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WP12.

# N. O. CORIOLIS

# PROSGERMON 87 CRUISE REPORT

# FEBRUARY 21 TO MARCH 20, 1987

PRELIMINARY VERSION

R. PIANET

## ABSTRACT


## MAIN CHARACTERISTICS.

### OBJECTIVES.

This cruise was a follow up of the preliminary results obtained from the first PROSGERMON cruise in 1982 and the TOWSEND CROMWELL cruise in 1986. It was part of the SPAR (South Pacific Albacore Research) programme (Auckland 1987), which included cruises done by New Zealand, USA and France during the first quarter of 1987. Three main objectives were pursued; (1) to confirm the presence at the surface of juvenile albacores between 125-140°W and 35-41°S; (2) to link their presence to a characteristic hydrological structure, the south tropical convergence; (3) to tag albacores with tetracycline in order to follow their migrations and estimate their growth.

### PROGRESS.

The cruise took place from February 21 to March 20, 1987; the US Towsend Cromwell survey having been shifted west, the prospected area was shifted 5°W in order to get a better spatial coverage (Fig. 1); the main observations done during the cruise are reported in Tab. 2 and Fig. 2.

## OCEANOGRAPHY.

### GENERAL SITUATION.

The cruise took place during summer 1987, and the weather was generally good, except 4 days with rough sea. 155 surface observations (sea surface temperatures (SST), salinities (SSS), chlorophyll contents (SSC) and meteorology), 110 XBT launches and 29 zooplancton hauls were achieved. Unfortunately, the CTD probe broke down very soon, so only 4 hydrographics stations could be done. SST was continuously recorded by a thermograph, and bathymetry done along the route using an EDO echosounder.

SURFACE OBSERVATIONS.

GOSSTCOMP maps examination during the cruise period (14-28 february and 1-16 march) shows a normal situation with no remarquable anomalies (except a sligh negative anomaly in the western part of the prospection area), and a stable and relatively weak subtropical convergence (Fig. 3).

Stations positions are located on Fig. 2. Fig. 4-8 exhibit the general oceanographic situation during the cruise: maps of SST and SSS, thermography on the outward and return routes, SST, SSS and mixed layer depth from 25 to 41°S, effective and zonal components of surface currents. SST and SSS isolines corresponds quite well; they show a strong discontinuity between 34-36°S. Nevertheless, the thermograph observations show a more complex SST evolution than that observed from bucket measurements, with numerous small thermal anomalies.

XBT.

Temperature sections are reported on Fig. 9. They show a typical structure which was observed previously (Thon-Australes 02 cruise) north of 35°S. A marqued subsurface thermal front appears at 38°S, from 50 to 200 m. The thermocline is well identified south of 39°S. In the lack of hydrographic sections, the convergence area was determined from these observations. It is characterized by the rising of 16-19°C isotherm which reaches the surface, water color changing from blue to green, many small thermal discontinuities (.5 to 1°C) and a rapidly moving 17-19°C isotherm system.

## BIOLOGY.

CHLOPHYLL CONTENTS.

For each station, a SSC sample was taken following the methodology defined by DANDONNEAU for ships of opportunity. Results are shown on Fig. 10 for the three legs (Tahiti-convergence, convergence area and convergence-Gambier Islands-Tahiti). SSC are generally low (less than 10mg/100m$^3$) with some enrichment observed within the convergence area (15-25 mg/100m$^3$). These results are in the range of what could be expected in those latitudes at the falling summer.

ZOOPLANCTON.

Samples were collected by vertical hauls from 200 and 500m to the surface, according to the methodology used in PROPPAC cruises (LE BORGNE, 1985). The results (in mg/m$^3$ or mg/m$^2$ (integrated values), Fig. 11a-b) are expressed as dry weight and dry weight without ashes (to take in account the organic matter concentration, more relevant for comparison between areas having large faunistic differences) . Some nyctemeral effect is evident, particularly regarding the 500-0m tows. As it could be expected, values are low (380 mg/m2 (0-200m) and 610 mg/m2 (0-500m), namely half of the values observed in other oligotrophics areas such as central south Atlantic or New Caledonia surroundings). A sligh enrichment can be observed in the convergence area, even not important.

## FISHING.

FISHING GEAR.

Most of the time, 10 lines were out fishing(6 longs and 4 shorts, see Fig. 12), with sometimes one or two additional "test lines"; 4 hydraulic line haulers were also used. Hooks were single without barbs to avoid injuring fishes before tagging them until March the 3rd, an then double with barbs because of the high number of fishes lost.

TAGGING AND BIOLOGICAL OBSERVATIONS.

All fishes which were considered in good condition were tagged, injected with tetracycline and then released. Others were all measured, weighted and sexed; a sub-sample of 61 fishes (5 fishes by 5 cm length classes, Tab. 5) was also taken for additionnal biological studies: gills, stomacs and flesh were sent for analysis to FRD in Wellington, and otoliths still available.

FISHING RESULTS.

The general daily results are shown on Fig. 2 and Tab. 6. 12 days were spent fishing (6 in combination with oceanographical stations and 6 of pure prospection), totalling some 140 trolling hours. Weather was generally good, except 2 days fishing with rough sea. A total ammount of 486 albacores was caught (including 190 tagged and released), giving a mean yield of 44 fishes/fishing day (3.5 albacores/trolling hour), what was considered as an excellent result for a research vessel. The best catch was 130 fishes in a day (10 fishes/trolling hour), and 3 days gave no catch. The sea strate does not seems to have any effect (in the observed range, calm to very rough), some good catches being done with very rough sea.

The bulk of the catch was done in the range of 16-18°C, most of the time without any surface seings (birds or schools) except one day when active birds were associated with schools of large albacores. Thermal discontinuities were usually good indices (Fig. 16), except on the last day when no fish could be caught despite of two remarquable thermal fronts (.5 and .8°C).

SIZES.

Sizes were ranging from 40 to 97cm, mainly 45-85cm, with relatively small daily variations except on march the 8th (Fig. 13 and 14). They exhibit 4 well identified modes: (45-56cm, 57-67cm, 68-76cm and 77-85cm), assumed to correspond to 4 age classes. The size frequency histogram of the catches done during the cruise is certainly biaised towards the smaller sizes, because of the relative high number of lost fishes, which are essentially the larger ones; this was particularly true on march the 8th, when about 75% of the fishes were lost. The relative important number of large fishes is characteristic of a virgin stock (regarding the surface fishery). Length-weigth relationship of the fishes caught is shown on Fig. 15.

CONCLUSIONS.

On the whole, the cruise go on quite well, despite of the CTD probe breakdown which does not allowed the hydrological study of the subtropical convergence. The transition zone preceeding the subtropical convergence, as identified from XBT and surface datas, was observed to have a general direction west-south-west/east-north-east from 33°S-140°W to 34°S-125°W. The whole area, including the convergence, was considered as relatively poor regarding phyto and zooplancton.

Prospection demonstrate that the extension of the surface albacore stocks extends at least towards 125°W, while most of the present exploratory fishery take place more west (around 155°W). Globally, 140 trolling hours with 10 lines out allowed to catch 496 albacores, 190 of them having been tagged and released, and a biological sample of 61 taken. Yields were high for a research vessel (44 albacores/day, 60 to 90 including lost fishes, 130 for the best catch); sizes ranges between 40 and 97 cm; most of the catches were done on sub-surface fishes, with no surface sightings. Four age classes (50, 61, 71 et 80 cm) were represented in the catch.

## TABLES AND FIGURES

### TABLES:



### FIGURES

Table 2: Sum up of operations done during the PROSGERMON 87 cruise.

| Section | Oceanographical stations | | | | Prospection-Fishing | | | |
|---|---|---|---|---|---|---|---|---|
| | Surface | XBT | ZPK | STD | Troll | Catches | Sample | Tagged |
| Tahiti to 36°S-140°W | 36 | 18 | 16 | - | - | - | - | - |
| 36°S-140°W to 41°S-140°W | 11 | 11 | 6 | 4 | 8.0 | 81 | 11 | 0 |
| 41°S-140°W to 41°S-138°W | 3 | 3 | - | 0 | 9.5 | 8 | 0 | 0 |
| 41°S-138°W to 38°S-138°W | 7 | 7 | - | 0 | 10.0 | 4 | 0 | 0 |
| 38-41.30°S to 138-127.°0 | 16 | 17 | - | - | 76.5 | 364 | 41 | 190 |
| 38°S-127°W to 41°S-127°W | 7 | 7 | - | 0 | 13.0 | 29 | 5 | 0 |
| 41°S-127°W to 41°S-125°W | 3 | 3 | - | 0 | 12.0 | 0 | 0 | 0 |
| 41°S-125°W to 36°S-125°W | 11 | 11 | 6 | 0 | 11.5 | 0 | 0 | 0 |
| 36°S-125°W to Papeete | 61 | 33 | - | - | - | - | - | 0 |
| TOTAL | 155 | 110 | 29 | 4 | 140.5 | 486 | 61 | 190 |

Table 5: Daily results of fishing operations.

| Date | Sea State | Wind | SST | Troll hours | Speed | Catch (Nb) | Catch/hour | Si ra |
|---|---|---|---|---|---|---|---|---|
| 27/02 am | moderate | 2 NW | 20.1 to 19.5 | 4.0 4.0 | 9.0 | 0 0 | .0 .0 | |
| 28/02 am | rough | 4-5W | 18.5 to 17.5 | 3.5 6.0 | 5.5 | 2 79 | .6 13.2 | 45 |
| 01/03 am | very rough | 5-7WSW | 17.0 to 15.5 | 5.5 5.5 | 7.5 | 0 8 | .0 1.5 | ? |
| 02/03 am | moderate | 2-3SW 2-3SE | 18.5 to 19.0 | 5.5 6.0 | 7.5 | 4 0 | .7 .0 | 75- |
| 03/03 am | calm rough | 3ESE 4ESE | 17.5 to 18.0 | 7.0 6.0 | 5.0 | 33 26 | 4.7 4.3 | 50/ |
| 04/03 am | moderate | 3-4 SE | 16.9 to 17.1 | 7.0 6.0 | 6.0 | 17 73 | 2.4 12.2 | 50- |
| 05/03 am | moderate | 3SE | 15.5 to 18.0 | 7.0 6.0 | 5.5 | 4 50 | .6 8.3 | 40- |
| 06/03 am | calm | 1-2SW | 16.5 to 17.5 | 7.0 6.0 | 5.5 | 29 2 | 4.1 .3 | 55- |
| 07/03 am | calm | 2-3SW 2-3SSW | 16.9 to 17.1 | 7.0 6.0 | | 116 14 | 16.6 2.3 | 50/ |
| 08/03 am | moderate | 2-3S | 17.0 to 18.1 | 7.0 6.0 | 8.0 | 29 0 | 4.1 .0 | 75- |
| 09/03 am | moderate | 2-3WSW | 15.1 to 16.3 | 6.5 5.5 | 8.0 | 0 0 | .0 .0 | |
| 10/03 am | calm | 2-3SSE | 17.2 to 19.4 | 6.0 5.5 | 6.5 | 0 0 | .0 .0 | |
| Total am | | | 15.1 | 74.0 | | 234 | 3.2 | |
| pm | | | 19.4 | 68.5 | | 252 | 3.7 | |

Table 6: List of biological samples collected

| No | DATE | TIME | LAT. | LONG. | SST | FL(cm) | W(kg) | G | S | O |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 60 | 4.9 | 1 | M2 | 0 |
| 2 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 73 | 8.0 | 1 | M2 | 0 |
| 3 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 65 | 5.7 | 1 | II | 0 |
| 4 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 78 | 9.5 | 1 | M2 | 0 |
| 5 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 54 | 3.5 | 1 | XX | 0 |
| 6 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 47 | 2.5 | 1 | XX | 0 |
| 7 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 79 | 10.5 | 1 | F2 | 0 |
| 8 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 67 | 7.5 | 1 | M2 | 0 |
| 9 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 49 | 2.5 | 1 | II | 0 |
| 10 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 50 | 2.5 | 1 | II | 0 |
| 11 | 28/02 | 15.00 | 39.30 | 140.00 | 18.9 | 60 | 2.5 | 1 | II | 0 |
| 12 | 02/03 | 10.30 | 38.05 | 138.00 | 18.7 | 79 | 10.0 | 1 | M2 | 1 |
| 13 | 02/03 | 10.30 | 38.05 | 138.00 | 18.7 | 77 | 10.0 | 1 | M2 | 1 |
| 14 | 02/03 | 10.30 | 38.05 | 138.00 | 18.7 | 79 | 10.5 | 1 | F2 | 1 |
| 15 | 02/03 | 10.30 | 38.05 | 138.00 | 18.7 | 77 | 10.0 | 1 | F2 | 1 |
| 16 | 04/03 | 08.30 | 41.09 | 135.28 | 17.0 | 80 | 9.0 | 0 | F2 | 1 |
| 17 | 04/03 | 08.30 | 41.09 | 135.28 | 17.0 | 50 | 2.0 | 0 | II | 1 |
| 18 | 04/03 | 14.30 | 40.35 | 135.08 | 16.7 | 51 | 2.5 | 1 | M2 | 1 |
| 19 | 04/03 | 14.30 | 40.35 | 135.08 | 16.7 | 51 | 2.5 | 1 | II | 1 |
| 20 | 04/03 | 14.30 | 40.35 | 135.08 | 16.7 | 52 | 3.0 | 1 | II | 1 |
| 21 | 04/03 | 14.30 | 40.35 | 135.08 | 16.7 | 72 | 7.0 | 1 | M2 | 1 |
| 22 | 04/03 | 14.30 | 40.35 | 135.08 | 16.7 | 62 | 5.0 | 1 | M2 | 1 |
| 23 | 04/03 | 14.30 | 40.35 | 135.08 | 16.7 | 64 | 5.0 | 1 | M2 | 1 |
| 24 | 04/03 | 14.30 | 40.35 | 135.08 | 16.7 | 60 | 4.5 | 1 | M2 | 1 |
| 25 | 04/03 | 14.30 | 40.35 | 135.08 | 16.7 | 61 | 4.0 | 1 | M2 | 1 |
| 26 | 04/03 | 14.30 | 40.35 | 135.08 | 16.7 | 67 | 6.0 | 1 | F2 | 1 |
| 27 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 80 | 10.0 | 1 | F2 | 1 |
| 28 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 82 | 11.5 | 1 | F2 | 1 |
| 29 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 72 | 8.0 | 1 | M2 | 1 |
| 30 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 81 | 10.5 | 1 | M2 | 1 |
| 31 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 77 | 9.0 | 1 | F2 | 1 |
| 32 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 69 | 7.0 | 1 | M2 | 1 |
| 33 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 69 | 7.5 | 1 | M2 | 1 |
| 34 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 75 | 8.5 | 0 | F2 | 1 |
| 35 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 86 | 12.0 | 1 | F2 | 1 |
| 36 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 59 | 5.0 | 1 | F2 | 1 |
| 37 | 04/03 | 15.30 | 40.30 | 135.05 | 16.9 | 60 | 4.0 | 0 | II | 1 |
| 38 | 05/03 | 06.30 | 39.14 | 133.49 | 17.3 | 42 | 1.2 | 1 | II | 1 |
| 39 | 05/03 | 06.30 | 39.14 | 133.49 | 17.3 | 41 | 1.2 | 1 | II | 1 |
| 40 | 05/03 | 13.00 | 39.51 | 133.22 | 18.0 | 46 | 1.5 | 1 | II | 1 |
| 41 | 05/03 | 13.00 | 39.51 | 133.22 | 18.0 | 46 | 1.5 | 1 | II | 1 |
| 42 | 05/03 | 13.00 | 39.51 | 133.22 | 18.0 | 50 | 2.5 | 1 | II | 1 |
| 43 | 05/03 | 15.30 | 40.01 | 133.15 | 18.6 | 58 | 4.0 | 1 | M2 | 1 |
| 44 | 05/03 | 15.30 | 40.01 | 133.15 | 18.6 | 49 | 2.3 | 1 | M2 | 0 |

Table 6: List of biological samples collected

| No | DATE | TIME | LAT. | LONG. | SST | FL(cm) | W(kg) | G | S | O |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 05/03 | 15.30 | 40.01 | 133.15 | 18.6 | 57 | 4.0 | 1 | XX | 1 |
| 46 | 05/03 | 15.30 | 40.01 | 133.15 | 18.6 | 46 | 1.8 | 1 | XX | 1 |
| 47 | 05/03 | 15.30 | 40.01 | 133.15 | 18.6 | 48 | 2.0 | 1 | II | 1 |
| 48 | 06/03 | 06.30 | 40.51 | 132.22 | 17.0 | 69 | 7.0 | 0 | M2 | 1 |
| 49 | 06/03 | 06.30 | 40.51 | 132.22 | 17.0 | 66 | 6.0 | 0 | M2 | 1 |
| 50 | 06/03 | 09.50 | 40.32 | 132.07 | ---- | 56 | 3.5 | 1 | M2 | 1 |
| 51 | 07/03 | 05.30 | 39.29 | 130.13 | 17.3 | 74 | 8.0 | 1 | M2 | 1 |
| 52 | 07/03 | 05.30 | 39.29 | 130.13 | 17.3 | 71 | 7.0 | 1 | M2 | 1 |
| 53 | 07/03 | 05.30 | 39.29 | 130.13 | 17.3 | 71 | 7.0 | 1 | F2 | 1 |
| 54 | 07/03 | 05.30 | 39.29 | 130.13 | 17.3 | 82 | 11.2 | 1 | M2 | 1 |
| 55 | 07/03 | 05.30 | 39.29 | 130.13 | 17.3 | 58 | 4.4 | 1 | M2 | 1 |
| 56 | 07/03 | 12.00 | 39.16 | 129.47 | 17.5 | 90 | 13.5 | 1 | M2 | 1 |
| 57 | 08/03 | 09.30 | 38.07 | 127.00 | 17.9 | 89 | 15.0 | 1 | M2 | 1 |
| 58 | 08/03 | 09.30 | 38.07 | 127.00 | 17.9 | 85 | 13.0 | 1 | F2 | 1 |
| 59 | 08/03 | 09.30 | 38.07 | 127.00 | 17.9 | 97 | 20.0 | 1 | M2 | 1 |
| 60 | 08/03 | 09.30 | 38.07 | 127.00 | 17.9 | 89 | 15.0 | 1 | M2 | 1 |
| 61 | 08/03 | 09.30 | 38.07 | 127.00 | 17.9 | 88 | 13.0 | 1 | M2 | 1 |

Notes: -For G (Gills+Fillets+Stomach) and O (Otholiths), "1" means sampled and "0" unsampled.
-For S(Sex), "M" means male, "F" female, "II" immature and "XX" not looked.
-Date and time are as of TAHITI.

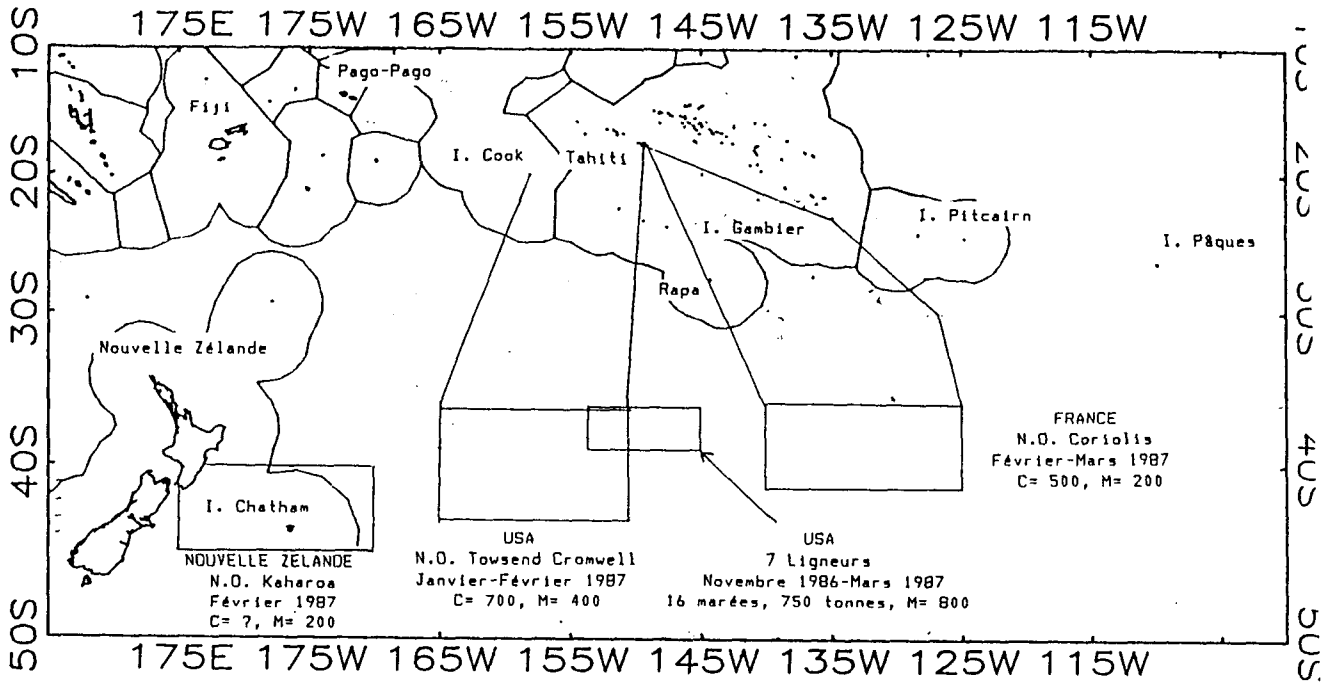



Fig. 1 : Zones approximatives des campagnes de prospection des ressources en Germon menées en 1987.

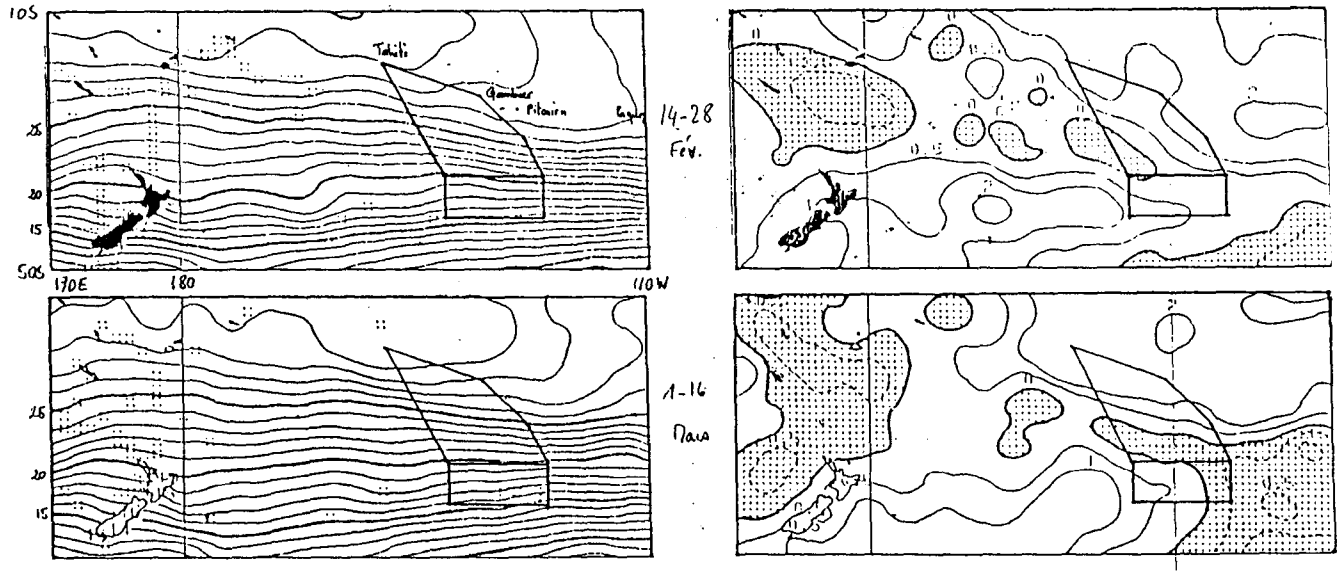



Fig. 3 Isothermes (à gauche) et anomalies (à droite) des températures de surface dans le Pacifique sud du 14 au 28 février (haut) et du 1 au 16 mars (en bas) d'après GOSSCOMP.

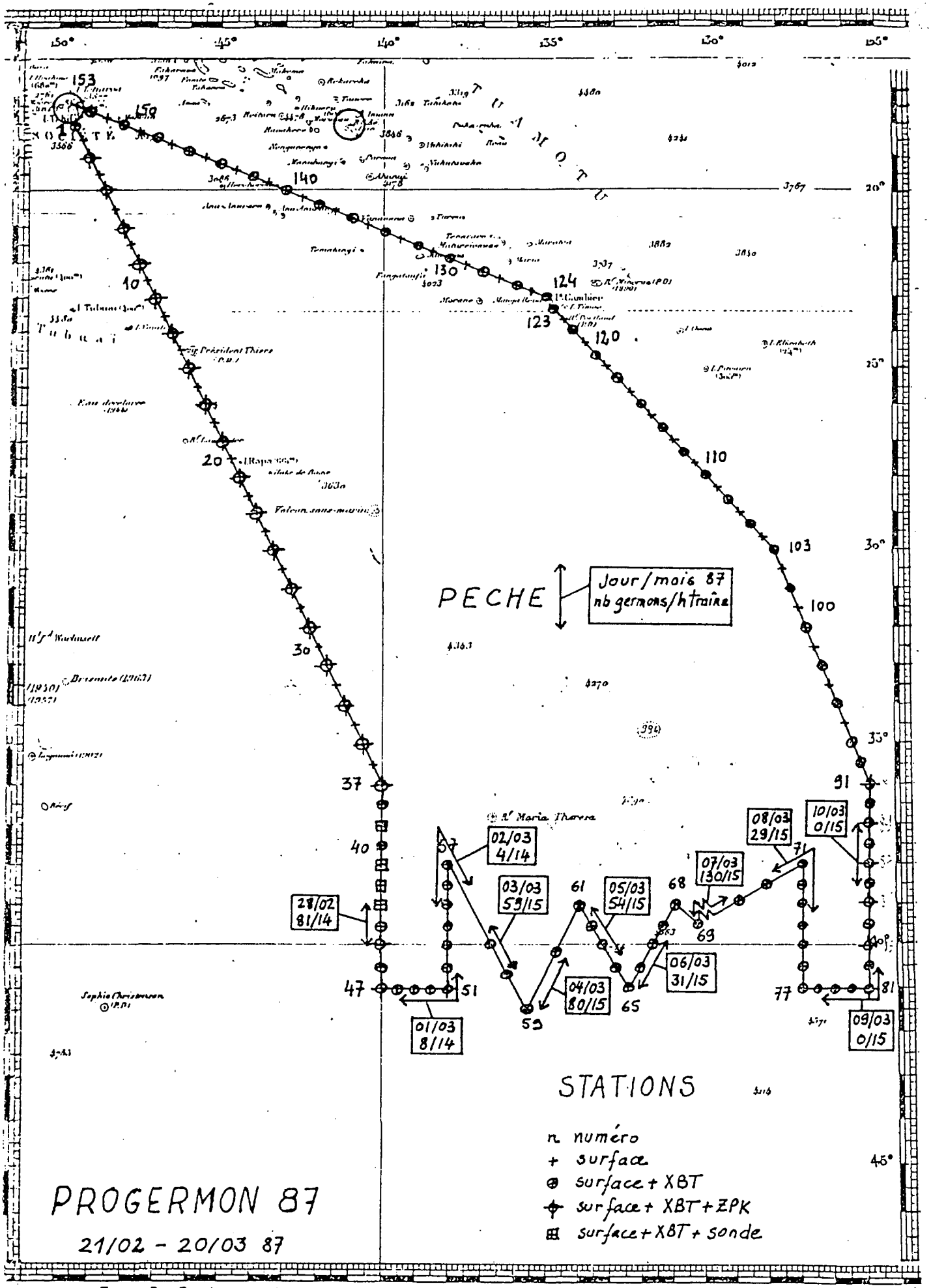



Fig. 2: Carte synyhétique (trajet, stations et pêche) de la campagne PROSGERMON 87 du N.O. CORIOLIS.

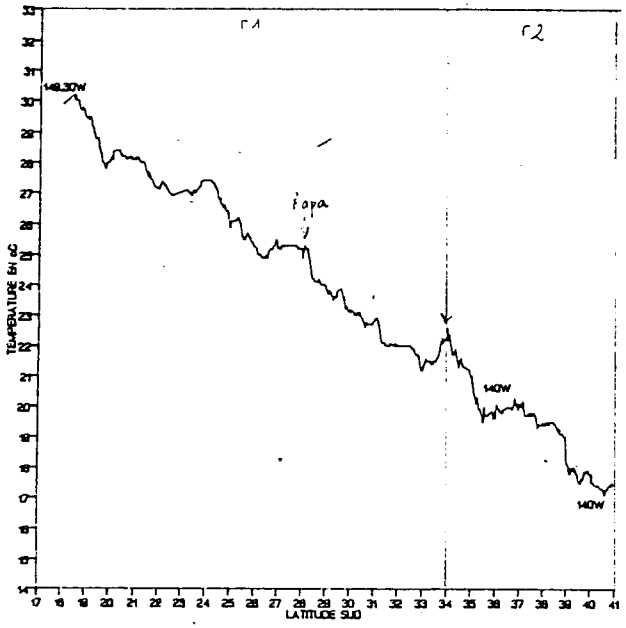



Fig. 6a: Evolution des températures de surface (thermographe enregistreur) au cours du trajet aller (Papeete-convergence, sections 1 et 2).

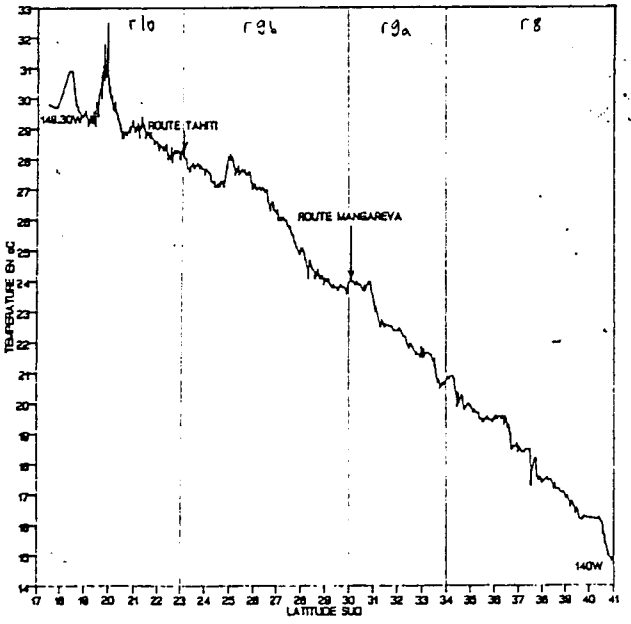



Fig. 6b: Evolution des températures de surface (thermographe enregistreur) au cours du trajet retour (convergence-Mangareva-Tahiti).

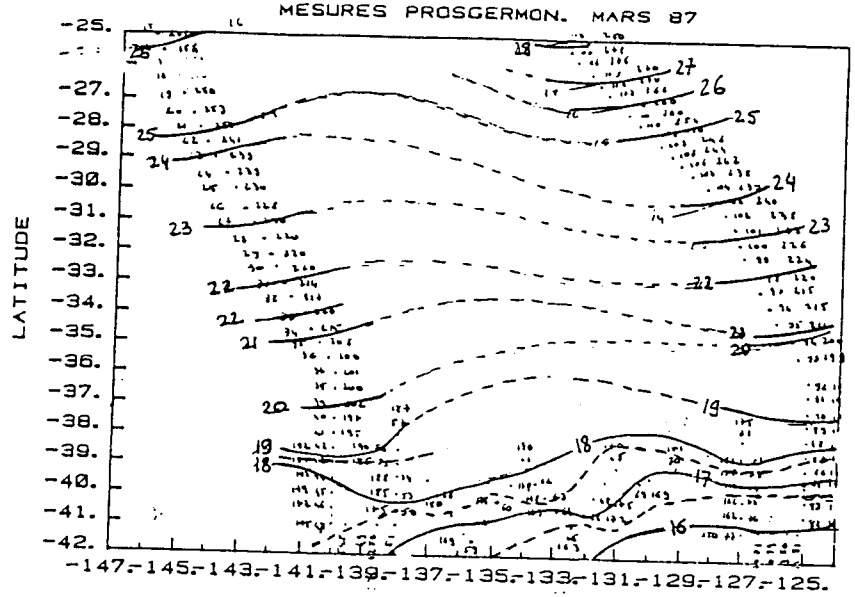



Fig. 4: Températures de surface (seau) entre 25 et 42°S.

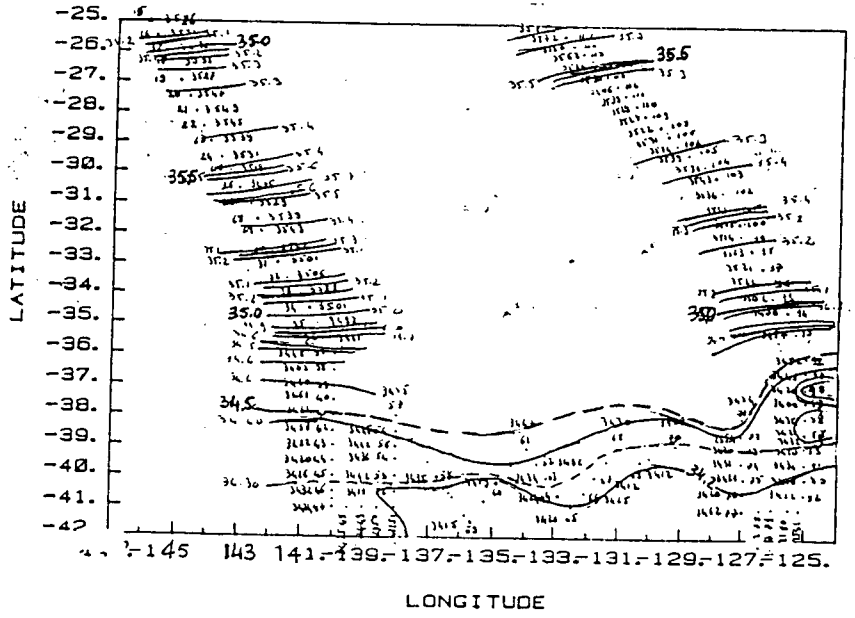



Fig. 5: Salinités de surface entre 25 et 42°S.

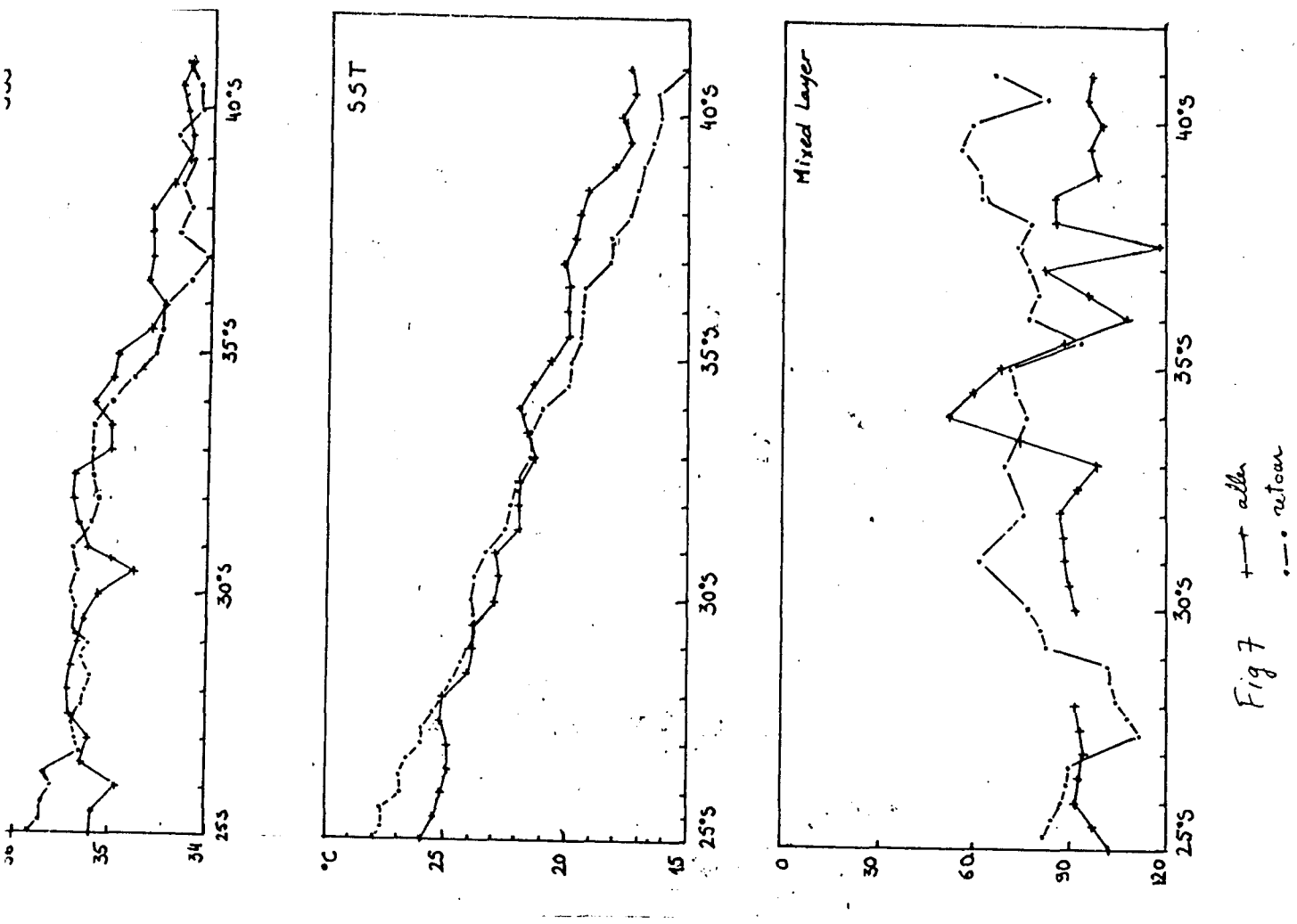
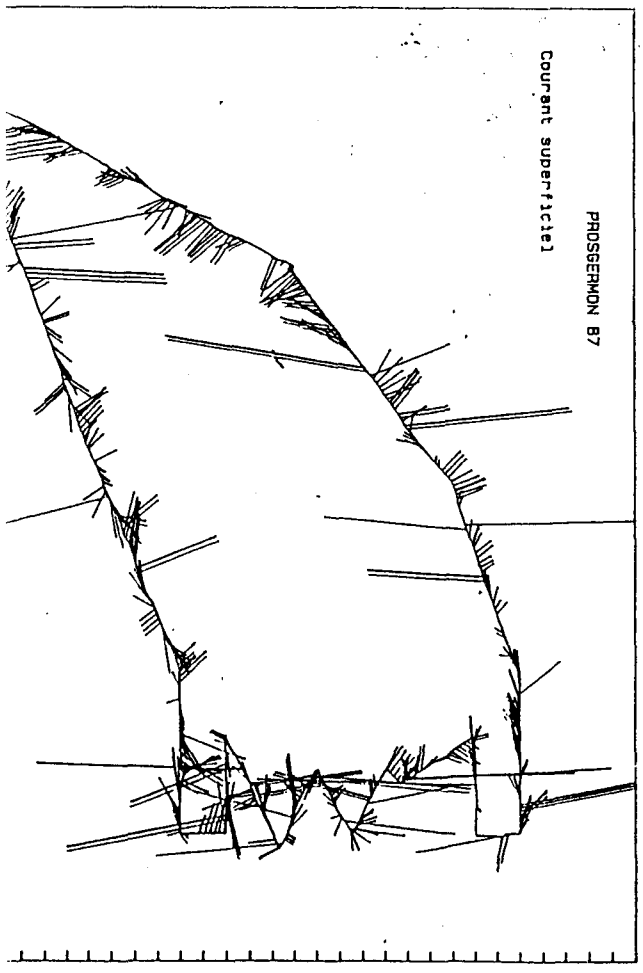



Fig 7 — atlas
-.- actual



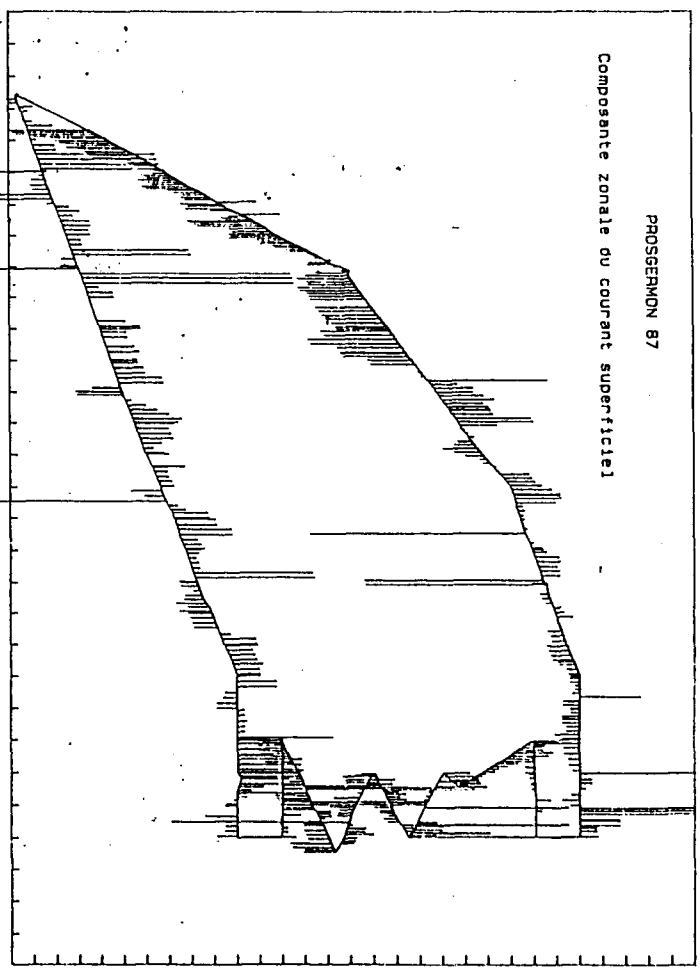
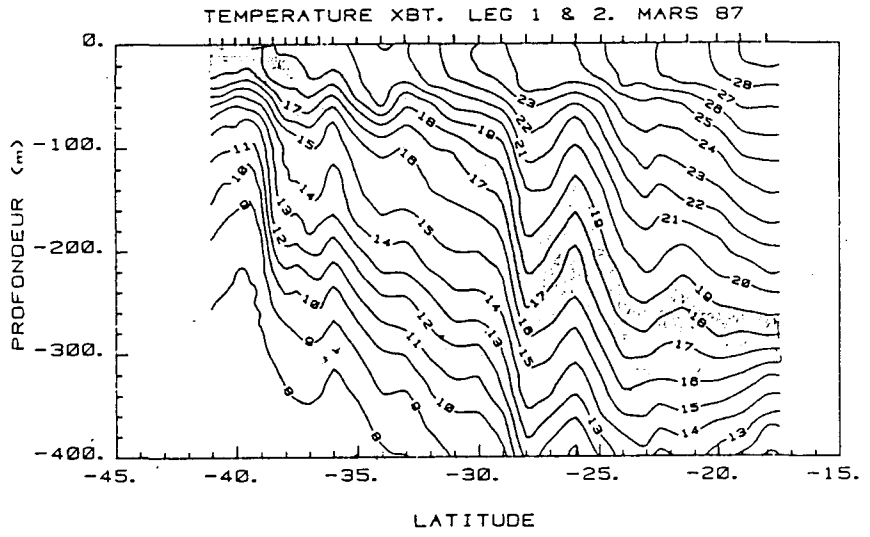




Fig. 8a-b' Composantes effectives et zonales du courant superficiel obtenues à partir des dérives par rapport aux points satellites le long du trajet.



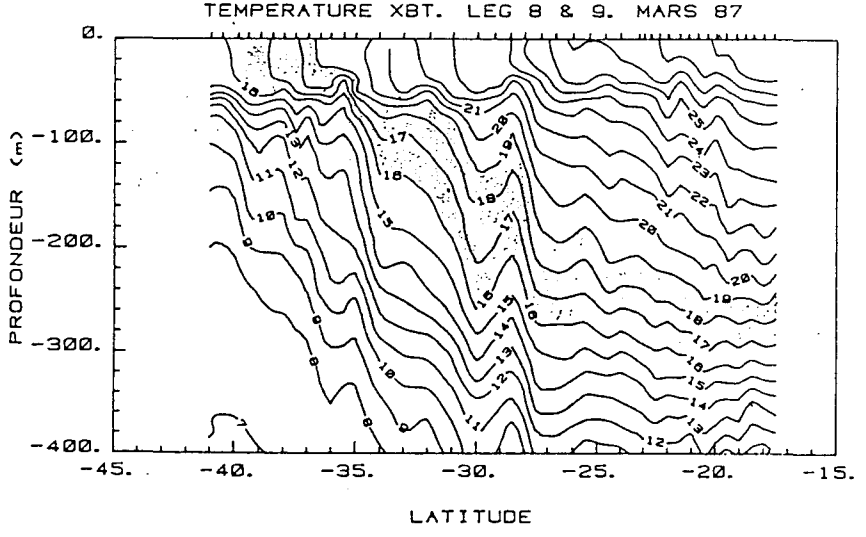
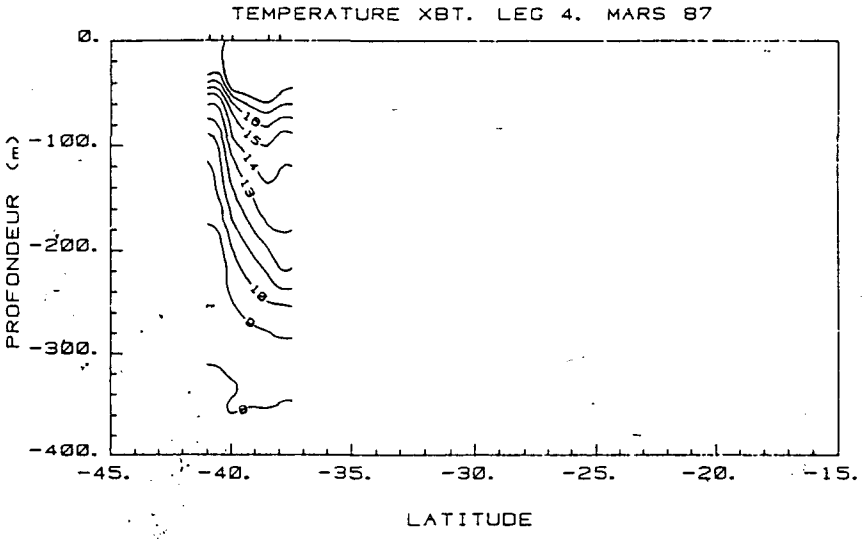




Fig. 9a et b: Profils des températures au cours des trajets aller (a: en haut, sections 1 et 2) et retour (b: en bas, sections 8 et 9)



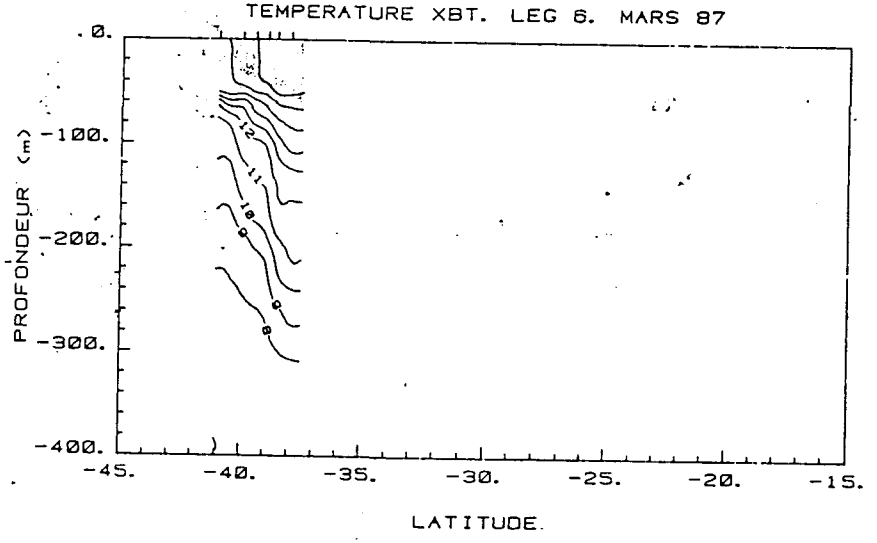
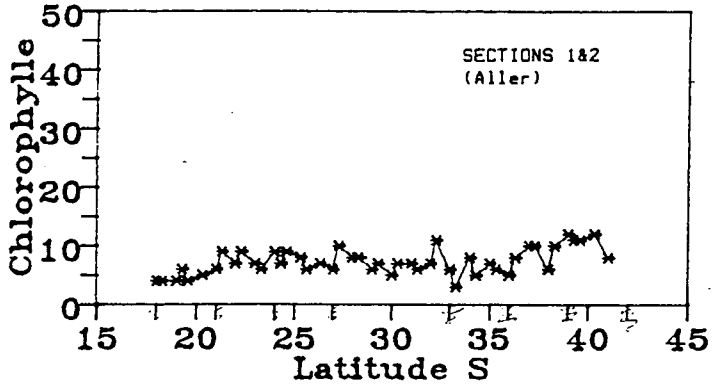
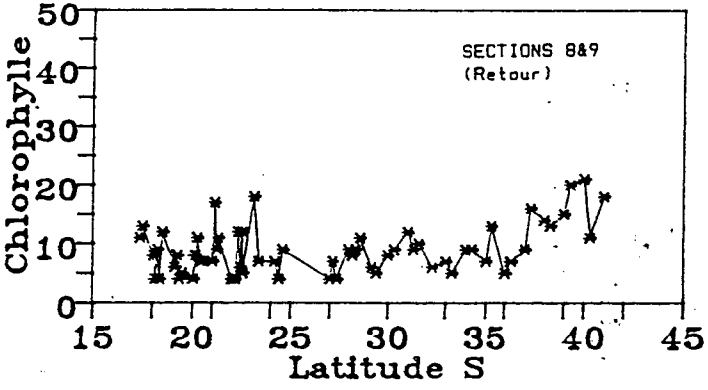




Fig. 9c et d: Profils des températures au cours des radiales intermédiaires (c: en haut, section 4, et d: en bas, section 6).



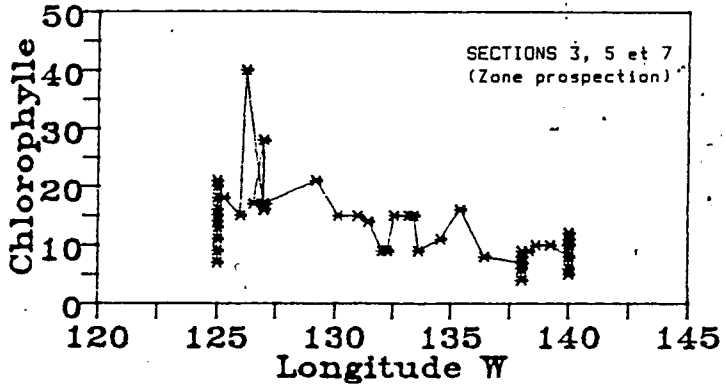
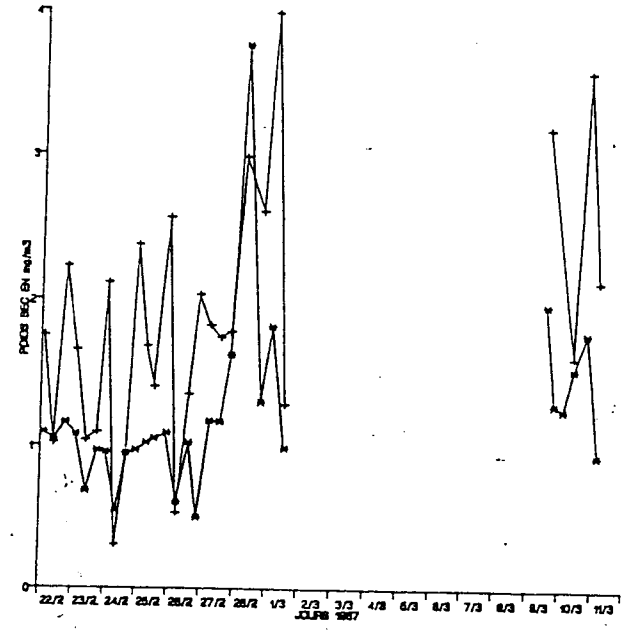




Fig. 10: Evolution de la chlorophylle de surface (en mg/100 m³) le long des trajets aller (haut: section 1 et 2), retour (milieu: section 8 et 9) et dans la zone de prospection (bas: section 4 à 6).



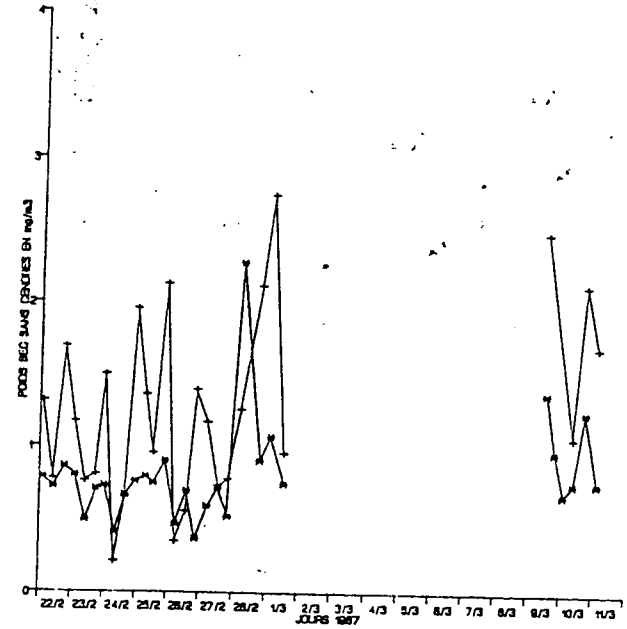



Fig. 11a et b: Evolution de la biomasse planctonique: poids sec (11a, en haut) et poids sec sans cendres (11b, en bas) en mg/m³ le long du trajets aller.

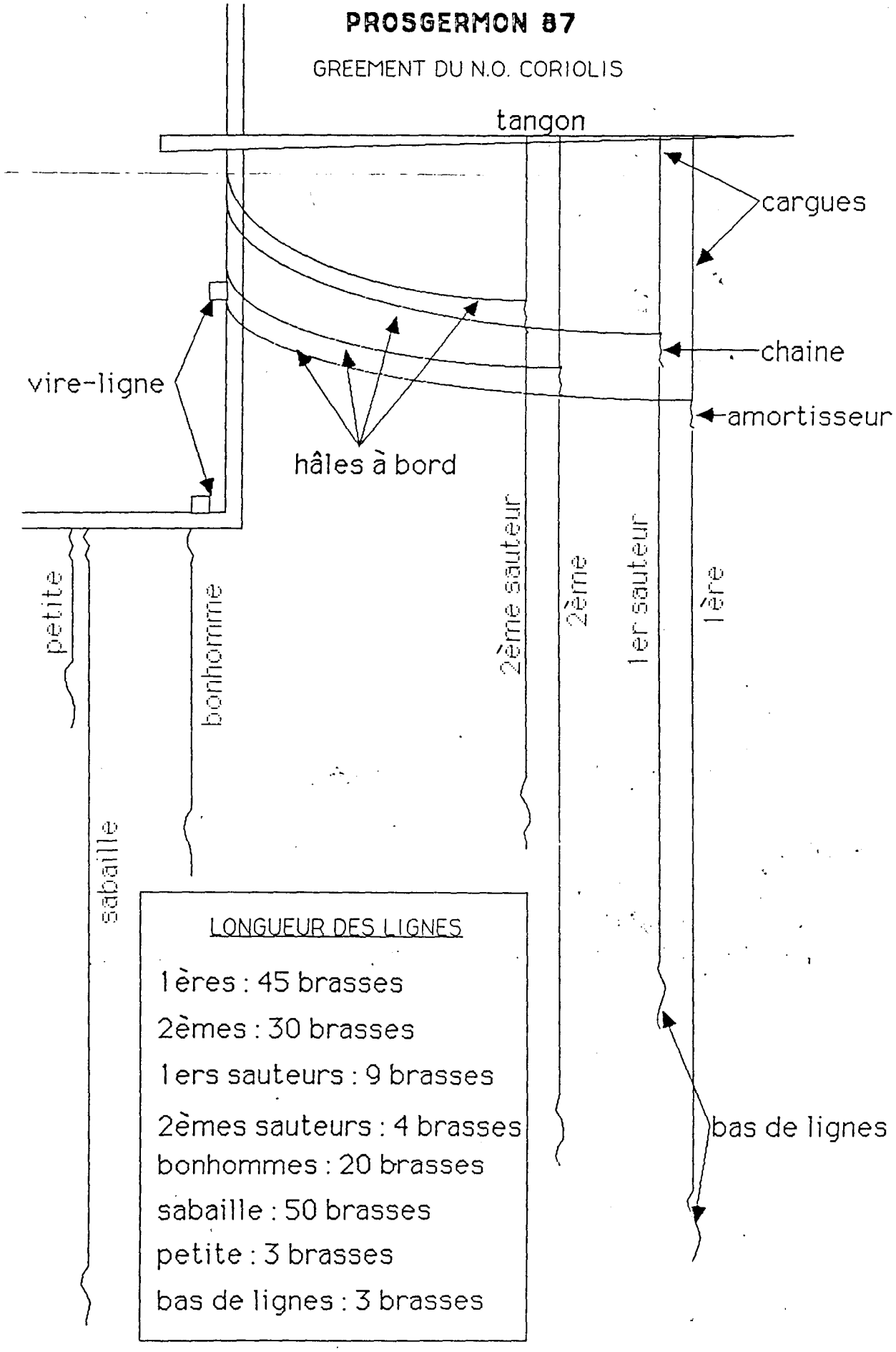



Fig. 12: Gréement de pêche du N.O. CORIOLIS au cours de la campagne.

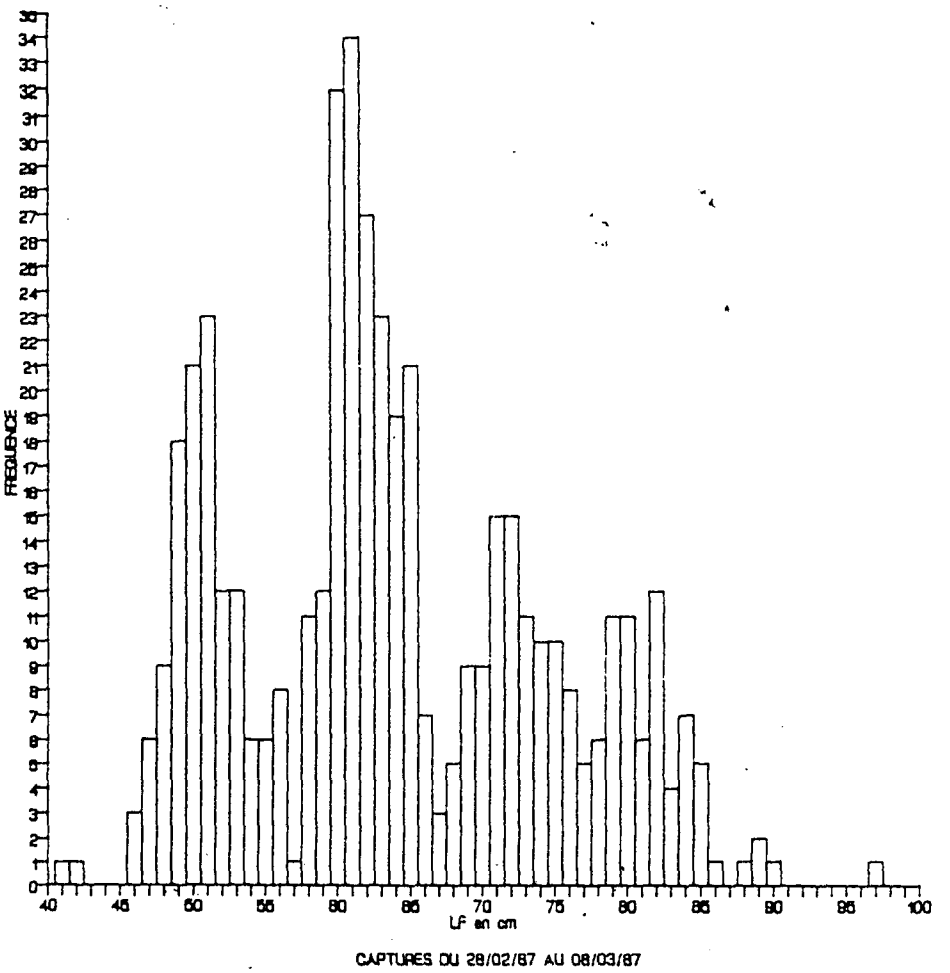



Fig. 13: Distribution de fréquence de l'ensemble des captures de germon (marqués et non marqués regroupés).

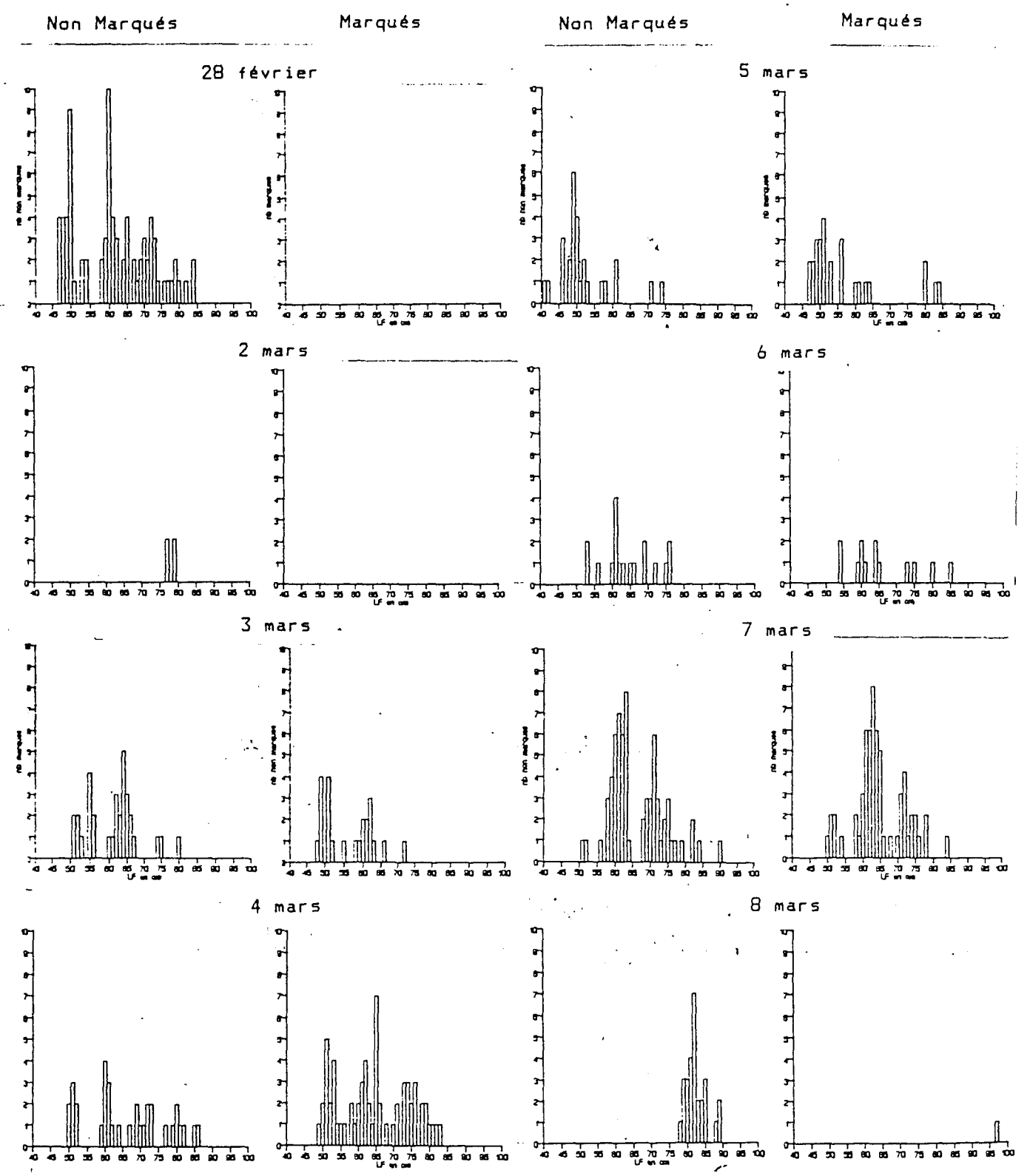



Fig. 14: Distributions de fréquence des captures quotidiennes (marqués et non marqués séparés).

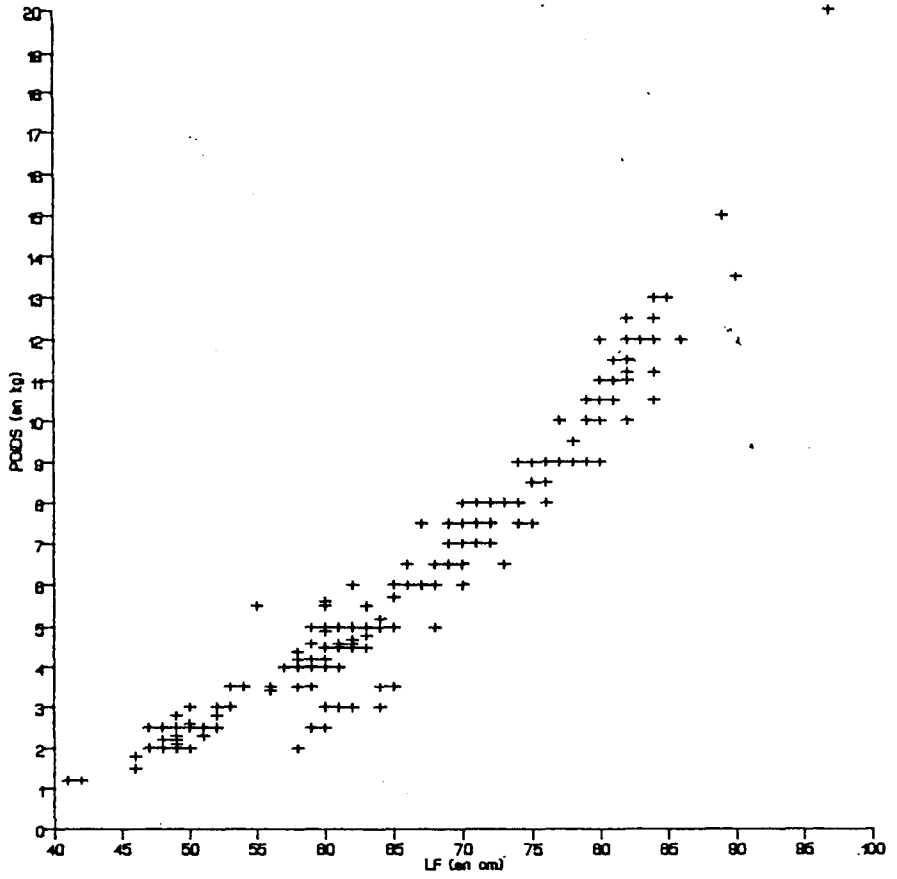



Fig. 15: Relation taille-poids des captures réalisées au cours de la campagne.

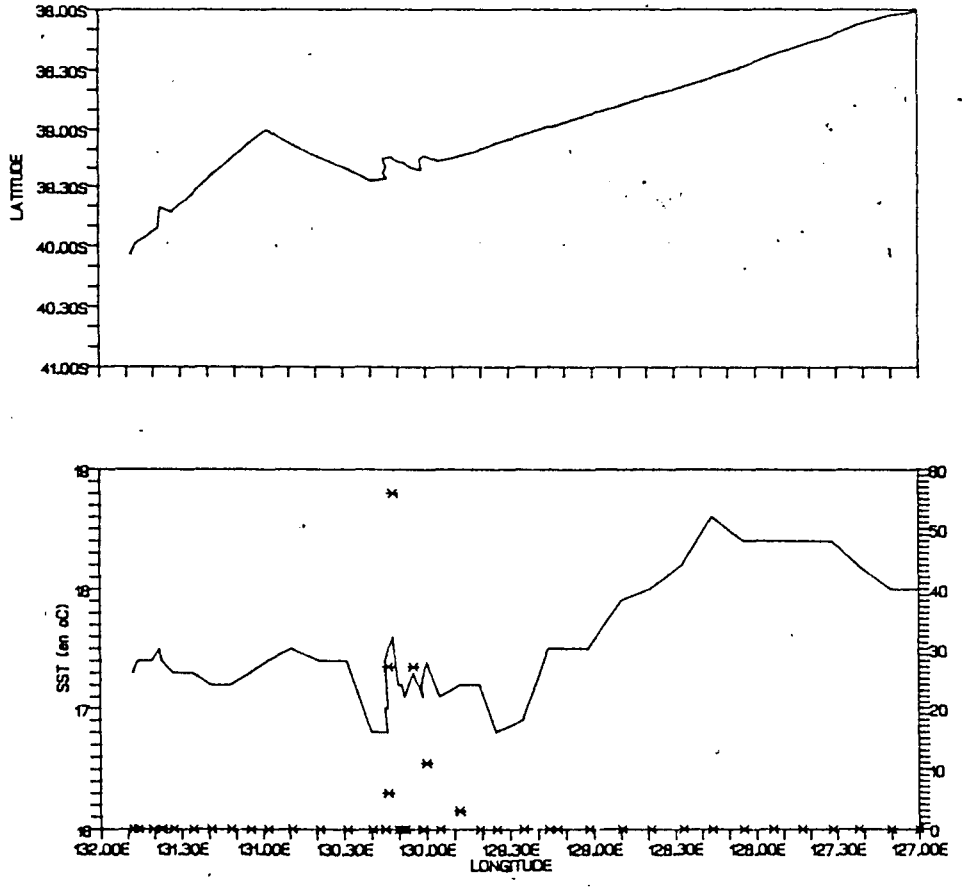



Fig. 16: Trajet du N.O. CORIOLIS au cours de la phase de prospection (haut) et évolution des températures de surface en relation avec les

Annexe III

## LES IDEES CUISINE

*Christian Gougeon est non seulement un excellent pêcheur en mer, notamment très habile à la traîne en bateau, c'est aussi un remarquable cuisinier. De mois en mois, il vous mettra en appétit avec des recettes qu'il connaît bien, et fait apprécier à ses clients à longueur d'année dans ses restaurants, notamment le Gambetta à Pontivy et l'Auberge du Moulin à Moréac, dans le Morbihan, où vous serez toujours les bienvenus.*

*hon blanc, dit germon, ou thon rouge – ces deux magnifiques poissons s'accommoderont délicieusement pour cette recette de saison. Choisissez, chez votre poissonnier, une belle rouelle d'environ 1 kg, si possible placée dans la partie la plus large du poisson.*

- *250 g de fines tranches de lard demi-sel découenné*
- *4 belles carottes*
- *5 oignons*
- *4 tomates bien mûres*
- *1 poignée d'oseille*
- *2 salades de laitue*
- *thym, laurier, sel, poivre*
- *3 cuillerées à soupe d'huile d'olive*
- *la moitié d'une bonne bouteille de vin blanc sec.*

*Commencer par émincer finement carottes et oignons, bien laver et égoutter l'oseille, laver et couper la salade, couper les tomates et extraire les graines.*

*Dans une cocottes en fonte, verser sur feux doux, l'huile d'olive, les légumes en mélange, poser la rouelle de thon sur ce lit de légumes, sel, poivre, thym et laurier, verser le vin blanc et autant d'eau, poser le couvercle de la cocotte et laisser cuire tout doucement une bonne heure.*

*Lorsque tout est bien cuit, sortir la rouelle de thon, lever la peau et l'arête, partager en quatre parts, dresser sur un plat en recouvrant totalement le poisson des délicieux légumes.*

*Servir avec vin blanc ou rosé de Provence.*

*Bon appétit !*