

Callahan's Aquacult



Callahan's Director of Explorations Fred Beck, President Joseph Hall, and Executive Vice President Charles Snead.

Future Of Salmon And Oysters

By JOHN R. WIGGINS

Callahan Mining Corp., which is terminating mining at Cape Rosier on June 15 and will close its mill there by early July, is launching a pilot project in rearing salmon and oysters as comestibles.

Director of Exploration Fred Beck is in charge of the new program.

Says Beck: "Since last October we have had in the back of our minds the possibility of raising salmon commercially, using our big deep hole. I made trips to the west coast and talked with companies in this field and with people at the University of Washington and the National Marine Fisheries Service. In Puget Sound, they are raising salmon in nets to market size: three-quarter pound, which is pan size or enough for one serving.

"The project in Seattle was started by NMFS in 1968. Two years ago Union Carbide, through a subsidiary called Ocean Systems, initiated a pilot project to raise salmon from smolt to market size. They financed it with a \$100,000 federal sea grant plus \$175,000 of their own cash. They had their

first harvest in Puget Sound this spring: 400,000 salmon. They are selling them to restaurants, the Japanese airline, and wholesalers.

"It is possible to raise one pound of salmon per cubic foot of seawater. They sell for \$1.35 to \$1.75 per pound, and it only takes about seven months to raise them to market size.

"Temperature is a critical thing. Our winter temperatures are not that good and will be a problem. One reason for this pilot experiment is to see if we can keep salmon through the winter. We will put them in raft-nets this winter off Ram Island and off Goose Cove.

"Probably we won't be able to get enough coho or western salmon of the right size this late in the spring. We will have to scrounge what we can from state fisheries in New England. We know we can get rainbow trout, another member of the salmon family which has similar characteristics. From them, we will learn techniques and what problems we can expect from dogfish, seals, and predators.

"We are going to use coho because Atlantic salmon don't

have the growth rate of coho or western salmon. It would take 40 years of effort to genetically improve Atlantic salmon to a level of comparable feed conversion efficiency. Incidentally, genetic upgrading of Atlantic salmon will start at St. Andrews in New Brunswick soon under the sponsorship of the International Atlantic Salmon Foundation.

"This fall we will get a large batch of coho eggs from Washington and Oregon. We will raise them under controls to the size where we put them in the salt water, about next May. By October of 1973 they should be of market size. We will keep our broodstock over, selecting the fastest growing and hardest specimens.

"The open pit is now 320 feet deep. By reversing the 16 inch drainage pipe, we will fill it with salt water, and we suspect that temperatures there will be a few degrees warmer than in the open water. Salmon freeze at 29 degrees. Their optimum temperature is about 38 degrees. Anything above 60 degrees is bad for them.

"These salmon will supply a whole new market. Some res-

taurants on the west coast serve them. The nearest place you can get them on this coast is at the Marriott Hotel in Boston. It is considered a delicacy, and costs more than your ordinary fish.

"The feed conversion efficiency at Puget Sound turned out to be 1.5 pounds of feed required to produce one pound of salmon flesh. For chicken, it is 2.2 pounds of feed to produce one pound of flesh. Beef requires something like 9 pounds of feed per pound of meat. As you can see, salmon is an economical crop.

"If there is any metal toxicity in the water here as a result of the mining operation, there are ways of getting around it. For instance, adding chelating agents to the feed would coat the metal ions and let them pass through the fish without being absorbed...."

"We are also going to attempt to raise oysters. We have been working with the Darling Center of the University of Maine. For the past couple of years, they have been working on methods of raising oysters and stimulating the growth rate in

Continued On Page 3



'It'll be a fun thing'

Joseph Hall (right), Callahan Mining Corporation president, and Fred Beck, director of exploration, discuss the company's plans for a sea farming pro-

the mining operation there comes to a close. Callahan will try its hand at raising salmon, rainbow trout and oysters in sea water.—Packet photo.

Aquaculture

(Continued from page 1)

THE OYSTERS will remain in the plastic trays through which water can circulate continually and will be watched closely since they are very sensitive to heavy metals.

Beck said the project would also provide for continued monitoring of water conditions since some oysters will be analyzed weekly to determine metal concentration.

The trays will be located at all vertical levels to allow analysts to determine whether metals, if any, are in the water in solution or as particulate matter which can settle to the bottom.

Three types of oysters--American, European and Japanese--will be raised, said Beck, noting that "it looks like you can raise an oyster to market size (three inches) in about two years."

For the time being the dam between the pit and Goose Cove will remain intact and the pit will be flooded by reversing the flow of water through the 16-inch pipe now used for drainage.

"We want to assure that when we do open the dam we won't be creating a pollution problem," Beck said.

The water in the pit will be aerated to prevent its becoming stagnant--much like the process used in an aquarium, he said.

WHILE THE fish and oysters are being raised the company will also look at the marketing situation. Beck said the salmon raised in Washington are sold primarily to local restaurants and an airline company.

The mine buildings will be left standing for possible use as hatcheries and for processing should the venture prove successful. "At the end of next summer we think we'll have the answers we need," Beck said.

He noted that some hurdles still

remain before the aquaculture project can get fully under way. Permission must be obtained from the Maine Park and Recreation Commission to go ahead since, as an adjacent land owner, its riparian rights would be affected.

Callahan officials are meeting today with Maine Governor Kenneth Curtis to outline the proposal.

A control problem also exists, Beck said, since the company can designate only one acre as a research area. Much of the project will take place in open water.

"Our hope is that the town will look favorably on this project," he said, "and keep their eyes open and try to protect this experiment."

WHILE Callahan is hopeful that the pilot project will prove successful, company officials recognize that it is something of a long shot.

Company President Hall said Tuesday, "While we feel that the odds are long against it, we're

willing to make the investment for the benefit of the community. If we develop something of commercial significance, but which is not extensive enough for us to pursue, we would be willing to make it available to someone in the community."

The sea farming project is not the only possibility for reclamation of the area.

Beck noted that the firm is also looking into the manufacture of brick from the tailings which total something in excess of 500,000 tons.

Present plans call for completion of mining by June 15 and termination of milling operations around mid-July.

Callahan is also cooperating with the Maine Mining Commission and the Leon Gordon Construction Company, Pittsfield, in making a \$1,500 grant to the University of Maine for research to determine what will grow most effectively on the waste piles and other abandoned mine property.

Callahan

From Page 1

Maine waters. We have hired one of their students, Bob Mant, and he will run the oyster project here. We will hire one other biologist as well.

"400,000 oyster seeds will arrive on June 1. Their size is only one-eighth inch. For the first month they will be in trays ashore, with sea water pumped through the trays. By that time they will be one-quarter inch in size, and they will be put on trays two by three feet. The trays will be stacked to a height of six feet or so and will be placed in the pit, in Goose Cove, in Smith Cove, and in the Bagaduce.

"The State has experimented with oyster trays in this area. The growth rate in the Salt Pond has been very good. They can be raised to market size, three inches, in two years. I don't know their exact commercial value, but a plate with half a dozen oysters in New York costs you about \$2.

"There are three types of oysters: European, Japanese, and American. Twenty years ago the State planted some European oysters at Boothbay, and some are still there. Our seed will come from California. We will retain our own brood stock and hope to improve it genetically for local waters. A female oyster, by the way, discharges 100,000,000 seeds at a time. What's more, she does that whenever she is tricked into thinking that the temperature is right for spawning.

"What we are doing is hardly more than experimentation. Aquaculture is at the level that agriculture was when cavemen first began growing crops. We are not the first in Maine to go into it. At Wiscasset, Fred Towle of Freeport has a contract with Central Maine Power Co. to raise a rainbow trout and about 25 coho in the heated effluent of the Yankee Atomic plant.

"This year is essentially a feasibility study. We don't know where we will market them, or even if we will do our own pro-

given her considerable acreage to the State as a sanctuary. Callahan will need the approval of the State Parks & Recreation Department for its new endeavor.

It will have to have further protection by the State to carry on the aquaculture project in the restored Goose Pond and in the waters off Goose Cove. At present, the State can grant research areas in the water of one acre.

"From the legal standpoint," says Beck, "the areas in which we place the oyster trays will be beyond our control. We will put the salmon into the one acre research area, but the oyster trays will not be protected from damage or pilfering. We hope the townspeople will try to protect them."

"Oysters are very very sensitive to heavy metals. Each week we will homogenize some oysters and run them through analysis to determine if they are picking up any heavy metals. We feel that heavy metals do not get into the water in solution. However, small particles can get into the water and settle on the bottom, where they can be imbibed by sea life. We will try sinking our trays at all depths and will check the results. We hope eventually to open the dam at the entrance to Goose Pond and not create a pollution problem by doing so, with the tidal flow in and out of the pond.

"To keep the pond from getting stagnant, we will run pipes to the bottom and force air through them, aerating the pond like a giant aquarium. There will be no exchange of water between the pond and the ocean until we remove the dam."

State Biologist Robert Dow has expressed fear that by exposing the open pit to ocean flow, waters of high metal toxicity will be released into the bay.

Callahan's chosen method of raising oysters is a technique developed in the past six years.

heated effluent of the Yankee Atomic plant.

"This year is essentially a feasibility study. We don't know where we will market them, or even if we will do our own processing. A year and a half from now we will have the answers we need. Our objective is a full scale commercial operation that might employ as many as 40 people.

"We will remove our mine equipment this summer, but we will leave the buildings here. They might be useful in the aquaculture project as hatcheries, freezing plants, and processing plants. Fortunately we already have a power line here.

"We feel this is a compatible type of industry for this area. Brooksville officials have expressed interest and approval. When we reverse the drain from the pit, we expect the pit will fill with salt water within a week. That should be in the end of July. Before we do that we will blast the retaining dikes that hold back the mud from Stink Cove. Some of that mud will slide into the pit, enlarging the size of the pond and making a safer shoreline at the same time."

Callahan was given riparian rights to the opposite shore of former Goose Pond by an act of the Legislature eight years ago. The rights were taken from Anita Harris by the State "in the interest of the people", to permit exploitation of the ore body beneath the pond. Miss Harris has since

flow, waters of high metal toxicity will be released into the bay.

Callahan's chosen method of raising oysters is a technique developed in the past six years. The traditional Japanese method is to let the oyster seedlings attach themselves to old shells and then string the shells and hang them from rafts in the sea. The 'Clutchless' technique to be tried here permits the oysters to lie free on the trays, feeding on algae in the sea water that flows through holes in the trays. Beck says it calls for less labor and permits the oysters to grow uncrowded into their natural shapes at more distance from their neighbors and with a better supply of food. Beck also says that all things considered, Callahan's investment in this new project is "modest".

Beck says that Robert Dow and his department are more than willing to assist and work with Callahan and that they are happy that the water will be monitored. The oyster experiment will insure that monitoring will be done and might be the groundwork for a new industry at the same time, says Beck.

The plan will be presented to Gov. Curtis today. He is expected to approve it.

Callahan President Joseph Hall, who was at Cape Rosier Tuesday, said: "Although we feel the odds are against the success of this project, we are willing to risk it for the benefit of the community. I feel that the odds are very long. We don't want to raise false hopes. If it turns out to have commercial significance, but not enough for us, we would be willing to make it available to some member of the community. If anyone has any other bright ideas as to what might be tried here, we will look at each and every one of them."

Hall also mentioned that Callahan, the Maine Mining Commission, and the Leon Gordon Construction Co. of Pittsfield have contributed a kitty of \$1,500 in the form of a grant to the University of Maine to conduct greenhouse experiments this summer on growing various plants in tailings from the mine.

"In August we will plant the type of vegetation that they recommend on our tailings dump," said Hall. The dump, which has grown into a large hill during the five years of mine operation, has recently been graded and rounded. Hopefully the mound will support plant life and become inconspicuous.

Callahan plans sea farming pilot project at Brooksville

BROOKSVILLE -- The Callahan Mining Corporation will be leaving something behind other than a flooded pit and a gigantic waste pile when it terminates mining activities at Brooksville this summer.

For months Callahan officials have been looking at possible continuing uses to reclaim the exhausted mine and they now have decided on what they consider to be a rather novel idea--sea farming.

This summer the company will initiate a pilot project to explore the possibility of raising salmon, oysters and trout commercially. If successful, the venture could provide continued use of the abandoned property and buildings as well as a certain amount of local employment.

Fred M. Beck, Callahan's director of exploration, explained the project to members of the local news media Tuesday at the Brooksville mine.

The project was developed by Beck from a casual suggestion made by Callahan President Joseph Hall when he visited the mine last year.

"WE WONDERED if aquaculture would be of interest," said Beck, "so we talked with other companies involved in this."

In doing so, he learned that Union Carbide has been conducting a similar project at Seattle, Wash. in which some 400,000 salmon were raised from smolt to market size in nets suspended in the waters of Puget Sound.

The salmon are raised to a marketable size--about 12 ounces

--in from six to eight months, Beck said, and the project has opened up a whole new market.

The tiny salmon smolt are suspended in nets hung from a raft and are fed daily. It has been determined that one pound of salmon, which can be sold for up to \$1.75 per pound, can be raised per cubic foot of sea water.

In terms of feed conversion efficiency, said Beck, one and one-half pounds of pelletized food will produce one pound of salmon flesh. He noted that even in the highly developed chicken industry, the feed conversion efficiency ratio is only 2.2 to 1.

"That's a pretty good return if we can keep the cost down and work out the problems," said Beck.

INITIALLY the Callahan project will use mostly rainbow trout rather than salmon because "we couldn't get many Coho salmon of the right size at this late date," he said, noting that the two fish have nearly the same characteristics.

This summer, Beck said, about 20,000 trout and whatever salmon can be obtained will be introduced into the Brooksville waters to see how rapidly they will grow and how they are affected by the environment.

The nets containing the tiny fish will be located in the waters near Ram Island and the fish will be fed each day.

He expressed some concern about the water temperature because "It is a critical thing and the winters here are not all that good."

Present plans call for wintering

about 5,000 fish in as many as three locations, each with different water conditions.

Beck said some may be left near Ram Island, others will be suspended in the flooded pit where the temperature will be a few degrees warmer, and a third group may be taken to Wiscasset and kept under heated water.

The rest of the fish will be harvested this fall and marketed to determine growth rate and estimated raising costs.

A LARGE batch of salmon eggs will also be obtained this fall and raised through the winter under hatchery conditions, Beck said. These will be introduced into the open water in May and should reach market size by October.

When questioned regarding the possibility of trouble from metal toxicity, he said none was anticipated. If necessary, chelating agents could be added to the fish food to coat the metal ions and prevent their being absorbed as they pass through the digestive system.

The oyster project will be conducted in cooperation with the University of Maine, Beck said, since the university has been experimenting with oysters for several years at its Darling Center.

About 400,000 seed oysters have been ordered and will be grown in trays under controlled conditions for about a month before being placed in the flooded pit as well as in Goose Cove, Smith Cove and perhaps the Bagaduce River.

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JOB 2

ISLAND ADVANTAGES



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STONINGTON, MAINE 15¢

Oysters to be Grown In Callahan Pit



Governor Kenneth Curtis and Callahan Mining Corporation President Joseph Hall, at a joint news conference in Augusta, today announced plans for reclamation of the Goose Cove Pond pit at Harborside. An aquaculture pilot project, financed by Callahan, will be initiated as soon as the pit area can be mud-filled and flooded, sometime this summer. If successful, this plan, starting with the growth and breeding of European oysters, will create a new industry compatible with the environment of this area and with the potential of employing 20 to 30 local people. Work has already started on the pilot project. A marine biologist has been hired and the seed oysters have been ordered.

The time table for phasing out mining operations ten-

tatively sets June 15 as the shut-down date for pit work. The processing mill will continue to run until mid-July to handle the back-log of ore.

Also figuring in the aquaculture plans are salmon. Present plans call for purchase of a large number of coho salmon eggs this fall, nurturing them over the winter, releasing them in May of 1973 and raising them to "pan size" by the fall market. Since the salmon were not available this spring, Callahan will be purchasing 15,000 to 20,000 rainbow trout, which readily adapt to salt water, to raise over the summer as a coast pilot project.

Speaking of the challenge of the aquaculture project, Fred Beck said, "We know the problems, now we have to start solving them."

Specific plans and recommendations were discussed earlier in the month at a meeting of the Goose Pond Reclamation Society. Present for the discussion were: Fred Beck, Callahan representative; John Gray, Goose Pond Reclamation Committee; Robert Dow and John Hurst of the Dept. of Sea and Shore Fisheries; State geologist Robert Doyle; and attorney Sherman Greene.

MUD FILL FOR PIT

Beck started the meeting by outlining Callahan's proposals for refilling and flooding the pit area. The plan calls for the mud, which has been piled in the (Stink) Cove area north of the pit; to flow back partially filling the pit. Then, using a pipeline with a sixteen inch diameter, salt water will be siphoned from Goose Cove to flood the pit area.

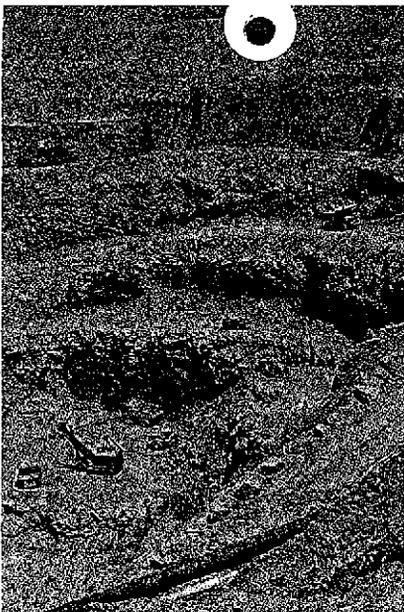
Varying opinions of whether the mud will flow from Stink Cove were expressed. Beck stated that dynamite charges, which are expected to be set as soon as pit operations cease, will be exploded as a catalytic-type action to start the mud moving. When questioned about the depth to which this would fill the pit, Beck said that since this mud is what has been dug from the pond in the past four years, there should be enough to completely fill the pit, less the six million tons of ore that have been removed. He added that the mud in Stink Cove has been measured to a depth of 104 feet in places.

Commenting on the feasibility of the mud flow, Robert Dow inquired about the moisture content of the mud, adding that he felt the mud should be quarried for moisture so that demolition charges could be more effectively placed. Though Beck agreed a moisture check might be helpful he said that since the mud still absorbs heavy equipment, it is reasonable to assume that it is quite moist. Responding to another question from Dow, Beck said that additional moisture could be added by pumping in water at the points of interphase. Dow concluded that the best combination to increase the mud flow might be to tie-in the blasting with heavy rain fall.

After the mud is in the pit, Callahan expects that a certain amount of grading will be necessary, though the mud flow should level much of the debris that might be considered a potential navigational hazard.

In further talk about the plans to siphon off water to flood the pit, Dow asked if it would be possible to also siphon silt from the cove. He explained that since the Cove is polluted, it would be good to get as much sediment as possible back to the pit. Beck gave an affirmative answer, qualifying it by saying he could anticipate problems with trying to siphon mud and would have some further checking done. The most obvious problem, he suggested, was that the siphoning pipe, as it is planned, is stationary. Some flexibility would have to be added, Dow proceeded with the recommendation that this silt be placed in the very bottom of the pit. Since the silt is polluted, flowing the mud in on top of it would insulate it and prevent it from further distribution. Dow suggested that Callahan try a drag line, and by looking at the cove area at low tide, they could determine from where the silt should come. Beck concurred that dredging would be easier than trying to "vacuum" the bottom, but felt a time factor could become involved because dredging would probably require authorization from the Army Corps of Engineers and the Environmental Improvement Commission (EIC).

The point was raised by John Gray that one of the landowners on the eastern end of the cove would like to put in a small dock and marina facility. He would like the dam on the drainage ditch removed so that there would be tidal flow to flush some of the silt build-up from his area. Beck said that he had called the resident, explaining the dam could not be removed without EIC consent. "The dam cannot be removed until the water in the Pond monitors to the same standards as Penobscot Bay."



(Continued from page 1)

PLANTING AND GRADING

The conversation turned to Callahan's program for grading and planting. Beck reported that grading had already started on the upper pile. A soil sample had been given to the University of Maine for vegetation testing. Crown vetch, a nitrogen-fixing legume, was raised with little lasting success, but University people felt they would be able to grow certain plants, after experimenting with types and fertilizers.

This information contradicted the account given Callahan by Ercocin. The Toronto-based mine reclamation firm, after investigating Goose Pond area, had guaranteed they could produce 90% coverage at a cost of \$450 per acre. Planting would have also been with legumes and white birches.

Agriculturalist Tom Gordon of Pittsfield was contacted by Callahan for an opinion on the matter. He said that 90% coverage was probably possible within two years, but said that in three years, the area would be a wasteland. Expressing agreement that the University lab

Reclamation Plans Outlined

would be able to discover the most suitable vegetation, the Mining Commission, Gordon, and Callahan have together funded a grant for the University to be used in testing various vegetations in the polluted and depleted soil. An acre of the tailings pond has been provided as a test plot.

Recommendations are expected from the University by mid-August. Callahan will then contract Gordon to seed part of the hill, following University suggestions. August was selected as the month to commence planting because a greater number of foggy, damp days is expected in that month. Good plant cover is essential in the tailings pond area to prevent leaching, which would further spread the polluting metals, especially the almost exclusive concentration of zinc, in the pond soil. Plants use up any surface moisture, and also draw up moisture from below.

ECONOMIC REHABILITATION

The next point of discussion was Callahan's plan for the economic rehabilitation of the mine area. The unprecedented proposal, as delineated this morning by Governor Curtis and Callahan President Joseph Hall, called for a renewal of Callahan's financial commitment to the area. With a potential of creating 20 to 30 jobs for local people, the aquaculture pilot project has been given state support and will be a testing phase for a new direction of Maine industrial growth. Callahan has taken a circumspect look at all factors involved in the reclamation of the Goose Cove Pond and has worked out this enterprising solution, offering the possibility of many-fold rewards. If successful, not only will a new industry be developed for the Callahan Corporation emanating community benefits, but also a positive step will be taken for the development of the Maine coast.

The aquaculture project will be started with European seed oysters, selected in part because they will be good indicators of heavy metal concentrations in the water. At first, the program will be confined to the pit area and will be controlled by marine biologists already hired by Callahan. One million oyster seeds have been ordered, and they will be raised to marketable size in trays. If after one year of feasibility study, a profit potential is shown and the heavy metal concentrations in the pit have not been a problem, the program will be expanded to Goose Cove and local hiring will begin. If oysters are not successfully raised, at least a year of close monitoring of the pit and cove waters by Callahan will be gained.

In the remarks that followed, Dow suggested that Japanese oysters be used instead of European species because they are considered more hardy, surviving more

adverse conditions. Beck reported that the University would like to see attempts at raising abalone and hard shelled clams be made. He also pointed out that if the pilot project is successful, Callahan may want to involve a marketing company here to obtain the expertise that would be needed for distribution.

Another aquaculture project which Callahan has been analyzing is the raising of salmon. Fred Beck traveled to the Puget Sound area of the State of Washington to study the methods being used by Union Carbide to raise salmon from fingerling to marketable pan size, in net pens, feeding concentrated fish pellets. Union Carbide and the University of Washington report good success, especially with the Coho species.

Several problems are anticipated with attempting a similar project in either the pit or cove area. Since the salmon are confined to net pens a good tidal flow is needed, providing flushing action to keep the fish from suffocating on their own wastes. It is also essential to maintain optimum water temperature. The water temperature in the winter drops below that range. To get around this, it was suggested that only brood stock be kept through the winter, in Goose Pond since ground heat should keep water there at a higher temperature. Another possibility was turning one of the present mine buildings into a hatchery.

Dow added his observation that commercial fishermen resist aquaculture, seeing it as a threat to their livelihood. He said comprehensive planning is necessary so that the two can develop hand-in-hand, supplying the course for Maine's economic future.

MONITORING

John Gray next called the attention of the group to the question of monitoring the Cove and pond waters.

Beck said that the monitoring Callahan had to do for the oysters should also satisfy the State and Goose Pond Reclamation Committee. The Callahan lab will stay and continue functional. Remarking that the Environmental Protection Agency (EPA) is yet to set water standards toward which they must work. Beck declared that Callahan could submit monitoring reports to the Committee for them to judge. Dow commented that the Sea and Shore Fisheries Dept., would have to do their own monitoring.

Along with monitoring, the question of when the dam could be removed was again raised. Hurst remarked that Callahan was a long way from receiving anyone's approval to do that. A discharge permit from the Army Corps of Engineers will be needed, as well as EIC and EPA consent.

Beck further reported that mining equipment would be removed from the area as soon as mining is concluded. The contour of the dumps will be smoothed before the equipment goes.

That the Goose Pond Reclamation Society has not yet gained the status of a legal, non-profit organization was stated by Sherman Greene. He said the by-laws are again being re-written for re-submission to the Attorney General's office.

In conclusion, the feeling generated by this meeting, and the news conference this morning was that of expectation. Callahan, after some prodding and pushing, is realizing its responsibility to the environment it has violated. Callahan is showing its willingness to try to restore it, and to go one measure further - to harmoniously utilize it, for the benefit of all, hopefully.

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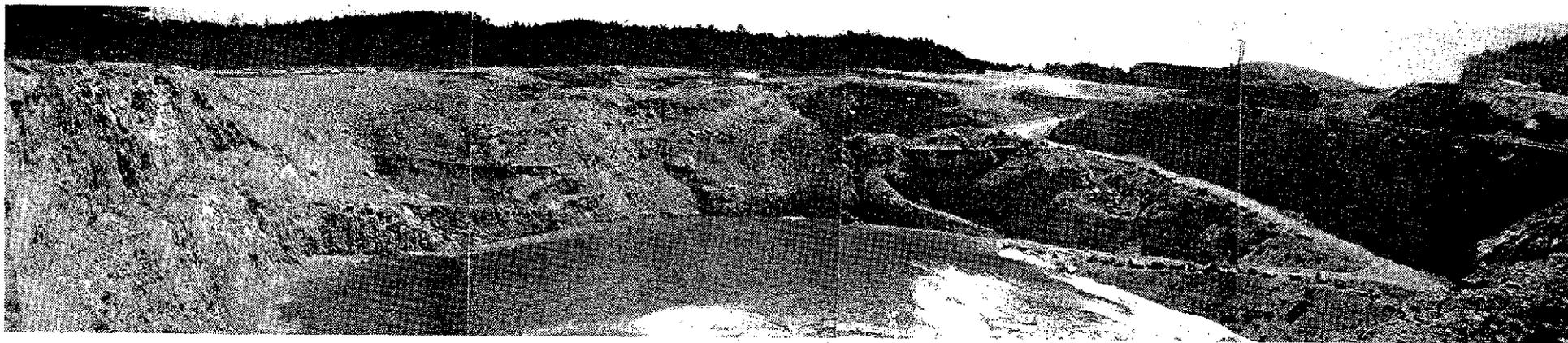
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PUMP
PROBLEMS?

Mining Operation Leaves Mark On Maine



Heavy Metals Poison Local Fishing Areas

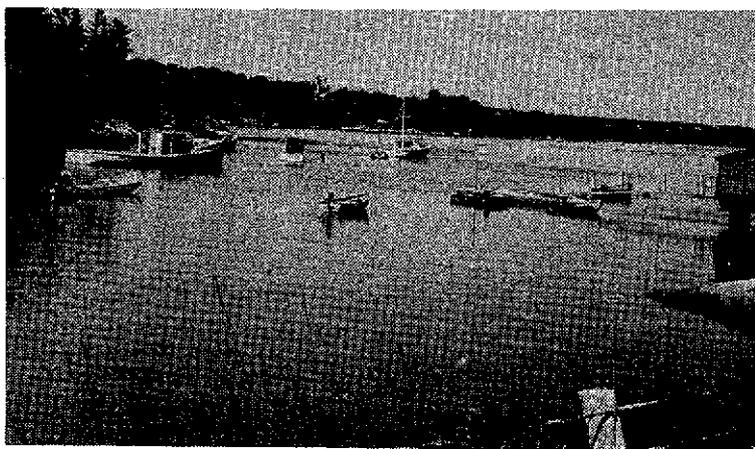
HARBORSIDE, ME. — Goose Cove, if approached by road from the south here on Cape Rosier, is one of those typical rockbound Maine anchorages lined with pine and spruce and complete with a couple of lobsterboats, some pleasure craft and a peapod or two.

That's the first thing you see, but when you come abreast of the cove on the causeway and look to the right, the scene is unnaturally breathtaking.

For there, a little more than 100' from the road and cove, is a 1000' wide pit that descends 320'. In the background is the "dump," a man-made mountain of rock, and, not in view, is the many-acre, acrid-smelling tailings pond.

The harmful effects of this recently-closed coastal strip mining operation on the marine environment are cited in the article below by Robert Dow and John Hurst Jr. of the Maine Dept. of

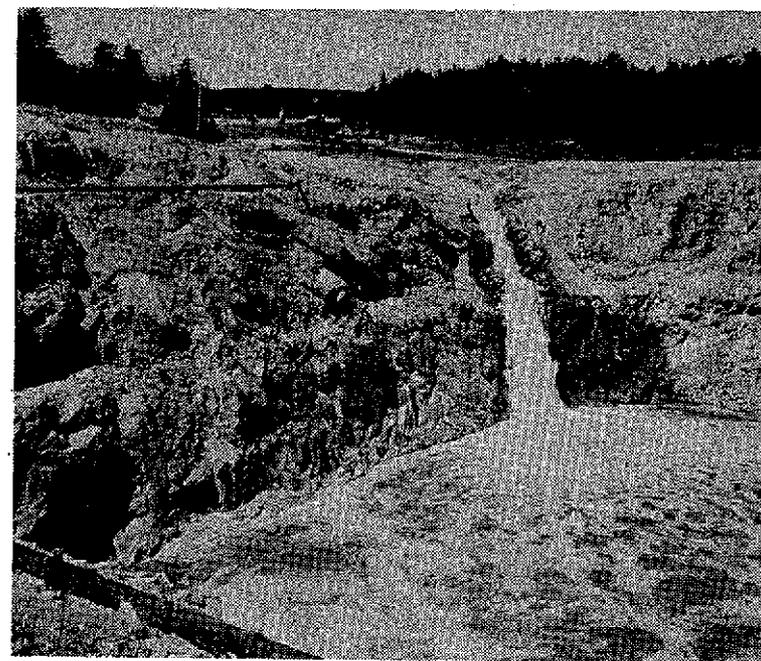
HUGE HOLE IN THE COAST OF MAINE is the Callahan Mining Co.'s open pit at Harborside. Some idea of the size can be determined from the above view looking out from the edge of the waterfall, shown at right. Beyond the waterfall can be seen a bridge, from one side of which can be seen the pit, and from the other the tranquil water view below.



metals as manganese, cadmium, chromium, nickel, zinc, lead, iron and cobalt. All these record high scores came from samples collected after operation of the separation plant (Table 1).

The mining operation, together with background levels, has also produced measurable

To obtain information on normal background levels, other clam samples from unmined areas of coastal Hancock County have been analyzed (Fig. 1). Results showed that all copper, lead and zinc samples from Goose Cove exceeded the maximum of all background samples. All but one



concentrations at Station No. 9 on the western tip of Goose Cove can be attributed to the outflow of these waters away from this station toward Station No. 8 on the eastern tip of the cove. This flow is indicated by differences in metal levels in clams from both sides of Goose Cove at its mouth.

Water and gravity appear to be the means by which metals are transported. Lead in water samples increased from less than .2 ppm to less than .9 ppm but in bottom sediments from 5 to 273 ppm during the same period.

Scores at other sampling stations of Cape Rosier and of

Wm. Sherman Greene, Jr.
Attorney and Counsellor at Law
Sunset, Maine 04683
207-348-2881

May 24, 1972

Dear Albert:

Thank you for your letter of May 17, 1972. As you know, I have already sent on the executed Certificate of Organization, with your letter to John Gray. I explained to Bill Fenton yesterday the situation and he understands that there will be a new Treasurer elected at the first meeting.

I think you can probably work things out.

Sincerely yours,



Wm. Sherman Greene, Jr.

WSG:RL

Mr. Albert E. Sandecki
50 Tanner St.
Haddonfield, N J 08033

50 Tanner Street
Haddonfield,
New Jersey 08033
May 23, 1972

The Academy of Natural Sciences
19th & the Parkway
Philadelphia, Pennsylvania

Dr. Ruth Patrick, Ph.D.
Chairman Dept. of Limnology

Dear Dr. Patrick:

Attached are some zerox copies of the publicity given the Callahan Corporation's proposal for the aquaculture study program.

I thought you might find it interesting reading for some rainy, appointmentless afternoon.

Perhaps Mr. LLOYD would be interested too.

Thank you again for your help in the past and I will be stopping by the Academy someday soon.

Sincerely,

Albert E. Sandeck
Treas. G.P.R.C.

cc: CMF