the generating activity or in such condition as to be unacceptable for further use. This material will be turned in and disposed of according to procedures set forth in Base Order 4570.1B of 28 January 1974. (Appendix E)

Liquid garbage (produce and leftover food from messhalls, cafeteria, etc.) is being handled by contract issued by the Defense Property Disposal Agency. A 5-year contract was awarded a local hog farmer who pays the government $500 per year for the garbage. Garbage is picked up by the farmer and transported off base where it is prepared and fed to swine. In addition to financial benefits the contract also results in reduced usage of garbage disposal units and reduction of sewage treatment plant loads.

"DOING WHAT IT SEZ"

TOXIC AND HAZARDOUS MATERIALS MANAGEMENT

CHEMICAL DUMP

In the past, certain items of a chemical nature which could not be utilized, reconditioned for return to the supply system, sold, donated, or transferred were buried in specific areas of the base. Although close control of the burying was maintained, this practice has been suspended until technical advice can be gained concerning the effects of the various substances on the environment. Listings of the specific items buried in specified areas in the past have been compiled and the assistance of the Environmental Protection Agency solicited in determining the advisability of continuing the practice for each specific substance. The Environmental Protection Agency is currently working on this problem and has been most cooperative.

HERBICIDE AND PESTICIDE SAFETY PRECAUTIONS

The base has effected several changes in utilization of herbicides/pesticides in order to improve conservation techniques and comply with current regulations. The application of less persistent approved pesticides/herbicides is now practiced and applications are made based on insect count in specific areas rather than on a routine area basis. A vigorous training program for personnel in the Insect and Rodent Control Section of Base Maintenance Department has been conducted to ensure that all personnel, including pest controllers and supervisors, are certified as competent.

Base Maintenance Officer is tasked with the responsibility of maintaining surveillance over the types of chemicals used, methods of application, formulation procedures, and recommended strengths. All pesticides are

stored in locked storage facilities and issued under strict controls. The District Entomologist, Naval Facilities Engineering Command, Norfolk, has been most cooperative in providing necessary technical expertise as required.

In the summers of 1973-74, a new type ultra-low volume sprayer was used by the Insect and Rodent Control Section for adult mosquito control. This machine, which provides a direct spraying of undiluted insecticide, conserved an estimated 30,000 gallons of fuel oil during the past two years by eliminating its requirement as a dilutant. Two additional ultra-low volume sprayers are being used for cockroach treatment in messhalls and food handling facilities.

Pesticides used on base are listed below:

Botanical Pesticides

Pyrethrum SLN

Fumigants

Phostoxin Tablets
Paradichlorobensene Flakes

Rodenticides

Warfrin Anticoagulant

Chlorinated Hydrocarbon

Chlordane EC (limited for termite and fire ant control)

Natural Petroleums

Kerosene White Deodorized
No. 2 Grade Fuel Oil
Summer Oil Emulsion

Phosphorous Compounds

Diazinon 4E
Diazinon 4S
Naled Dibrom
Malathion WP
Malathion EC
Dichlorvous EC
Abate EC
Cygon
Dursban

Carbamates

Sevin Carbaryl WP
Sevin Carbaryl Dust
Baygon Granular
Baygon EC

ULTRA-LOW VOLUME SPRAYER IN OPERATION

RESEARCH AND DEVELOPMENT

The two following paragraphs are descriptions of studies carried out by Naval Medical Field Research Laboratory during the past year.

Surveillance of natural animal resources is greatly enhanced by disease diagnosis and study. Consultative service in this regard was provided by the Naval Medical Field Research Laboratory's Veterinary Sciences Division. A contagious viral disease outbreak in raccoon and fox was diagnosed by the laboratory's veterinary pathologist after completing necropsies and histologic studies on many of the sick/dying animals. The histopathologic studies rendered much insight into some otherwise unknown parasitic disease problems within the raccoons. Reports of unique lesions found in this study will appear in a wildlife disease journal. The veterinary pathologist examined some neonatal sea turtles that had died shortly after hatching. Lesions heretofore unreported were found in these baby turtles. Further study to explain the cause and development of the lesions and how they relate to early death of the turtles is warranted.

Base continues to cooperate and support the Naval Medical Field Research Laboratory, Camp Lejeune, in a program to develop effective insect control programs that are compatible with the environment. Work continues on 100% biodegradable insecticides. The development of nonchemical control techniques for mosquitoes, flies, mites and ticks is also underway. Studies using CO_2 as an attractant for ticks have promise and are continuing. New personal protection repellents are being screened in an effort to provide more protection for troops undergoing training in base areas which now carry higher vector populations as a result of increased wildlife populations, etc.

ENVIRONMENTAL ENHANCEMENT

BASE ATTRACTIVENESS

Camp Lejeune with its natural beauty and well designed layout has long been noted as one of the most attractive military bases in the United States. To keep it this way requires constant endeavor by the various military units and the Groundskeeping Section, Base Maintenance Department. All main thoroughfares are policed daily by Groundskeeping personnel or by military units. During summer months, all grass or lawn areas are maintained at a maximum height of four inches.

During the past three years, the Nursery and Landscaping Section, Base Maintenance, completed beautification projects at Force Troops, industrial and central areas, road intersections, golf courses, and horse stables. In excess of 3,500 flowering trees, shrubs, and flowers have been planted in support of the above projects. In addition, approximately 200 azaleas were replaced around quarters in Paradise Point.

RECENTLY PLANTED SHRUBBERY CONTRIBUTES TO BASE ATTRACTIVENESS

FOREST MANAGEMENT

It is the policy of the command to maintain a sustained-yield multiple-use forest management program that is commensurate with military training requirements while correlating timber management with the best wildlife habitat possible. The 60,000 acres of Camp Lejeune woodlands under management are divided into 62 compartments and each compartment into its component stands. Six compartments receive annual silvicultural treatment from prescription prepared by the Base Forester.

TIMBER HARVEST FOR CALENDAR YEARS 1973-1975

Product	Volume		Gross Income
1973			
Pine Sawtimber	3,628.515	MBF	$ 484,286
Pine Pulpwood	4,492	Cds	84,123
Hardwood Sawtimber	178.697	MBF	13,403
Hardwood Pulpwood	844	Cds	9,524
			$ 591,336
1974			
Pine Sawtimber	4,163.105	MBF	$ 329,510
Pine Pulpwood	24,293	Cds	194,339
Hardwood Sawtimber	27.000	MBF	1,580
Hardwood Pulpwood	119	Cds	356
			$ 525,785
1975			
Pine Sawtimber	8,400.000	MBF	$ 504,000
Pine Pulpwood	40,500	Cds	376,000
Hardwood Sawtimber	37.000	MBF	2,000
Hardwood Pulpwood	470	Cds	1,050
			$ 883,050

Reforestation is carried out by two distinct methods - natural and artificial. Natural regeneration is accomplished by pre-selection of 10 - 12 seed trees per acre. After timber harvest, site preparation is accomplished by use of a heavy disk or KG blade to scarify the soil and prepare a seedbed. Artificial regeneration is accomplished by the same means of site preparation followed by mechanical or hand planting of tree seedlings. Seedlings are usually planted on a spacing of 8' x 8'.

Prescribed burning, one of the most useful and economical tools of forest management, is completed on approximately 12,000 acres each year. This means burning off by a broadcast burn certain areas of a compartment on an as needed basis. The burning is accomplished during winter months when vegetation was dormant and little damage was done to existing tree growth. Reasons for prescribed burning are for rough reduction, improvement of wildlife habitat, control of undesirable vegetation, disease control, and improvement of training areas. To avoid air pollution, this burning is done within limitation of standards set by the Department of Natural and Economic Resources of the State of North Carolina.

A severe infestation of southern pine beetle in 1973, 1974, and 1975 necessitated the harvesting of approximately 1,800 acres of infested timber as the only known control for southern pine beetle is cut and remove infested trees. The infestation has subsided now and no timber is being salvaged at the present time. At the invitation of the Commanding General the N. C. Agricultural Experiment Station and the U. S. Forest Service are currently conducting research projects on control of the southern pine beetle aboard base. The use of orthane, a systemic insecticide, for southern pine beetle control has great promise.

AERIAL VIEW OF NATURAL RESOURCES

THESE "PITCH TUBES" OR POPCORN BALLS" ARE EVIDENCE OF SOUTHERN PINE BEETLE ATTACK, SALVAGE IS NOW THE ONLY ALTERNATIVE.

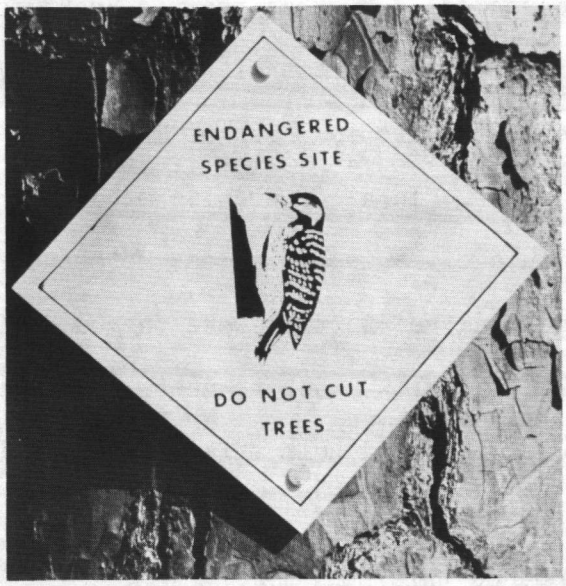
WILDLIFE MANAGEMENT

The wildlife management program of Camp Lejeune is designed to provide optimum environmental conditions for the wide variety of fauna that inhabit the base. Extensive habitat management programs, such as the proper harvest of timber, prescribed burning, creation of food plots, maintenance of wildlife openings, and the preservation of habitat occupied by unique species have resulted in abundant, healthy populations of wildlife available for both consumptive and nonconsumptive use. Federal, state, and base game laws regulate the taking of all wildlife. A new 10-year management plan was formulated in FY-74 and placed into effect. Progressive improvement is being realized under the plan since it is adjusted to meet the increasing needs of the public using the local fish and wildlife resources.

Fifty-eight food plots totaling 250 acres have been established to supplement the natural food supply, provide edge effects, and enhance natural brood range. A fall planting of rye or wheat is made on one-half of each plot annually to provide winter grazing, while the remaining half lies fallow for invasion by grasses and succulent herbs. Plantings of chufas for wild turkey were established at twenty-seven sites varying in size from 1/8 to 1-1/2 acres in size.

A 1,300-acre area is intensively managed for small game by making a summer planting in 1/4-acre strips of small grain at fifty-four locations. Sixteen miles of forest access roads were planted in perennial grasses to provide supplemental game food sources, reduce road maintenance cost, act as a green fire break, and to improve the aesthetic quality of the area.

Base regulations provide legal protection for endangered species and all nongame species. Also, management programs are designed to preserve

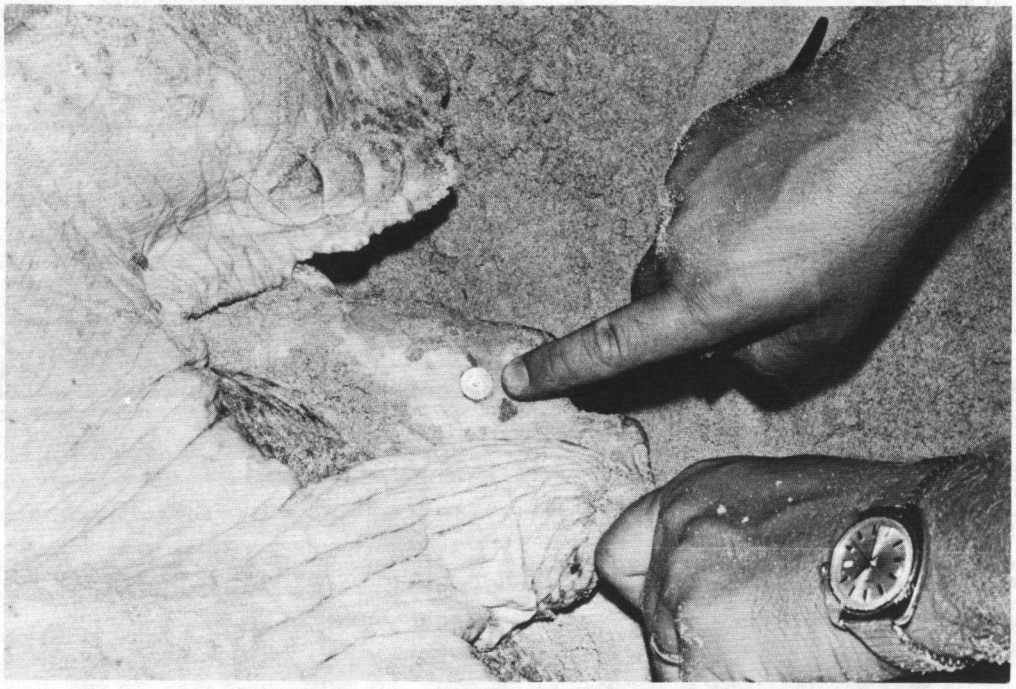


ENDANGERED SPECIES MANAGEMENT IS A PRIME FUNCTION OF THE WILDLIFE MANAGEMENT PROGRAM

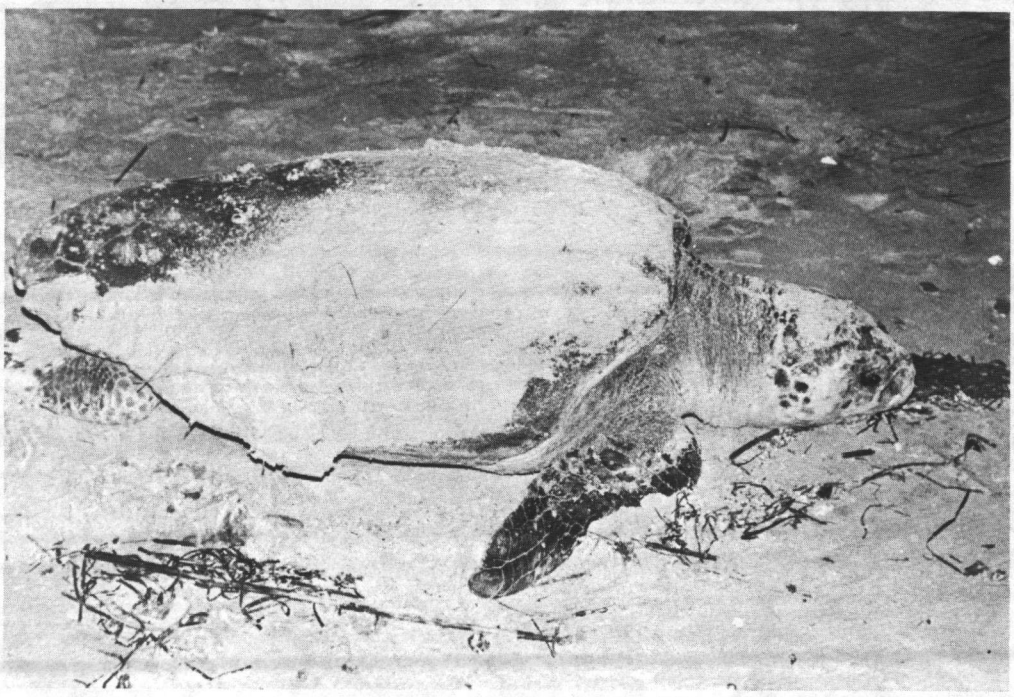
RED-COCKADED WOODPECKER SCANS THE IMMEDIATE AREA BEFORE ENTERING ITS NEST

the habitat of such endangered species as the red-cockaded woodpecker and the American alligator. Nesting habitat of the Atlantic loggerhead sea turtle, which is on the North Carolina List of Endangered Species, is receiving maximum protection. In a cooperative study with the University of North Carolina Institute of Marine Sciences, Morehead City, North Carolina, ten adult Atlantic loggerhead sea turtles were tagged during the summer of 1975 as they came ashore on Onslow Beach to nest. More sea turtle work is planned next year to explore and help this species in its struggle to survive. Fifteen nesting boxes for eastern bluebirds were established at various locations to enhance this nongame species. Sixty-five additional nesting boxes were constructed during the year and will be erected prior to the nest breeding period.

30 SEA TURTLE NESTS WERE PROTECTED FROM SUCH PREDATORS AS RACCOON AND FOX DURING THE SUMMER 1975



THIS TAG WILL IDENTIFY ADULT SEA TURTLE DURING FUTURE STUDIES



FEMALE TURTLE RETURNS TO THE OCEAN AFTER NESTING AND BEING TAGGED

FISH MANAGEMENT

A wide variety of fresh and salt water fish inhabit the fresh water ponds and streams, salt water bays, and the Atlantic Ocean adjoining the base. Eleven fresh water ponds are currently under management. Eight of these are natural ponds and three are man-made with a total of 33 acres under management. Management techniques consist of fertilization to promote plankton and other microscopic plant growth, liming to control pH factor, and use of aquatic herbicides for weed control. Stocking is done on an as-necessary basis. It is estimated that 160,000 man-days of fishing in both fresh and salt water have been provided at Camp Lejeune during the current year.

BASS (7 lbs 3/4 ozs) WAS TAKEN FROM POWERLINE POND 25 MARCH 1975

ENVIRONMENTAL EDUCATION AND TRAINING PROGRAMS

GUEST SPEAKER PROGRAM

In addition to conservation education programs concerning proper and safe handling of guns, water safety, sportsmanship, and woodsmanship conducted by base clubs and organizations, personnel of the Natural Resources and Environmental Affairs Division take an active part in guest speaking engagements.

One of the most popular methods of providing information to groups desiring knowledge in the conservation field has been the guest speaker program. Guest speaking engagements, accompanied with slides, have been very much in demand by units, school classes, and civic organizations. In 1973, 1974, and 1975 one hundred and nine presentations were made to a total of 12,000 people. In addition, seven appearances were made on local television stations wherein wildlife conservation, forestry management, and pollution abatement were discussed. It is believed that explanations of base plans and accomplishments in the conservation field are especially beneficial in fostering community relations and the exchange of ideas.

POLLUTION ABATEMENT EDUCATION

Beginning in January 1974, the educational process is being used in an effort to promote the pollution abatement program. Classroom time was granted for a slide/lecture presentation on the environment to be routinely included as a part of the Motor Transport School Company, Montford Point, student training program. The Base Ecologist gives the presentations with special emphasis being placed on oil pollution. By making each student more aware of environmental problems, it is hoped more desirable habits

and attitudes will be developed, resulting in better Marines and eventually better citizens. To date, approximately 1,700 students have attended the lecture.

FORMAL ADULT EDUCATION

Formal conservation education for this reporting period included an 8-week course in Ecology conducted by Lieutenant Commander R. H. Grothaus, MSC, USN, of the Naval Medical Field Research Laboratory for the benefit of Camp Lejeune personnel and the community. Lieutenant Commander Grothaus holds a PhD in the Biological Sciences, with specific training in general ecology, plant ecology, animal ecology, and entomology. Topics discussed included Ecological Definitions and Terms; Principles of Ecology; Energy Flow and Competition; Pollution and the Environment; Populations and the Future; Ecological Cost of Technologically Developing Nations; and Will the Earth and Main Survive?. Classes were well accepted by the thirty persons that attended and constituted another facet of the overall education program.

NATURAL RESOURCES WORKSHOP

A natural resources management workshop, sponsored by Headquarters, U. S. Marine Corps, was held at Camp Lejeune during the period of 10-13 September 1974. Representatives from all east coast Marine Corps activities and EFDs attended. Also in attendance were visiting speakers from the Fish and Wildlife Resources Commission and the U. S. Soil Conservation Service. A variety of topics concerning natural resources and environmental problems was presented and discussed. The workshop was valuable to all personnel concerned. An opportunity was afforded for getting together, exchanging ideas and resolving common problems.

During lunch break on the first day of the workshop a fish fry, sponsored by Base Maintenance personnel, was given for all attendees of the workshop and other invited guests at the new pond and recreation area at the site of the old burn dump. This occasion was utilized to officially open the recreation area for use and to open the pond the first time for fishing. Base Maintenance Officer had the pleasure of making the first official cast into the pond and catching the first fish.

BASE ECOLOGIST GIVES SLIDE PRESENTATION ON OIL POLLUTION TO STUDENTS OF MOTOR TRANSPORT SCHOOL COMPANY, MONTFORD POINT

COMMUNITY RELATIONS

Utilization of Brown's Island as an impact area during military training operations has been a necessity for years, resulting in many claims for property damage by residents of nearby communities. Since the use of Brown's Island as a training area could not be discontinued, a workable solution had to be ascertained. Studies at Elgin Air Force Base, Florida, indicated that under certain atmospheric conditions, explosion overpressures could cause unexpected damage. Thusly, since February 1972, all bombing runs have been canceled when unfavorable atmospheric conditions prevail thereby minimizing complaints of damage.

During the Fall of 1972, Mutual Fire Fighting Assistance Agreements were entered into with the city of Jacksonville, North Carolina, Onslow County, and the U. S. Department of Agriculture Forest Service. In addition, the existing agreement with the North Carolina Department of Natural and Economic Resources was updated. Under these agreements, mutual available fire fighting support is rendered when required. In April 1973, over a period of four days, 130 Marines helped control a large forest fire in an adjoining county.

Appropriate personnel attend wildlife, forestry and environmental meetings, training sessions, and symposiums sponsored by private, state, and federal agencies in these fields. Professional personnel attend the meetings and conventions of the Society of American Foresters.

On 2 July 1973, a dedication ceremony formally naming/opening Henderson Pond was held at the pond site. Friends and the family of the late Mr. W. N. Henderson were invited to attend the ceremony wherein Mrs. Henderson was presented a plaque by the Commanding General honoring her late husband, who served as the first civilian Game Protector at Camp

Lejeune.

Under sponsorship of the Marine Corps Human Relations Program, approximately 100 Marines from Force Troops have voluntarily constructed nature trails and planted several hundred pine trees for several nearby public elementary schools during the past two years. The nature trails, located in wooded areas adjacent to the schools are proving invaluable to the school in teaching the basics of conservation. The pine trees were planted as borders around bare portions of school grounds.

Marines from 2d Marine Division have assisted Coastal Carolina Community College in clearing and establishing a nature trail for its Biology Department. The trail is located on a tract of land adjacent to and formerly a part of Camp Lejeune.

The general foreman and foreman of the sewage treatment plants, Utilities Division, Base Maintenance Department, are involved in a unique training program with the North Carolina Department of Air and Water Resources and the Coastal Carolina Community College, Jacksonville, North Carolina. Since 1973, the Camp Lejeune sewage plant supervisors have been the instructors for a series of 10-week Waste Water Treatment Classes held at Coastal Carolina Community College. 150 students from throughout Eastern North Carolina have participated in the night classes since September 1973. Twenty-seven of the 35 original students successfully completed all requirements of the course and each was awarded Sewage Treatment Plant Operator Grade II Certification by the State of North Carolina. Most of the training was conducted on campus; however, base sewage treatment facilities were visited on several occasions for special instructions with the laboratory being utilized for the chemical analysis part of the course.

According to the Director of Operator Training for the North Carolina Air and Water Resources Board, the training program was the most successful completed in this field; a comment well received by Camp Lejeune.

Good relations are maintained with local, state, and federal authorities in our efforts to foster the environmental enhancement program at Camp Lejeune.

BIOLOGY STUDENTS RECEIVE "ON THE SCENE" INFORMATION

Disaster averted at CHB

By Sgt. Brenda Lanclos

The fast action of a combined force of personnel from the Marine Corps Engineer School, Base Maintenance and the Base Fire Department turned what was a potentially disasterous situation into a massive "clean up" here Feb. 28.

The incident occurred at 9:45 a.m. when a delivery fuel truck swung too wide at the turn into the Courthouse Bay Service Station. This caused 8,200 gallons of gasoline to shift to one side tipping the tanker into a covert.

The driver of the tanker kicked out the window and left the truck. He was later treated for minor injuries at the Courthouse Bay Dispensary and released.

Approximately 5,000 gallons of fuel was spilled into the ditch. Immediately, Marines from Engineer School were called in to begin hand shoveling dirt to form a dam that would prevent seepage of the fuel into the outlying areas. They were summoned by Frank A. Hinton, assistant manager of the Service Station.

Shortly afterwards, the Base Fire Department, sprayed the ditch with light-water which lowered the combustion level of the fuel, and began a mopping up exercise. Base Maintenance cleaned up the area and uprighted the toppled tanker.

Mr. Julian I. Wooten, Base ecologist, praised the teamwork, stating "Because of the quick response, the fuel was prevented from flowing into the Courthouse Bay Housing area, which could have caused a fire hazard and also lead to the pollution of New River."

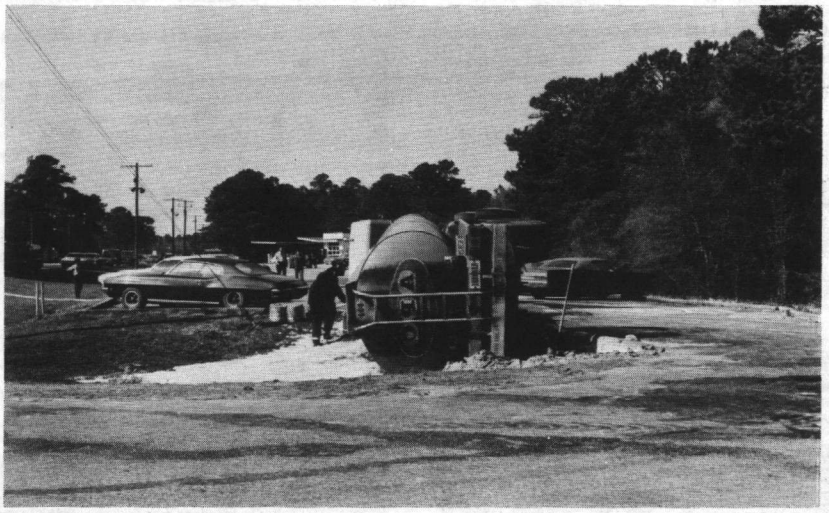


Photo by Sgt. D.M. Sullivan

TOPPLED TANKER — Approximately 5,000 gallons of fuel from an overturned fuel truck was spilled into a ditch located at the entrance to the Courthouse Bay Service Station, Feb. 28. Members of Engineer School, Maintenance and Fire Department diverted and cleaned up the potential disaster.

Nurturing our natural resources--ecology

By Sgt. Tom Griggs

This year, Marine Corps Base, Camp Lejeune, was selected as the Marine facility conducting the best work in protecting our surroundings. The award was the 1974 Secretary of the Navy's Environmental Protection Award.

A number of persons at Camp Lejeune were asked what they thought about environmental protection. Some related it to clean air, a few to ecology, but most did not know its meaning.

The individuals who related ecology to environmental protection were right. They are related.

"The word 'environment' means our surroundings," said Carroll F. Russell, director of Natural Resources and Environmental Affairs at Lejeune, "and ecology is the study of our surroundings."

Air pollution control, water pollution control, sewage treatment, oil pollution prevention, forest, fish and wildlife management are all areas of environmental protection.

These areas were covered by numerous departments and personnel who devoted much planning and talent to achieve this year's award. The ingredients came mostly from the Natural Resources and Environmental Affairs Division (NREAD), Utilities Division and other sections of Base Maintenance.

Management is handled mainly by NREAD. It is rather like a foundation for the overall environmental protection program at Camp Lejeune.

Organized in October 1972, NREAD employs professional people to conduct work in forest, fish and wildlife management, oil pollution control and other aspects of keeping our surroundings livable and enjoyable.

By directing the operation of effective water and sewage treatment plants, the Utilities Division can also be noted as a major contributor to a better Lejeune environment. The director, James E. Herndon, helps lead the fight against water and air pollution.

"We operate seven sewage treatment plants that effectively clean waste products before being discharged into New River," said Herndon. "After being inspected by the State Environmental Protection Agency (EPA), we were the first location to receive discharge permits.

"As far as air pollution is concerned," Herndon explained, "all our heating plants were converted to burn 100 percent oil rather than coal, which means much less waste released into the air."

Also in relation to air pollution, Russell noted, "We aren't too concerned with air pollution here. EPA tells us that our major air pollution comes from automobiles. In comparison to large cities, Lejeune has no real problem."

Oil has been a big pollution problem in the past, according to Russell.

He reflected, "A base as large as this uses large amounts of fuel — gasoline, diesel fuel, motor oil and more. There are opportunities in a large scale operation like this for much pollution to take place.

STILL WATER RUNS DEEP — And hopefully clean, is on the mind of this Utilities Division employee who's collecting water samples in New River. Regular collection sites on the river have been established by the Environmental Protection Agency.

"For instance," he continued, "around a typical motorpool, we find people performing all types of maintenance involving oil, and before we became conscious of pollution by oil, no doubt disposal was handled carelessly."

Things are different now. Assisted by Base Ecologist, Julian Wooten, Russell has seen that waste oil is disposed of properly and persons using oil are instructed as to its use and disposal.

Conservation of our forests, fish and wildlife is accomplished through the joint efforts of Ralph Gurganus, base forester, and Charles Peterson, fish and wildlife manager. These two professionals fall under Russell's direction and have numerous forestry and wildlife aids and technicians under their own direction.

The base ecologist coordinates work concerning some of our wildlife. His studies include endangered species living aboard the base. He has also researched Camp Lejeune's black bear population.

To round out the environmental protection effort, certain phases are handled by other sections on base. For example, noise control has been improved through the work of the Hearing Conservation Center of the Base Medical Department. Another phase, pesticides control, is the responsibility of the Base Medical Officer, while correct use is carried out by Base Insect Vector Control.

Apart from Lejeune's everyday workers involved in areas of environmental protection, an Environmental Enhancement Committee was organized to help recognize certain problems.

"This committee consists of representatives from Base, Division and Force Troops, president of Rod and Gun Club, Base Maintenance Officer, Public Works Officer and others," commented Russell.

"We meet at least quarterly," he said, "and discuss environmental affairs, anything dealing with natural resources, or concerns about hunting and fishing areas."

All these people are important for the proper management of our environment aboard Camp Lejeune. However, we shouldn't let them do all the work.

"I think there's something everyone can do," Russell suggested. "The Marine in a motorpool should be sure oil is used and disposed of properly. Troops in the field can clean up after exercises. And everyone should take care not to throw trash out of cars. These are just a few ways."

We all can take care of our Camp Lejeune surroundings and take genuine pride in the 1974 Secretary of the Navy's Environmental Protection Award.

PITCHING IN — This auto passenger knows what's happening in environmental protection by putting trash in one of the "Pitch In!" containers on Holcomb Blvd. Everyone can pitch in for a better Lejeune environment.

Beetles attack trees

Nature lovers might be wondering why trees are being cut in areas along the Main Service Rd. and Brewster Blvd.

According to Carroll F. Russell, director of Natural Resources and Environmental Affairs, the trees are being harvested because they've been infested by southern pine beetles.

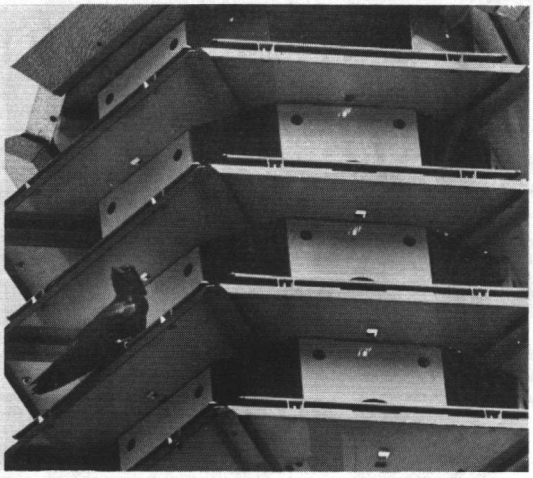
"We have a very serious southern pine beetle problem," Russell said. "Our timber is steadily struck by the beetle, and we must continue selective cutting of infested trees.

"If the infested trees aren't removed before they die, the resource, or useful benefit of the timber, is lost.

"Also," he concluded, "I'm sure people don't want to look at dead trees along our roads."

Mosquito munchin' martins coming

Story and photo by Sgt. Tom Griggs



Mosquito exterminators are now arriving at Camp Lejeune, according tc Carroll F. Russell, Natural Resources and Environmental Affairs Division NREAD Base Maintenance.

"Each one can eliminate 2000 mosquitos per day," said the director of NREAD.

Each exterminator weighs only a few ounces and is equipped with feathers and a beak. They are birds, Purple Martins to be exact, and they have just returned from their winter migration to Brazil.

"Their diet is 100 percent insects, mostly mosquitos," Russell explained. "They are very desirable members of our wildlife here because of that voracious appetite for mosquitos."

To increase the Purple Martin population aboard Lejeune, NREAD has erected five large Martin houses on base. In addition, more than 20 hollow gourds were set up to serve as martin homes.

Gators... making a comeback

Story and photo by Sgt. Tom Griggs

While fishing for largemouth bass along Southwest Creek last Saturday, I almost caught more than I bargained for. I was casting a green rubber frog, skipping it across the top of the water.

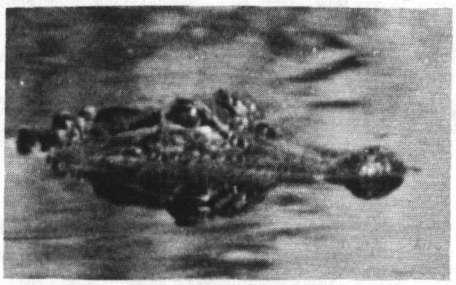
Patiently waiting for a sudden strike from a bass, my patience turned to surprise when an ugly reptile broke the surface of the water and began following the artificial frog.

The 3-foot alligator stopped about 15 feet from the boat. I don't know if he was hungry for a frog dinner, or just wanted to keep intruders out of his territory. Regardless, I shot a few photos and departed before the young gator's old man arrived.

A couple of decades ago, pluggin's for gators might have caught on as an exciting new sport. Then they were legally hunted, with attractive prices being offered for their hides.

But by the early 1960's, a drastic decline in alligator populations forced closed seasons. Where alligators were once plentiful from the Carolinas south to the Gulf, they were suddenly dangerously reduced.

The American alligator was finally added to the Endangered Species List in 1969. It has remained there since, but conservation authorities say the alligator is making a strong comeback.



LOCAL NEIGHBOR — This reptile frequents the Southwest Creek area. Experts say the alligator is making a recovery from near extinction.

According to base conservationists here, alligators are rather common, though very shy, in the upper reaches of Lejeune's streams. No population figure has been determined, but they believe there are many more than were here 20 years ago.

Alligators on Camp Lejeune have good natural habitat and have never been harrassed by poachers. If their population potential here has not reached a peak, they should continue to grow in number.

This reptile has the ability to sneak attack its prey. It can lay in wait or swim from behind with only its nostrils and eyes above the water. So, if you notice a set of iridescent eyes and two suspicious nostrils trailing behind your fishing lure, reel in fast... Or you might end up with a furious alligator on the end of your line.

Sea turtles crawled beach before the Marines

For more than three decades, Marines have stormed the shores at Onslow Beach here in simulated assaults. But for thousands of years, before Marines ever set foot here, 300-pound Atlantic loggerhead sea turtles have been crawling onto the same beach in the dark of summer nights to lay eggs.

According to Base Ecologist Julian Wooten, the turtles have a problem. They are faced with a dangerous population decline and are on the North Carolina endangered species list.

Wooten explained that their enemies are both natural and mam-made. Wild predators ransack their nests of eggs. And man's development of the coastline has destroyed many natural reproducing areas.

"We have tried to protect every turtle nest on Onslow Beach this year," claims Wooten. "Wire cages were placed over all the buried eggs we could locate. The mesh is small enough to keep out predators and big enough to allow newborn turtles to crawl out when they hatch."

It was another story last year. The ecologist believes that 80 to 90 percent of all eggs on Onslow were destroyed by raccoons, foxes, opossums and even wild house cats. This year, only two nests have been tampered with by raccoons.

"The Atlantic loggerhead is not alone on the endangered species list," Wooten pointed out. "Four others are included on the State's roster, and three of those are on the Department of the Interior list."

One of those, the green sea turtle, also visits the waters off Lejeune's beach says the base ecologist, but only the loggerheads crawl ashore here to deposit clutches of their round, leathery eggs.

The plight of the great marine reptiles has prompted Wooten to conduct research in conjunction with the Institute of Marine Science, Morehead City, a facility of the University of North Carolina. Besides protecting each nest, the ecologist counts the number of eggs and sends the data to Dr. Frank Schwartz at the Institute.

Wooten's most interesting field research has taken place on the beach at night. That is when the turtles leave the sea for the sand to carry out nature's beckoning to reproduce.

The ecologist explained that a turtle will slowly crawl out of the surf to the first line of sand dunes. There it digs a deep, narrow hole to deposit its eggs. Finally, it carefully covers and tries to camouflage the almost perfectly round pit.

As the turtle completes its laying process and moves toward the surf, Wooten turns the turtle on its back. He measures the length and width of its body, head and flippers and approximates its weight. The work concludes after the ecologist drills a hole in the hard shell and wires on a small tag. The tag is marked with the address of the Institute at Morehead and a reference number. Then the turtle is released to the ocean.

"All this data is also sent to Dr. Schwartz," Wooten said. "If the turtle is accidentally caught in a fishing net, or found dead on some beach, it is hoped that persons involved will return the tag or send information of where the turtle was located.

"The tag number will refer Dr. Schwartz to our previous data and exactly where the turtle was tagged. We hope in this way to learn more of the Atlantic loggerhead's migratory range."

Most of the night work has taken place during the full moons of June and July when the turtles visit the beaches in the greatest numbers. A few also trickled in during the four nights of August's full moon.

Over the entire 3-month span, at least 77 turtles came ashore, according to daily checks of turtle tracks on the beach. Only 40 nests were found, proving that not all the turtles succeed in laying eggs.

With each nest averaging a clutch of 100 eggs, Wooten says that more than 350 eggs have been buried in the sand at Onslow Beach. "Approximately 200 of those have been transplanted into containers to be incubated in the wildlife management building here," he added. "They were removed from nests which were dug too close to the surf."

Thus far, 85 of those 200 eggs have hatched. The newborn turtles were released on the beach at night, just as called for by nature. And several clutches on the beach have hatched out. In at least one case, beach goers have been on hand to watch the miracle of nature. The base ecologist hopes others, who might also witness the marvel, do not disturb the tiny turtles' instinctive trip from the nest to the sea.

"Unfortunately," Wooten pointed out, "not many of the newborn reptiles survive. Some don't ever hatch. The many that do, face hazards between the nest and water. They are picked off by ghost crabs, sea gulls and even raccoons and foxes if they're on the spot. And in the water, they are pitted against fish like sharks and blues."

The turtle researcher believes the survival rate is not more than 10 percent. He says that maybe even as few as one or two percent survive in many cases.

One fact that has pleased the base ecologist is that people visiting the beach and Marines training there haven't disturbed any of the protected nests. He thinks most of the clutches will hatch safely over the next month if the public continues its respect for the endangered species.

Already expanding on research next year, Wooten plans to contact conservationists in Florida. He wants to acquire eggs of the green sea turtle from areas there and transplant them on Onslow Beach.

According to Wooten, a sea turtle returns to its place of birth to reproduce and lay eggs. If the green sea turtle can be successfully hatched here, then possibly the undeveloped beach at Camp Lejeune will provide another nesting area for the endangered green turtle.

A FIGHT FOR SURVIVAL is what this newborn sea turtle faces as it scrambles toward the sea from its beach sand nest. It's a long way when pitted against hungry sea gulls and raccoons. And if it makes it to the water, it must survive predators like sharks. Few make it. (USMC photo by Sgt. Tom Griggs)

Marines study sea turtles

CAMP LEJEUNE — The huge Atlantic loggerhead sea turtles have departed for warmer waters. All summer the Marine reptiles have lumbered ashore during the night at Onslow Beach here and other nearby beaches to lay eggs.

Many things were learned about the loggerheads as the base ecologist, Julian Wooten, conducted field research. The tagging, weighing and measuring of turtles which came ashore during many nights was a cooperative effort between the ecologist and base wildlife section.

One group of Marines played a vital role in the sea turtle study. These men were pilots and crew members of numerous UH1 helicopters from the Marine Corps Air Station (H), New River.

On four days during each month of June, July and August, the helicopter crews flew missions up and down local beaches in search of tracks left by egg-laying sea turtles.

Along on each flight was Base Ecologist Wooten recording the location of each of the distinctive tracks. While it was determined that 77 turtles crawled ashore at Onslow, 23 sets of tracks were left in the sand on Brown's Island, a Camp Lejeune impact area. And on flights as far north as Morehead City and south beyond Wilmington, more than 50 turtle trails were spotted.

All information gathered from the helicopter turtle surveys was forwarded to the Institute of Marine Science at Morehead City. The University of North Carolina facility will use the figures in worldwide research being carried out to learn more about all sea turtles, which are endangered species.

NOT EGG-SHAPED? — Staff Sergeant Mike McGill, a deputy game warden here, takes a close look at an Atlantic loggerhead sea turtle egg from a nest on Onslow Beach. Eggs were counted and reburied. (USMC photo by Sgt. Tom Griggs)

Game Warden: Protects, enforces and promotes safety

Wildlife conservation and land ecology are important areas of concern nowadays. The man whose job it is to regulate and enforce all fishing and hunting on Base is Gunnery Sergeant Boyce W. Floyd, NCOIC of the Game Warden's office.

The Base Game Wardens' office works under the Natural Resources and Environmental Affairs Division, Base Maintenance Department, and is located across from the Midway Park Exchange.

Besides GySgt. Floyd, there are three other Game Wardens; Staff Sergeant Krandall A. McCarty, Sergeant Marcell M. Janise and Corporal Michael C. Nethery. There are also six Deputy Game Wardens who assist in the evenings, weekends and holidays. They are Marines who have other MOS's but find time to help out the Game Warden. To qualify, they are interviewed, tested and approved by the Base Maintenance officer.

The Game Wardens administer hunting tests, issue hunting and fishing licenses, patrol the ponds and the wooded areas on Base, protect endangered species from poachers and remove road-killed animals.

"When we have the time," said the gunny, "we also lend a hand to the Natural Resources and Environmental Affairs Division in tagging bears, planting trees, stocking fresh water ponds and other ecology projects."

"My men and I spend about 95 percent of our time while on patrol with four wheel drive vehicles in backwood areas of the Base," Floyd said.

There are eleven fresh water ponds on Base, ranging from Henderson Pond located near the Base entrance to Power Line Pond off Highway 172. The ponds are well-stocked with largemouth bass, catfish, brim and one alligator.

The alligator is an old friend of Gunny Floyd's.

"We see the gator called "Old Charlie" from time to time while checking the ponds. He roams from pond to pond and surprises us everytime he splashes into the water," stated Floyd.

Charlie, about four feet long, is an endangered species and the Game Wardens are concerned for his safety.

Fishing regs

Base regulations require that military personnel and their dependents must purchase a permit for fishing the fresh water ponds. The cost of the permit is only $1 and can be obtained at the Game Warden's office.

"Many people don't understand the rules concerning what type of bait they can and cannot use," Floyd pointed out. "A Base permit still doesn't allow a fisherman to use artificial bait unless he also has a state or county license."

Fishing can still be done with worms or any other type of live bait except minnows.

Gunny Floyd warns, "The use of trot lines or set hooks along with nets or explosives on Base ponds are also prohibited."

There is also a size limitation to the bass. Each fish must be over 12 inches long, and the limit is eight per day.

Photo by LCpl. Greg Hill

ASSIGNING PATROLS — Gunnery Sergeant Boyce W. Floyd, head game warden at Camp Lejeune, assigns Sergeant Marcell M. Janise (left) and Corporal Michael C. Nethery patrols for the day. While on patrol, the Game Wardens search for civilian vehicle tracks, traffic on unauthorized areas, fishermen without permits and signs of poachers.

Hunting is also a major concern to the Game Warden. To protect the hunter, Base regulations require him to check into the Game Warden's office before going out to the field. There he will be issued an area permit for the specific section he wants to hunt. He must return the pass, an hour after sundown, if he doesn't, the Game Wardens know he is in trouble and can begin searching for him.

"More sports for more people and an equal opportunity for all to enjoy it"

While hunting, beware of the black bears you see on Base. Camp Lejeune is a bear sanctuary and they are protected. Approximately 60 bears are living here now and they range in size from small cubs to over 350 pounds.

Deer are also in abundance on Base and hunting is permitted during season. One of the Game Warden's responsibilities is the removal of dead deer killed by motorist.

Fishing and hunting can be a lot of fun on Base and the Game Warden will be around to insure that it is safe and within Base regulations.

The overall goal of the Game Warden's office is to help provide "more sport for more people and an equal opportunity for all to enjoy it." Emphasis is placed on fair and impartial wildlife laws enforcement. Their desire is to reflect good public service through Marine Corps personnel and the civilian people.

Harrison and Black... doing book on beetle broods

Story and photo by SSgt. Tony Delgado

In the past two years the southern pine beetle has caused many acres of pine here to be cut and sold.

Presently there is little known about the habits of the southern pine beetle. The life cycle starts between May and March ending by November. Thirty to 40 days after mating the first beetles appear, averaging 15 to 20 beetles in a brood. Two adults, producing 20 young, can create a generation of 20,000 beetles. There may be seven generations born a year, each of which may increase five to 10 fold.

PINE BEETLES — Ken Harrison Base Forester and Peter Black Assistant Base Forester are joining forces with researchers from the U.S. Forest Service and the North Carolina State University to study the southern pine beetle and develop methods of control.

Peter Black, Assistant Base Forester, notes that in 1974 salvageable pine was sold for $880,000 and the pine harvested in 1975 was worth only $268,000 due to the increase in the beetle population.

Black points out that the beetle attacks the pines during times of stress, such as drought, flooding, overstocking, disease, wild-fires, lightning strikes, etc.

The crown (top) of the pine turns a yellowish color and pitch tubes are formed along the stems, where the beetles have entered the tree. Under the bark an S-shaped pattern of grooves is formed by the burrowing insect.

Black said that a method of salvage, an increase in natural predators, and weather conditions have greatly reduced the beetle population. Black explained that a new method of control called the "cut and leave it system" is being considered. This is a method by which an infected area is identified and then cut down and left for a period of one year.

"Remember," says Black, "these areas that are harvested are not completely cleared of all trees. Only those infected pines that can be salvaged are removed. All hardwood trees and unaffected pines are left to provide the needs of wildlife. Also the areas are not left completely alone. Periodically the areas are checked to insure that the beetles have not returned and to see if any natural reseeding has occurred."

"Preventing the spread and reducing the Beetle population."

"If nature has taken it's course we may not go back into an area and plant. We will enter an area after one year and plant the species best suited for that area if necessary," Black said.

The purpose behind the "cut and leave it system" is to prevent the spread and reduce the population of the beetle. This method of control and another using an insecticide spray dispersed by helicopter will be studied here.

The study of beetle control methods will be conducted by representatives of the U.S. Forest Service. These studies are scheduled to begin in October. The research will be done at random in areas throughout the base.

Further research in the habits and damage caused by the beetle is being conducted by the North Carolina State University (NCSU) on an 11,500 acre tract of land set aside under government grant.

These studies are being conducted to obtain information on the rate of decay of the beetle-killed pine and to develop economically sound management recommendations concerning the use of this timber. This information will also establish guidelines for determining the value of infected timber in the field.

NCSU is also doing research in the habits of the beetle to find adequate sampling techniques for studying changes of the beetle population in trees. From this research predictions can be made of further population growth.

"We believe that this type of multi-research and cooperative effort will lead to further understanding of the complex southern pine beetle problem," concluded Black.

APPENDIX A

BASE ORDER 11080.2

MANAGEMENT OF NATURAL RESOURCES; ENVIRONMENTAL QUALITY AND PEST CONTROL

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO
BO 11080.2
15G/CFR/lp
8 Mar 1973

BASE ORDER 11080.2

From: Commanding General
To: Distribution List

Subj: Management of Natural Resources; Environmental Quality and Pest Control

Ref: (a) MCO P11000.8
(b) BO 1710.20D
(c) BO 11015.2E
(d) BO 11090.2E
(e) BO P11102.1G
(f) BO 11350.1E

1. Purpose

a. To provide guidance and instructions for the implementation of an integrated Multiple-Use Natural Resources Management Program as established in reference (a).

b. To establish policy regarding evaluation and management of renewable natural resources, recognizing the interdependence of the related natural resource disciplines and their relationship with enhancement of the environment.

2. Background

a. The National Environmental Policy Act of 1969 (Pub. Law 91-190) declares that "it is the continuing policy of the Federal Government, in cooperation with state and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans."

b. Executive Order 11514, "Protection and Enhancement of Environmental Quality," of 5 March 1970 directs Federal agencies to provide leadership in protecting and enhancing the Nation's environment to sustain and enrich human life. In addition, Federal agencies shall initiate measures needed to direct their policies, plans, and programs so as to meet national environmental goals.

3. Policy. It is the continuing policy of the Commanding General to promote restoration, improvement, and preservation of renewable natural resources and other environmental assets through wise use and management in cooperation with Federal, state, and local resource-oriented agencies. The land and water of Camp Lejeune will be managed to protect and conserve the watershed and natural landscapes, soil, beneficial forests and timber growth, and fish and wildlife as vital elements of an optimum natural resources program.

4. Public Access. Provisions will be made for controlled public access to land and water areas of this Base suitable for hunting, fishing, boating, and other recreational activities except where a specific finding has been made that a military mission requires a suspension of such use. Such access will be within manageable quotas (first-come, first-served basis), subject to safety requirements and military security, and at such times as such access can be granted without bona fide impairment to the military mission. Reference (b) provides detailed instructions for public access.

5. Responsibility

a. Assistant Chief of Staff, Facilities, shall exercise staff cognizance over all matters pertaining to management of natural resources.

b. Base Maintenance Officer is responsible for:

(1) Formulating and maintaining current the Long Range Multiple-Use Natural Resources Management Plan and annual operational plan thereto, and the cooperative plans for development of Soil and Water Conservation and Fish and Wildlife Management Programs at Camp Lejeune.

(2) Management of all natural resources.

(3) Supervision and/or coordination of all natural resources activities.

(4) Preparation and submission of reports as required.

(5) Liaison with Federal, state, and local conservation agencies on matters dealing with natural resources.

(6) Control of collection and expenditure of monies obtained from Base hunting and fishing permits.

(7) Employment of adequate measures to control insects, rodents, and other pests affecting the health, morale, efficiency, and comfort of personnel aboard the Base; prevent the loss of material and eliminate extensive and rapid deterioration of buildings and other structures; and avoid damage to grounds, forested areas, and other real property.

6. Base Environmental Enhancement Committee. Regulations governing the Base Environmental Enhancement Committee are contained in reference (c).

7. Natural Resources Conservation and Environmental Quality

a. Conservation and wise use of soil, water, vegetation, and wildlife is of vital concern to all personnel at Camp Lejeune. Proper utilization and protection of land and water resources is primarily the responsibility of Area Commanders in their respective areas. Technical assistance in this endeavor will be furnished upon request by the Base Maintenance Officer.

b. Disposition of waste oil and other hazardous substances shall be in accordance with reference (d).

c. Police of training facilities shall be in accordance with paragraph 201.3 of reference (e).

d. The taking of any fish or wildlife aboard Camp Lejeune will be in accordance with reference (b).

e. Drilling and construction of water wells either for observation, Base supply, or field supply will not be initiated without prior approval of the Base Maintenance Officer.

f. It is recognized that military activity is inherently destructive to land resources, and some damage or wear-and-tear is a natural result of field operations. Commanding officers will make every reasonable effort, however, to avoid unnecessary damage incidental to field training under their control.

(1) Tactical vehicle operators will utilize existing roads and tank trails and will operate off the existing roads and trails network only with the approval of the commanding officer concerned.

(2) Training of engineer troops in earth moving operations will be restricted to specific areas assigned by the Commanding General. Construction or housekeeping projects involving heavy equipment work by engineer troops will be performed only as assigned or approved by the Commanding General.

(3) Soil displaced in official training operations, such as gun positions, foxholes, etc., will be restored as nearly as possible to its original condition by the using unit at the conclusion of each exercise.

g. Establishment or use of borrow pits for the removal of fill dirt, sand, or clay is not authorized without prior approval of the Base Maintenance Officer.

h. Areas established and so marked as wildlife food plots will not be used in any training exercise involving the use of wheeled or tracked vehicles, nor as tactical landing zones by helicopter. The soil will not be disturbed in any way.

i. Cutting, damaging, transplanting, or removal of trees, shrubs, or other plants, or the use of herbicides for the control of vegetation is prohibited except as authorized by the Base Maintenance Officer, or as authorized and conducted on a programmed basis by the Base Maintenance Officer.

j. Prescribed or controlled burning will be conducted only by Base Forestry personnel under cognizance of the Base Maintenance Officer.

k. Refuse disposal will be accomplished in accordance with reference (f).

8. Action. Addressees are requested to familiarize themselves with the contents of this order to further develop and foster attitudes of conservation, protection, and enhancement of environmental assets throughout Marine Corps Base.

9. Applicability. Having received the concurrence of the Commanding General, 2d Marine Division, FMF; Commanding General, Force Troops, FMFLant; Commanding Officer, Naval Hospital, Camp Lejeune; and Commanding Officer, Marine Corps Air Station (H), New River, this order is applicable to those commands and all civilian personnel employed on the Base or using its facilities.

D. T. KANE
Chief of Staff

DISTRIBUTION: "A".

HEADQUARTERS, MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

BO 11090.1 Ch 1
15B/BWE/le
4 Jun 1974

BASE ORDER 11090.1 Ch 1

From: Commanding General
To: Distribution List

Subj: Spill Prevention, Containment, and Countermeasure Plan for Oil and Other Hazardous Substances

1. Purpose. To promulgate a pen change to the basic Order.

2. Action. Page 2, paragraph 5, change the period to a comma and add "and the Marine Corps Air Station (H)."

W. PLASKETT, JR.
Chief of Staff

DISTRIBUTION: "A" less 4, 5, and 6 Cat IV

APPENDIX B

BASE ORDER 11090.1

SPILL PREVENTION, CONTAINMENT, AND COUNTERMEASURE PLAN FOR OIL AND OTHER HAZARDOUS SUBSTANCES

MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

BO 11090.1
15A/CFR/lp
29 Sep 1972

BASE ORDER 11090.1

From: Commanding General
To: Distribution List

Subj: Spill Prevention, Containment, and Countermeasure Plan for Oil and Other Hazardous Substances

Ref: (a) MCO P11000.8
(b) BO 5100.13A

Encl: (1) Spill Prevention and Containment Plan
(2) Contingency Spill and Countermeasure Plan

1. Purpose. To publish the Spill Prevention, Containment, and Countermeasure Plan for Oil and Other Hazardous Substances for Marine Corps Base, Camp Lejeune, North Carolina, and assist the Commanding General in the implementation of reference (a) with respect to pollution abatement.

2. Policy. It is the continuing policy of the Commanding General to actively participate in environmental pollution abatement and take positive planning and programming action to control petroleum products pollution on this Base from installations, equipment, vehicles, and other Marine Corps facilities. This Base will conform to the provisions of the Oil Pollution Act of 1961, as amended, and the Federal Water Pollution Control Act, as amended, insofar as the acts prohibit the discharge of oil and regardless of whether the acts pertain specifically to naval vessels and shore activities. The intent of this policy is to prohibit the discharge of all oil, oily mixtures, and other hazardous substances except in designated areas by qualified personnel.

3. Responsibilities

a. Base Maintenance Officer is charged with the overall responsibility of carrying out the various measures of this order.

(1) Environmental Control Director (telephone 5003) is responsible to the Base Maintenance Officer for the day to day monitoring, surveillance, and up-channel reporting of events concerning pollution caused by oil or other hazardous substance spills.

b. Area/Unit Commanders are charged with the responsibility of preventing spills of oil or other hazardous substances within their own areas/units and will develop local plans for containment in case of accidental spills.

c. Base Fire Chief or his senior representative will act as the On-Scene Coordinator (OSC). He will make the initial response to any contingency spill and will be in overall charge at the scene until relieved by the arrival of the Environmental Control Director.

4. Action. Discharge of oils or other hazardous substances into ditches, culverts, or receiving streams is prohibited. Special attention will be directed to areas where vehicles and equipment are serviced. Cognizant officers will take necessary action to assure compliance. Area/Unit Commanders shall conform to the standards and criteria as set forth in enclosures (1) and (2).

5. Applicability. Having received the concurrence of the Commanding General, 2d Marine Division, FMF; the Commanding General, Force Troops, FMFLant; and the Commanding Officer, Naval Hospital, Camp Lejeune, this order is applicable to those commands and all civilian personnel employed on the Base or using its facilities.

D. T. KANE
Chief of Staff

DISTRIBUTION: "A" less 3,4,5,6 Cat IV

SPILL PREVENTION AND CONTAINMENT PLAN

1. Oil spill prevention is the responsibility of all organizations/activities. Each unit commander will ensure all personnel are indoctrinated in order to make them thoroughly conscious and aware of the environmental impact of oil spills and other hazardous substance discharges.

2. All activities will guard against the creation of possible oil spills and hazardous substance discharge situations and necessary action shall be taken to assure containment.

3. Disposal of oil, gasoline, kerosene, paint thinner, organic solvents, deteriorated cleaning solutions, poisonous chemical waste, corrosives, acids, and pesticides through any drainage system (either surface or subterranean) is prohibited. Waste oil will be disposed of in accordance with paragraph 7 below. Other substances mentioned herein will be disposed of as outlined in reference (b).

4. Disposal of empty or damaged containers of all types in wooded areas, drainage ditches, and other areas that might cause environmental damage is prohibited. All empty 55-gallon drums will be disposed of through Redistribution and Disposal Branch, Base Materiel Battalion. Other containers will be disposed of at the sanitary landfill, or prepared for recycling if practical.

5. Storage of pesticides, insecticides, herbicides, and other hazardous materials shall be in a secure area. They shall be neatly stacked and labeled to provide easy identification and ready access. All storage areas shall be provided with adequate mechanical ventilation. They shall be dispersed under the supervision of certified personnel as outlined in reference (b). Used containers of these materials shall be punctured or crushed so as to prevent reuse and disposed of at the sanitary landfill.

6. Oil and gasoline storage tanks larger than 500-gallon capacity will be properly diked. The dike will be properly equipped with a

drainage line and valve(s). Only authorized personnel will be permitted to open and close said valve(s). After each drainage, the valve(s) will be closed and locked.

7. Waste oil will be collected in a tank of at least 250-gallon capacity equipped with a funnel, strainer, and cover so as to prevent entrance of trash, water, and other foreign matter. When the container requires emptying, the officer in charge will call Base Maintenance Department (telephone 3001) and a truck will be dispatched to remove the oil.

ACCIDENTAL SPILL AND COUNTERMEASURE PLAN

1. Reporting. Spills, accidental or otherwise, of oil or other hazardous substances will be reported immediately to the Base Fire Department (on Base - telephone 3333/off Base - telephone 451-3333) giving location, substance spilled, and approximate amount.

2. Response. Upon receiving a report of a significant oil or other hazardous substance spill, the Base Fire Department will dispatch a regular fire fighting unit to the scene. The Base Fire Chief or his senior representative will also report to the scene as soon as possible. Upon arrival, the Base Fire Chief or his senior representative will:

a. Assume the role of On-Scene Coordinator (OSC).

b. Take necessary steps to eliminate any fire hazard developed from the spill.

c. Notify Environmental Control Director (telephone 5003).

d. Evaluate the situation and request necessary logistic support from the Base Maintenance Officer to contain the spill and facilitate recovery or mopping up action.

e. Upon arrival at the scene, the Environmental Control Director or his representative will assume command and will direct further containment and clean-up activities.

3. Supplies and Materials. Base Maintenance Officer will provide the basic materials and equipment necessary to contain and mop up on-Base spills. The U. S. Coast Guard will be contacted for equipment and assistance in the event of a major spill.

4. Reports. A report of oil spills and other hazardous substance discharges in the inland navigable waters of the United States and the coastal waters including between 3 and 12 miles from the coast

will be made immediately by the Environmental Control Director or his representative to:

a. Base Maintenance Officer.

b. Assistant Chief of Staff, Facilities, Marine Corps Base.

c. Captain of the Port, Room 101, Federal Building, Wilmington, North Carolina 28401 (telephone 919-763-9435).

d. Commandant of the Marine Corps.

In every case, a report of the incident will be made to the Commandant of the Marine Corps (Code COA). Incidents of a serious nature, which require urgent action at the Headquarters level, or may result in adverse news coverage or public relations, will be reported by message.

5. Small Spills. Occurrence of small gasoline and fuel oil spills on refueling aprons is very common. Gasoline and fuel oil spilled on refueling aprons will not be flushed into any ditch or storm sewer. To reduce the pollution and fire hazard, the spill will be covered with sand obtained from a nearby storage bin. As the sand absorbs the fuel, it will be taken up and returned to the storage bin after evaporation or placed into the sanitary landfill as required. Sand can be obtained by calling Base Maintenance Department (telephone 3001).

6. Restoration of Damaged Area. Grounds around grease racks and maintenance buildings that have been severely damaged by oil and grease will be restored to their natural state. If necessary, the contaminated soil will be removed and replaced with clean soil and reseeded.

APPENDIX C

BASE ORDER 11090.2

AIR POLLUTION EMERGENCIES

HEADQUARTERS, MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

BO 11090.2
4B/LD/mkc
31 Oct 1972

BASE ORDER 11090.2

From: Commanding General
To: Distribution List

Subj: Air Pollution Emergencies

Ref: (a) MCO P11000.8
(b) Article 21 of Chapter 143, General Statutes of North Carolina (Rules and Regulations Governing the Control of Air Pollution)

Encl: (1) Definitions
(2) Episode Criteria and Action to be Taken

1. Purpose. To publish regulations to prevent the excessive buildup of air contaminants during air pollution episodes, thereby preventing the occurence of an emergency due to the effects of these contaminants on the public health, in accordance with the instructions contained in references (a) and (b).

2. Policy. It is the continuing policy of the Commanding General to actively participate in environmental pollution abatement and to take positive planning and programming action to prevent air pollution.

3. Responsibility. The Assistant Chief of Staff, Facilities is charged with the overall responsibility of coordinating the various measures of this Order.

4. Action. Cognizant officers will take the necessary action to ensure compliance with this Order.

5. Applicability. Having received the concurrence of the Commanding General, 2d Marine Division, FMF; the Commanding General, Force Troops, FMF, Atlantic; the Commanding Officer, Marine Corps Air Station (H), New River; and the Commanding Officer, Naval Hospital, Camp Lejeune, this Order is applicable to those Commands.

D. T. KANE
Chief of Staff

DISTRIBUTION: "A"

DEFINITIONS

The North Carolina Water and Air Resources Board, under authority of Article 21 of Chapter 143 of the General Statutes of North Carolina, as amended, has adopted a regulation relating to air pollution emergencies. Some of the terms within this Act are provided as general information:

1. Ambient Air: Means that portion of the atmosphere outside of buildings and other enclosures, stacks, or ducts, and which surrounds human, animal or plant life, or property.

2. Combustible Material: Means any substance which, when ignited, will burn in air.

3. Dustfall: Means particulate matter which settles out of the air and is expressed in units of grams per square meter per 30-day period.

4. Garbage: Means any animal and vegetable waste resulting from the handling, preparation, cooking and serving of food.

5. Incinerator: Means a device designed and engineered to burn solid, liquid, or gaseous waste material.

6. Opacity: Means that property of a substance tending to obscure vision and is measured in terms of percent obscuration.

7. Open Burning: Means any fire wherein the products of combustion are emitted directly into the outdoor atmosphere and are not directed thereto through a stack or chimney, approved incinerator, or other similar device.

8. Particulate Matter: Means any material, except uncombined water, that exists in a finely divided form as a liquid or a solid at standard conditions.

9. Refuse: Means any garbage, rubbish and trade waste.

10. Rubbish: Means solid or liquid wastes from residences and dwellings, commercial establishments, and institutions.

11. Rural Area: Means any area which is primarily devoted to, but not necessarily limited to, the following uses: agriculture, recreation, wildlife management, state park, or any area of natural cover.

12. Smoke: Means small gas-borne particles resulting from incomplete combustion, consisting predominantly of carbon, ash and other burned or unburned residue of combustible materials that form a visible plume.

Enclosure (1)

EPISODE CRITERIA AND ACTION TO BE TAKEN

1. Conditions justifying the proclamation of an air pollution alert, air pollution warning, or air pollution emergency shall be deemed to exist whenever the accumulation of air contaminants in any place is attaining, or has attained, levels which could, if such levels are sustained or exceeded, lead to a threat to the health of the public. The Assistant Director, Department of Natural and Economic Resources, Office of Water and Air Resources, State of North Carolina will, via the news media, radio, television, etc., inform the State as to such episodes and the area included. Normally, such announcements will be in conjunction with the National Weather Service Advisory that an atmospheric stagnation advisory is in effect or the equivalent local forecast of stagnant atmospheric conditions exist. Normally, these conditions will occur during the summer months, if at all, in this area.

2. The atmospheric stagnation advisories are:

a. Air Pollution Alert - the first level of contamination.

b. Air Pollution Warning - the second level, indicating conditions are continuing to degrade.

c. Air Pollution Emergency - the third level, indicating that stagnation has become a public health hazard.

3. At such time as an atmospheric stagnation advisory is announced, the cognizant officers shall take such action as follows:

a. Air Pollution Alert. The alert level is that concentration of pollutant at which first stage control actions are to be taken.

(1) There shall be no open burning of waste, vegetation, refuse or debris in any form.

(2) The use of incinerators for the disposal of any form of solid waste shall be limited to the hours between 1200 and 1600.

(3) All unnecessary operations of motor vehicles shall be curtailed.

(4) Coal or oil-fired process steam generating facilities shall:

(a) Make maximum use of midday (1200 - 1600) atmospheric turbulence for boiler lancing and soot blowing.

(b) Substantially reduce steam load demands consistent with continuing plant operations.

Enclosure (2)

b. Air Pollution Warning. The warning level indicates that air quality is continuing to degrade and that additional abatement actions are necessary. If announced first, carry out the instructions under Air Pollution Alert, and then the following:

(1) Persons operating motor vehicles shall minimize such use through car pools.

(2) All diesel burning vehicles shall cease to be operated; i.e., only nontactical vehicles burning gasoline will be operated.

(3) All firing of weapons shall cease, to include the Rifle Range operations, and such field firing exercises that may be in progress.

(4) Base Maintenance will prepare to close all steam valves except those providing steam to dining facilities; i.e., reducing steam plant operations to minimum requirements.

c. Air Pollution Emergency. The emergency level indicates that air quality is continuing to degrade to a level that should never be reached and that the most stringent control actions are necessary. If announced first, carry out those provisions of Air Pollution Alert/ Warning, in addition to the following:

(1) The use of motor vehicles is prohibited, except in emergencies with the approval of the Commanding General, Marine Corps Base; the Commanding General, 2d Marine Division, FMF; the Commanding General, Force Troops, FMFLant; the Commanding Officer, Marine Corps Air Station (H), New River; or the Commanding Officer, Naval Hospital, and then only with the approval of the local or State police.

(2) Coal or oil-fired process steam generation facilities will be reduced to absolute necessities consistent with preventing equipment damage, maintaining steam to dining facilities only.

(3) All construction work involving grading or other operations which generate dust shall cease.

(4) All Commissary, Marine Corps Exchange and Special Services facilities will be closed.

(5) All dependent elementary, secondary, high and service schools shall close.

(6) Complete elimination of the use of incinerators.

d. Termination. Once declared, any status reached by application of the above criteria will remain in effect until the criteria for that level is no longer met. At such time, the next lower status will be assumed.

APPENDIX D

BASE ORDER 6260.2

MARINE CORPS BASE HEARING CONSERVATION PROGRAM

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

BO 6260.2
16/JJM/jb
14 Oct 1970

BASE ORDER 6260.2

From: Commanding General
To: Distribution List

Subj: Marine Corps Base Hearing Conservation Program

Ref: (a) MCO 6260.1A
(b) BUMEDINST 6260.6B

Encl: (1) Instructions on Audiometric Hearing Tests, Noise Reduction, and Personnel Protection

1. Purpose. To provide guidance for the establishment of a hearing conservation program, as required by references (a) and (b), for Marine Corps and civilian personnel of the Tri-command, Camp Lejeune.

2. Background

a. The sounds generated by Marine Corps industrial, aviation, training, and other operations reach extremely high volumes and more sounds are continually being added.

b. Potentially harmful noise levels are probably the most significant occupational hazard faced by Marine Corps personnel. Hearing loss may result from continuous or intermittent exposure to loud noises such as those created by aircraft and industrial-type activities as well as the more widely recognized blast and impulse noises which result from gunfire, rockets, or other explosive material.

c. Noise levels above 90 decibels (dBA) are regarded to be potentially dangerous to human hearing. Noise levels generally produced by industrial operations lie within the 80- to 130- dBA range. Jet engine noise may measure 150 to 160 dBA.

3. Scope. The Marine Corps Hearing Conservation Program shall consist of audiometric hearing tests, noise-reduction measures, and personnel protection as described in enclosure (1). This order is applicable to all areas within the Tri-command having high noise level intensities and to all military and civilian personnel employed at Camp Lejeune, North Carolina.

4. Action.

a. Area Commanders and Commanding Officers

(1) Commanding officers are responsible for keeping abreast of all noise hazardous areas within their command responsibilities and shall institute corrective measures for noise abatement and hearing conservation in these areas.

(2) Effect liaison with the Base Medical Officer for noise measurement surveys and recommendations regarding hearing conservation.

(3) Label areas and equipment which are designated as noise hazardous and clearly indicate the mandatory requirement for wearing ear protective devices for all personnel within the perimeter of the noise hazard.

(4) Fund and procure ear protective devices as an organic supply item. Ear protective devices available through Naval supply channels are listed in enclosure (1).

(5) Ensure that all personnel exposed to gunfire, blast and impulse-type noises are wearing ear protective devices.

(6) Ensure appropriate entries regarding size and date of initial issue of ear protective devices are made in service man's health record and Service Record Book.

b. Base Medical Officer

(1) Establish an audiometric testing facility in Building 36.

(2) Effect liaison with appropriate area commanders and commanding officers to implement the provisions of this order.

(3) Advise area commanders and commanding officers regarding medical aspects of Hearing Conservation Program.

c. CIVILIAN PERSONNEL OFFICER

(1) Schedule audiometric tests on all civilian personnel receiving pre-employment and terminated physical examinations.

(2) When the decision is made to assign a civilian employee to an area designated as noise hazardous, schedule him for a reference audiogram prior to actually beginning work in such an environment. Follow-up audiometric tests will be scheduled for the employee one month and six months after employment in his job.

d. Base Safety Officer. See that all Base areas identified as noise hazardous are clearly labeled as to their noise hazards. Labeling must indicate the mandatory use of ear protective devices for all personnel within the perimeter of the noise hazard.

5. Applicability. Having received the concurrence of the Commanding General, 2d Marine Division, FMF, and the Commanding General, Force Troops, FMF, Atlantic, this order is applicable to those commands.

James M. Callender

JAMES M. CALLENDER
Chief of Staff

DISTRIBUTION: "A"
plus BMedO (25)

Instructions on Audiometric Hearing Tests, Noise Reduction, and Personnel Protection

1. Audiometric Hearing Tests

a. Entrance and Separation Examinations. All military and civilian personnel who enter into or terminate service with the Marine Corps shall, to the extent feasible, receive audiometric examinations as a part of their entrance and separation physical examination. Tests shall be given by qualified medical department personnel in accordance with BUMEDINST 6260.6 series. The results of the test and all subsequent tests shall become a permanent part of the individual's health record. In addition, each person (civilian or military) assigned to duty involving exposure to high-intensity noise shall have a reference audiogram on file. This audiogram shall be clearly labeled "reference audiogram" and shall be recorded as such on a Standard Form 600 which shall remain permanently in the individual's health record. Audiometric examinations are conducted at Building 36, Marine Corps Base. Hours for the examinations are 0800-1130 and 1300-1530 each normal working day.

b. Periodic Examination. The hearing of personnel shall be checked at the time of assignment to a high noise area (90 decibels (dBA) or above) if more than 1 year has elapsed since the test in 1a, above. Hearing of personnel assigned to a high noise area shall be checked at the end of 1 month, at the end of 6 months and then reexamined annually, or as necessary whenever significant increases in noise levels occur in the designated area.

c. Personnel Showing Hearing Loss. When, as a result of a periodic examination, a threshold shift in hearing greater than 5 dBA in any of the test frequencies (as recommended in BUMEDINST 6260.6 series) is noted the person shall be considered as prone to hearing loss. A check shall be made to make certain these people are properly fitted with ear protection. They shall be reexamined within 30 days. If the recheck audiogram shows a continuing lowering of hearing acuity, they shall be reassigned to work in areas with noise intensities lower than 90 dBA. The disposition of personnel showing loss of hearing should be decided on an individual basis. In general, the following audiometric changes may be used as guidelines:

Personnel showing threshold changes in excess of 15 dBA at 1000 or 2000 cycles per second (cps) and threshold changes in excess of 20 dBA at 3000, 4000, or 6000 cps above the

original finding (Reference Audiograms) should be rechecked at the start of each workweek. If the changes persist they should be removed from noise hazard areas.

2. Noise Reduction Measures. Noise reduction involved in the hearing conservation program involves major procedures as follows:

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a. Personnel Protective Equipment

(1) Insert-type earplugs or stoppers or circumaural-type muffs shall be worn by all personnel working in high noise areas found to exceed 90 dBA. Where no sound communication is essential to job performance, workers in high noise areas may be protected against noise danger by earplugs. Where sound communication is essential for personnel in high noise areas, circumaural muffs or sound attenuation helmet shall be provided. When the noise level exceeds 120 dBA, a combination of insert earplugs and circumaural muffs should be worn. BUMEDINST 6260.6 series contains current stock numbers for earplugs and sound attenuation helmets.

(2) Marine Corps military personnel shall be issued ear protection (insert earplugs) for permanent retention. Earplugs should be carefully fitted to each prospective user to ensure hearing protection and to gain a more general acceptance by those requiring protection. Fitting for recruits shall be accomplished during the initial physical examination at the recruit depot with the size recorded in each Marine's medical record (actual issue of the earplugs may be delayed until commencement of marksmanship training). All other personnel should be fitted for ear protection prior to participating in any field firing exercises, annual requalification or other high noise areas or operations.

(3) Organizations, units and activities shall issue, as organizational property, ear protectors to all civilian personnel who work in high noise level areas.

b. Noise Source Elimination. Noisy areas should be isolated when possible. It is often possible to reduce sound intensity by the installation of inexpensive sound baffles or sound absorbent materials. Where machinery is the primary source of possible noise hazards it may be possible to substantially reduce the hazard by the replacement of worn or defective parts. Wherever practicable, the attenuation of noise shall be accomplished by engineering of the equipment, facility or operation.

3. Noise Measurement

a. A noise-level meter, and if considered necessary, an octave band analyzer, shall be utilized to determine where noise hazards exist and the effectiveness of noise-reduction measures.

b. When the noise level exceeds 90 dBA the noise environment shall be analyzed by persons competent to perform the task. Requests for noise level surveys in areas suspected as being "noise hazardous" areas should be addressed in writing to the Base Medical Officer, Building 15, Marine Corps Base.

c. Noises of impact or impulse noises, such as gunfire, cannot be accurately evaluated with a sound level meter. However, all personnel exposed to gunfire in training or test situations and artillery fire under any circumstances, shall wear ear protective devices, regardless of the length of exposure.

d. High noise level environments and devices, including mobile support equipment where the noise level exceeds 90 dBA shall be clearly labeled as to their noise hazard. Labeling will indicate the mandatory use of ear protective devices for all personnel within the perimeter of the noise hazard.

4. Funding. Costs of providing required facilities, instrumentation, and personnel protective equipment to implement this program is to be accomplished under regular operation and maintenance funds available to the commander involved.

APPENDIX E

BASE ORDER 4570.1B

TURN-IN OF SCRAP LUMBER; PROCEDURES FOR

HEADQUARTERS, MARINE CORPS BASE
Camp Lejeune, North Carolina 28542

BO 4570.1B
21/CEA/vap
18 Dec 1974

BASE ORDER 4570.1B

From: Commanding General
To: Distribution List

Subj: Turn-in of Scrap Lumber/Disposal of Unsalable Scrap Lumber Stored at the Base Sanitary Landfill; procedures for

Ref: (a) Department of Defense Disposal Manual 4160.21-M of June 1973

1. Purpose. To establish procedures for disposal of scrap lumber/to inform all military and civilian personnel of the procedures to be followed in obtaining unsalable scrap lumber and boxes stored at the Base Sanitary Landfill (located on Sneads Ferry Road) for organizational and/or private use within the Camp Lejeune area.

2. Cancellation. BO 4570.1A and BBul 4570 of 11 June 1974.

3. Background

a. Chapter VI, paragraph 53, of reference (a) states that "used lumber or boxes not required for the foreseeable needs of the generating activity, or in such condition as to be unacceptable for further use, will be disposed of by retail or other sales method." In view of the contents of this paragraph, it has been determined that allowing pick up of scrap lumber and boxes would be in the best interest of the Government, rather than burying the items.

b. Experience has proven, however, that not all scrap lumber or boxes turned in to the disposal activity in the past was salable; therefore, it has become necessary to establish certain restrictions with respect to the turn-in of scrap lumber.

4. Action

a. Activities generating scrap lumber will process such lumber in accordance with the below listed procedures:

(1) Scrap lumber will be grouped in short (6-12), medium (12-14) and long (14 and above) linear feet sizes.

(2) Useable pallets will be stacked.

(3) Scrap lumber, pallets and ammunition boxes will be delivered to Lot #203, after an escort has been obtained from Lot #201, on Tuesday and Thursday between 0830 and 1500. It will be the responsibility of the generating activity to furnish a work party for the purpose of placing the sized lumber in designated areas.

(4) Scrap in sizes less than stated in subparagraph 4a(1) above is not considered to have resale value; therefore, such lumber will be delivered to the Base landfill.

b. Pick up of subject scrap lumber and boxes for organizational and/or private use will be allowed in accordance with the following procedures:

(1) Scrap lumber and boxes may be picked up between 0830 and 1600, Monday through Friday, by contacting the operator of the landfill.

(2) Units or individuals desiring the scrap lumber or boxes assume responsibility for the loading and hauling thereof.

(3) Posted rules and regulations will be observed to ensure noninterruption of normal landfill operations, such as the flow of traffic. Scavenging in the solid waste being buried in the landfill trench is prohibited.

5. Applicability. Having received the concurrence of the Commanding Generals, 2d Marine Division, FMF, Force Troops, FMFLant, and the Commanding Officers of MCAS(H), New River, Naval Regional Medical Center, this Order is applicable to those Commands.

G. C. FOX
Chief of Staff

DISTRIBUTION: "A" plus the Defense Property Disposal
Chief, Camp Lejeune Field Office