

THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
MARINE RESOURCES OPERATIONS

REPORT FOR THE MONTH OF DECEMBER 1965

John L. Baxter was appointed Research Fellow, Marine Life Research Program, University of California, San Diego effective January 1.

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The annual Pismo clam census showed fair sets at Pismo, Oceano and Le Grande but almost no set at Morro Bay.

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Crabbing at San Francisco is slow because of a scarcity of crabs and a reduced price to fishermen. Many crab fishermen have taken their traps from the ocean.

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Oyster culturists face problems in getting shipments of young "seed" oysters for replenishing their beds this season because of catastrophic failure of seed-producing areas in Japan.

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A recent census reveals that the Point Estero abalone beds are in good condition.

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Report on the 1965 CalCOFI Conference

The 28th annual CalCOFI Conference was held at the Torrey Pines Inn, La Jolla from December 20 to 22, 1965. This year's meetings, sponsored by Scripps Institution of Oceanography and chaired by John D. Isaacs were highlighted by two symposia; "Wide-scale Studies of the Ocean" and "Scientific and Technical Needs for Management of a New Pelagic Fishery."

The symposium on wide-scale studies included papers by outstanding scientists from the Office of Naval Research, U.S. Weather Bureau, U.S. Coast and Geodetic Survey and U.S. Bureau of Commercial Fisheries and emphasized the growing interest and need for broad studies of the marine environment. The second symposium featured studies contemplated for the recently-approved experimental anchovy fishery. Contributions by Department personnel were: Aging anchovies: otoliths vs. scales by John E. Fitch; Logbook catch records by James D. Messersmith; Tagging by Richard Wood; and Assessment by Trawl by John L. Baxter.

Papers contributed by Department personnel during general sessions were: A small midwater trawl for sampling fish populations by K.F. Mais; California Fish and Game sea survey data reports by Richard F.G. Heimann; and The 1965 California Fish and Game fall sea survey by Richard F.G. Heimann.

The formal papers were all well reviewed and solicited considerable discussion. The opportunity to discuss informally topics of mutual interest with our fellow workers in California as well as the visiting scientists again proved the most rewarding aspect of the meetings. We came home with many new ideas on how to conduct our anchovy studies and a better understanding of what other disciplines are doing in the area of marine research.--John L. Baxter

1. BOTTOMFISH

A. Fishery

Flatfish: Fishing effort was low and confined largely to the first half of the month. At Eureka, most trawl effort was expended for petrale in the Eel River Canyon where there were good catches. Most of the central California fleet fished shallow waters for English sole although several trawlers experienced good petrale fishing in the Montara Deep. The Santa Barbara fleet concentrated on English sole in deep water off the channel islands.

Rockfish: Landings were light at all ports. Modest landings of bocaccio by central California trawlers comprised the majority of rockfish landed during the month.

B. Research

Flatfish: Routine programs of market sampling and logbook - ticket processing were accomplished. Considerable effort was spent on age determinations.

Analyses of trawl sample box data continued. Preliminary comparisons of sample data with landing tickets show a bias. This may be due to the sampling method or might be caused by one of several other factors. The utility of these data collected in the early 1950's appears questionable.

Two petrale tags were recovered from the Eel River spawning deep. An Oregon petrale tag was recovered from a shipment of fish from Coos Bay.

Rockfish: Research effort was spent on taxonomic studies. Samples of hake were obtained for cooperative studies by the U.S.F.W.S., Seattle Technological Laboratory.

Bottomfish Program is on schedule.

2. SHELLFISH

A. Fishery

Abalone: Rough weather limited fishing at Morro Bay to deep water. When the divers were able to go out, catches were fair. The abalone landed showed recent good growth and were in excellent condition. The price rose to \$15 per dozen for choice and \$12 for any.

Crab: Many San Francisco and Bodega Bay crab fishermen have brought in their gear because of the scarcity of crabs and a reduced price influenced by the low price in northern California. Only one boat is fishing in the Bodega Bay area and 7 or 8 boats at San Francisco. Catches up to 700-800 pounds per 3-4 day trap setting have been made off Double Point in 23-37 fathoms. This amounts to about 3-4 legals per trap.

Northern California crab fishermen failed to take advantage of the earlier season opening on December 8 due to a price dispute. Fishermen were asking 22 cents per pound but industry was only willing to pay 14

cents. Oregon boats were on strike and did not begin to fish until the second week of the month. The northern California fleet finally settled for 14 cents and put to sea on December 21. Poor weather prevented fishermen from making major landings until December 23. Dealers had most boats on limits ranging from 1,000 to 2,000 pounds, depending on the size of the crew and boat; they were also limiting the number of days the boats could deliver. The dealers will probably accept increased landings after the holidays. Eleven fishermen interviewed on December 23 had averaged approximately 10 legal crabs per trap for a two-day trap setting.

Oysters: Oyster production reached peak levels; December is usually the month of greatest demand. The wholesale price per 12 ounce jar is 58 cents, the highest in history for California.

An oyster seed shortage has developed in Japan, and, judging from reports from buyers, it appears that only 8 to 12 thousand cases will be available for the whole Pacific coast. Normally orders for the Pacific coast total 40,000 to 50,000 cases. Buyers are searching for seed from other sources in Washington, British Columbia, Formosa, and Korea.

Shrimp: Season closed.

B. Research

Abalone: The third abalone census of the Point Estero beds was completed with a total of 30 stations visited - 15 in each study area. Preliminary results indicated good quantities of legal size abalone were present at many stations. Counts were taken of all sizes at each station and measurements were made whenever possible. As much as 50 mm. of recent growth was noted on some abalone.

Crab: Gotshall participated in a cruise aboard Humboldt State's research vessel SEA GULL on December 21. Ten crab traps were set off Georgia-Pacific's pulp mill outfall in 10 fathoms. Two ten-minute tows with our 16 foot skiff trawl produced 89 female crabs (1964 year class), 9 legal males and 5 sublegal males. A sudden worsening of the weather conditions prevented the retrieving of the traps. On December 24 we were able to recover the traps, most of which were partially buried; the 10 traps contained 23 females, 6 sublegal males and 15 legal males.

On December 23, we began interviewing crab fishermen to obtain catch-per-unit-of-effort data and also began sampling for condition. Ten of 51 crabs measured were soft. The average weight of the crabs sampled was 2.1 pounds.

Gary Varney began port sampling at Crescent City, Brookings, and Port Orford. At least 13 tags had been recovered off Port Orford by the middle of the month. Crabs sampled at Crescent City on December 22 were 6.5 percent soft.

The 1963 to 1965 tag returns of crabs tagged off San Francisco and Bodega Bay were placed on Unisort cards for analysis.

Oysters and Clams: A new rack was constructed in the channel near the oyster plant at Drakes Estero. All experimental oysters from Schooner

Bay were transferred to the rack. Counts and measurements were made of all European oysters. European oysters which came from seed from Japan during March, 1964 average 86 mm in length.

At Morro Bay the rack was strengthened with new lumber and all European oysters from the 1963 and 1964 year classes were counted and measured. Growth and survival continues good for 1963 year class; however, the 1964 year class has suffered 50 percent mortality in the past 3 months. Samples of oysters from this year class have been submitted to the U.S. Fish and Wildlife Laboratory at Oxford, Maryland for disease analysis.

Shrimp: At Eureka the analysis of Pacific hake and arrowtooth stomachs collected in 1963 was continued. Less than 200 remain to be examined. Tabulation of the stomach data was begun. Some time was spent in analyzing length frequencies in an attempt to find a more objective method of separating two and three-year-old shrimp.

The Ocean Shrimp Report for 1965 is nearing completion and will be submitted to the MRO editor in a few days.

3. PELAGIC FISH

A. Fishery

Landings in tons <u>Species</u>	<u>December</u>		<u>January 1 - December 31</u>		
	<u>1965*</u>	<u>1964</u>	<u>1965*</u>	<u>1964</u>	<u>10 yr. mean 1954-1963**</u>
Anchovy	176	72	2,805	2,488	3,240
Mackerel, jack	1,445	3,072	31,239	44,846	31,421
Mackerel, Pacific	586	38	3,345	13,414	19,788
Sardines	8	136	938	6,569	40,127
Squid	<u>284</u>	<u>1,163</u>	<u>8,403</u>	<u>8,217</u>	<u>5,762</u>
	2,499	4,481	46,730	75,534	100,338

* Estimated. Accumulated landings are revised monthly.

** Anchovy, used 6 year mean (1958-1963).

The anchovy reduction fishery ceased December 4, because of a price dispute. Landings total 182 tons off central California, 40 tons during November. No landings have been made south of Pt. Conception.

Fishing effort for other species has been curtailed by storms particularly during the latter part of the third and fifth weeks.

B. Research

Sampling was curtailed due to vacations, holidays and a 3 day conference. Remaining time was devoted to completion of jack and Pacific mackerel otolith readings, and preparing for a proposed anchovy tagging program.

C. Live Bait

Demand for live bait remains low, normal for this time of year. New supplies of bait logs were mailed to all bait fishermen of record. Bait

logs received for November indicate a minimum of 18,959 scoops (Est. 119 tons) were sold as live bait.

Mr. Robson E. Collins, B.S. San Diego State College, was appointed to the live bait project December 13.

- D. Sea Survey: The ALASKA returned from the last of five fall survey cruises on December 2. This cruise covered central California between San Francisco and Point Conception. Catches consisted largely of anchovies, with adult fish predominant. Small catches were the rule, with a pattern similar to last year's.

The data reports for our 1950 sea surveys were printed and are now ready for distribution. They were printed as Data Report Number 2 in the CalCOFI series. Cruises for 1951 and 1952 have been submitted for printing.

4. TUNA

A. Albacore Fishery:

A few fish were caught between Pt. Arguello and Morro Bay by 3 or 4 vessels but most of the 50 tons landed were caught prior to December 1.

B. Albacore Research:

Decreased field activity permitted us to devote some time to review fishery and cruise data for the past four seasons and to formulate future plans.

C. Bluefin Tuna Fishery:

There were no bluefin catches made this month although two vessels unloaded 35 tons taken off Cape Colnett, Baja California during the latter part of October.

Fishing for yellowfin and skipjack generally was slow in all areas due to rough weather and boats staying in port for the holiday season.

D. Bluefin Tuna Research:

Abstracting of 1965 vessel logs is continuing. Reading of 1965 bluefin scales is behind schedule but should be completed early in 1966.

Considerable time was spent completing and checking information pertaining to the recovery of tagged bluefin tuna in the Japanese coastal fishery.

Contacts have been made with fisheries workers in Australia and Japan and their cooperation has been solicited in helping us obtain eyelens specimens for our electrophoresis work.

Discussions with California cannery representatives indicate their cook-room records giving the number of bluefin tuna processed will be made available to us. This data will enable us to come up with a count of bluefin tuna taken in our fishery.

E. Miscellaneous

1. Robert Koski has requested a leave of absence to attend California State College at Long Beach for one year. Approval from Sacramento is expected soon; and Bob plans to start working for his MS degree February 1, 1966.
2. Harold Clemens has been invited to join the staff at Long Beach State, where his first task will be to sit on the Graduate Committee for MS candidate Bob Koski.
3. Robert Bell returned from a year-long FAO assignment in Africa. He investigated the tuna and pelagic fisheries resources off the coast of Kenya.
4. Al Smith and Max Franklin discussed the progress of their work on the electrophoresis of eye lens proteins. A major objective is to define separate breeding populations of marine fish.
5. Mr. Ed Dean from the Bissett-Berman Corporation visited on December 14 to describe new oceanographic instrumentation such as the salinograph and T.D.S. This new equipment should be given serious consideration for immediate installation aboard our research vessels.
6. A manuscript entitled Bluefin Tuna Traverse the Pacific has been completed and sent to the co-author at the BCF in San Diego for final criticism.
7. A manuscript entitled Migratory "Tackle-busters" has been completed and soon will be sent to the editor of Outdoor California.
8. A manuscript entitled Summary of Bluefin Tuna Tagging in the Eastern North Pacific has been completed and soon will be submitted for publication by PMFC.

F. Schedule

The Tuna Program is well behind schedule as a result of accumulated loss of time (see October, 1965 monthly report).

5. SPORTFISH

A. Partyboat

Research

California halibut age-length studies continued.

At Newport Harbor, 168 sand and spotted bass were tagged during the fourth semi-annual tagging derby sponsored by the Seahorse Spinfishing Club, Costa Mesa.

Fishery

The 1965 partyboat catch of key marine species, through November, compares with 1964 as follows: (nearest 500)

	<u>Through November</u>	<u>1965</u>	<u>1964</u>
Rockfish		1,256,000	885,500
Kelp, sand bass		1,203,500	1,071,500
Bonito		774,000	1,247,000
Barracuda		434,500	296,000
Calif. halibut		115,500	132,000
Salmon		51,500	92,000
Striped bass		15,000	32,000
Yellowtail		12,500	39,000

B. Environmental and Behavioral Studies of Coastal Sportfishes (DJ F22R-2)

Our contract report "The Marine Environment Offshore of Point Loma," was edited, retyped, proofed and mimeographed. It will be presented to the San Diego Regional Water Quality Control Board after the first of the year.

We continued working on our project manuscript, "Artificial Reef Ecology."

Inclement weather, a full gale, prevented our obtaining a sample of spiny lobster at San Clemente Island during the scheduled survey dives. A second attempt, near the month's end, was also unsuccessful due to weather.

Project personnel spent the latter portion of the month on vacation, rather than have these accumulated days, in excess of 30, cancelled.

The project remains behind schedule because of personnel shortages.

C. Northern California Marine Sport Fish Survey (DJ F12R8)

Compilation and write-up of blue rockfish life history and catch data continued. The first draft is nearly completed.

Miller spent three days at Terminal Island with statistical and sport fish projects personnel designing a sampling program for the newly initiated ocean sportfishing survey. The last week of the month was used in training new sampling personnel and setting up field survey schedules.

D. Southern California Marine Sport Fish Survey (DJ F20R-4)

Routine sampling of shoreline sportfishing activities continued. Overall activity was low early in the month, then increased during the Holiday season. Barred surfperch dominated the catches from the open coast while white croaker was by far the most numerous fish caught in the bays. Two aerial surveys scheduled for December were completed successfully. On the December 6th flight, no fishing activity was seen in the areas out-

side our sampling frame, i.e. those sections of the shoreline closed to the general public. The December 28 flight revealed a marked increase in fishing activity throughout southern California, including the areas outside our sampling frame.

Work continued on the first draft of a manuscript which will present the findings and results of our creel census of private vessels (1964) and the shoreline (1965).

One day was spent reviewing project activities with the U.S. Fish and Wildlife D.J. Coordinator Mr. George Warner and the California Department of Fish and Game Coordinator James Ryan.

Project is on schedule.

6. SPECIAL PROJECTS

A. Southern California

The last in a series of four sea otter censuses for the year, was flown on December 2.

The Annual Pismo Clam Census was conducted on December 7 through 10. There were fair sets of clams at Pismo, Oceano and Le Grande, but almost no set at Morro Bay. Heavy surf and an unusually strong downcoast current hindered the digging in waist-deep water and probably caused the clams to dig deeper than usual. The result was a very poor return of legal clams per man hour. Exceptional low tides in January and February, with an estimated 95 to 125,000 people on the beaches per day, may have seriously decimated legal-sized clams.

Considerable time was spent analyzing the clam census data of the last five years and preparing the results for publication.

Some time was also spent on the Trawl Study and red tide manuscripts.

There was an upsurge of seismic activity again this month.

Project is on schedule.

B. Northern California

All stations of the San Francisco Bay study were sampled from the NAUTILUS. Two groups of three students and a professor each made a day's trip on the NAUTILUS to collect biological material. These students were from Merritt College in Oakland. Live specimens were collected for Steinhart Aquarium, Stanford Medical Center, and the University of California.

The project leader assisted in the annual Pismo clam census.

7. BIOSTATISTICS

A. Data Processing

Regular Reports:

The November 1965 cannery and processor reports were compiled and the tuna case pack was summarized in the monthly letter.

September 1965 statistical reports of landings and shipments were completed.

The November marine partyboat catch was compiled and the letter reporting the catch was mailed.

Special Reports:

A table of tuna, mackerel and anchovy landings from 1940 to 1964 was prepared for Tony Ostoich of Quality Pack Control Company.

The Marine Fish Catch Bulletin page proofs were read and resubmitted to the editor.

A discussion concerning data processing for the northern California creel census study was held with Dan Miller.

Negotiations were broken off with the Bureau of Commercial Fisheries regarding the preparation of a catch by gear report. We expect to reopen negotiations after July 1.

Work in Progress:

October fish receipts have been edited and are being punched prior to data processing.

November fish receipts are being edited.

Field:

Five days were spent assisting Jack Carlisle, Special Projects, in the annual Pismo clam census.

Fish dealers and processors from Morro Bay to San Diego were contacted. Problems concerning the editing of fish receipts and processor reports were resolved.

A special trip was taken to Region IV to survey briefly the fresh water clam fishery around Los Banos. A more extensive trip is being planned to contact the bait shops in the area and issue fish receipt books.

B. Technical Assistance and Biometrical Analysis

Statistical and Mathematical Analysis:

Discussions with regard to various sampling problems were held with personnel from Shellfish, F19R and F20R.

A portion of a paper describing the shrimp sea-sampling plan was completed.

8. BIOLOGICAL NOTES

The vanguard of the annual southward migration of the California gray whale was noted off Monterey on December 15. The numbers observed in this region should peak up in January. These whales spend the summer in the Bering and Arctic Seas, where planktonic food is rich, but swim many miles southward to breed, during the winter, in the warm-water lagoons of Baja California, Mexico.

Two scabbardfish, Lepidopus xantusi, were obtained from trawl fishermen at Santa Barbara.

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Three unusual fish were received at California State Fisheries Laboratory during December, two from local waters and one from the Revillagigedo Islands. On December 14, a bigeye catalufa, Pseudopriacanthus serrula, was sent in; it had been caught near Malibu a few days previously. Interestingly, this crimson colored, bass-like fish was unknown from our waters until about 1952, when one was caught in the Monterey Bay area. In 1963, 1964, and 1965 an additional half-dozen have turned up, all except one in the area between Horseshoe Kelp and Malibu; the exception is the single 1963 capture from San Luis Obispo.

On December 23, two odd-balls were brought in: an oceanic puffer, Lagocephalus lagocephalus, from Newport Harbor, and a unicornfish, Eumecichthys fiski, from Clarion Island. Oceanic puffers have been noted in California waters in the past (at least six times), but the unicornfish represents only a second record from the eastern Pacific Ocean. The first eastern Pacific unicornfish was found in the stomach of a yellowfin tuna caught off Acapulco in 1959; it was badly digested and pretty well mangled. The latest specimen, an adult female 27 inches long, weighing 1 ounce, was caught with a purse seine and is in perfect condition.

9. VESSELS

ALASKA

On the 2nd, the vessel completed the last winter Pelagic Fish Cruise. The balance of the month the crew was on C.T.O. and vacation.

Scheduled: 2 days, operated 2 days.

N.B. SCOFIELD

Vessel secured for C.T.O. and maintenance the entire month.

NAUTILUS

The vessel conducted two San Francisco Bay Study cruises.

Scheduled: 12 days, operated 12 days.

MOLLUSK

Conducted 15 days abalone diving off Morro Bay.

10. MISCELLANEOUS

A. Meetings, Talks and Visitors:

- Dec. 1 - Odemar showed slides on fish identification to a group of 12 explorer scouts in Los Altos.
- Dec. 1-2 - Gotshall and Varney met with Dale Snow, Jack Nielson and Wally DeBen of the Oregon Fish Commission at Brookings, Oregon, to launch the port sampling program.
- Dec. 3 - Gotshall attended the Crab Fishermen's Marketing Association meeting to discuss our tagging study and results of the preseason cruise.
- Dec. 7 - Roedel and Baxter attended a CalCOFI meeting at La Jolla.
- Dec. 8 - Wood presented a talk on the commercial fisheries and showed movies at the Stanford Elementary School at Garden Grove. About 45 were present.
- Dec. 14 - Mr. Dean, a representative of Hytech Corporation, spent considerable time discussing the use of Hytech instruments with Craig and Heimann.
- Dec. 16 - Dr. Shipley and a class of Long Beach State College students visited the T.I. Laboratory. Baxter and Mackett were in charge.
- Dec. 17 - Biologists Dale Snow and Paul Reed of the Oregon Fish Commission visited the Menlo Park Laboratory to confer with John Modin and Dick Poole in regard to salt water aquarium systems and the rearing of larval crab and shrimp. Snow and Reed also accompanied Dahlstrom to Morro Bay to observe the abalone and oyster operations.
- Dec. 20 - Max Ernest of Pan Petroleum Corp. came from Denver to discuss seismic problems with Carlisle. T.I.
- Dec. 21 - Dr. Rusnals of U.S. Geological Survey met with Orcutt to discuss programs along the Pacific Coast and in marine bays.
- Dec. 22 - Vince Zankich, VanCamp Sea Foods, visited the Eureka laboratory to discuss hake fishing.

- Dec. 22 - Marine Wardens Charles Monroe and Ken Brown visited the Eureka Laboratory to discuss the use of the new patrol vessel, RAINBOW, in enforcing California shrimp regulations.
- Dec. 20-22 - CalCOFI Conference was held at Torrey Pines Inn at La Jolla. Two symposia were held: "Wide Scale Studies of the Ocean" and "Scientific and Technical Needs for Management of a New Pelagic Fishery." Those in attendance from the T.I. Laboratory were: Roedel, Fitch, Powell, Spaulding and the Pelagic Fish staff. Fish and Game Biologists contributing papers were: Fitch, Baxter, Heimann, Messersmith, Mais and Wood.
- Dec. 22 - Millard Harding of Phillips Petroleum visited Carlisle at the Laboratory to go over seismic problems.
- Dec. 23 - M.C. Baker of Shell Oil discussed his company's seismic plans with Carlisle. He later submitted his plans.
- Dec. 30 - Felix Chapellet and Hank Wright of the Western Oil and Gas Association discussed seismic problems with Carlisle.
- Dec. 30 - Orcutt attended AAAS meetings and presentation of papers on biometrics and systematics at the University of California, Berkeley.

B. Personnel:

- Dec. 13 - Robson A. Collins, appointed Aquatic Biologist I in the Live Bait Study.
- Dec. 22 - Gary Varney appointed Aquatic Biologist I at Crescent City for sampling marine resources landings of the California-Oregon border fisheries.
- Dec. 23 - Keith W. Cox, Marine Biologist II, Shellfish Program, was granted a leave of absence to work in Nigeria for the FAO.


Phil M. Roedel
Manager