

MEMORANDA OF INQUIRY
RELATIVE TO THE
FOOD FISHES OF THE UNITED STATES.

A. Name of Fish in different localities.

B. Geographical distribution.

At present time.

Change of location with season of year.

In former times.

Supposed cause of any permanent change.

C. Abundance.

At present time: in different seasons and localities.

In former times: in different seasons and localities.

Supposed cause of variation in abundance.

Probable change in the future.

D. Size.

Maximum length and weight.

Average length and weight.

Rate of growth.

Length and weight at age of one: two: three: etc., years.

Difference of sexes in this respect.

E. Migrations and movements.

Arrival and departure.

Period of stay.

Certainty of arrival.

Route of movement, coming and going.

Number and times of runs or schools in one season, and differences if any in the runs.

Difference in arrival of the sexes and ages.

Feeding of fish after arrival.

Summer abode.

Winter abode.

If anadromous: when entering the fresh water and when leaving.

If anadromous: what the movements up and down fresh waters, of adults, or of young.

Rate of progression of schools in fresh or salt water.

Relation of movements to tides.

Depth of water preferred by schools or single fish.

Temperature and general condition of water preferred.

Favorite localities in any region; whether bottom be sandy, rocky, muddy, grassy, etc.

F. Relationships.

To its own species: whether gregarious, solitary, grouped by age or sex at any season, predaceous, etc.

To other animals: whether preyed upon by them, feeding upon them, etc.

Special enemies: friends: or companions.

G. Food.

Nature.

Mode of taking it.

Time of taking it.

Quantity consumed.

H. Reproduction

Interference with spawning, by lines, nets, etc.

Age of male and of female respectively, when capable of reproduction.

Change in physical condition (color, shape, fatness, etc.).

Date of spawning, and its duration as relating to the individual as well as to the species.

Preferred localities for spawning, as to place, temperature, etc.

Special habits during spawning season.

Special habits before or after spawning.

Ratio of mortality in old fish from spawning.

Number of successive years of capacity for spawning.

Nesting places.

Are nesting places prepared? if so, whether of grass, stones, sand, etc., or cleared areas, and whether made by one sex only, or both?

If ridges or furrows are formed, how made.

The eggs.

Mode of fecundation.

Where laid.

Where and how attached, if at all.

Covered up, and how, or exposed in water.

Number laid by one fish at one time, and the number during lifetime.

Size and color

Special enemies.

Guarding of eggs by either sex.

The embryo and young fish.

Ratio of fish hatched to number of eggs laid.

Proportion of young fish attaining maturity.

Movement after birth: whether remaining on spawning ground, and how long; or whether changing from fresh to salt, or salt to fresh water, etc., and when.

General appearance, and successive changes.

Rate of growth.

Special food.

Enemies and diseases of eggs and young.

Relation of parent fish, of either sex, to young: whether protective, predatory, etc.

I. Diseases.

K. Parasites.

L. Artificial fish-culture.

M. Protection by law.

N. Capture.

Methods.

By lines.

By nets.

Floating, or movable (seines, gill-nets, etc.).

Fixed (traps, pounds, weirs, dams, etc.).

Other methods of capture.

Bait.

Influence of modes of capture on abundance.

Season of capture.

By lines.

By nets.

Otherwise.

Time of tide when taken.

Statistics of capture.

By lines.

By nets.

Otherwise.

Value of fish taken.

Disposition of fish taken.

O. Economical value and uses.

For food (fresh, salted, smoked, dried, etc.).

For oil.

For manure.

For other purposes.

Price, in its variations with place, season, and year.

Export and trade, in their variations with place, season, and year.

P. Remarks relative to foreign or domestic allies.