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WEST GREENLAND

IN 1962 THE NORWEGIAN RESEARCH VESSEL "G.O.SARS" WORKED IN WEST GREENLAND WATERS BETWEEN 19TH APRIL AND 4TH MAY. THE ICE CONDITIONS ON THIS CRUISE WERE NOT AS GOOD AS THE YEAR BEFORE. HEAVY DRIFT ICE WAS MET WITH ON THE NANORTALIK BANK AND IN THE JULIANEHAAB BAY. FURTHER NORTH HEAVY PACK ICE ALSO INTERFERRED WITH THE INVESTIGATIONS OFF HOLSTEINSBORG.

FIG. 1 SHOWS THE ROUTE AND NETWORK OF STATIONS FROM THE CRUISE.

HYDROGRAPHY

THE FOLLOWING HYDROGRAPHICAL SECTIONS WERE WORKED DURING THE CRUISE:

1. FROM NONAME BANK AND WESTWARD: 61°41'N, 49°40'W - 61°29'N, 50°52'W
2. FROM FYLLA BANK AND WESTWARD: 64°03'N, 52°16'W - 63°55'N, 54°00'W
3. FROM SUKKERTOPPEN AND WESTWARD: 65°23'N, 53°10'W - 65°06'N, 55°38'W

IN ADDITION 20 TEMPERATURE REGISTRATIONS WERE MADE, MOST OF THEM IN CONNECTION WITH THE FISHING EXPERIMENTS.

FIG. 2 - 4 SHOW THE ISOTHERMS IN THE SECTIONS.

THE WEST GREENLAND CURRENT SHOWED NO EXCEPTIONAL FEATURES. AS USUAL WATER OF ARCTIC ORIGIN CHARACTERIZED THE SURFACE LAYERS, MIXED ARCTIC AND ATLANTIC WATER THE INTERMEDIATE LAYERS. COMPARED WITH 1961 THE SURFACE WATER WAS COLDER IN 1962. WATER BELOW 1°C HAD A LARGER EXTENTION THAN LAST YEAR. THE LOW SURFACE TEMPERATURES WERE PROBABLY NOT CAUSED BY A STRONGER INFLOW OF ARCTIC WATER, BUT MORE LIKELY BY A COOLING DUE TO THE DRIFT ICE AND THE STABLE WEATHER CONDITIONS. IN THE SOUTHERN PART OF THE INVESTIGATED AREA THE 4°C ISOTHERM LIES DEEPER THAN IN 1961 WHILE FARTHER NORTH IT SEEMS TO LIE HIGHER. THE TEMPERATURE CONDITIONS WERE NEVERTHELESS VERY GOOD FOR THE FISH ALL OVER THE WESTERN SLOPES OF THE BANKS.

COD EGGS AND COD LARVAE

IN 1960 SAMPLING OF COD LARVAE AND EGGS WAS STARTED, BUT ONLY 9 STATIONS WERE WORKED. IN 1961 55 STATIONS WERE WORKED, LAST YEAR 30 STATIONS. ON SOME OF THE STATIONS HAULS WERE TAKEN FROM DIFFERENT DEPTHS TO THE SURFACE, ON ALL THE STATIONS HAULS WERE TAKEN FROM THE BOTTOM OR 250 M TO THE SURFACE. ONE M EGG NET MADE OF PERLON WITH 500 (0.5MM) MESH SIZE W[illegible]

FIG. 5 AND 6 SHOW THE DISTRIBUTION OF COD EGGS IN 1961 AND 1962.

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COD EGGS AND COD LARVAE (CONT'D)

COD EGGS ARE FOUND IN THE WHOLE AREA INVESTIGATED. IN 1961 AND 1962 THE MAIN SPAWNING AREA SEEMED TO BE ON THE BANKS SOUTH OF THE GODTHAAB FJORD, WHILE IN 1960 THE HEAVIEST SPAWNING WAS INDICATED ON THE WESTERN SLOPE OF THE BANAN BANK. NORTH OF SØNDRE STRØMFJORD ONLY FEW EGGS WERE FOUND. THESE EGGS HAD PROBABLY BEEN DRIFTING NORTHWARDS, AS SPAWNING COD WERE NOT FOUND IN THESE LOCALITIES.

COD LARVAE (25 SPECIMENS) WERE ONLY FOUND IN 1962. AS THE INVESTIGATIONS TOOK PLACE VERY EARLY IN THE SPAWNING SEASON, ONE DID NOT EXPECT TO FIND MANY COD LARVAE EITHER.

COD INVESTIGATIONS

DURING THE SURVEY WITH THE ECHO SOUNDER NO PELAGIC CONCENTRATIONS OF COD WERE RECORDED BUT THE FISHING EXPERIMENTS WITH BOTTOM LONGLINE SHOWED THAT COD WAS PRESENT IN THE WHOLE AREA INVESTIGATED. THE BEST CONCENTRATIONS OF COD WERE FOUND ON THE NORTHERN AND WESTERN SLOPES OF LILLE HELLEFISK BANK. THE LARGEST FISH WERE TAKEN ON THE SOUTHERN BANKS. ON THE NONAME BANK THE MEAN LENGTH WAS 82.84 CM, AT FREDERIKSHAAB BANK 78.08 CM. ON THE NORTHERNMOST FISHING STATION RELATIVELY LARGE FISH WERE ALSO FOUND, MEAN LENGTH 73.17 CM. THE OVERALL MEAN LENGTH WAS ONLY 70.47 CM. THERE IS A MARKED DECREASE FROM LAST YEAR WHEN THE MEAN LENGTH WAS 76.27 CM.

FIG. 7 AND 8 SHOW THE LENGTH DISTRIBUTIONS OF THE COD CAUGHT ON BOTTOM LONGLINE ON THE DIFFERENT BANKS AND THE OVERALL LENGTH DISTRIBUTION.

THE OVERALL AGE DISTRIBUTION OF COD CAUGHT ON BOTTOM LONGLINE IS SHOWN ON FIG. 9.

COMPARED WITH LAST YEAR THE OVERALL AGE DISTRIBUTION IS DIFFERENT. THE AGE DISTRIBUTION VARIES MUCH FROM ONE BANK TO ANOTHER BUT THERE ARE SOME MAIN FEATURES. THE PROMISING 1956 YEAR CLASS HAS DECREASED CONSIDERABLY IN IMPORTANCE EXCEPT IN THREE LOCALITIES, NAMELY ON THE DANA BANK, THE FISKENAES BANK AND ON THE NORTHERN SLOPE OF THE LILLE HELLEFISK BANK, WHERE THE PERCENTAGES OF THE 1956 YEAR CLASS IN THE CATCHES ARE 15.46, 12,73 AND 13.00 RESPECTIVELY. AS EXPECTED THE 1950 AND 1947 YEAR CLASSES HAVE DECREASED FURTHER AND ARE ONLY OF A CERTAIN IMPORTANCE IN THE CATCHES FROM THE NONAME BANK AND THE FREDERIKSHAAB BANK. COMPARED WITH THE PRECEDING YEARS THE 1953 YEAR CLASS HAS ALSO DIMINISHED. IN THE TOTAL CATCH THIS YEAR CLASS CONSTITUTES SLIGHTLY MORE THAN 20%, ON THE TWO SOUTHERNMOST LOCALITIES, HOWEVER, BETWEEN 30 AND 40%. THE 1957 YEAR CLASS, WHICH LAST YEAR WAS DOMINATING THE "JOHAN HJORT" TRAWL CATCH, IN 1962 STRONGLY DOMINATED THE BOTTOM LONGLINE CATCHES. THIS YEAR CLASS CONSTITUTES 36.1% OF THE TOTAL CATCH AND ON THE BANAN BANK NEARLY 70% OF THE INDIVIDUALS BELONGED TO THE 1957 YEAR CLASS. THE DOMINANCE OF THE 1957 YEAR CLASS MUST BE THE CAUSE OF THE DECREASE IN TOTAL MEAN LENGTH.

FOR THE BOTTOM LONGLINE FISHERY OFF WEST GREENLAND IN 1963, THE YEAR CLASSES 1947 AND 1950 WILL PROBABLY BE OF VERY LITTLE OR NO IMPORTANCE. THE 1953 YEAR CLASS IS SUPPOSED TO DIMINISH FURTHER AND ACCORDINGLY PLAY A LESS IMPORTANT PART IN THE CATCHES. THE 1957 YEAR CLASS WILL PROBABLY INCREASE IN IMPORTANCE, AND THEREFORE WE MAY EXPECT A SLIGHT INCREASE IN THE MEAN LENGTH.

HALIBUT INVESTIGATIONS

THIS YEAR HALIBUT LONGLINES WERE TRIED ONLY ON 2 LOCALITIES, AND THE CATCH WAS VERY POOR, ONLY 5 HALIBUT. ON COD BOTTOM LONGLINE 39 HALIBUT WERE CAUGHT. ALL THE HALIBUT WERE COMPARATIVELY SMALL AND IMMATURE. 33 HALIBUT WERE TAGGED WITH THE USUAL YELLOW PLASTIC DISK IN THE GILL COVER.

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EAST GREENLAND

THE RESEARCH VESSEL "JOHAN HJORT" WORKED IN EAST GREENLAND WATERS FROM 13TH AUGUST TO 8TH SEPTEMBER. AT THIS TIME THE ICE CONDITIONS WERE VERY FAVOURABLE AND BETTER THAN LAST YEAR. FIG. 10 SHOWS THE ROUTE AND NET OF STATIONS FROM THE CRUISE.

HYDROGRAPHY

THE FOLLOWING SECTIONS WERE WORKED:

1.	FROM PRINS CHRISTIAN SOUND AND EASTWARD:	60°03'N, 42°55'W - 60°03'N, 40°24'W
2.	FROM CAPE TORDENSKJOLD AND EASTWARD:	61°24'N, 42°15'W - 62°00'N, 33°00'W
3.	FROM CAPE MØSTING AND SOUTHEASTWARD:	63°38'N, 40°10'W - 62°45'N, 36°50'W
4.	FROM CAPE DAN AND SOUTHEASTWARD:	65°27'N, 36°50'W - 64°19'N, 34°00'W

THE WATER OFF EAST GREENLAND WAS COLDER THAN LAST YEAR (FIG. 11-14). THIS WAS ESPECIALLY THE CASE FOR THE POLAR COMPONENT OF THE EAST GREENLAND CURRENT WHERE THE TEMPERATURES WERE ABOUT 1°C LOWER THAN IN 1961. EVEN TEMPERATURES ABOUT 2°C LOWER WERE MEASURED ON SOME STATIONS. THE INFLUX OF POLAR WATER SEEMED THUS TO HAVE BEEN MORE HEAVY THAN LAST YEAR. THE DIFFERENCES IN TEMPERATURES FROM LAST YEAR WERE NOT SO EXPRESSED IN THE ATLANTIC COMPONENT OF THE CURRENT AND THIS WAS ALSO THE CASE WITH THE SURFACE WATER.

COD INVESTIGATIONS

ECHO SOUNDINGS FOR PELAGIC CONCENTRATIONS OF COD ON THE BANKS WERE NEGATIVE AND THE FISHING EXPERIMENTS WITH BOTTOM LONGLINE GAVE VERY SMALL CATCHES. GOOD CATCHES OF COD WERE TAKEN ON HANDLINE OFF CAPE DAN AND ANGMAGSSALIK, ABOUT 5 - 10 N. MILES OFFSHORE. SHOALS OF COD WERE LOCATED CLOSE TO A FEW OF THE ICEBERGS. THE STOMACH CONTENTS OF THESE COD WERE MADE UP ALMOST ENTIRELY OF EUPHAUSIIDS.

IN 1962 CONCENTRATIONS OF COD WERE ALSO FOUND IN THE SKJOLDUNGEN AREA. DURING THE SURVEY THE ECHO SOUNDER SHOWED ALSO LARGE CONCENTRATIONS OF CAPELIN, ON WHICH THE COD WERE FEEDING VERY HEAVILY.

THE LENGTH COMPOSITION OF THE COD CAUGHT ON HANDLINE IN THE ANGMAGSSALIK AREA AND THE NORTH FJORD IN SKJOLDUNGEN DID NOT DIFFER GREATLY, THE MEAN LENGTH BEING 73.3 CM AND 73.6 CM RESPECTIVELY. IN 1961 THE MEAN LENGTH OF COD CAUGHT ON HANDLINE IN THE NORTH FJORD WAS 80.3 CM. THIS MARKED DECREASE IN MEAN LENGTH IS PROBABLY DUE TO NEW YEAR CLASSES (FIG. 15). IN 1961, THE 1947, 1950 AND 1953 YEAR CLASSES WERE DOMINANT IN THE HANDLINE CATCHES. IN 1962, THESE YEAR CLASSES DID NOT PLAY ANY IMPORTANT PART. INSTEAD THE 1956 AND 1957 YEAR CLASSES WERE DOMINANT, CONSTITUTING MORE THAN 50% OF THE CATCH.

HALIBUT INVESTIGATIONS

ONLY 63 HALIBUT WERE CAUGHT ON THE NINE BOTTOM LONGLINE STATIONS. MOST OF THE FISH WERE RATHER SMALL. ALSO ON THIS CRUISE THE BEST CATCH, 18 HALIBUT, WAS TAKEN OFF CAPE DAN. THE BOTTOM LONGLINE WAS USED IN COMPARATIVELY SHALLOW WATER AND THIS MAY ACCOUNT IN PART FOR THE POOR CATCHES.

TAGGING EXPERIMENTS

A TOTAL OF 1,087 COD WERE TAGGED IN EAST GREENLAND WATERS. IN THE ANGMAGSSALIK AREA ONLY LEA TAGS WERE USED. IN THE SKJOLDUNGEN AREA 49 COD WERE TAGGED WITH YELLOW PLASTIC DISKS IN THE LEFT GILL COVER AND 498 WITH LEA TAGS. THE LEA TAGS WERE ATTACHED JUST IN FRONT OF THE FIRST DORSAL FIN.

THIRTY HALIBUT WERE TAGGED WITH YELLOW PLASTIC DISKS.

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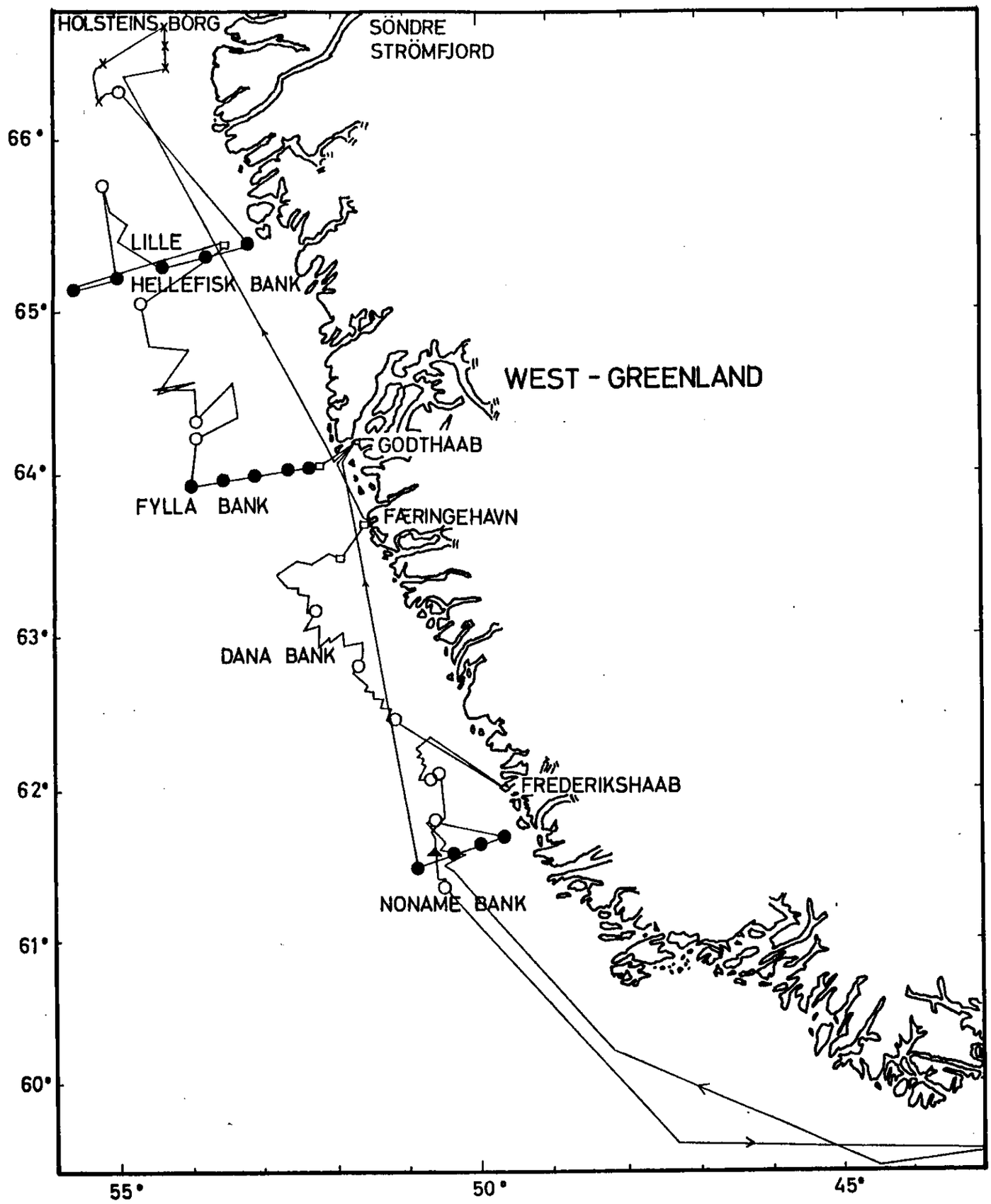

Fig. 1. "G.O.Sars", West Greenland, April, 1962. Route and network of stations.

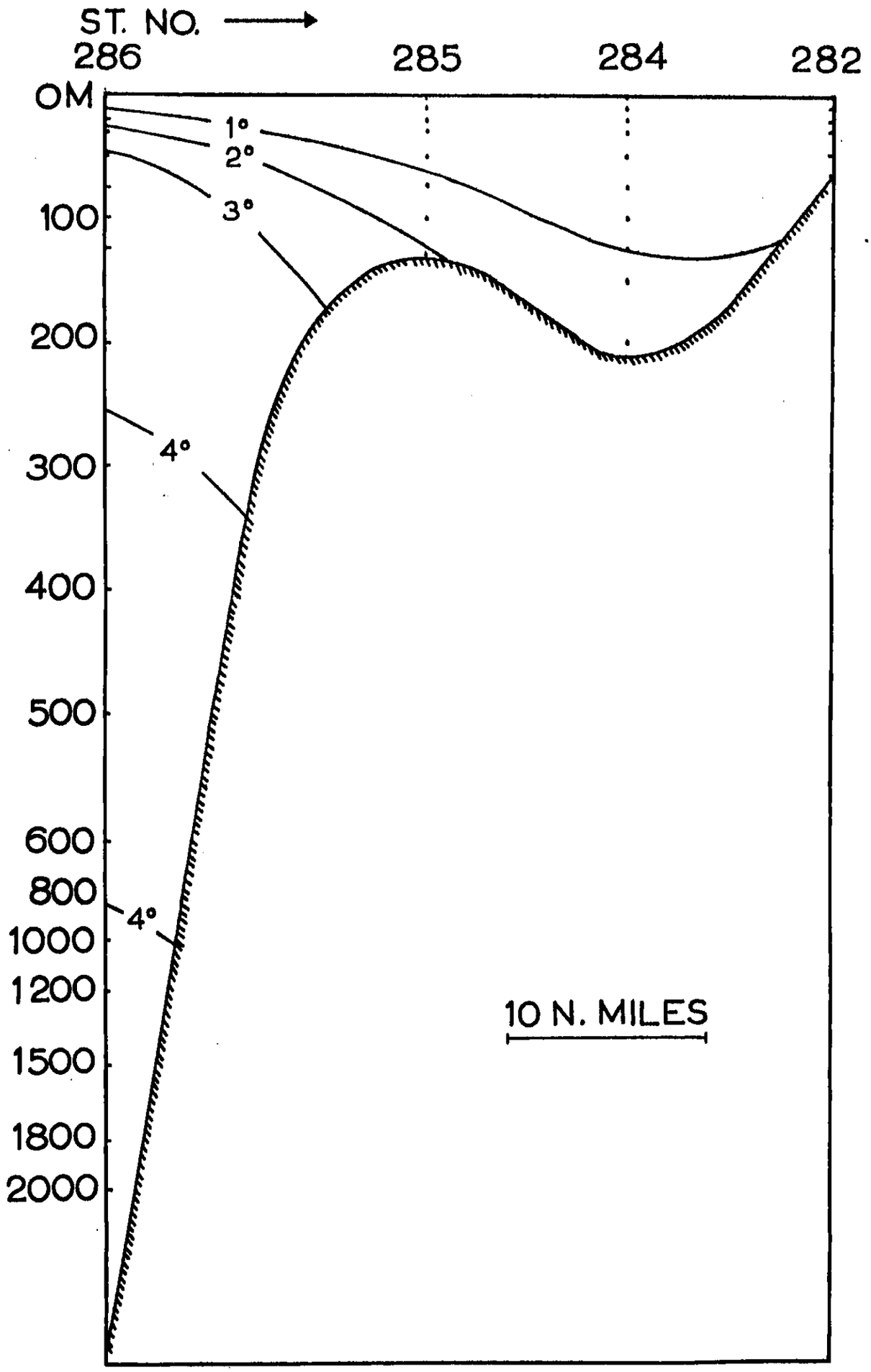

Fig. 2. "G.O. Sars", West Greenland, April, 1962. Temperature section from Noname Bank and westward.

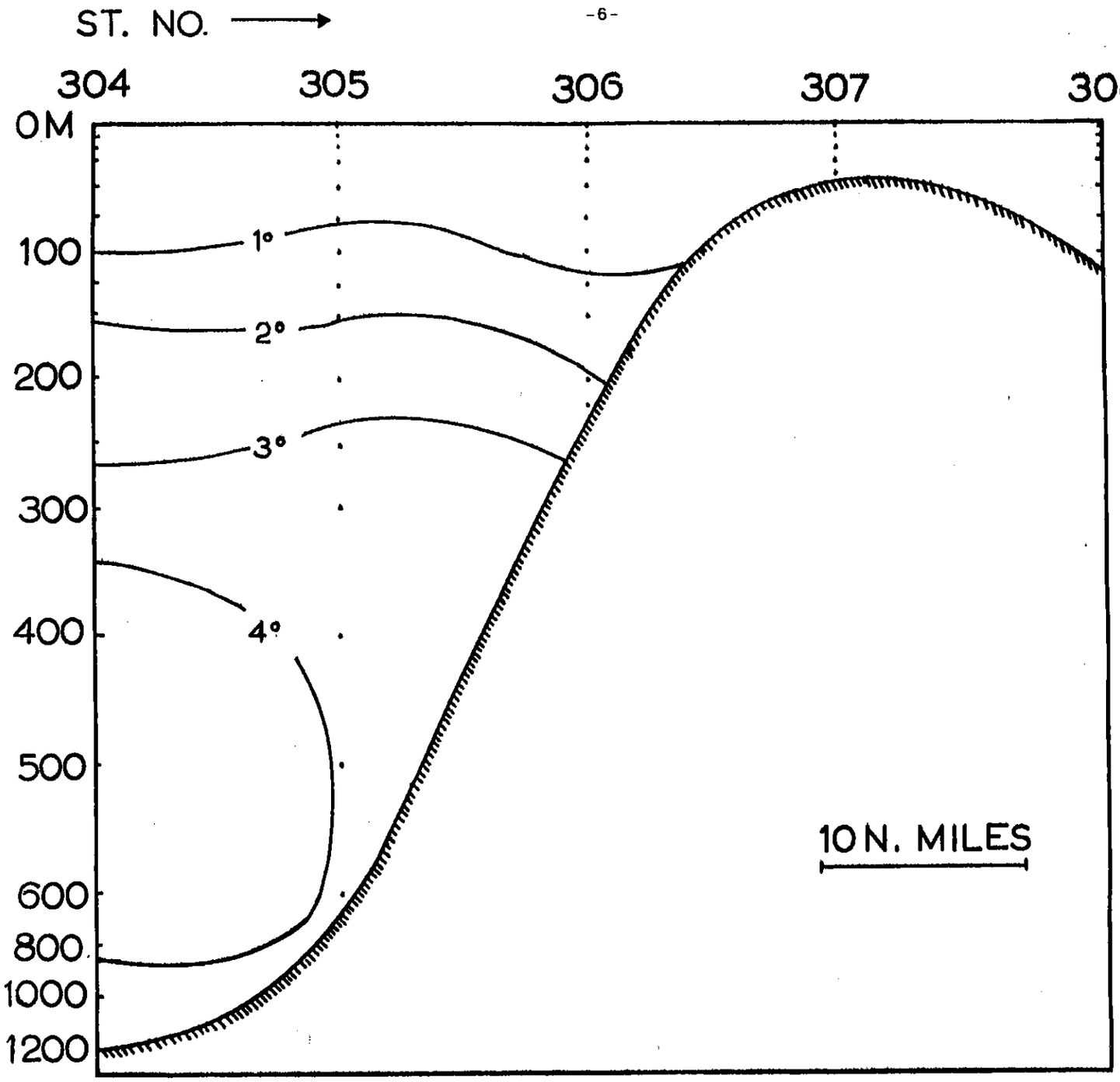

Fig. 3. "G.O. Sars", West Greenland, April, 1962. Temperature section from Fylla Bank and westward.

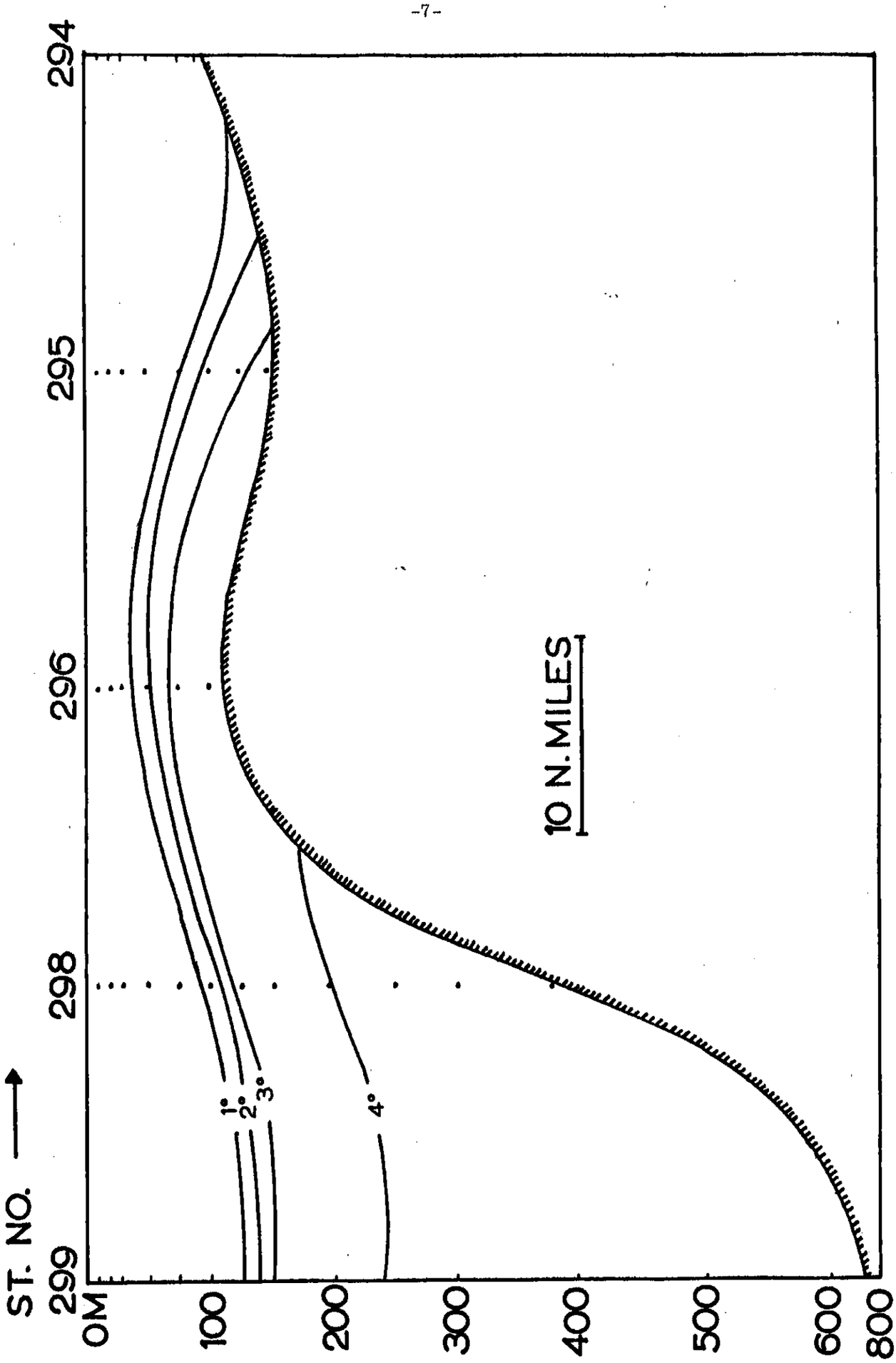

Fig. 4. "G.O. Sars", West Greenland, April, 1962. Temperature section from Sukkertoppen and westward.

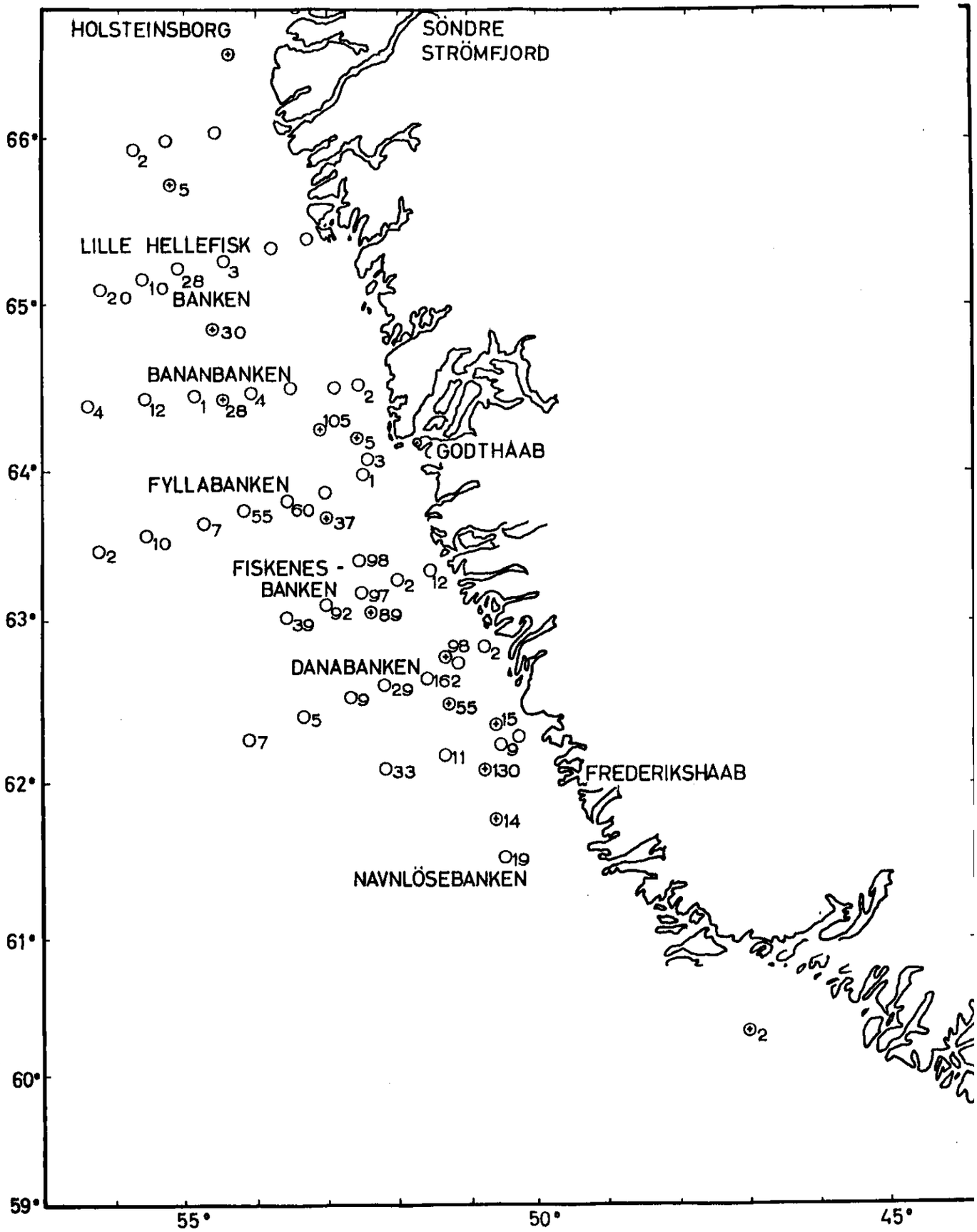

Fig. 5. "Johan Hjort", West Greenland, April-May, 1961. Distribution and number of cod eggs.

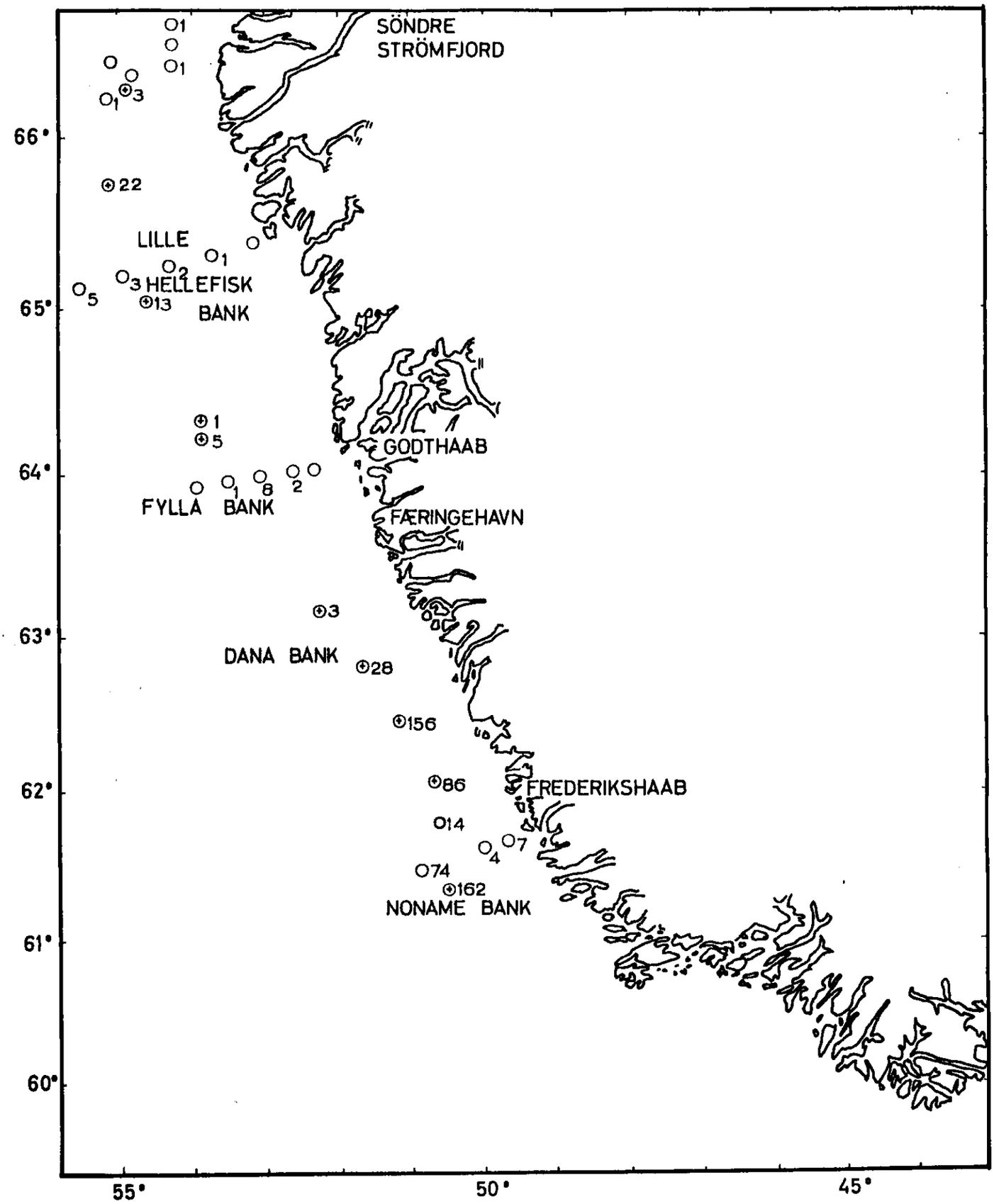

Fig. 6. "G.O. Sars", West Greenland, April, 1962. Distribution and number of cod eggs.

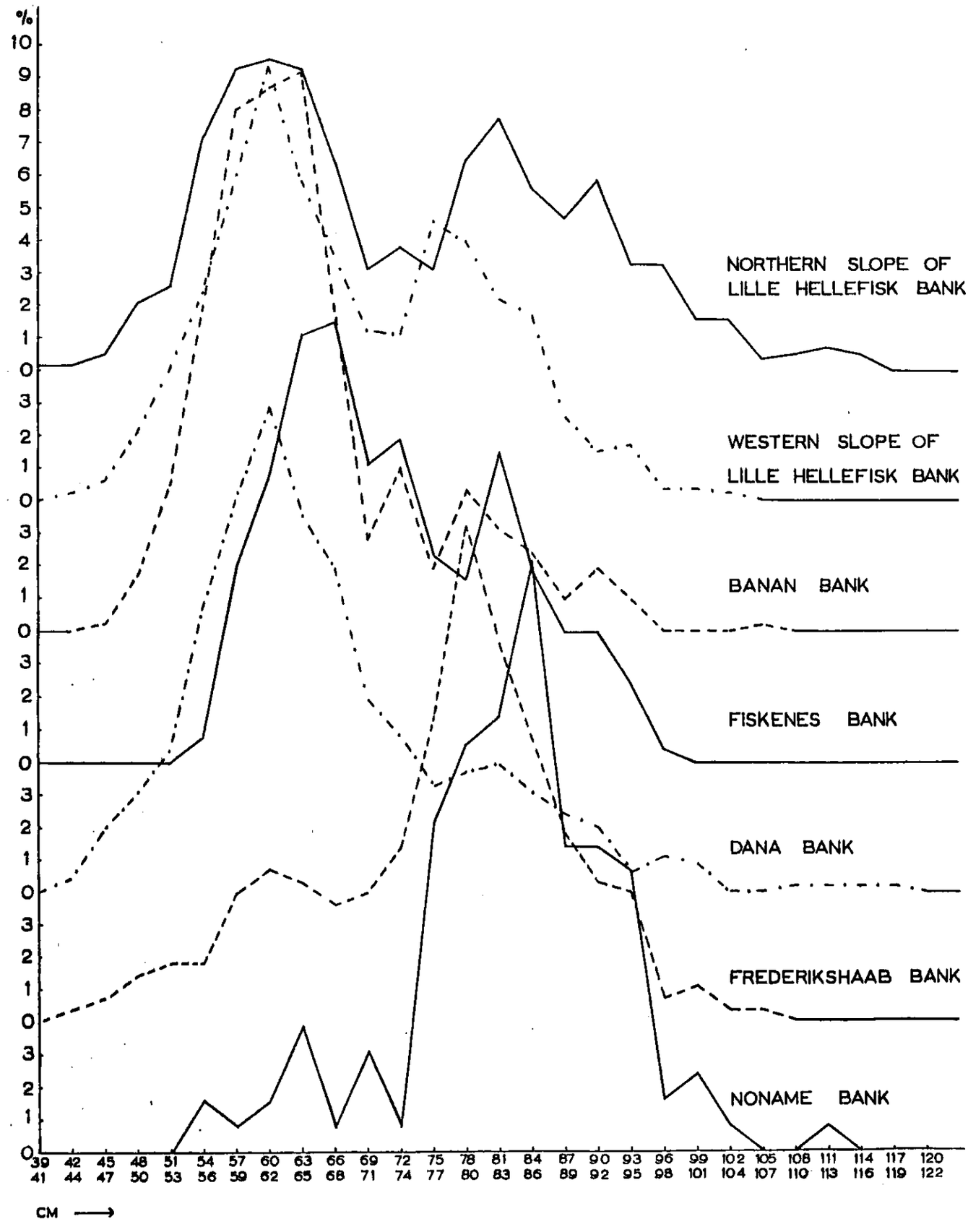

Fig. 7. "G. O. Sars", West Greenland, April, 1962. Length distribution of cod caught on bottom long line on the different banks.

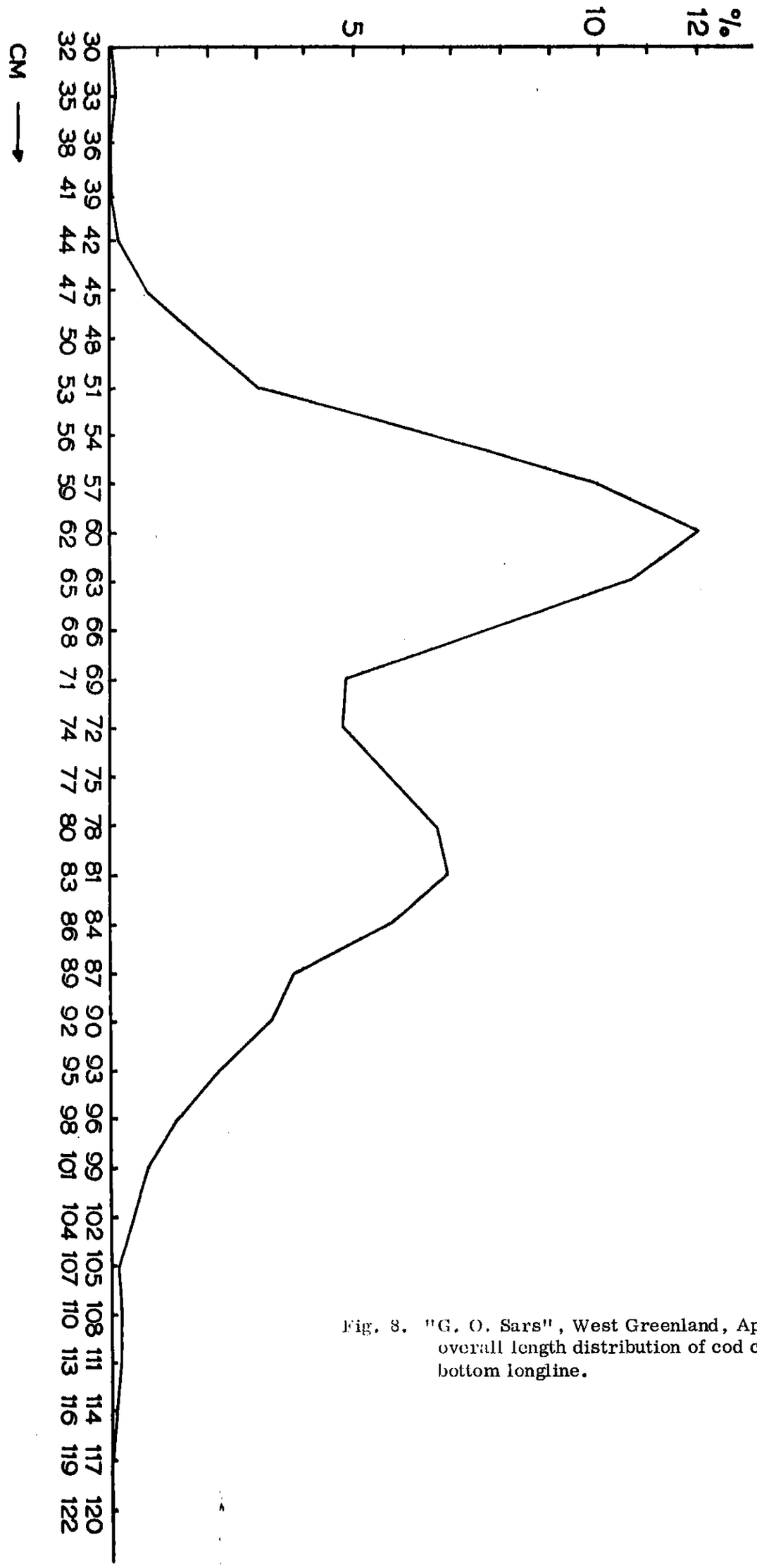

Fig. 8. "G. O. Sars", West Greenland, April, 1962. The overall length distribution of cod caught on bottom longline.

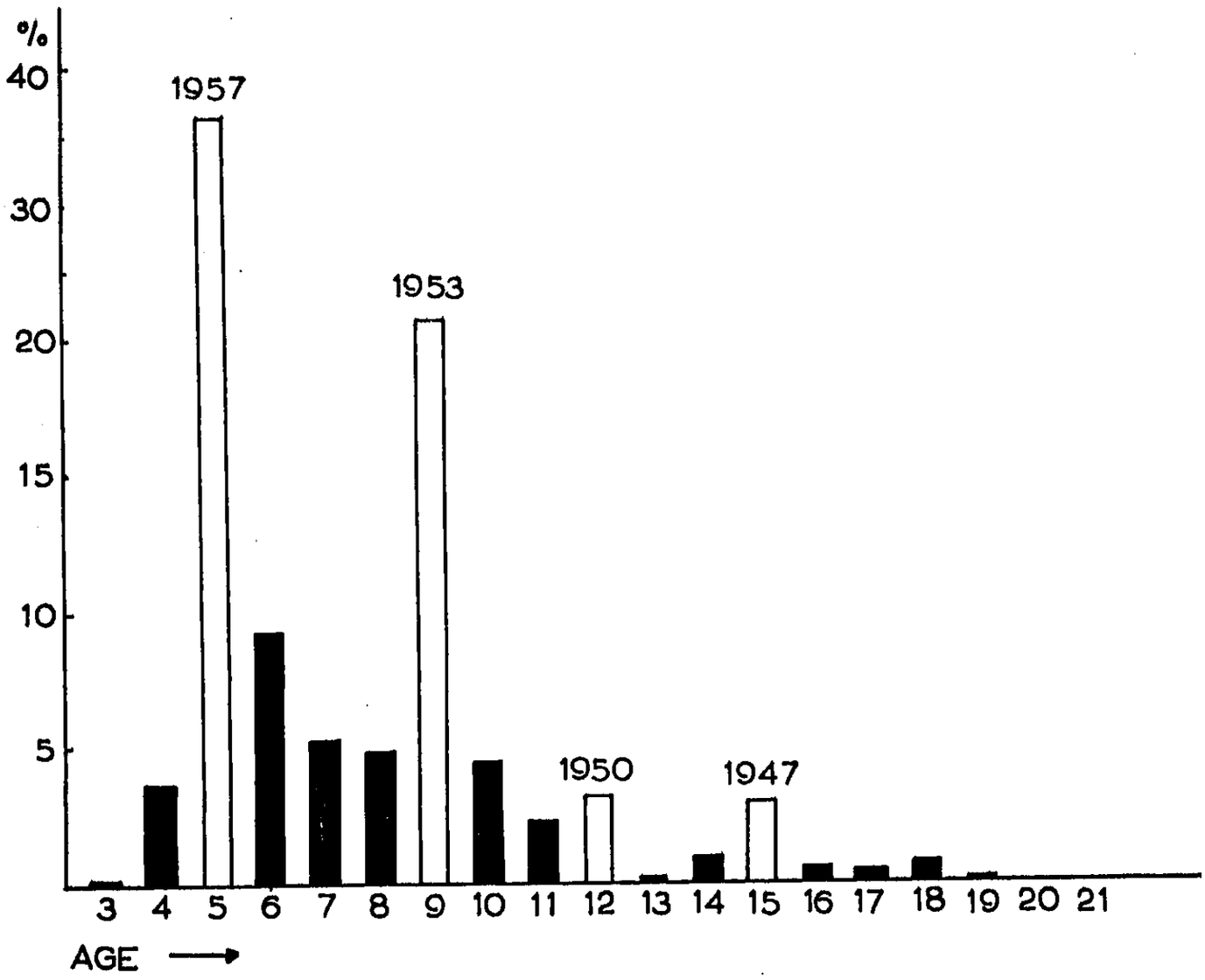

Fig. 9. "G. O. Sars", West Greenland, April, 1962. The age distribution of cod caught on bottom longline.

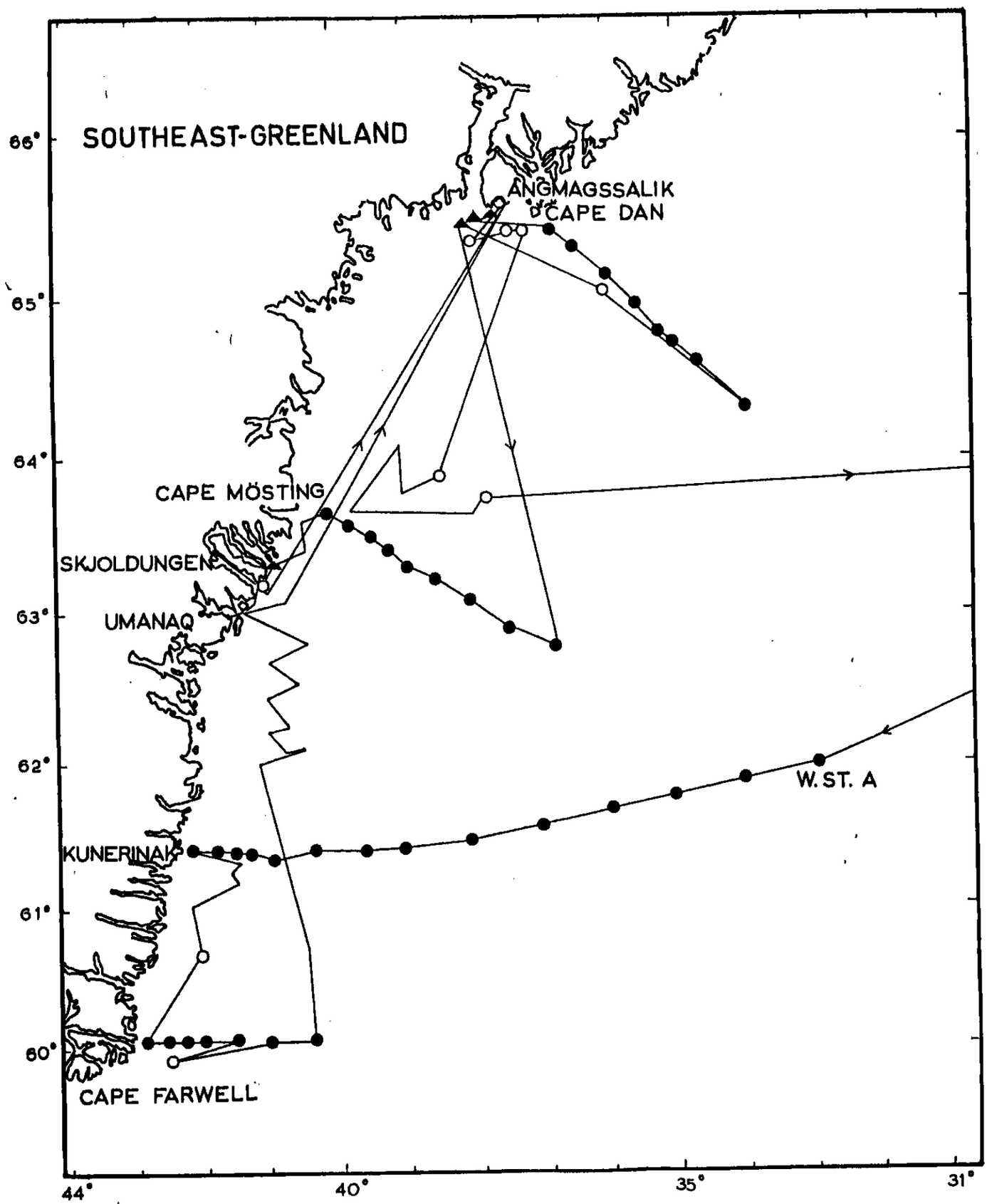

Fig. 10. "Johan Hjort", East Greenland, August-September, 1962. Route and net of stations.

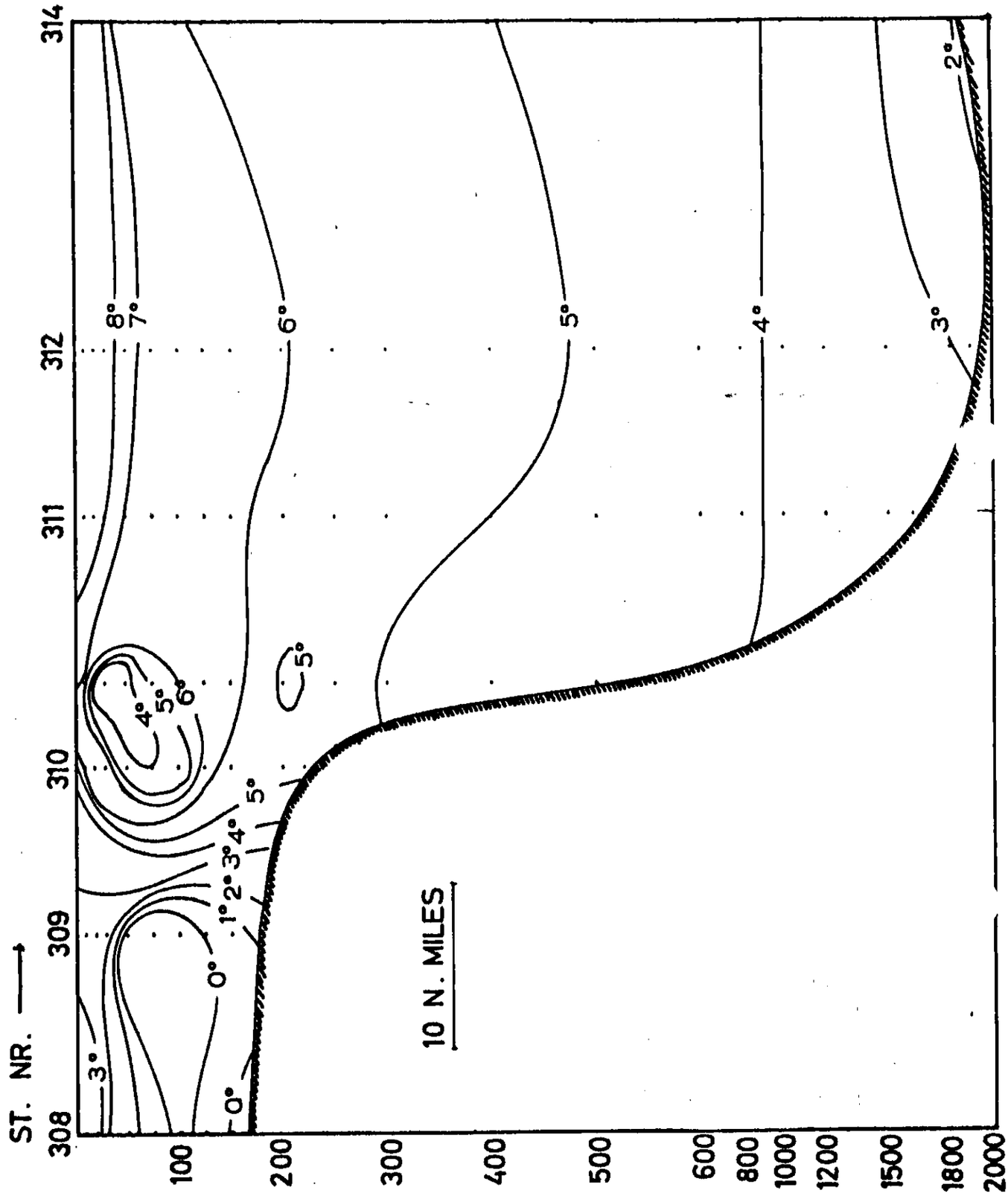

Fig. 11 "Johan Hjort", East Greenland, August-September, 1962. Temperature section from Prins Christian Sund and eastward.

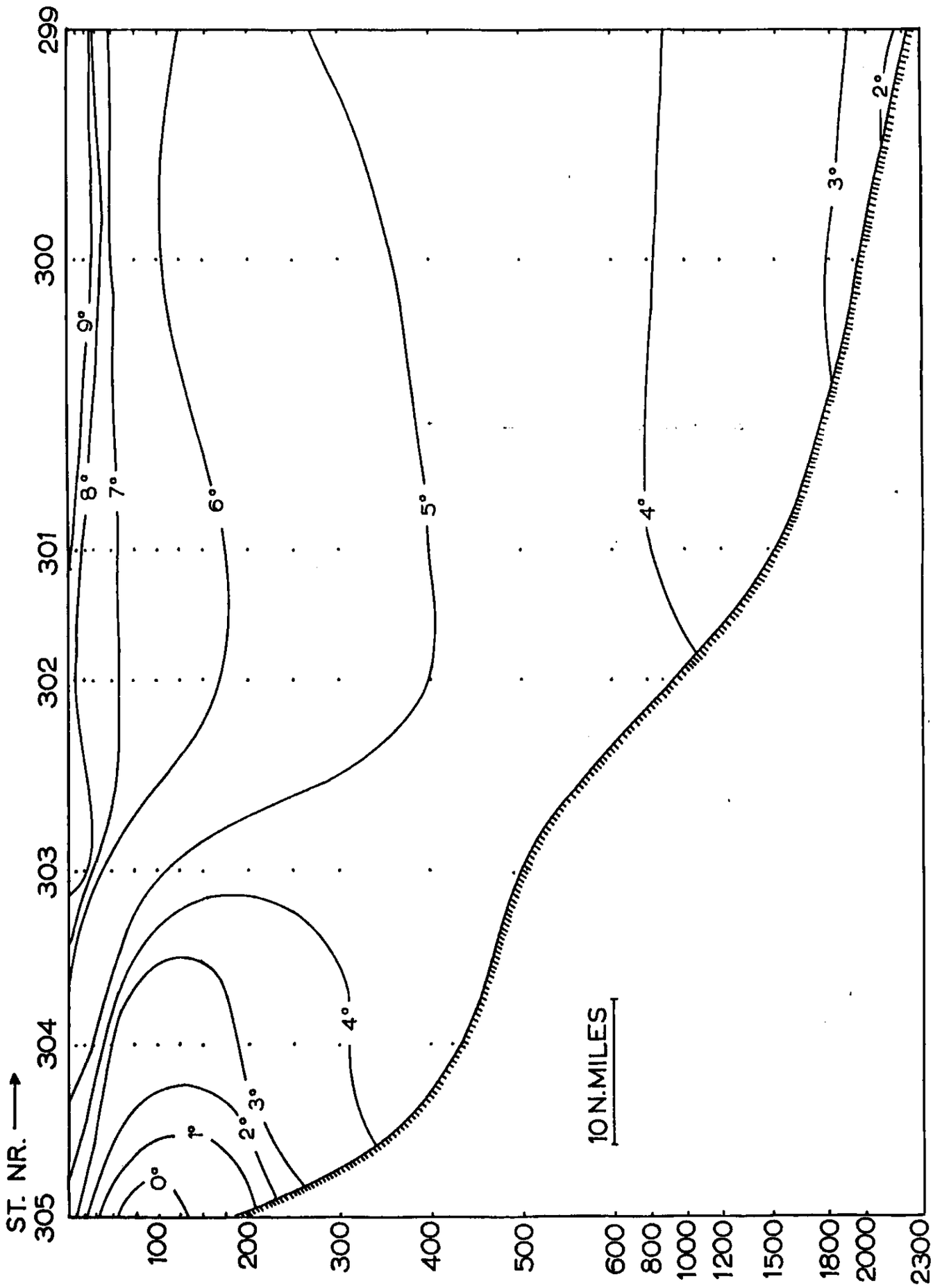

Fig. 12. "Johan Hjort", East Greenland, August-September, 1962. Temperature section from Cape Tordenskjold and eastward.

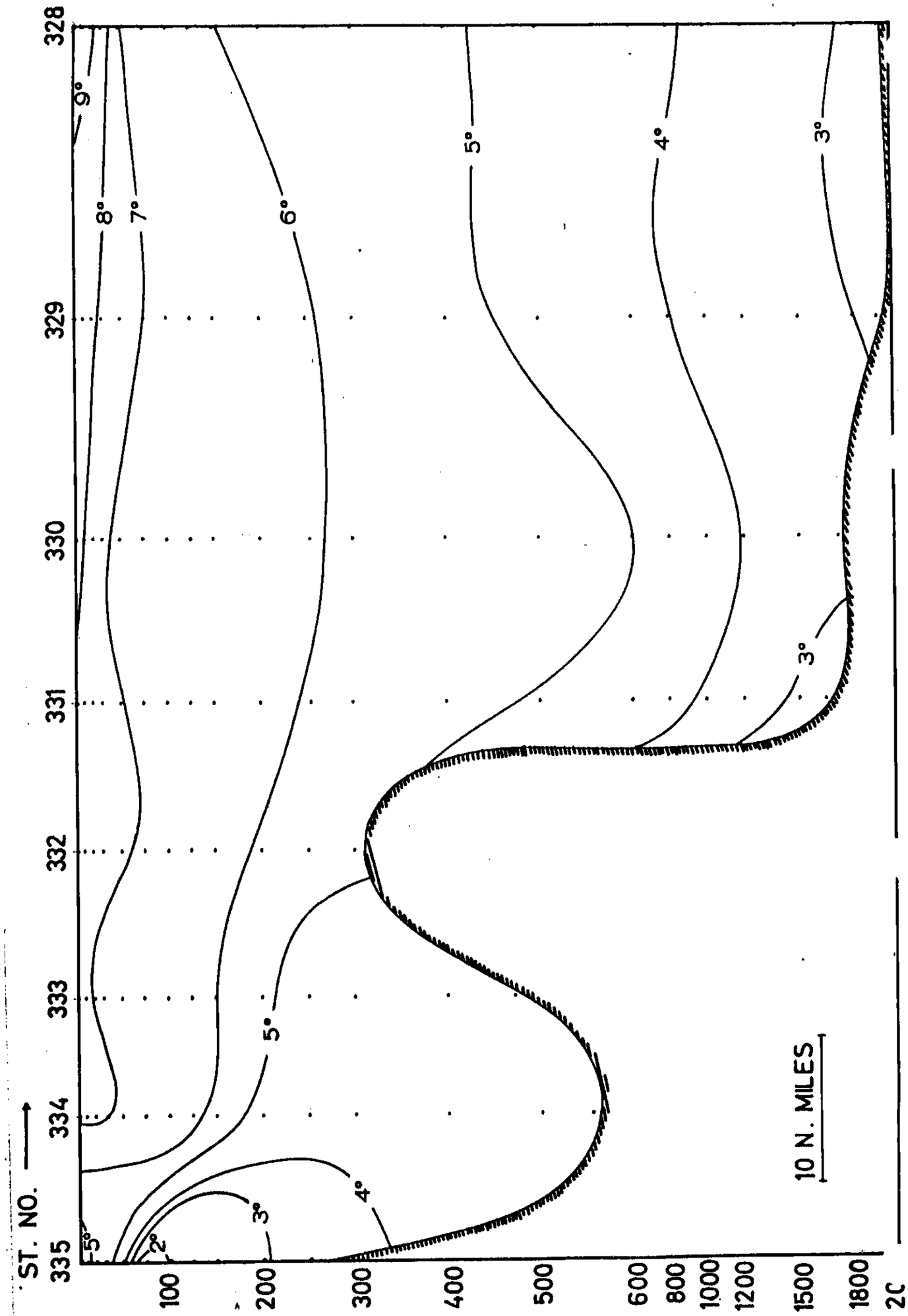

Fig. 13. "Johan Hjort", East Greenland, August-September, 1962. Temperature section from Cape Møsting and eastward.

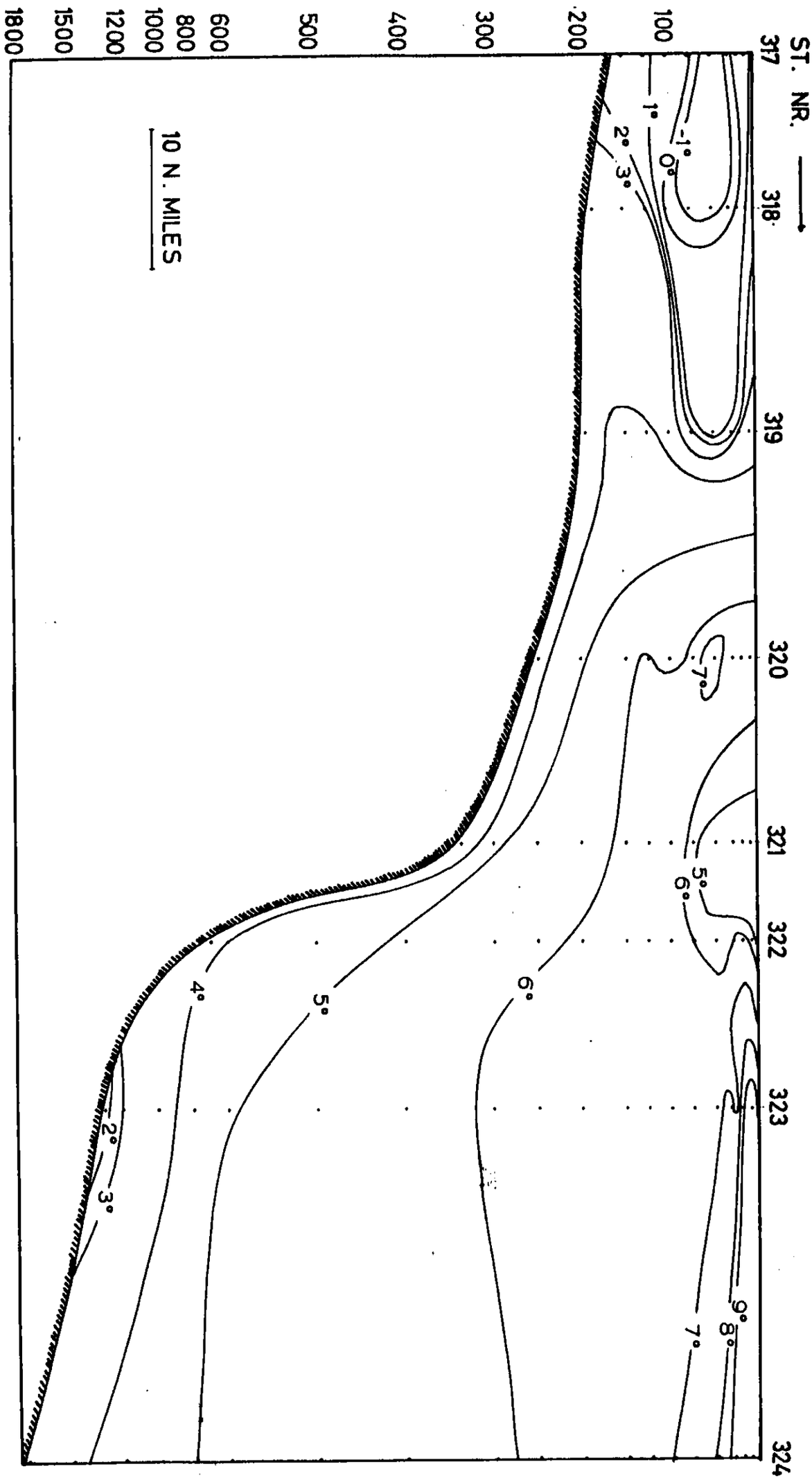

Fig. 14. "Johan Hjort", East Greenland, August-September, 1962. Temperature section from Cape Dan and southeastward.

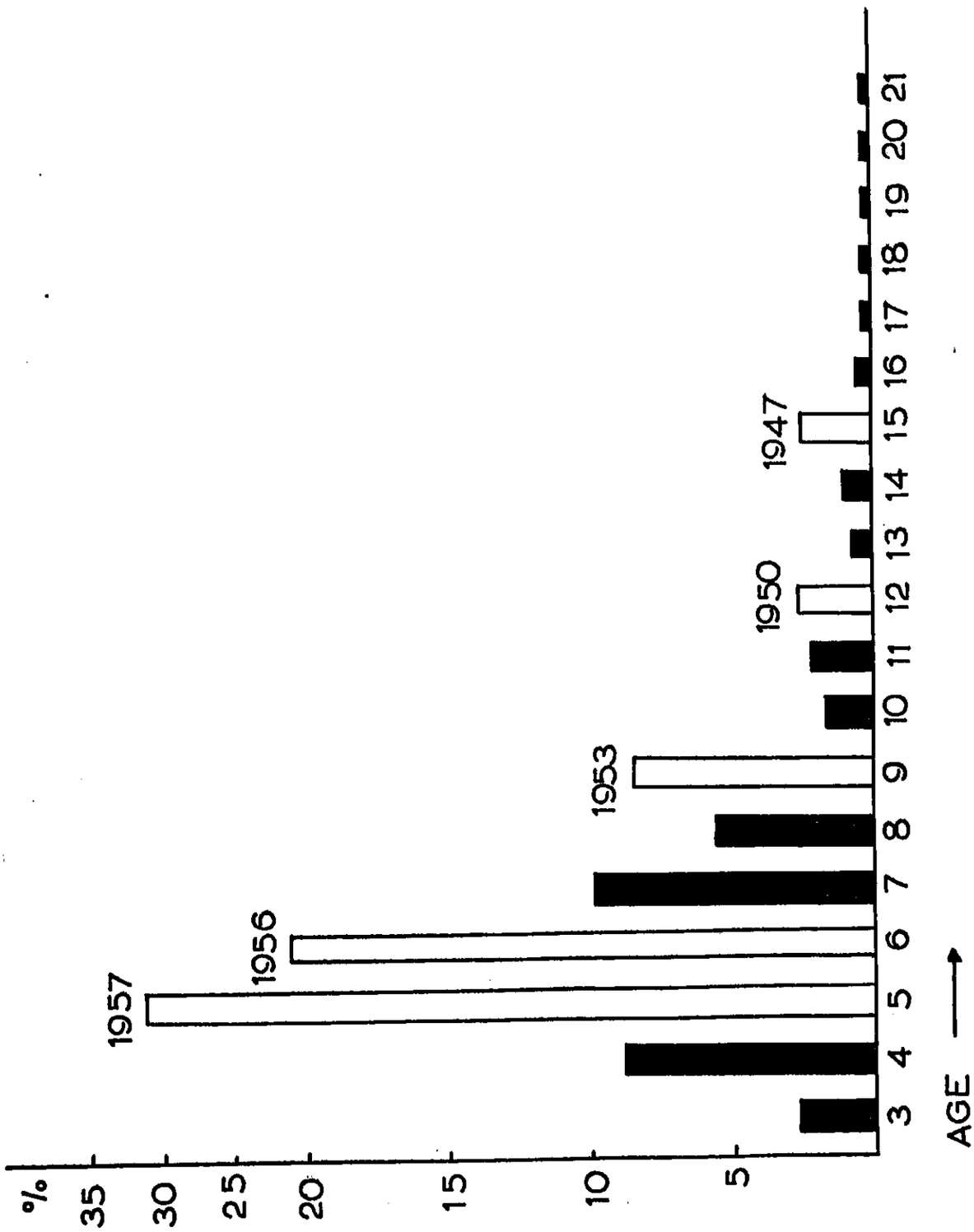

Fig. 15. "Johan Hjort", East Greenland, August-September, 1962. The age distribution of cod caught on handline.