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PROPOSED GENERAL LONG-TERM PROGRAMME FOR RESEARCH-WORK  
IN PANEL 1, NORTH WEST ATLANTIC COMMISSION.

- I HYDROGRAPHY. Study of the influx of Atlantic and Arctic water, especially over the fishing banks, north to Hare Island.
- A. Routine sections from research and other well equipped vessels across the main currents and fishing banks.
1. Off Cape Farewell to Hamilton Inlet.
  2. Off Frederikshaab
  3. Across Fylla Bank
  4. - Little Hellefisk Bank
  5. - Great Hellefisk Bank
  6. Off Hare Island or west of Disko Island
- If possible carried out in April, ca. 1. July, late September and once during winter (?).
- Hydrographic observations comprise: temperature and salinity down to 1500 meters, some stations also to bottom in the open Davis Strait (sections 1 and 3); occasionally: phosphate, nitrate and oxygen.
- B. Drift-bottle releases in the main surface currents.
- C. Routine surface temperature (and salinity) observations along steamer routes.
- D. Observations from weather ship in the Labrador Sea.
- E. Hydrographic observations in the S-West Greenland fjords.

- F. Arrangement with I C E S relating to routine sections for the study of influx of Atlantic water along the S-East Greenland coast.
- G. Studies of the influence of climatic changes on fish distribution and general fish biology.
- H. Observations on ice conditions.

## II. PLANKTON.

- A. Phyto-plankton sampling on routine hydrographic sections (standard net sampling; plankton recorder).  
Indicator species.
- B. Determination of phyto-plankton-production. Relationship between environmental factors and production of plankton, and relationship between plankton and fish fry.
- C. Quantitative and qualitative macro-plankton sampling, inclusive egg and fish-larvae, during the months April-September. Determination of spawning localities and dispersal of fry.
- D. Investigation on the food of cod larvae and other fish larvae in relation to phyto- and zoo-plankton distribution, i.e. occurrence of food supply for larval and postlarval stages of cod and other fish larvae.
- E. Comparative tests of nets and recorders used. Gear standardization.

## III. FISHERY AND FISH-INVESTIGATIONS ETC.

- A. General experimental fishery (different gears).  
Studies in comparative efficiency of gears used and proposed used in Greenland waters.

B. Investigations.

1. Gadiformes

a. Cod (*Gadus callarias*):

Population survey. (1) fjords; (2) coastal areas; and (3) banks. Material from research vessels and commercial fishing. Quantitative distribution (line experiments).

Variation in growth rate.

Marking experiments.

Quantitative distribution of eggs and larval stages (2 and 1 m. stramin net, Henson net). See under "Plankton".

Determination of spawning grounds and time of spawning.

Determination of ripening in relation to size, time, and vitamin-content in liver oil.

Comparison with New Foundland-Labrador stock of cod as well as the Iceland stock of Cod.

Collection of more detailed statistics (catch per unit of gear).

Meeting of experts for further development of methods used in age-determination, etc..

b. *Gadus ogac*, Greenland cod. General biology. Development elucidated by experimental investigations.

c. Haddock, Saith and other Gadoid fishes, General biology

2. Pleuronectiformes
  - a. Halibut
    - Population survey from research vessels and commercial catches.
    - Marking experiments.
    - Spawning and larval distribution.
  - b. Greenland Halibut
    - Population survey.
    - Marking experiments.
    - Spawning and larval distribution.
    - Fishing experiments: new fishing areas of adults.
3. Sebastes (Red fish or Rose fish).
  - General biology. Determination of boundaries of spawning areas and drift of larval stages.
  - Length measurements of commercial catches.
  - Commercial fishing experiments with suitable gears (e.g. floating trawl).
4. Fish food
  - a. General studies of the importance of pelagic and bottom animals as food for important species of fish.
  - b. Fish:
    1. Capelin, sand eel etc. General biology.
    2. Herring. General biology and fishing experiments (echo sounding).  
Marking experiments.
  - c. Invertebrates
    1. Shrimps (*Pandalus borealis*) - General biology - fishing experiments,

especially research work on the occurrence in fjords as well as in the Davis Strait.

2. Crabs etc.. General biology

d. Studies of fish as indicators of environmental changes (climatic changes).

1. Marine fishes; above mentioned species and e. g. Seawolf, Greenland shark.

(General biology, marking experiments etc.)

2. Anadromous fishes: salmon and char.

(General biology).

C. Fishery statistics - detailed analyses, improvement (e.g. catch per unit of gear).

D. Experimental investigations in a permanent marine biological laboratory in Greenland.

E. Adaptation of research results to commercial fishing (relation of temperature to cod fishing, echosounding records to cod and herring fishing etc., - improvement of local bait supply).

F. Measures to be taken for protection of special marine fauna elements (e.g. seals and walrus).

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