



Report on

California Salmon and Steelhead Trout

AN ENVIRONMENTAL TRACEDY

State of California

Report Authorized by

Assembly Concurrent Resolution

#64/1970 Session

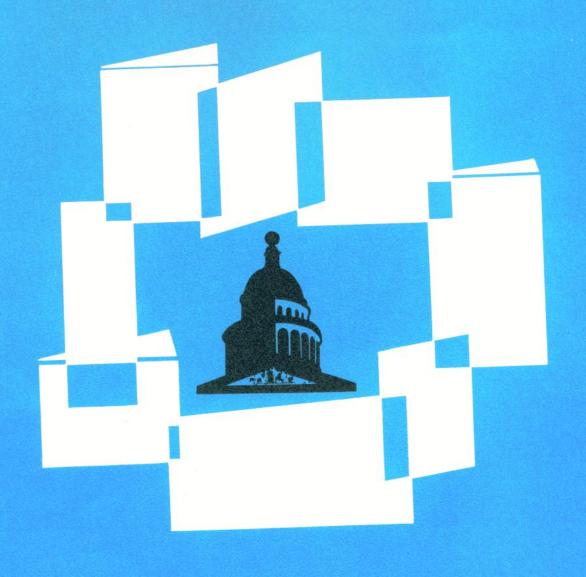
Citizens Advisory Committee on Salmon and Steelhead Trout

Departmental Staff Working Committee

California Department of Fish and Game

The Resources Agency

March 15, 1971



ACR#64/1970 SESSION

Assembly Concurrent Resolution No. 64

RESOLUTION CHAPTER 124

Assembly Concurrent Resolution No. 64 — Relative to creating an Advisory Committee on Salmon and Steelhead Trout.

[Filed with Secretary of State July 9, 1970.]

WHEREAS, The salmon and steelhead trout resources are a priceless and irreplaceable resource of this state; and

WHEREAS, The survival of these resources is now threatened;

now, therefore, be it

Resolved by the Assembly of the State of California, the Senate

thereof concurring, As follows:

1. The Director of the Department of Fish and Game shall appoint an Advisory Committee on Salmon and Steelhead Trout which shall ascertain, study and analyze all facts relating to the preservation, protection, restoration and enhancement of salmon and steelhead trout resources of this state, including, but not limited to, the operation, effect, administration, enforcement and needed revision of any and all laws in any way bearing upon or relating to the subject of this resolution, and to report thereon to the director, who shall submit such report to the Legislature, including in the report its recommendations for appropriate legislation.

2. The Advisory Committee on Salmon and Steelhead Trout shall consist of persons having practical knowledge and experience

from the following fields:

- (a) Four commercial representatives from salmon fishermen and commercial salmon processors.
- (b) Four organized sportsmen representatives from salmon and steelhead fishermen and party boat operators.

(c) One public member.

3. The advisory committee shall cooperate with and secure the cooperation of county, city, city and county, and other local law enforcement agencies in investigating any matter within the scope of this resolution.

4. The members of the advisory committee shall serve without compensation.

5. The advisory committee shall study and investigate all relevant matters, in order to provide for and develop a program for the preservation, protection, restoration, and enhancement of the salmon and steelhead trout resources of this state, including, but not limited to, the following matters:

(a) The conduct of hatchery and stocking operations such as to achieve maximum contribution to the fishery and to spawning

escapement.

- (b) The rehabilitation, protection, enhancement, and preservation of all salmon and steelhead trout spawning areas and the maintenance of such areas in optimum condition.
- (c) The expansion of hatchery and related artificial propagation facilities where necessary and feasible to achieve maximum production of salmon and steelhead trout.
- (d) The screening of all existing major diversions on salmon and steelhead trout streams.
- (e) The development and conduct of rehabilitation, enhancement, and restocking programs to achieve maximum production in all streams with historic populations of salmon and steelhead trout.

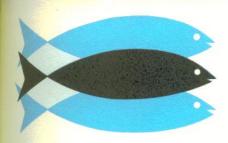
(f) The coordination of state programs and activities with federal agencies so as to promote maximum contribution to the salmon

and steelhead trout resources by the federal government.

6. The advisory committee shall submit a progress report, together with any suggested legislation, to the director, who shall submit such report to the Legislature not later than the fifth calendar day of the 1971 Regular Session of the Legislature.



LETTER OF TRANSMITTAL



ADVISORY COMMITTEE ON SALMON & STEELHEAD TROUT / 1416-9TH ST. / SACRAMENTO, CA. 95814

March 15, 1971

Mr. G. Ray Arnett, Director California Department of Fish and Game 1616 Ninth Street Sacramento, California 95814

Dear Director Arnett:

Pursuant to ACR/64 (1970 Session) it is a pleasure to submit to you for transmittal to the California Legislature the initial progress report of your Advisory Committee on Salmon and Steelhead Trout. This committee was appointed by you in July 1970.

The Committee has held many meetings during the past few months and has worked diligently to assist you, the California Legislature, and California citizens in identifying actions needed to save California's uniquely valuable salmon and steelhead resources.

We are deeply disturbed about the declining trends of these important fisheries. Despite the efforts of the Department of Fish and Game, it is apparent from our studies that these resources will soon be destroyed unless strong decisive measures are taken.

We ask your full support in implementing the recommendations in our initial progress report. The Committee intends to devote a continuing effort to assist you by conducting an additional study into ways of restoring, protecting and enhancing California's salmon and steelhead.

We appreciate the assistance your staff has provided to the Committee.

Sincerely,

WILLIAM F. GRADER

Chairman

Advisory Committee on Salmon

and Steelhead Trout

WFG:111 Enclosure

Advisory Committee on Salmon and Steelhead Trout

Appointed by the Director of the California Department of Fish and Game pursuant to ACR/64, 1970

Committees:

WILLIAM F. GRADER, Chairman of Committee Fish Processer Secretary, Salmon Unlimited

VERN SMITH, Vice Chairman Sportsman President, California Wildlife Federation

EARL CARPENTER
Fisherman
President, Bodega Bay Fisherman's Marketing Association

GEORGE AGOSTINI Fish Processer President, A. Paladini, Incorporated

JOHN PELNAR Sportsman Retired Manager, Coleman Fish Hatchery

EDMUND KOLHAUF Party and Charter Boat Operator Golden Gate Sportfishers

JOSEPH PAUL Sportsman President, California Trout, Incorporated

WILLIAM HILL Fisherman Secretary, Humboldt Fisherman's Marketing Association

WILLIAM E. ALLEN Public Member

Advisors:

RAY E. WELSH President, Salmon Unlimited JOHN GILCHRIST

Secretary, California Seafood Institute

MILBURN ZELL Sportsmen Council of the Redwood Empire

PAUL McKEEHAN Associated Sportsmen of California

DAVID M. DANBOM Commercial Fisherman

EVERETT WATKINS, DDS Sportsmen Representative

J. GARY SMITH Humboldt State College

GEORGE DIFANI Sportsmen Representative

RUDY URBANI Commercial Salmon Troller

LOUIS VITALE President, Los Angeles Smoking and Curing Company

JAMES MANTER Sportsmen Representative

Consultants:

JONES & STOKES ASSOCIATES, INC. Committee Consultant

GEORGE LOUIE / DESIGN CONSULTANT Designer of this report



California Department of Fish and Game

G. RAY ARNETT Director

LAWRENCE CLOYD Deputy Director

E. C. "CHARLIE" FULLERTON Chief of Operations

GEORGE H. WARNER Chief, Anadromous Fisheries Branch

PAUL T. JENSEN Senior Fishery Biologist

ROBERT WILL Fish Hatchery Manager II

L. B. BOYDSTUN Assistant Marine Biologist

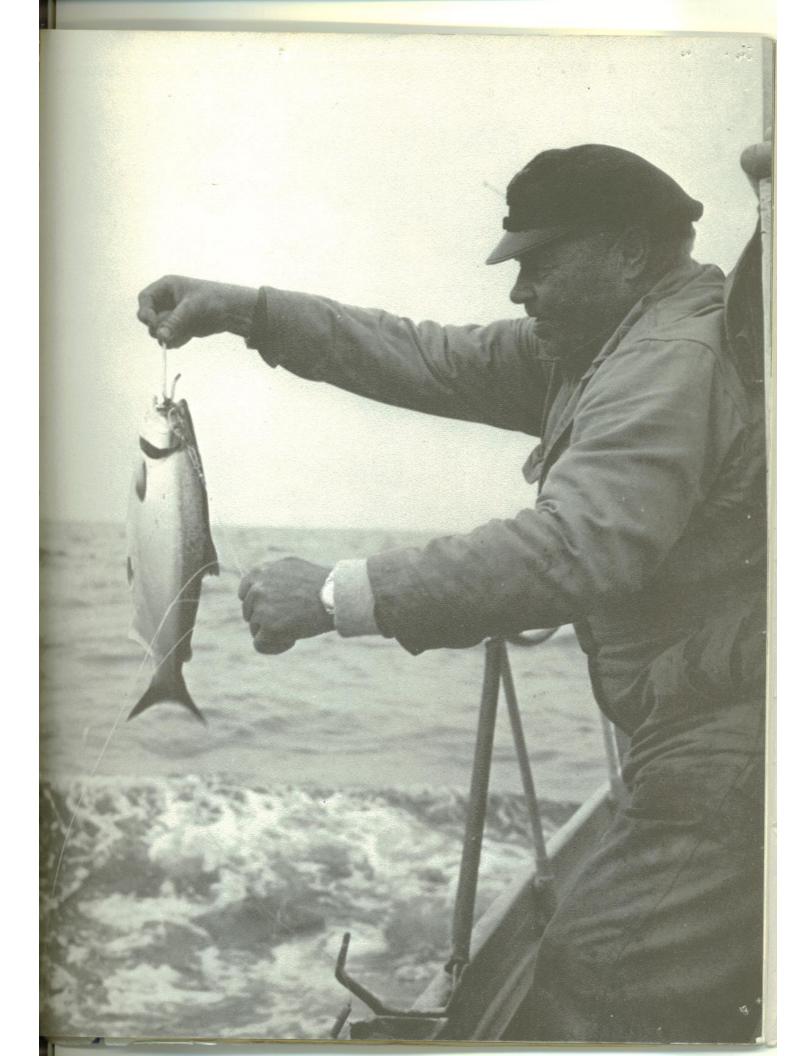


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SUMMARY OF FINDINGS & RECOMMENDATIONS

19315

- 1/ The salmon and steelhead resources of California are imperiled.
- 2/ Existing programs are inadequate to counteract the resource decline.
- 3/ Salmon and steelhead habitat already damaged or destroyed must be restored to its original productivity, where physically feasible.
- 4/ Future projects affecting salmon and steelhead populations must, as a project purpose, include the protection of these resources. Before this can be fully achieved, the technology for such protection must be developed.
- 5/ Because these resources are a major element of California's recreational and industrial economy, their rehabilitation, enhancement and protection must receive the highest priority effort by the Department of Fish and Game.

SALMON AND STEELHEAD

INTRODUCTION

The salmon and steelhead of California are unique and valuable natural resources which contribute significantly to the state's economy through both recreational and commercial fishing activities. They are preeminent among fish for beauty, sporting qualities and as food.

Each of these fish — the king salmon, silver salmon and steelhead — are hatched in the gravels of free flowing streams, swim to the ocean to grow and return to their native streams to spawn. Because of their unusual physical requirements, steelhead and salmon are found naturally only in a few other places in the United States. They are dependent on a very special habitat.

These resources and the habitat which produces them constitute a high quality feature in California's natural environment.

Man, unfortunately, in his headlong rush to develop California and produce goods and services, has paid little heed to environmental quality and the uniqueness and irreplaceability of the salmon and steelhead resources. These resources are now seriously threatened and once lost, may be gone forever. Only resolute action will prevent such a disaster.

OBJECTIVE

The California Legislature, recognizing the dangerous status of salmon and steelhead populations, established a citizen's advisory committee to investigate the causes and recommend priority actions to save these important resources.

The stated charge to the committee is to develop and recommend programs for the preservation, protection, restoration and enhancement of the salmon and steelhead resources in California.

The first progress report of the advisory committee is intended to highlight the critical condition of the resource and the habitat on which it depends, identify major problems and make some initial recommendations warranting immediate action.

CONDITION OF THE SALMON & STEELHEAD RESOURCES

Analysis of Department of Fish and Game records on the status of salmon and steelhead populations in California provides startling evidence of declining trends headed toward ultimate disaster. Action must be taken to reverse this decline.

Counts and estimates of adult fish returning to various streams to spawn provide the most meaningful indicators of the population status and trends. Information is available for both the North Coast and Central Valley (Sacramento-San Joaquin River system) streams.



North Coast fish counting stations, which have operated for several decades, are the best source of data on population trends for silver salmon and steelhead. Silver salmon are found only in North Coast streams and at least 80 percent of California's steelhead catch, spawning escapement and fishing effort are confined to the North Coastal area.

The records for Central Valley streams, however, are of most significance in determining the trends of the king salmon adult spawning runs since the department estimates that approximately 70 percent of the king salmon ocean catch is dependent on fish from the Sacramento and San Joaquin River system. In addition to making counts at several stations, the department uses other techniques to estimate the total king salmon adult runs to streams where there are no counting facilities.

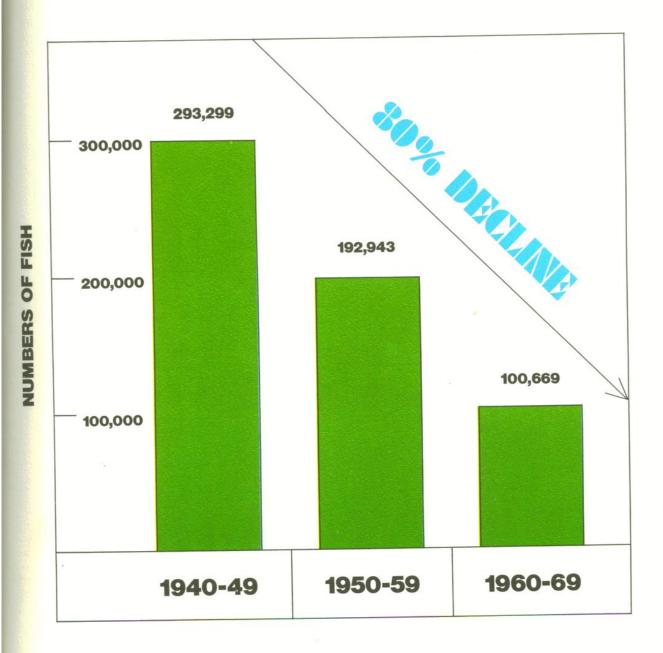
The accompanying graphs demonstrate the steep downward trends of the steelhead, silver and king salmon resource. North Coast counting stations over the past three decades have shown declines of 66 percent in steelhead, 65 percent in silver salmon and 64 percent in king salmon. The Central Valley king salmon adult spawning population has dropped from 597,000 fish in 1953 to 332,000 fish in 1969 — a 46 percent decline. Major actions must be taken on an urgency basis to save these resources.

TREND OF STEELHEAD RUNS

NORTH COAST

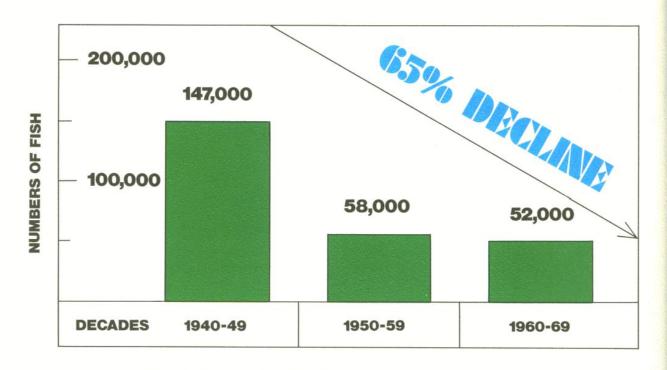


3 COUNTING STATIONS

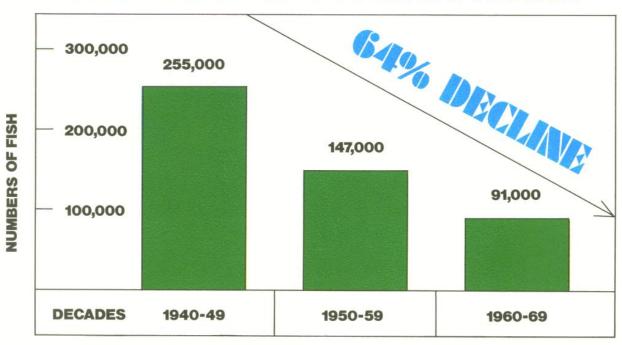


DECADES

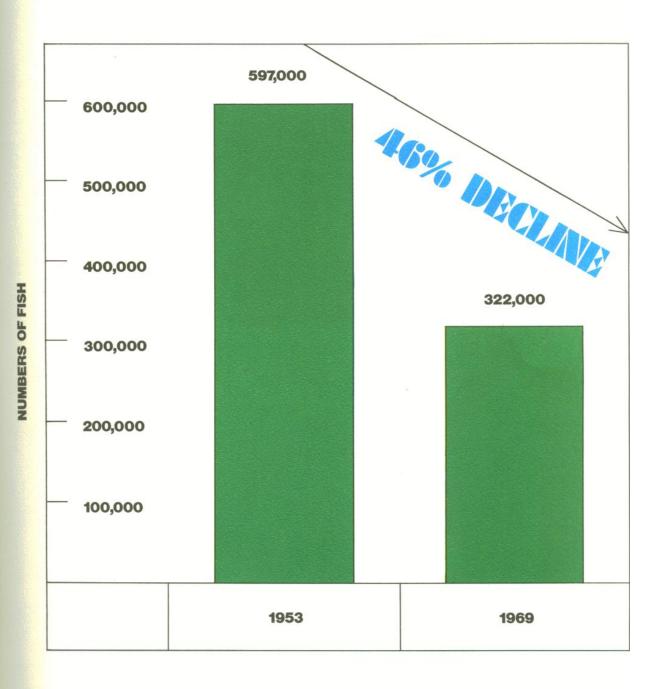
TREND OF SILVER SALMON RUNS NORTH COAST | 1 COUNTING STATION



TREND OF KING SALMON RUNS NORTH COAST 3 COUNTING STATIONS



FALL KING SALMON RUNS SACRAMENTO-SAN JOAQUIN RIVER SYSTEMS



CENTRAL VALLEY

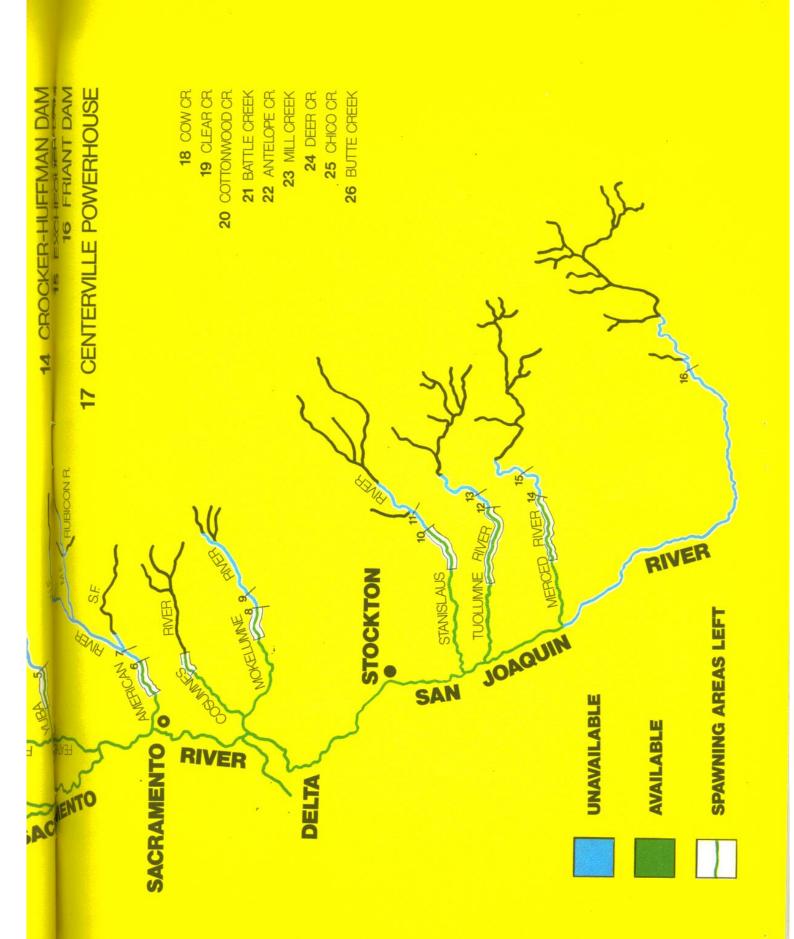
CALIFORNIA CENTIRAL VALLEY

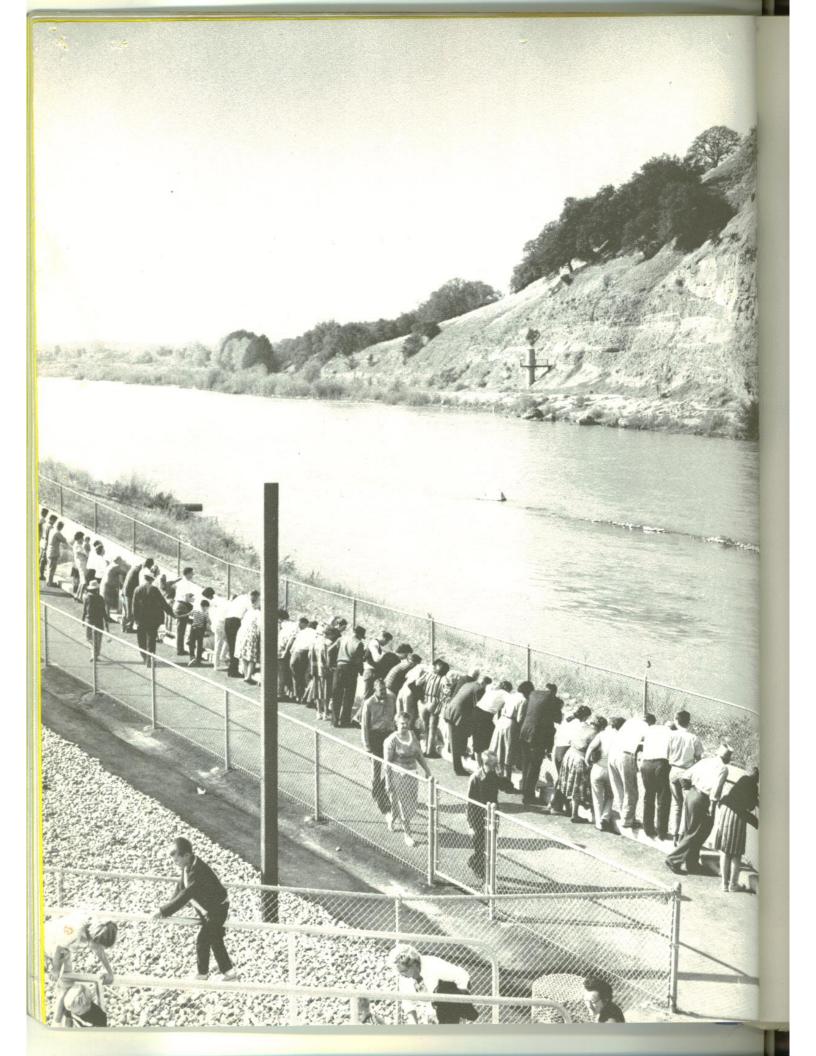
SACIEAMENTO & SAN JOAQUIN RIVER SYSTEMS

ORIGINAL & PRESENT KING SALMON HABITAT



13 DON PEDRO DAM





CONDITION OF THE HABITAT

Although the life histories of king salmon, silver salmon and steelhead differ somewhat, each of these fish requires for natural reproduction gravels of clean, free-flowing streams. The young steelhead and silver salmon spend approximately one year in the streams before migrating to the ocean while the king salmon young move to the ocean shortly after hatching. All species grow rapidly during an ocean life of one to three years, then return as adult to their native streams to spawn.

The critical links in the life cycle include the ocean, the estuaries, the lower river and the headwater river areas.

While man's varied activities have caused damage to these fish in each of these habitats, all available evidence indicates that the areas most damaged by man's developments are the upstream spawning and nursery areas. The degradation of these areas which commenced with gold mining in the 1800's has continued unabated as the state has grown.

Water development has been the major activity significantly decreasing the amount of upstream salmon and steelhead habitat. Damage to watersheds and spawning streams from logging, mining, road construction, gravel extraction, grazing, pollution and other causes has also had a major detrimental effect on the quantity and quality of this key habitat.

The map (center spread) of the Central Valley streams graphically shows the salmon and steelhead habitat already lost and the few remaining spawning areas still available. Department of Fish and Game estimates of available Central Valley spawning streams show the magnitude of these losses:

Originally — 6,000 miles (1) 1928 — 520 miles 1958 — 300 miles 1970 — (2)

The California Fish and Game Wildlife Plan (1964) summarized the predicted effects of future water development projects planned between 1963 and 1980 (Pages 25 - 27). This information amply demonstrates that of the limited salmon and steelhead habitat still remaining on the North Coast and in the Central Valley, significant additional areas will be lost and much additional stream area will be dependent upon suitable water releases from future reservoirs.

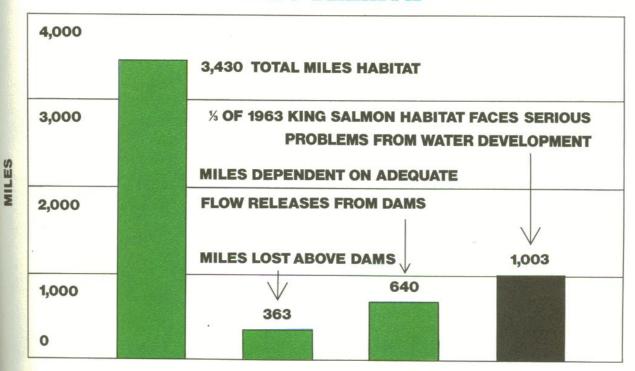
In addition to water development, damage to salmon and steelhead spawning streams through degradation of the watershed, continues at an alarming rate as California continues its development. This results from both government and private industry each carrying out its own special purpose objectives without sufficient consideration of the impact of its activities on these resources. The chart on Page 29 provides the results of a single Department of Fish and Game study in 1966 pinpointing the effects of poor watershed management on just two of California's salmon and steelhead streams.

⁽¹⁾ The Department feels this estimate made in 1928 is too high.

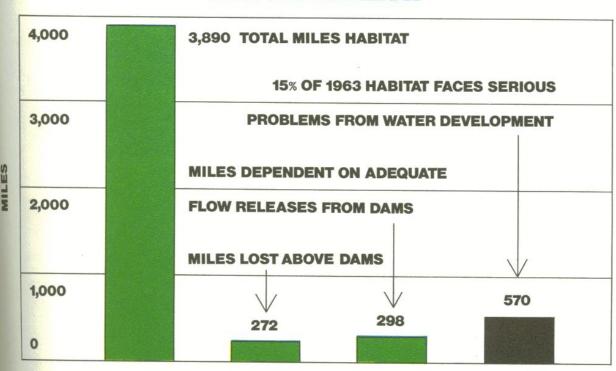
⁽²⁾ Since the last survey of 1968, Department field reports indicate a continuing loss of critical natural spawning areas.

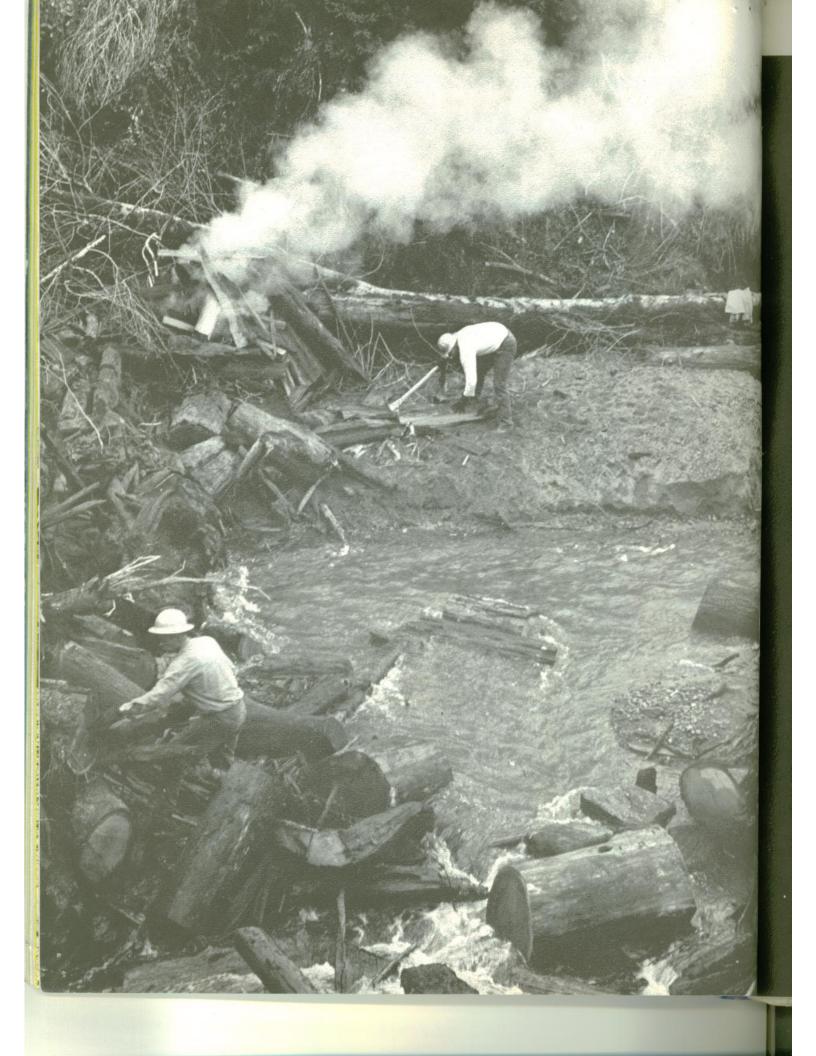
PREDICTED EFFECTS OF PLANNED WATER DEVELOPMENT BETWEEN 1963-1980 (CALIFORNIA FISH & WILDLIFE PLAN)

KING SALMON



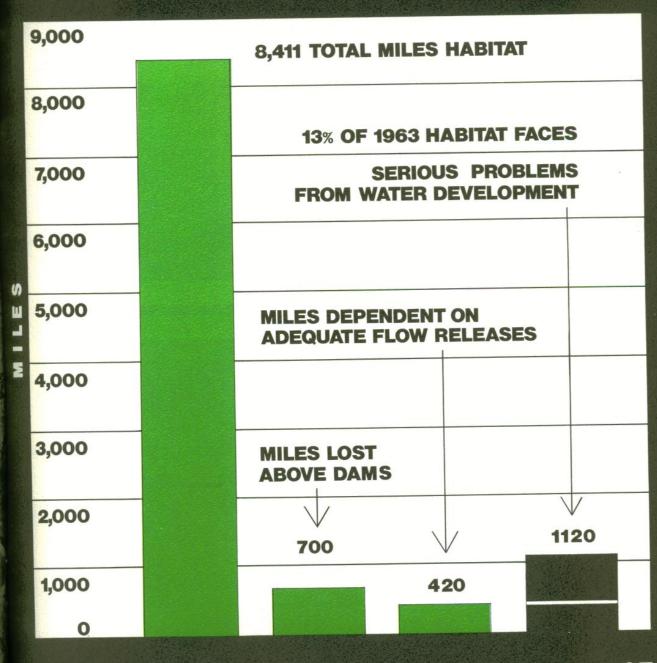
SILVER SALMON





PREDICTED EFFECTS OF PLANNED WATER DEVELOPMENT BETWEEN 1963-1980 (CALIFORNIA FISH & WILDLIFE PLAN)

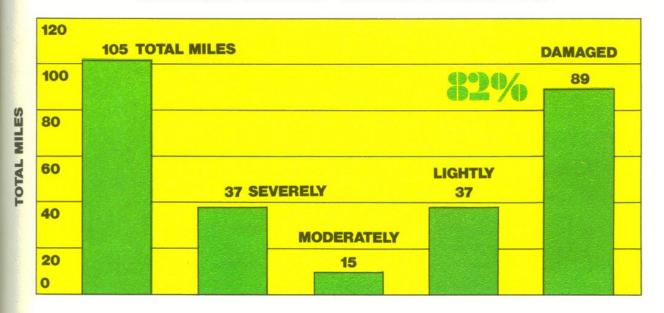
STEELHEAD



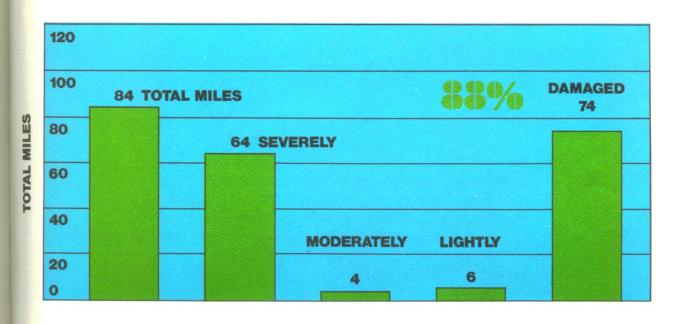
The California spawning and rearing streams for steelhead and salmon have been lost at an alarming rate, and planned future developments threaten the quality and quantity of those remaining. The Department of Fish and Game estimates that less than 300 miles of spawning streams are left in the Central Valley. Future water and other developments are projected to result in further declines in habitat before 1980, both on the North Coast and the Central Valley. These losses must be halted and past damages corrected to save these unique resources.

FROM POOR WATERSHED MANAGEMENT/1966 STUDY (LOGGING, ROAD BUILDING, DAM CONSTRUCTION, OVERGRAZING)

CARCIA RIVER - MENDOCINO CO.



REDWOOD CREEK - HUMBOLDT CO.



PROBLEMS & RECOMMENDATIONS

California will lose its valuable salmon and steelhead resources before the end of this century unless prompt aggressive action is taken to halt the destruction of these fish.

Despite major past efforts by the Department of Fish and Game and interested conservationists, the future of these fisheries is endangered. Efforts to reverse the declining trends have failed.

The Department has been blocked in its efforts to obtain sufficient legal authority to protect the spawning streams from development by other governmental agencies or private developers. Further, the Department has not been provided sufficient funds or powers to correct past damage to spawning streams or funds to even assure the protection of these resources from future developments.

An all-out effort is now needed to correct past damage and restore the potential of these spawning streams, to prevent damage from all future developments, and to expand salmon and steelhead programs for priority protection and enhancement work.

RESTORATION FROM PAST DAMAGE

Past government and private developments have blocked many salmon and steelhead spawning streams and destroyed countless miles of others. Many opportunities exist to rebuild and restore these areas and correct the damages still continuing. Funds available to the Department of Fish and Game

from sport anglers and commercial fishermen, the users of these resources, cannot alone rebuild the fish runs nor should the fisherman be expected to bear the total cost. Where it is possible to identify those responsible for the damage, they should be required to pay the cost to remedy it; where not, general public funds should be used.

- 1/ The Federal Government should pay the costs for restoration of salmon and steelhead runs damaged by prior Federal water and other development projects, as is being done in the Columbia River Basin.
 - 2/ The California general fund should contribute half the costs of Department of Fish and Game programs to rehabilitate and restore the salmon and steelhead resources already damaged by non-Federal Governmental agencies and private developments.
- 3/ The Federal Government, at Coleman and Nimbus Hatcheries, should install a closed water system and take those actions necessary to prevent disease now causing losses of up to 90 percent of the hatchery production of salmon and steelhead.
 - 4/ Additional ponds should be installed at both hatcheries by the Federal Government to increase the rearing capacity for salmon and steelhead, thereby, allowing the fish to be reared to a larger size and increasing their survival to the adult stage. These hatcheries have not yet accomplished their purpose of fully mitigating damages caused by Federal water development.

5/ The Federal Government should make the necessary alterations in the design or operations of the Keswick Fish Trap to assure its efficient functioning at the time of all salmon runs.

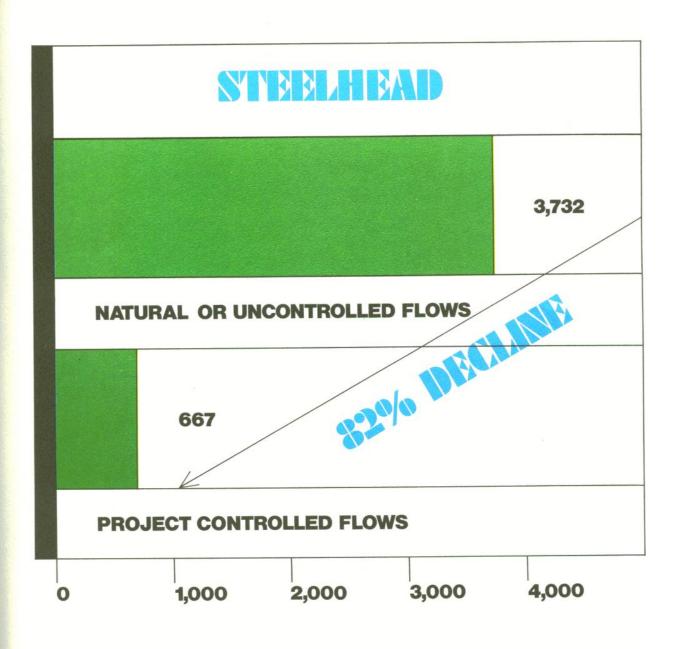
6/ Immediate priority should be given to an evaluation of the U.S. Bureau of Reclamation's Trinity River Project and correction of the tremendous damage done to the steelhead-salmon runs in this river in the last ten years. Steelhead runs since 1961 under project-controlled downstream spring flows have declined 82 percent.

7/ The Department of Fish and Game must recognize the failure of fish protection measures at the Trinity River Project and must actively oppose any future project on any salmon or steelhead stream until the deficiency in technology demonstrated on the Trinity River has been overcome.

PROTECTION WITH FUTURE DEVELOPMENT

All future developments that may affect the quality or the amount of salmon and steelhead habitat must be controlled to assure the protection of these areas. No longer can we afford to allow single-purpose projects to disregard the environmental consequences and destroy these irreplaceable and valuable salmon and steelhead resources. The costs of the protection measures necessary to save these fish must be charged to the proposed

TRINITY RIVER PROJECT ON STEELHEAD SINCE 1961



NUMBERS OF FISH



project — not to the general public or the users of these resources. Recent Federal and State laws, enforced aggressively, provide the legal foundation for accomplishing this.

- 8/ The Federal Council on Environmental Quality should disapprove any proposed Federal project on any California salmon and steelhead stream unless the environmental impact report clearly states that such projects will not be deleterious to the salmon and steelhead resources of that stream.
- 9/ The U.S. Corps of Engineers should issue no permits for waste discharges to any California salmon and steelhead stream under the National Refuse Act of 1899 without first making a finding that such discharge will have no deleterious effect on the salmon and steelhead resources of that stream.
- 10/ The Department of Fish and Game shall aggressively oppose any planned developments on salmon and steelhead streams unless it can be demonstrated in an impact report that these resources can be fully protected or enhanced with the proposed development.
- 11/ Downstream releases of water made for salmon and steelhead from any project shall be safeguarded by the State Water Resources Control Board from diversion for other purposes
- 12/ All future water diversions from streams designated by the Department of Fish and Gamas salmon and steelhead spawning streams shall be screened as directed by the Department

and the entire cost of constructing, maintaining and operating the screen shall be borne by the diverter.

13

13/ The primary project beneficiaries of all future water, power, irrigation or flood control projects, shall bear the full costs of all actions required to provide for the maintenance of the full salmon and steelhead production capability of such streams, including the acquisitions, improvement and maintenance of downstream spawning areas. The effects on salmon and steelhead of changes in water quality, temperatures, stream flows, gravel replenishment and increased use of the stream as a result of the project shall be considered in assessing the project impact.

14

14/ Post project evaluation of all future water developments shall be financed by the developer to determine the actual effect of project operations on salmon and steelhead populations. Project operations should be adjusted where necessary to assure pre-project fish production. Artificial hatchery production should be provided if changes in project operation cannot accomplish this goal.

15

15/ The State Lands Commission shall determine the ownership of all salmon and steelhead spawning areas designated by the Department of Fish and Game. All areas found to be the State property shall be permanently protected by the State and no sale, lease, or disposal shall be made. The Director of the Department of Fish and Game shall be empowered to disapprove stream

alterations of any prime salmon and steelhead spawning areas.

16

16/ The Federal Government should annually provide the maximum funding allowed under the Federal Anadromous Fisheries Act providing allocations to the states for salmon and steelhead management programs.



17/ Federal and State pumping of water in the Delta now threatens the salmon and steelhead resources in the Central Valley. Additional scheduled pumping will pose an even greater threat. The peripheral canal project can solve these problems if operated properly. The responsible water development agencies should be required to take those interim measures already recommended by the Department to avoid further damage prior to project completion.

SALMON AND STEELHEAD MANAGEMENT PROGRAMS

The Department of Fish and Game must expand and improve its programs to rebuild, protect and enhance the salmon and steelhead resources if these important fisheries are to be saved.

The major priority should be placed on activities to protect, restore and enhance the natural habitat of these fish. Hatcheries and artificial spawning channels to supplement the natural production and to mitigate for losses caused by developments must be fully utilized and efficiently operated.

18

18/ Sport fishing license fees for the taking of salmon and steelhead should be increased to provide additional funds for the protection, restoration and enhancement of salmon and steelhead. Taxes on the commercial take of salmon were increased in 1970. The Department should maintain separate accounting of all the revenues and expenditures for salmon and steelhead.

19

19/ A minimum of \$3 million of State Water Project Fish and Wildlife Enhancement funds authorized by Proposition 20 (1970) shall be allocated for salmon and steelhead enhancement purposes for projects such as spawning gravel acquisitions, hatcheries or artificial spawning channels.

20

20/ The Fish and Game Commission should establish the following policies to guide the Department:

a/ The goal of the Department shall be to realize the full potential productivity of all salmon and steelhead streams.

b/ No native steelhead, king salmon or silver salmon shall be stocked in any lakes or reservoirs or any waters considered unsuitable for the migration of these fish to the ocean and their return, until such time as the Director advises the Commission that all streams suitable for salmon and steelhead have optimum populations of fish.

- c/ The Department shall give priority in its studies to making a systematic appraisal of the present and potential carrying capacity of all salmon and steelhead streams and recommend annually to the Commission those actions necessary to realize the potential carrying capacity.
- d/ The Department should annually submit to the Commission for approval the proposed allocation of hatchery space for salmon and steelhead and catchable trout. The Anadromous Fisheries Branch will be responsible for planning and scheduling the size and planting location of all salmon and steelhead. Stock used to plant streams should be adaptable to the type of stream to be stocked.
- e/ No salmon and steelhead from diseasebearing streams shall be transferred to disease-free streams.
- f/ The Department should take immediate action to inaugurate an experimental program of establishing salmon and steelhead rearing ponds on suitable streams and annually report to the Commission on this program with recommendations for further actions. The Department should encourage the cooperation of local government, schools, or citizen groups in the operation of the rearing pond program.
- g/ The Department should keep separate records of hatchery production and hatchery expenditures for steelhead, king salmon and silver salmon.

h/ The Department should continue the experimental Sacramento River program of transporting and releasing hatchery fish at selected downstream locations until the project is fully evaluated.

i/ No catchable trout should be planted in any salmon and steelhead stream until after the annual downstream migration of yearling silver salmon and steelhead has been completed.

THE COMMITTEE RECOMMENDS THAT
THE FEDERAL GOVERNMENT,
THE CALIFORNIA LEGISLATURE,
THE CALIFORNIA FISH AND GAME
COMMISSION AND THE DEPARTMENT OF
FISH AND GAME TAKE STEPS TO
IMMEDIATELY IMPLEMENT THE
APPLICABLE RECOMMENDATIONS MADE IN
THIS INITIAL PROGRESS REPORT OF THE
ADVISORY COMMITTEE ON SALMON AND
STEELHEAD TROUT. UNLESS POSITIVE
ACTION IS NOW TAKEN, CALIFORNIA FACES
A GENUINE ENVIRONMENTAL TRAGEDY.

DEPARTMENT OF FISH AND GAME

1416 NINTH STREET SACRAMENTO, CALIFORNIA 95814

G. RAY ARNETT, Director

June 1, 1971

Honorable Robert Moretti Speaker of the Assembly Room 3164, State Capitol Sacramento, California 95814

In accordance, Assemblyman Moretti ---

Session of the California Legislature, I am submitting her with twenty-five copies of "An Environmental Tragedy", prepared by the Salmon and Steelhead Advisory Committee. The committee's recommendations generally follow those of the California Fish and Wildlife Plan of 1966. However, the committee's interpretation of the supporting data varies somethat from the Department's analysis.

Sincerely,

Director



