Cliffside Seat
Photographs - Ron Church
Lines - Margaret Owings

Three moments -
snapped in an otter's rest, wrapped
in kelp in the brine and drift, in
the slip and slop off Cannery Row
at Monterey Bay!

Closing his eyes -
with blunt little paws, he holds them
tight as fishermen cruise and curse
and shout, with sometimes - a shot.

Closing his ears to
a power boat's whine as
the surge of adrenalin quickens
his heart - a recurrent threat!

And under the water -
he's well aware of scuba rivals
with tanks of air,
prodding like otters for shellfish food.
They prod for fun! He prods to live ...

His courage is buoyant!
His voice is still - as tankers offload
and a spill may kill.

Damned and beleaguered by Fish & Game
for a cutting edge of hunger ...
He muffles his ears, lowers his eyes
and covers his mouth - to slumber.
URGENT!
HELP-needed!
(from all 4000 of our members!)

In the Summer Raft, 1978 we warned that the U.S. Fish and Wildlife Service (FWS) was considering changing the listing of the southern sea otter from Appendix I to Appendix II of the Convention on International Trade in Endangered Species (CITES) — despite designating it “threatened” in January 1977, under the Endangered Species Act.

We responded to this “Advance Notice of Potential Rulemaking”, published in the Federal Register (May 3, 1978), with a strong letter of protest, fully-documenting the reasons for retaining the southern sea otter on Appendix I. With the Endangered Species Act weakened and becoming “endangered” itself, we believe relisting this subspecies on Appendix II, as proposed, could diminish the California otter’s protection against future possible management schemes — such as harvesting of “surplus” animals for international trade. (The DFG, who wants to restrict the otters, already refers to the North and South front groups as “surplus” animals).

As this Raft goes to press the situation has WORSENED! The Department of Interior has failed to publish its revised listings in a “proposed rulemaking” for further comment, as required by its May 3rd FR notice, and without interim notice and public comment has sent off the U.S. proposal to the CITES Secretariat in Switzerland for transmittal to the Party nations — recommending relisting the otter and deletion of other vulnerable native species! This and other irregularities appear to merit serious challenge.

RIGHT NOW, however, those among the otter’s FRIENDS who are alarmed at this chipping away of its protected status (hopefully ALL 4000 of you) should write a brief, strong letter in your own words to President Carter, The White House, Wash. D.C., 20000 and to Secretary Cecil Andrus, Dept. Interior, Wash. D.C. 20240. Ask them to demonstrate their leadership and their concern for threatened wildlife by:

1) requesting that the U.S. Department of Interior immediately reverse its October 5, 1978 recommendation to relist the threatened southern sea otter on Appendix II of the Convention (CITES); and

2) asking that Enhydra lutris nereis be replaced on Appendix I BEFORE the U.S. proposal is put to a vote by the Parties to the Convention.

Emphasize the California otter’s pressing need for more, not less, protection in view of overwhelming threats from present and impending oil activities, as well as other man-induced hazards. Check recent Rafts for supportive information to use in this urgently-needed action.

ENDANGERED SPECIES ACT WEAKENED!

In the waning hours of the 95th Congress, the Endangered Species Act was finally reauthorized for another 18 months. The new version emerging from the House-Senate Conference Committee was a drastic compromise, containing weakening amendments that dismay us greatly. In brief, a 3-member appointed board and a 7-member cabinet-level committee (dubbed the “extinction committee”) will now pass judgment on private and federal requests to exempt projects that could cause the extinction of threatened life forms (e.g., snail darter; southern sea otter). Unfortunately, under the revised Act “critical habitat” designation must be based on economic as well as biological considerations, though critical habitat is strictly a biological concept! On the positive side, penalties for violations of the Act were strengthened, protection for plants increased, and biological assessments to detect endangered species required before a project begins. We wish to thank all of our Friends, and our Congressman Leon Panetta, who tried hard to keep the Act intact!

How does all this affect our otters? Much of their fate now rests with the Office of Endangered Species because this year it assumed the responsibility for coordinating the joint Federal/State translocation of California otters to a site within their former range, away from major oil spill potential. This Office must also determine and designate “critical habitat” for the southern sea otter.

We are proud to receive a Grant for Three-Thousand Dollars from THE WORLD WILDLIFE FUND

October 2, 1978

Wrote Russell Train, President of World Wildlife Fund: “The WORLD WILDLIFE FUND is greatly impressed with the effective work being carried out by FRIENDS OF THE SEA OTTER, and we hope this modest Grant will help sustain that effort.

In view of the many sensitive issues involved in the protection of the sea otter, we consider it of vital importance that your conservation program continue to maintain a strong scientific base and that the technical information developed be communicated effectively both to the public and to policy makers.”
ROUND-THE-CLOCK WITH KISKA

Bobbie Harms

At Seattle's new waterfront aquarium, Kiska, a female sea otter, has been the star of a remarkable and heartwarming little drama in recent months.

Early in 1978 she had mated with Tac, the aquarium's lone male sea otter, and in May her behavior changed, indicating a probable pregnancy.

As successful pregnancies among captive sea otters are exceedingly rare, a decision was made to try setting up a round-the-clock watch over Kiska.

A brief news item on a local TV channel mentioned the aquarium's need for volunteers for this purpose. The response was overwhelming, with 79 volunteers offering their services.

From May 30th to September 12th they put in 1,084 hours altogether in a day and night watch over Kiska. Night shifts were taken by people working offbeat hours who went to the aquarium before or after their regular jobs.

Each person worked a 2-hour shift, keeping a minute-by-minute log of how Kiska spent her time, particularly in four categories, swimming, grooming, feeding, and resting.

The outcome of this singular community effort? When Kiska's behavior reverted to normal in September, she was X-rayed and found to be not pregnant. Aquarium scientists say it was either a false pregnancy, or her fetus was absorbed. So the watch has ended for the time being — though it may be resumed if Kiska or one of the other female sea otters again exhibits maternal behavior.

SEA URCHINS - GOING, G-O-I-N-G, where?

For centuries the men of Japan have been enamored with the aphrodisiac qualities of the sea urchin, or "uni" as they call the roe of the sea porcupine. The oriental males attribute their virility to the magical power of the "Japanese caviar."

Of recent years the demand for this potent gourmet treat has been so great that the Japanese coastal waters have become depleted of the spiny creatures. The kelp beds providing the food for the sea urchin have been virtually exhausted.


There are now hints that California's run-away sea urchin fishery may soon follow a similar route. Exploited by the same forces that wiped out the abalones, sea urchins have been harvested in rapidly increasing amounts since 1971, when this fishery to supply Japan's gourmet taste for urchin gonads began. Over the ensuing 6-year period (1972-1977) the small fishery originating near Avila became centered in the Santa Barbara/Channel Islands area and catches jumped from 200 lbs. (1971) to 76,000 lbs., 3.6, 7.1, 7.5, 11.1, and 13.7 million lbs. by 1977. No fishery can sustain such a drastic, annual increase in pressure and better regulation is urgently needed. Since sea urchins are very important otter fodder, along with abalones and crabs, there is real reason for concern as to how many of these primary forage items will be left for our little friends as they slowly expand their range along a depleted coastline!

BRITISH OTTERS CLASSIFIED 'ENDANGERED'

But where are the otters?

Since January 1, 1978, the vivid little otters along England's rivers and waterways have been protected and hunting is now illegal. Otter hunts in the past were pure sport. Certainly, the hunters were not out for skins or trophies since the dogs, fast on the otter's trail, ripped the little animals apart. No, it was just "innocent fun" — and these same hunting groups have now transferred their chase to the unprotected mink.

Although no one really knows how many otters are left, it was suggested when the hunting stopped, that there might be 300, including 34 in Norfolk and 36 in Suffolk. Norfolk, one might assume, is the stronghold of otters since here, Philip Wayre runs the OTTER TRUST. He breeds otters within a carefully protected natural area with long term patient hope of returning them once again to the wild otter habitat. But much of the otter habitat is gone! Waters polluted with chemicals are intruded upon by dredging and increasing numbers of boats, and, as for the banks of waterways, once excellent habitats for otter holes, they are fast becoming concrete channels. Where, oh where are the old roots, worn smooth by years of otters hauling out? And where are the otters?

Frank Wheeler, a Keeper for Small Mammals at the London Zoo, came to Monterey on October 13th to watch our sea otters grooming in the kelp. We fell into conversation about the otters in England but he shook his head sadly. "They haven't a chance," he said. "Not a chance they will survive!"
SEAH OTTER MORTALITY
William J. Francis

Bodies of sea otters washed ashore have varied from a low of 21 in 1971 to a high of 84 in 1973, according to the records of the California Department of Fish and Game (DFG). The average was 34 in 1968-1972, and 66 in 1973-1977; better reporting probably accounts for some of the increase.

In the 12 months ending in mid-October, 1978, 69 bodies were found dead or moribund, as recorded by the DFG: 25 in the Monterey Peninsula area, 20 in the Morro Bay area, 13 in the central coast area, and 11 along Monterey Bay north of Moss Landing. Most bodies were found in areas of intensive human use or habitation; those found N of Moss Landing reflect the establishment of a front group of 60 more or less otters there during recent years (now at Soquel Pt.). Other reports we’ve uncovered indicate a number of unrecorded deaths too: at least 12 found at Cayucos Beach in the first half of July (3 of these in DFG records); another 3 from the same area, July 3 (none on this date in DFG records); a report of at least 4 otters shot in the Pismo Beach area this year (DFG records show none); and others less well established.

Of 76 recorded deaths during the 12 month period, 7 occurred in animals in captivity; 36 bodies were so badly decomposed no useful data were obtained; there were 19 otters, not decomposed, for which detailed data is not yet available (6 of them were pups; the remainder presumably sent to Santa Barbara for necropsy); and 14 were examined for clues as to the cause of death. Of the latter 14, bullets were found in 2; 1 had cuts and bruises on the skull and shoulder and may have been struck by a boat — or a club; 2 had severe lacerations and broken bones, with tooth fragments and marks indicating shark attack; 1 was badly bitten, with details suggesting a fight with another otter; 2 juveniles had severe bites on the nose and front of the face, suggesting death may have followed a violent sexual approach by a larger male; 1 pup had died of starvation; 1 female with an abnormally large heart had a suspected parasite infestation; and 4 cases of severe lacerations, which were classed as “probable shark attack” by the DFG, an assumption made since they no longer believe boat propellers cause lacerations of this kind.

DFG SEA OTTER CENSUS

Yet another year has passed without a range-wide sea otter census, the last comprehensive count being made over two years ago, in June 1976. Meanwhile the DFG has been making periodic aerial and land-based censuses at the north and south ends of the range, as well as in their 12-mile, “carrying capacity” study area between San Simeon and Cambria. Aerial counts in the latter region tallied 60-70% of the animals counted from the shore, and the pup/Adult ratio remained about the same as previously (10-15% of the population). North and south frontal groups showed the usual seasonal fluctuations in number, with no obvious increase or decrease noted. Animals moving out beyond the front groups were found as far north as Point Pigeon Pt. and to the south, at Shell Beach, Pismo Beach, and Purisima Pt. Individuals have also been sighted in recent years as far north as Point Reyes and to the south, off Oso Flaco Creek, at Pt. Sal, Goleta, Santa Barbara, San Miguel Island, near the Ventura River mouth, and at Malibu.

The DFG now estimates the California otter population may be increasing no more than 1-2% annually, as contrasted with an estimated 5% annual increase up to 1976. It estimates the front groups have increased by only 10 to 30 animals per year since 1973 and that the population in the “established” portion of the range (Monterey to Morro Bay) has reached equilibrium density. This suggests a possible slowdown (or cessation) in population growth is alarming; while the reasons are probably multifold, the DFG thinks available food is the limiting factor. We thus believe it imperative that a comprehensive sea otter census be undertaken in 1979 — one with methodology identical to that of the 1976 census — so as to provide strictly comparable figures for determining the population’s trend over the last 3 years and to have an accurate assessment of present population numbers.

From these data, 1 attribute 3 deaths to human attack, 2 to shark attacks, 3 to otter interactions, 2 to physiological causes, and 4 either to sharks or to boat propellers or divers’ spears. Four of the 6 possible shark cases occurred within ten days near the Monterey Peninsula, so perhaps a shark — or other predator — was operating in that area for a short period. Other credible reports at hand, though without bodies as evidence, attest that a substantial number of otter deaths are due to deliberate killing by humans. Obviously, more careful monitoring, stricter law enforcement, and better determination of causes of death are essential for the protection to which this species is entitled under law.
WHITHER THE ABALONE?

Betty S. Davis

Abalone fishermen to cut catch

ENSENADA, Mexico (UPI) — Abalone fishermen in Ensenada have announced they will reduce their catch by one-third this year to help prevent the possible extinction of the ocean delicacy.

The abalone fishing cooperative Emancipacion — the only group legally allowed to fish for abalone off Ensenada — voluntarily agreed to restrict this year’s catch because of warnings by officials that the abalone could become extinct in Ensenada Bay.

The abalone, once plentiful in Ensenada waters, have become increasing scarce in recent years due to overfishing, taking of undersized specimens and fishing during the off-season.

Much of Baja California’s abalone is exported to the United States, where prices for the seafood delicacy are expected to increase because of the catch reduction.

"Si," even in Baja California they are saying "adios abalones," without any sea otters in sight! Despite warnings that the Mexican abalone fishery had declined 43% between 1968 and 1973,1 depletion of stocks in Baja apparently has continued unabated. In recent years both abalone and lobster beds have been raided during the mating season, overfished when fishing was prohibited, and diminished to the point of imminent eradication. Until recently California’s own abalone situation was closely similar to the Mexican one, with a decline of 43% between 1968 and 1974. Now, both Californias — Baja and U.S. — are finally taking last-ditch steps to halt human overexploitation of this threatened resource.2

Following a 1975 DFG study (unpubl.) which uncovered 9 reasons for the depletion of abalones in California, legislative changes were made in the fishing regulations (AB 2224, 1976; AB 2880, 1977) and positive results began to appear. For example, the number of commercial divers has since been significantly reduced. In 1966 there were 880 commercial permit holders and despite an alarming decrease in per capita catch, there were still over 500 permits in 1975. Under the new laws, numbers of abalone fishing permits dropped to 387 in 1976, 272 in 1977, and 167 in 1978, with new licensees limited to only 5% of that number. Prospective new licensees must also demonstrate their ab-picking proficiency; and now a special iron must be used to pry off abalones to reduce mortal wounding of replaced sublegals.4

In 1957 a record 5.5 million lbs. of abalones were landed in California; in 1974, landings had fallen to less than 50% of the good years and much of that was in smaller, lower-grade black abalones. By 1977 the take had dwindled by another 50%, to an estimated 1.3 million lbs. Today, tight management of the fishery — limited entry, a shorter season, and stricter enforcement of size regulations — plus reseeding of depleted areas may slow down the severe decline. However, rapidly encroaching marine pollution and the significant increases in oil drilling and transport activity in the Santa Barbara/Channel Islands area — at the heart of the remnant commercial fishery — may in time preclude both recovery of the ab fishery and mariculture attempts. Further, a burgeoning export trade with Japan is putting additional pressure on the limited commercial harvest and is raising domestic prices out of reach.

According to the S.F. Chronicle, Oct. 8, 1978:

Prices at fish markets are so high — between $14 and $18 a pound last week — that some have taken to playing games with the price tags so prices won’t seem so bad. Even that ploy doesn’t always work.

“We put tags on for $7.50 a half-pound or $3.75 for a quarter-pound, but we still couldn’t sell it at that price,” said Tom Alioto of Vince’s Sea Food Depot in San Mateo.

Japan pays $15/lb. wholesale for all the abs it can get and since it relishes 4” abalones as well, the first red abalone mariculture crop (due for harvest in 2 years) will go there too.5

Shifting to the northcoast, where much of the abalone sportfishery is now centered, certain isolated coves are reported to have lots of abalones, but many accessible coves have been stripped. Some sportsmen reportedly take 50 abs at a time (limit is 4); poachers dive in hidden coves, caching hundreds of abs which may later be sold on the black market; and the few game wardens find it increasingly difficult to control those, among 1,000’s of fishermen, who harvest more than their bag limit, or take sublegals.5

Eventually, mariculture and reseeding of the coast may be the answer to satisfying both consumer and fishing interests in abalones — and perhaps reduce prices — but these are long-term, expensive, and high-risk ventures with positive results perhaps years away. Meanwhile, the realities of the abalone fishery have become apparent and the sea otter’s role in the overall situation is falling into perspective.

References:
A "BIOSPHERE RESERVE" AT THE CHANNEL ISLANDS NATIONAL MONUMENT?

"In nature there are neither rewards nor punishment - there are consequences."

Margaret Owing

We flew eleven miles by helicopter, low over the sea through the silver air to the tiny island of ANACAPA which enjoys a sense of quiet drama and isolation. I was traveling as a guest with the National Parks Advisory Committee. Of the eight Channel Islands, ANACAPA and SANTA BARBARA Islands have prospered as "The Channel Islands National Monument" under the National Park Service. This included the designation of one nautical mile around each island as a marine ecological reserve.

I was to learn that these two islands and their surrounding waters were sufficiently rich in marine values to have been selected as one of 5 BIOSPHERE RESERVES in California (and one of 28 such Reserves in the U.S.). This determination through UNESCO's Scientific International Research and Conservation Program placed a serious responsibility on departments of government under whose jurisdiction they lay. ANACAPA and SANTA BARBARA Islands as a BIOSPHERE RESERVE were to be protected and maintained for the benefit of the whole international community as a core area surrounded by a buffer zone for preservation of a sea and land ecosystem.

On May 15, 1978 the U.S. Supreme Court changed the jurisdiction of waters surrounding these two islands with their marine life and intertidal zones from Federal to State management. Although the National Park Service (NPS) continues to administer the islands themselves with a "do not take - do not disturb" custody, with the shift of management of the waters to the State, the level of protective standards suddenly dropped. The former dictate that "commercial and sport fishing should be governed by complete biological research recommendations with emphasis on nonconsumptive uses" no longer was apparent. Permissive interim regulations hurriedly put together by F&G had invited pillage of the offshore waters. When Director of F&G, E.C. Fullerton, presented new "improved" regulations to the State Fish & Game Commission for approval, Commissioner Raymond Dasmann called them "appallingly inadequate for an ecological reserve". The BIOSPHERE RESERVE appeared to have been unrecognized.

The differences between the Park Service and Cal. F&G revolved primarily around commercial fishing and the opening up of large portions of previously closed areas. Commercial lobster fishermen moved in the day the jurisdiction changed; kelp, heretofore not harvested within the one mile limit, could now be harvested 150 yards offshore with permits from the State. Except within the "invertebrate enclosure zones" sport fishing is continuing but expanding with poaching increasingly difficult to apprehend. Two wardens and one patrol boat cannot cover 60 miles along the mainland as well as four of the Channel Islands, including ANACAPA and SANTA BARBARA. (As this goes to press, NPS Rangers have been deputized to help enforce the law in these waters.)

"How often does the patrol boat come to ANACAPA?", we asked.

"Not more than once every two weeks", was the answer, to which the young ranger added, "the patrol boat is here now".

As he spoke, the Fish & Game marine radio signaled the Park Service rangers for emergency assistance. Their patrol, approaching a fishing boat anchored below the cliff, alarmed the occupants into dumping sacks of illegal catch (abalone) into the sea. To recover the evidence, the NPS complied with a diver.
The State Department of Fish and Game (DFG) is now entering its second year of sea otter research under a 2-year federal permit granted in August, 1977. Originally, the DFG proposed to capture and tag 100 otters per year (primarily young) in order to observe individual movements and behavior - and, it planned to translocate 40 animals of mixed age/sex classes to a site north of Santa Cruz in the first permit year (Aug. '77 - Aug. '78). Other activities planned were an intensive otter “carrying capacity” study in habitat between San Simeon and Cambria; periodic censusing of animals of animals at the ends of the range, and in the “carrying capacity” area, necropsy coordination; establishment of 25 random, subtidal transects to determine changes in invertebrate and fish densities in long-occupied otter habitat; and cooperation with federal agencies to find a translocation site for a reserve breeding colony of otters.

During the first year, 97 otters from 8 of nine consecutive N to S range segments were captured using diver-held nets almost exclusively; tangle nets were tried with little success. Otters were handled in the boat after capture for an average of about 15 minutes while being marked with a small, numbered ear tag and a different color plastic tag on the webbing of each hind foot — one color indicated the capture area, the other identified the individual otter. In all, 66 females and 31 males were sexed, weighed, and tagged; and 23 fresh blood samples were obtained for baseline blood chemistry studies. Seventeen of the captured females had dependent pups, 9 of which were tagged. Excluding the pups, the average weight of captured otters was 47 lbs. (♂♂ 50.6 lbs., ♀♀ 41.1 lbs.). Of 97 tagged, 52 were later resighted and 3 were found dead (2, 4, and 10 months after tagging). Observations of tagged animals to date indicate that around 6% are wanderers, traveling from 5 to 110 miles from their original capture location.

Because it took much more effort than anticipated to capture and tag otters, leaving minimal time for observation, the DFG decided in May to postpone its proposed 1978 translocation of 40 otters until 1979. By October it had decided to cancel the 1979 translocation too, opting instead for a “simulated translocation” exercise within the range — to acquire experience with capture, transport, holding-pen, and release problems before attempting an actual translocation. This new proposal requires an amendment to the DFG’s present research permit, then publication in the Federal Register, and public review and comment. Though specific details of the amendment await formulation, review, and federal approval, tentative plans mentioned appear to center around moving a limited number of “surplus” male otters from the S end of the range, by various transport methods, to holding tanks in Monterey Bay. Here their behavior would be monitored, blood taken for testing, tranquilizers and anaesthetics experimented with, and treatment administered by a veterinarian (if necessary) prior to returning them to their point of origin, where their reactions to release would be observed.

We defer further comment on the foregoing plan until details appear in the Federal Register. While we heartily agree that practice is advisable before a major translocation, we feel strongly that the translocation of 40 animals of mixed sex/age classes to N of Santa Cruz, as originally planned, would not only have served the purpose of testing various transfer techniques but would have presented a much more accurate simulation to a major translocation and would have provided a small, reserve breeding colony set apart from the principal oil-spill zone. The DFG was very busy last year; it may be even busier this year, with another 100 otters to tag and watch in addition to other ongoing activities. It is hoped, however, that the planned subtidal transect project — also postponed this year — will get underway soon so as to set the stage for gathering important information about long-term changes in densities of fish and of various otter forage items in their established habitat.

Federal Fish and Wildlife Service (FWS) personnel are concentrating their major research efforts in the Piedras Blancas to San Simeon area where intensive behavioral and subtidal habitat studies are underway. To date, 29 otters have been tagged in this coastal section, six of them with a radio-telemetry button affixed to a hind flipper. The telemetered animals are being monitored under a cooperative FWS/Univ. Minnesota program, with several 24-hour observations of activity patterns and movements already clocked by U. Minn. grad student, Chris Ribic. Ron Jameson will continue watching behavior, movements and interactions of otters, while Glenn Blaricome will continue setting up and monitoring permanent subtidal transects to determine long-term effects of otters on various kelps, invertebrates and fishes. James Estes may also be cooperating in the subtidal studies and perhaps setting up his own kelp and otter work in the Monterey/Santa Cruz area.

Most otters in the FWS tagging operations were caught in tangle nets set in areas between kelp beds, in clearings within the kelp, or between kelp beds and the shore. Nets were checked during the day, at dusk, and at dawn. All but two otters entered the nets at night and although females with large pups were caught, mothers with small pups were not found in the nets (perhaps they are reluctant to dive with their young). Females with small pups were, however, readily caught in the hand-held nets of the DFG. Recent FWS experiences in Alaska and California indicate that, when used properly, tangle nets are more efficient in catching otters, and perhaps safer, than hand-held nets — which are time-consuming and occasionally result in broken teeth (sometimes otters bite the metal rim). We hope expertise in capturing California otters will continue to improve before the inevitable happens and the accelerating oil activities in and near their range result in a spill.
CAPTURE & HANDLING OF OILED OTTERS

BASIC RESEARCH NEEDED

Tom Williams, D.V.M.

Basic research on the threatened sea otter is essential in order to protect the species and assure a healthy population growth. At present, there is a minimum of scientific knowledge concerning the effects of oil on this animal (Otter Raft, Summer, 1978). With the completion of the Alaskan pipeline and the increasing presence of oil tankers in the range of the Southern Sea Otter, the probability of oil contamination to the California otter population has become critical, intensifying the need for immediate scientific investigation into capture and cleaning methods.

Techniques are being studied to find a way of safely capturing a large number of animals in a short time period. Currently, a diver-held device and modified gill nets are being used successfully, but neither method enables rapid capture of a sufficient quantity of animals.

After capture, adequate facilities for the care of the sick or injured are essential. Temporary holding tanks, environments for long-term care, and research facilities around the world are being studied with the aim of developing the best possible facilities in the Monterey Bay area. Standardization of handling and care techniques used by sea otter managers and researchers is also important. One must insure that all possible research data is obtained from each animal captured so that a maximum amount of information can be gathered from a minimal number of animals.

Previously, research and treatment of otters was limited by the danger to the investigator of handling the animals and by the adverse physiological effects of handling and captive stress to the otter itself. With recent completion of studies comparing five anesthetic agents in the sea otter, safe dosages of two effective agents are now available. Presently two other agents are under study.

Normal mean values of sea otter blood components have recently been established; hormonal and bacterial and viral isolation studies are currently in progress. Normal hematologic and blood chemistry values are invaluable to the veterinary practitioner for the differential diagnosis of diseased animals. Without knowledge of normal baselines, blood analysis (the clinicians basic tool) is useless, and adequate treatment cannot be provided to sick, injured, or contaminated otters.

There is presently incomplete knowledge as to how a sea otter's pelage provides adequate insulation. An extensive hair analysis, including electron-microscopy, analysis of wax and oil, histopathology of the skin and determination of the skin PH, is currently being undertaken with the aim of developing cleaning products and synthetic oils to replace protection damaged by contaminants.

The understanding of energy and nutritive requirements of adult otters must be expanded so that otters can be held in captivity without significant weight loss. Milk samples have been collected and a complete analysis has been initiated. After completion, substitute formulas can be prepared for orphaned infants. Extensive telemetry and behavior studies are also in progress in Alaska and California with the aim of achieving a greater understanding of the sea otter.

As research continues, many more areas of incomplete knowledge in regard to sea otters will be discovered. Obviously, support and expansion of research is an essential part of assuring their health and safety. One can only hope that the data and skills necessary to handle otters subjected to an oil spill can be gathered before these threatened animals are subjected to a disaster which has the potential of destroying the entire California otter population.
We circled ANACAPA by boat, passing the poacher and 12 other fishing crafts at anchor around the island. We viewed the shadowed cliffs and streaming waters and glimpsed overflowing tidepools spotted with limpets, urchins, mussels and starfish with abalones clinging to the rocks over which waters rose and fell. In one portion of the shore, sea lions and harbor seals had hauled out on small rocky beaches, which, it was pointed out, should be closed to boating.

Sea otters were once plentiful around the Channel Islands. The marine habitat is ideally suited to their needs. Exterminated from the islands by 1910, one or two otters are occasionally seen today but the crack of a rifle from a fishing boat cuts short their lives. Any chance for a natural repopulation here seems impossible despite their protected status and the fact they are returning naturally to an ecological reserve where they once flourished.

Our little vessel drew up under a rookery with prehistoric birds flapping their wings. This spot is the last nesting place of the Brown Pelican on the West coast of the U.S. In the sixties, the presence of DDT in the food chain caused pelican eggs to be broken by parent birds. No young hatched. But with the reduction of DDT in the food chain, the population increased slightly and in 1975 reached 200 hatched birds. This year, however, the number has dropped to 46. It is believed that poisons in the sea are not the cause now but instead, it may be the lack of forage for the birds. Anchovies, a key food source for nesting pelicans, "haven't been around much for the last few years", we were told. "We've seen the birds desert their newly hatched young", explained the ranger.

"And where have the anchovies gone?", we asked in alarm. "Nobody knows", was the answer, "sometimes they're here and sometimes they aren't." When we asked about overfishing, we were told that the State and Federal government are considering a recommendation that anchovies not be fished within a 3 mile limit of the island during the nesting period of April, May and June. But this recommendation has not been acted upon and needs public pressure.

Our introduction to this National Monument and its surrounding waters touched only a tip of a microcosm - but we sensed that here could remain an opportunity to preserve life at its source, self-regulating and relatively free from consumptive uses by man. Like a fenced-off acre from cattle-grazed lands, left to grow in its natural manner, ungrazed and un trodden, spreading seeds out onto the overgrazed cattle range, this island core area should remain rich as the human population mounts and the pressures along the mainland coast deplete the marine resources. This, I would believe, is the long view and purpose of a BIOSPHERE RESERVE.

The Calif. State Fish & Game Commission will meet in Los Angeles December 8th to finalize a decision on new regulations for these waters.

THEY NEED TO HEAR FROM THE PUBLIC!

The standards should be raised to the Federal level if not higher! Where the sea otter is no longer welcome but commercial and sports fishermen are encouraged with weak regulations and inadequate enforcement; where abalones, urchins & spiny lobsters are being stripped from the intertidal and near-shore zones; where pelican nesting area needs protection and anchovies on which they feed, need strict fishing regulations.

HUEY JOHNSON, Secretary Natural Resources: 1416 - 9th Street, Sacramento, 95814 has asked to hear from us on matters relating to our interests.

5 MEMBERS OF THE STATE FISH & GAME COMMISSION to whom we should write:

BERGER BENSON, Chairman: 1416 - 9th Street, Sacramento, CA 95814
SHERMAN CHICKERING, Vice-Chairman: 3 Embarcadero Center, #2300, San Francisco, CA 94111
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ABEL GALLETTI, 1715 East 21st St., Los Angeles, CA 90058
RAYMOND DASMANN, Environmental Studies, U.C. Santa Cruz, Santa Cruz, CA 95064

TAGGED TRAVELERS
And Dependency Period Updates

Jud Vanderveer

In the Summer, 1978 Otter Raft I discussed the apparently unusually large home range (18 miles) of tagged male otter L51 and of female L34, who had possibly swum more than 100 miles south, where she gave birth, and after weaning her pup, had been seen again in the Monterey area. I also wrote that Kirk Graebe and I saw the 56 lb. male, L1020, about 80 miles north of its tag-and-release location. Then, 40 days later, a CDF&G worker discovered him 110 miles to the south near Diablo Cove.

Subsequently, CDF&G observers saw 47 lb. male, L247, just north of Ano Nuevo Island 22 hours after he was seen at Soquel Point. His move must have required a minimum speed of 20 miles per day; 4 days later, he was back at Soquel Point. Their observers also noted a 75-mile movement south, from McWay Rocks to Pecho Rock, of 68 lb. male, L70; 3 days later he was observed back at McWay Rocks and then he repeated the 150-mile round trip. CDF&G biologists have found that only 6 of the 97 otters they tagged from August 1977 to August 1978 moved more than 5 miles.

In previous issues of the Otter Raft (Winter, 1977; Summer, 1978) I discussed the dependency period (8 months) and gestation period (4 months) of otter L41. She has just weaned her most recent pup, after another 8 months of dependency. I am anxiously awaiting the birth of her next pup to see if the gestation period is also only 4 months.

SEA OTTER SCIENTIFIC ADVISORY COMMITTEE

A Committee to advise the Department of Fish and Game on all scientific aspects of its sea otter research was appointed by Director E.C. Fullerton early this year and has already met in two, full-day sessions chaired by Tim Farley who heads the Department's sea otter research program. The seven-member Committee includes: Dr. George Bartholomew, UCLA; Dr. Betty Davis, UCB; Dr. Paul Dayton, UCD; Dr. John DeMartini, Humboldt State Univ.; Dr. Edmund Hobson, NMFS, Tiburon; Dr. Gerald Kooyman, UCD; and Dr. Charles Woodhouse, Santa Barbara Museum of Natural History.

As expressed at the first Committee meeting, the DFG's objectives are to protect the species and to gather sufficient information to develop a sea otter management plan. The research program — and thus the work of the committee — falls within the context of the second objective; the Committee is not to advise or take a position on policy matters.
OTTERS THROUGH THE LOOKING GLASS

Betty S. Davis

Peering curiously through the glass wall of their quarters at Point Defiance Park Zoo, Tacoma, a couple of Alaskan sea otters provided welcome diversion this summer for Monterey Peninsula otter-watchers en route to British Columbia. Pressed closely together, the resting otters were first seen in side view — floating low in the water next to the glass — as we observed from behind an outdoor guard fence, 15 feet away. The water level in the small display room was near eye level, providing opportunity for simultaneous above and below surface observation. As we watched, one of the “sinking” otters began to groom itself vigorously, offering unparalleled views of this survival activity since both above and below water facets of the grooming repertoire were clearly visible.

During its twisting, turning, rolling, and somersaulting motions, the otter’s fur flashed like quick-silver in the water as it became refilled with air. While we enjoyed the amazing acrobatics and watched the rubbing, scrubbing, tugging, biting, and aerating of the fur proceed, the grooming otter rapidly became more buoyant, rising perceptibly, and soon floating much higher than its somnolent companion. Resting again, end-to-end next to the glass, the two animals offered dramatic before and after testimony as to the benefits of good grooming!

Here at Tacoma, viewers have a unique chance to witness the sleek aspect of a diving otter from the underwater perspective provided by a clever display chamber. Human presence seemed to make little difference to the captives who glanced toward us with expressions of mild interest from time to time. Throughout our visit, the otters appeared completely contented and companionable, with the sleepy one seemingly unperturbed by the sporadic, abrupt jostling it received from its nearby, grooming friend.

Constructed in 1972, the Sea Otter Complex at Point Defiance was the first built for public display and propagation of sea otters in North America. We were intrigued and pleased with the exceptional otter-viewing opportunities it affords.
Friends of the Sea Otter

ADVISORY COMMITTEE

Behind the positions taken by FRIENDS OF THE SEA OTTER a Committee of distinguished scientists has been meeting over the years to discuss and debate management proposals made by Cal. F&G and current issues relating to the otters. This summer we lost a faithful friend and member of this Committee through the death of DR. THOMAS POULTER, Former Scientific Director of Stanford Research, he pursued studies on biological sonor and diving animals. Earlier in his career, Dr. Poulter accompanied Admiral Byrd to the South Pole on expeditions that caught the eye of the world.

MILDRED BUCHSBAUM has joined the Committee. A zoologist and ecologist who received her M.A. at Univer. Chicago, she is highly knowledgeable about marine life of our shores and is keenly interested in the sea otter. She is co-author of books on invertebrates and ecology. DR. JAMES W. ROTE, whose doctoral thesis in marine biology at Stanford, assessed the PCB and DDE content of otter tissues, has joined us. Professor of Marine Sciences at Moss Landing Marine Lab, and serving on the faculty of U.C. at Santa Cruz, he is an expert on marine pollution. ALAN BALDRIDGE, a marine mammal biologist and a long-time friend of the otter, is returning to our Advisory Committee after several years in Florida. He serves as Librarian at Hopkins Marine Lab.

"... the flow of time, obliterating yet containing all that has gone before—the sea’s eternal rhythms, the tides, the beat of surf, the pressing rivers of currents... the stream of life, flowing as inexorably as any ocean current from past to unknown future..."

Rachel Carson

MEMORIAL GIFTS

In memory of Josephine Duveneck from Mrs. Alfred H. Heller
In memory of Jean Majerus from Mildred Nevin
In memory of Viola Rose Alnes from her sister, Frances J. McHugh

A group of volunteers in an informal meeting at our Sea Otter Center: from left, Larry Black, Center Director Bobbie Harms, Freddie Dreyfus, Margaret Geller, Isabelle Black, Cynthia Gillette-Wenner, and Jayanne Kuster.

OTTER CENTER

Bobbie Harms

Since March 10, 1978, when we opened our bright and colorful headquarters in the Barnyard shopping complex at the mouth of Carmel Valley, we’ve had an astonishing number of visitors, more than 6,000 in all. Visitors have signed our guest book from every state in the union (except Delaware, South Carolina, West Virginia, and North Dakota).

And we’re international! People have stopped in at our Center from New Zealand, Australia, Canada, Ecuador, and most of the nations of Western Europe - 13 foreign countries altogether.

The Center is staffed almost entirely by our dedicated and enthusiastic volunteers. We’ve had 24 of them, who have put in to date a combined total of more than one thousand hours of work.

In addition to those in the above photograph, Winifred Adams, Ethelreda Davis, Carol Fulton, and Jean Greenwood have been regular volunteers at the Center.

Others include Elaine Marie and Marcia Lee Berg, Louise Berry, Ruth Fletcher, Merna Hampton, Jack Harms, Nancy Larsen, Margaret Moody, Lois Moser, Barbara Patchell, Bonnie Shirley, Lyn Wickham, and Juli Wilson.

They greet visitors, try to answer all their questions about sea otters and about our organization, direct them to otter-viewing sites, sell them sea otter posters, T-shirts, stationery, etc., and give them our brochures.

We would welcome a few more volunteers. Anyone interested should stop in at the Center - our hours are 11 to 3 daily except Mondays - or contact Bobbie Harms, 624-5993.
NEW LIFE MEMBERS
We welcome from the heart, each new Life Member whose generous contribution of $100.00 or more, strengthens our cause!
Peter S. Bing, M.D. - Los Angeles, CA
Dr. & Mrs. Ralph Buchsbaum - Pacific Grove, CA
Dorothy V. Devlin - Pebble Beach, CA
Mr. & Mrs. Davis Factor, Jr. - Beverly Hills, CA
Kathleen Fleming - Homer, AK
Mr. & Mrs. Robert P. Hackstaff - Denver, CO
Dr. & Mrs. Don Carlos Hines - Menlo Park, CA
Peter F. R. Jackson - Vaud, Switzerland
Mr. & Mrs. Glen McCroskey - Phoenix, AZ
Prof. Eugene I. Majerowicz - Los Angeles, CA
Mr. & Mrs. Warren Olney, III - Berkeley, CA
Martha Emilie Reeves - Mount Sinai, N.Y.
Mr. & Mrs. W. Stanley Pearce - Pacific Grove, CA
Donald Straus - New York, NY (Gift from the Winifred & Harry B. Allen Foundation)
Mr. & Mrs. Russell E. Train - Washington, DC
Lucille A. Winter - Carmel, CA
Phillip Johnson - New York City, NY

NEW PATRON MEMBERS
We’re proud to receive your Patron gifts!
Judy Campbell - San Rafael, CA
Dr. Nicole DuPaix - Leesburg, VA
Mr. and Mrs. L. W. Hundsdorfer - Pasadena, CA
Mary Ward Hughes - Pasadena, CA
Capt. Elgin Hurlbert, USN (Ret.) - Pacific Grove, CA
Hazel M. Koskenlinna - Stevens Point, WI
James and Linda Hargrove - Irvine, CA
Richard H. Morris, Sr. - San Rafael, CA
Josephine Read - San Clemente, CA
Mr. and Mrs. David Rockefeller - New York, NY
Jeb Caldwell Rucks - Petersburg, PA (Gift from Teresa Caldwell)
Mrs. Brewster Sewall - Kennebunk, ME
Gertrude Chase Schumacher - Santa Barbara, CA

THE SILVER CIRCLE
We associate the widening circles from an otter’s dive with the growing accomplishments of our work and its growing needs. Many of the otter’s friends have been generous indeed towards helping the circles expand and over the years have repeatedly contributed as Patrons, Life Members and Donors in a sustaining manner.
The names listed below are those who have added another silver circle this year to the otter’s dive:

Natasha Antonovich - Montebello, CA
Linda Kay Anthony - North Miami Beach, FL
Dale Peters Clyde - San Francisco, CA
Ruth Gorton - Medford, MA
Slade Gorton & Co. - Boston, MA
Richard Grand - Tucson, AZ (Foundation for Legal Research & Education)
Mrs. Lincoln Harris - Carmel Valley, CA
Emily D. Heath - Gloucester, VA
Alfred and Ruth Heller - Kentfield, CA
Katharine Hunt - Tucson, AZ
Brooks and Hope B. McCormick Foundation - Chicago, Ill
Albert C. Thomas - Deerfield, NH
Campbell Weir - West Chester, PA
Louis van de Velde - Wickford, RI
Louise Winegar - Pittsburg, PA

PHOTOGRAPHS: for purchase or use in conservation articles - Write: William Bryan, 324 De La Vina Way, Salinas, CA 93901 or Dr. James Mattison, Jr., 234 San Miguel, Salinas, CA 93901.

FILMS: Write to: Cynthia Gillette-Wenner, Friends of the Sea Otter, P.O. Box FF, Carmel, CA 93921 - BACK FROM EXTINCTION, Mattison, (16mm, sound, color) $15.00 rent; THE SAGA OF THE SEA OTTER, Anglia Films, Jeff Footh, photographer, $15.00 cost for handling; CLOWNS OF THE SEA, William Bryan and Wah Chang, $15.00 rent and handling.

INFORMATION FOR SCHOOL CHILDREN: Write: Doris Wright, 15 Yankee Beach Way, Carmel, CA 93923

TWO SEA OTTER POSTERS: choice of one black & white photograph (24½ x 37½") by Daniel Gunther - or one ink drawing of mother and pup with the theme “Don’t fence me in!” (17 x 23") by Jennifer Dewey. TO ORDER: Send $7.75 ($2.00 plus 75c mailing cost) to: Friends of the Sea Otter, P.O. Box FF, Carmel, CA, 93921. (Make checks payable to our organization).
"It does seem a never ending battle. We gain a step and then fight hard to hold that footing."

Bobbie C. Dorsey, Ventura, California

"I am not your friend! I see no reason to destroy the valuable abalone fishery because one woman thinks that otters are cute. I am a sport diver - let's control the otter!"

Walt Peterson, San Francisco, California

"Today the sea otter's prosperity and even survival depends upon our activities, actions, and decisions. People must begin to gain perspective about the finiteness of resources and become aware of the inter-relationships between living creatures and natural systems."

Rachel Saunders, Providence, Rhode Island

"I was delighted to discover the existence of your society. I encountered your newsletter in no less ecological a place than Barrow, Alaska - at the Naval Arctic Research Lab."

Dr. Byron Morris, Environmental Studies, Alaska Outer Continental Shelf Office

"We know that the Orderly Universe puts no species above another in the matter of survival. However, we, as human beings, do value some above the others. I can feel no deep concern for the snail darter; but the weakening of a protective act (Endangered Species Act) so as to threaten valuable and beautiful species (grizzly bear, sea otter, condor, bald eagle) would be a shame, indeed."

Helen F. Brockmeier, Laguna Hills, California

"The controversy surrounding the Tellico Dam has brought the matter on Endangered Species into sharp focus. What we are dealing with, of course, are special interests opposed to the protection of certain species - your mention of the California Sea Otter is a powerful example of this. "Special interests" raise my hackles and you can be sure that I will never place myself in a legislative position that will ensure extinction of any living thing."

Edward P. Beard, Congressman, 2nd District, Rhode Island

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**FRIENDS OF THE SEA OTTER**

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*Executive Committee Members*
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- Margaret Owings — Editor, Otter Raft

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Checks may be made payable and mailed to:

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P.O. Box FF, Carmel, California 93921

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Please note our change of address!

Friends of the Sea Otter
P.O. Box FF, Carmel, California 93921

(Mail can still reach us through Big Sur, CA 93920)

If you move, PLEASE let us know! Each time an Otter Raft is returned to us, with an address correction supplied by the P.O., it costs us 25c.
... "it is time here in the West to defend not human rights but human obligations."

Alexander Solzhenitsyn