INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA

ICES CM1988/B:39
Fish Capture Committee

INTERMEDIATE REPORT OF THE STUDY GROUP ON NET DRAWING

by
D.A. Wileman* & B. van Marlen**

*Danish Fisheries Technology Institute
Northsea Centre
DK 9850 Hirtshals
Denmark

**Netherlands Institute for Fishery Investigations
P.O. Box 68, 1970 AB IJmuiden
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Abstract

The Study Group met in conjunction with the FTFB Group in Ostend 1988. Problems concerning standardization of net drawings in relation to the current development of computer software have been discussed and suggestions are given for a future standard. Some participants demonstrated developed computer software on available facilities. It was recommended to extend this work next year.

Meeting Place:

Rijksstation voor de Zeevisserij
Ankerstraat 1
Oostend, Belgium

Dates:

April 21-22, 1988.

Terms of reference

According to C.Res. 1987/2:6:

a) to review the draft ISO standard (3169) on net drawing and current practices in net design and manufacture, paying particular attention to computer-aided design conventions;

b) to recommend an international standard for drafting net plans;

c) to report to the Fish Capture Committee at the 1989 Statutory Meeting.

Participants (further information in Appendix A)

Gerard Bais	
Jean Claude Brabant	
Sander Calisal	
Frank Chopin	
Erdmann Dahm	
Bill Dickson	
Pierre-Yves Dremiere	
Dick Ferro	
Sven Floen	
Ronald Fonteyne	
Gudmunder Gunnarsson	
Kurt Hansen	
Bob van Marlen	(convenor)
Ron Moermans	
Gudni Thorsteinsson	
Bill West	
David Wileman	(rapporteur)

AGENDA

1. INTRODUCTION OF PARTICIPANTS

Each participant explains in a few words his relevant knowledge and experience and present activities. Experience varies concerning net design, net mending and computer programming.

2. PROBLEM DEFINITION AND CURRENT STATE OF THE ART

It was generally acknowledged, that a standard for net drawing and construction would be benificial to the scientific community, as international research programmes such as fish stock surveys require equal fishing gear and sampling methods.
Standards are less important in commercial practice, but may avoid misinterpretations of net specifications.

A short review of the background and identified problems leading to the establishment of this working group is given by the convenor (appendix B).

The discussion started with an exploration of problems concerning computer aided net design and net drawing. Some of the encountered problems were presented in written form and handed out during the meeting.

Mr. Bais presented an application on the RIVO-VAX computer explaining the structure of the programme and the various options to be choosen from a start- and workmenu (appendix C). Details concerning the algorithm of determination of cutting rates were revealed. Samples of output were shown. Upper/lower/side-panels are stored in separate files.

Mr. Brabant presented several problems arising from use of very large meshes in trawls when counting individual meshes and describes the package "PLANCHALUT" developed at IFREMER (appendix D). Technical specifications of net sections, ropes and materials used are put in tables on the drawing. This programme can draw front parts of nets mesh for mesh. Some samples of output were given.

Mr. Ferro explains the "CADNET" package developed in co-operation with the Marine Laboratory of Aberdeen. Problems were encountered with the specification of twine, meshsize definition used and dealing with double braided twine.
The input works along similar lines as the previous programmes using a screen menu. Some samples of output were given.

Mr. West describes the use of the "AUTOCAD" package on IBM-XT/AT micro's.
Anything can be drawn, also rig plans etc., but it takes some time to learn to work with the software, that is not specifically aimed at net drawings.

Mr. Wileman and Mr. Hansen explain the package developed at the Danish Institute for Fishing Technology of Hirtshals. The starting point was the "CADNET" software as used in Aberdeen, which was altered and modified to run on a Danish computer.
This programme features material lists and costs specifications and was developed from the net manufacturers point of view. In- and output are screen menu orientated. Drawing specifications make it easy to determine how to cut sections out of sheet netting. F.i. the number of knots in the selvedges are given. It can draw big mesh parts mesh for mesh and strengthening netting around frame lines. Frame rope specifications are not included so far.

3. DEMONSTRATIONS OF SOFTWARE

RIVO's programme was demonstrated by Mr. Bais, using a modem connection to the VAX-computer at the Dutch institute in IJmuiden.

Mr. Brabant showed his programme on a IBM XT/AT machine.

Wileman and Hansen demonstrated their software on an IBM-compatible machine.

4. DEVELOPMENT OF A NEW STANDARD

It was decided to draw up a list of minimum data to specify a trawl.

15 Items were mentioned and formats recommended after extensive discussion, given below:

Production of netting specifications:
Minimum information required

1) Netting twine
Essential: 1.1. A measure of linear density. Rtex to be used unless Rtex >30000 when the ISO-standard for ropes of kg 1100 m should be used instead.
1.2. Material composition
e.g. PA, Pes
1.3. Construction
e.g. twisted, braided
Optional: Diameter and any other number system e.g. denier.

2) Double twine
Indicate by symbol # or ◊

3) Mesh size
Essential: Full stretched mesh length (as per ISO 1107 3.5.2.) between knot centres in the N direction.
Optional: Inside mesh length (opening of mesh as defined ISO 1107 3.5.3.).

4) Knot construction
Assumed to be single weavers knot.
Knotless or other knot constructions should be named.

5) Simple cutting rates/tapers (constant cutting angle)
Essential: Cut as defined by ISO 1532 e.g. 1T2B, 1N2B.
Optional: Table listing equivalent descriptions in other systems.

6) Mixed cutting rates (constant cutting sequence)
Express in the form e.g. 1N2B + 1N3B
2 x 1N2B + 1N3B

7) Mixed cutting rates (varying cutting angle)
Express in the form e.g.

1 x 1T1B	or	20 x 1N2B
2 x 1T2B		4 x 1N3B
2 x 1T4B	or	20 x 1N2B
AB		AN

8) A netting section in a trawl

A section is defined as a part of a trawl panel throughout which the mesh size and twine are constant. For simplicity joining rows used to attach pieces of netting together can be included with the section where the join meshsize is the same as the section mesh size. All joins must either be included within sections or specified as separate sections.

Essential information:

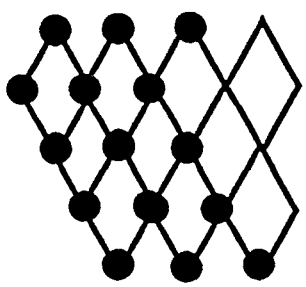
8.1. The mesh size
8.2. The twine
8.3. The knot construction
8.4. The cut on the lefthand side
8.5. The cut on the righthand side

} as described in points 1-7)

8.6. The number of knots in the selvedge on the lefthand side
8.7. The number of knots in the selvedge on the righthand side

Counting the knots:

Example: number of knots = 3

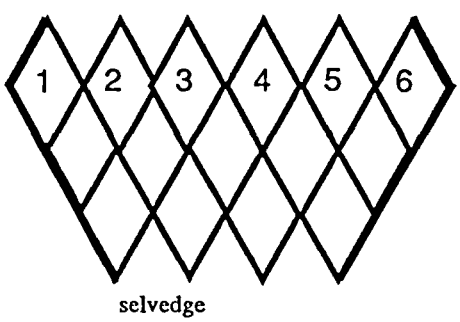


The sides of the netting have been closed up to and including the bars joining the 3rd knots from the netting edge.

8.8. The number of open meshes across the top of the section between the closed selvedges.

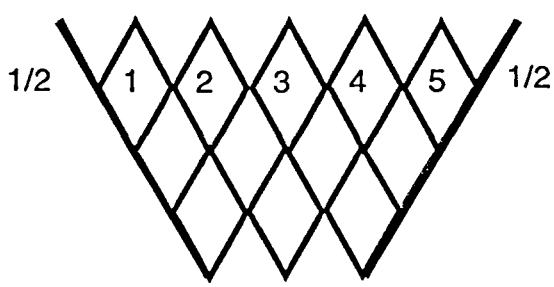
Counting the meshes:

Example



Count is 6

Example



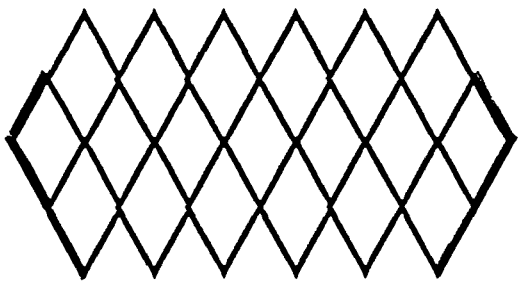
Count is 1/2 5 1/2

If the upper side of the first mesh does not coincide with the selvedge then this extra width is indicated by a 1/2 symbol.

8.9. The number of open meshes across the bottom of the section and between the selvedges.

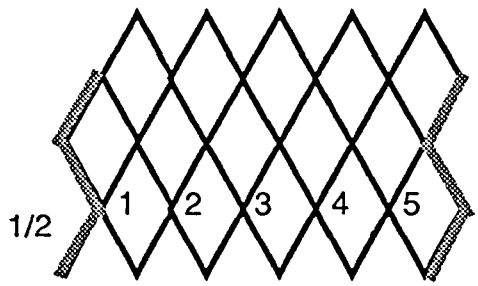
Counting the meshes:

Example



Count is 6

Example



Count is 1/2 5

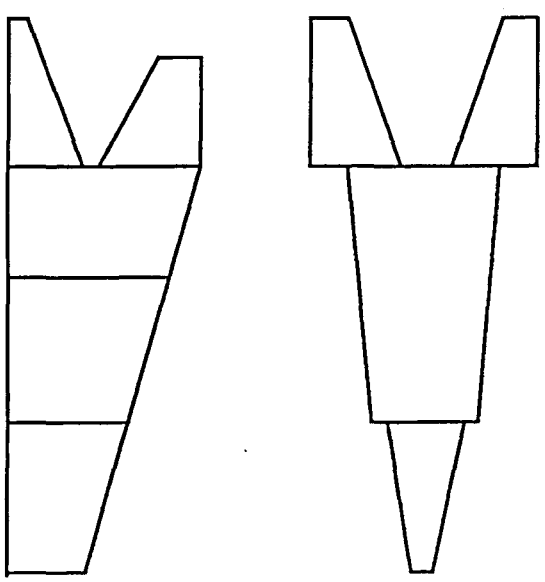
9) Scale drawing of a netting section

If the meshsize >800 mm, then the individual meshes should be drawn. Otherwise a line drawing is given describing the width at the top and bottom and the cutting angles at the sides. Only the open meshes between the selvedges are included. The widths are calculated as if all meshes are open by half their full stretched length. The depth of the section (length) is calculated as if all the meshes were closed (full stretched length).

10) Scale drawing of a netting panel

Sections are drawn such that the centre of the bottom of one section coincides with the centre of the top of the following section. Pairs of wings are drawn such that their separation corresponds to the scaled width of the bosom meshes of the section to which they are attached.

Examples:

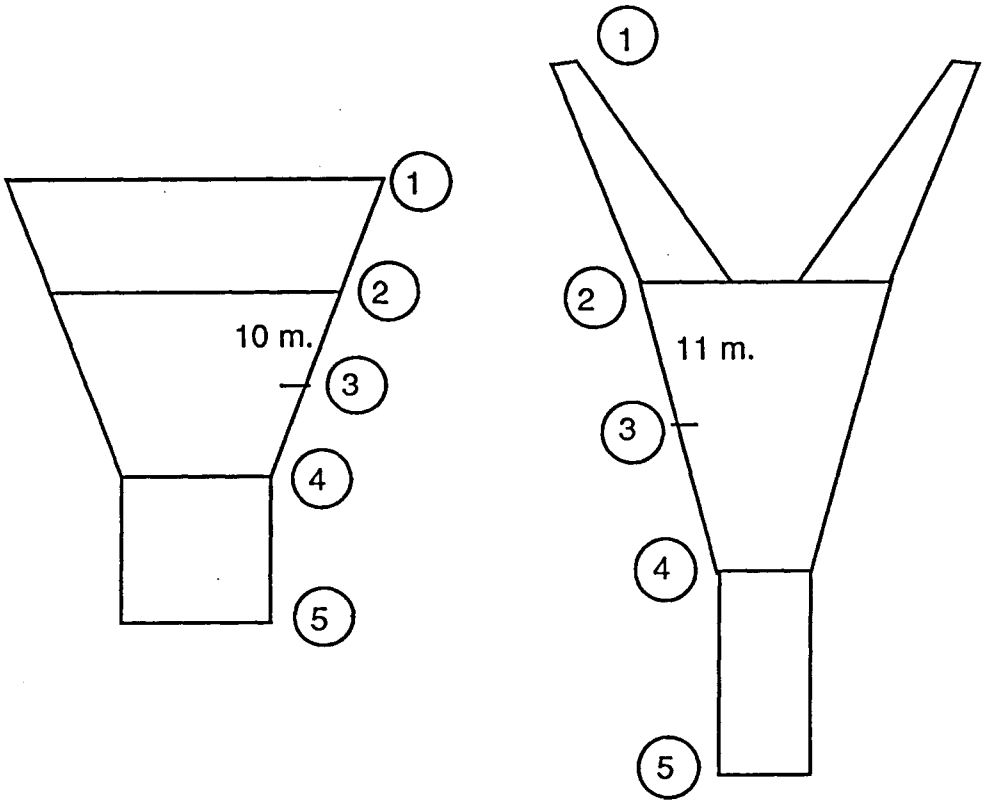


11) Identification of different panels
The symbols ⊤ ; →| ; |← ; ⊥ can be used for the upper, starboard side, port side and lower panels. Otherwise all panels should be named.

12) Layout of different panels
No convention is adopted due to the enormous variation in trawls designs. It is important that drawings should contain all relevant information yet in such a way that the basic net shape and construction can also be seen.

13) Selvedging together of panels and distribution of slack

Example:



A system of number or letter codes should be used to show at which points the panels should be selvedged together. The forward and aft end of the selvedge must be shown. If there is slack between one panel and another and the slack is not constant along the whole slevedge length it must be split up into lengths where the slack is constant. If intermediate points do no coincide with the top of sections then the length in metres or meshes to the nearest top of section must be shown.

14) Framing ropes
Essential information:
14.1. Linear density in kg 1100 m (as per ISO);
14.2. Material composition
14.3. Construction

15) Rope lengths
Total length of each rope should be shown and in addition that part to which each individual netting section is attached. If the cutting anglee for the side of the netting section to be attached is not constant or the ratio of slack/stretch is not constant along the rope length then further detailed specification is essential. For netting sections with T-cuts the distance between each T-mesh should be specified.

Example:

5. RECOMMENDATIONS

The Study Group managed to identify and recommend standards for a substantial amount of information to include in a net drawing, but it was felt, that further work is needed to complete this list.

Therefore the following Recommendation to the Fish Capture Committee was drafted:

> **"Due to the great complexity of the problem of reviewing the current D.I.S.-3169 it is recommended that the Study Group on Net Drawing will meet again in Dublin 1989, in conjunction with the Fishing Technology and Fish Behaviour Working Group to complete the recommended list of items to be included in fishing gear drawings".**

-.-.-.-

vM/ML: 11-07-88
IJmuiden.

APPENDIX A

name	country	Institute/company	telephone	telex	fax	relevant experience: net design	net mending	computer programming
Bais, G.	Netherlands	Rijks Instituut voor Visserij Onderzoek (RIVO)	(31)-2550-64646	71044 rivo nl	(31)-2550-64644	+	-	+
		Postbus 68,	(31)-2550-64791					
		1970 AB IJMUIDEN, NETHERLANDS						
Calisal, S.M.	Canada	Department of Mechanical Engineering	(1)-604-228-2836		(1)-604-228-7006	-	-	+
		University of British Columbia						
		2075 Westbrook Mall						
		VANCOUVER B.C., CANADA V6T 1W5						
Brabant, J.C.	France	L'institut Francais de Recherche pour	(33)-21316148	131565 f	(33)-21834721	+	+	+
		l'Exploitation de la Mer (IFREMER)						
		150 Quai Gambetta						
		B.P. 699,						
		62321 BOULOGNE-SUR-MER, Cedex, FRANCE						
Chopin, F.S.	Canada	Marine Institute	(1)-709-778-0466	016-4721	(1)-709-778-0346	+	+	+
		Newfoundland and Labrador Institute of						
		Fisheries and Marine Technology						
		P.O. Box 4920						
		St. JOHN'S, Nfld. A1C 5R3, CANADA						
Dahm, E.	Germany, F.R.	Institut für Fangtechnik	(49)-40-38905/189	215716 bfafi d		+	+	+
		Palmaille 9	(49)-40-38905/186					
		2000 HAMBURG 50, GERMANY F.R.						
Dremiere, P.Y.	France	L'institut Francais de Recherche pour	(33)-67-747767	490503		+	+	-
		l'Exploitation de la Mer (IFREMER)						
		1 Rue Jean Vilar						
		34200 SETE, FRANCE						
Dickson, W.	Norway	Fiskeriteknologisk Forskningsinstitutt (FTFI)	(47)-5-323770		(47)-5-315852	+	+	-
		C. Sundtsgt. 64,						
		P.O. Box 1964,						
		N-5011 BERGEN, NORWAY						
Ferro, R.S.T.	Scotland (U.K.)	DAFS Marine Laboratory	(44)-224-876544	73587 marlab g	(44)-224-879156	-	-	+
		P.O. Box 101 Victoria Road						
		Torry, ABERDEEN AB9 8D8, SCOTLAND						
Floen, S.	Norway	Fiskeriteknologisk Forskningsinstitutt (FTFI)	(47)-5-323770		(47)-5-315852	-	-	+
		C. Sundtsgt. 64,						
		P.O. Box 1964,						
		N-5011 BERGEN, NORWAY						
Fonteyne, R.	Belgium	Rijksstation voor Zeevisserij	(32)-320805			-	-	+
		Ankerstraat 1	(32)-320388					
		B-8400 OOSTENDE, BELGIE						
Gunnarsson, G.	Iceland	Hampidjan, net manufacturers	(354)-1-28100	2274 hampis		+	+	-
		Stakkholt 2-4						
		P.O. Box 5136						
		125 REYKJAVIK, ICELAND						
Hansen, K.	Danmark	Dansk Fiskeriteknologisk Institut	(45)-8-944300	67757 fti dkv	(45)-8-944833	+	+	+
		Sydvestkajen 1						
		DK-9850 HIRSTHALS, DENMARK						
Van Marlen, B.	Netherlands	Rijks Instituut voor Visserij Onderzoek (RIVO)	(31)-2550-64780	71044 rivo nl	(31)-2550-64644	+	-	+
		Postbus 68,						
		1970 AB IJMUIDEN, NETHERLANDS						
Moermans, R.	Belgium	Rijksstation voor Zeevisserij	(32)-320805			-	-	+
		Ankerstraat 1	(32)-320388					
		B-8400 OOSTENDE, BELGIE						
Thorsteinsson, G.	Iceland	Marine Research Institute	(354)-1-20240			+	+	-
		Skulagata 4						
		P.O.Box 1390,						
		121 REYKJAVIK, ICELAND						
West, Ch. W.	U.S.A.	Nor'Eastern Trawl Systems, Inc.	(1)-206-842-5623			+	+	+
		7910 N.E. Day Road West,						
		BAINBRIDGE ISLAND, WA 98110, U.S.A.						
Wileman, D.A.	Denmark	Dansk Fiskeriteknologisk Institut	(45)-8-944300	67757 fti dkv	(45)-8-944833	+	+	-
		Sydvestkajen 1						
		DK-9850 HIRSTHALS, DENMARK						

SGND-MEETING; 21-22 APRIL 1988, OSTEND-BELGIUM

Background The use of computer aided drawing and design techniques is wide spread and increasing. Every-one is creating software independently.
Attempts have been undertaken to draft an international standard for fishing gear drawings, resulting in I.S.O. - D.I.S.-3169 of 1973.

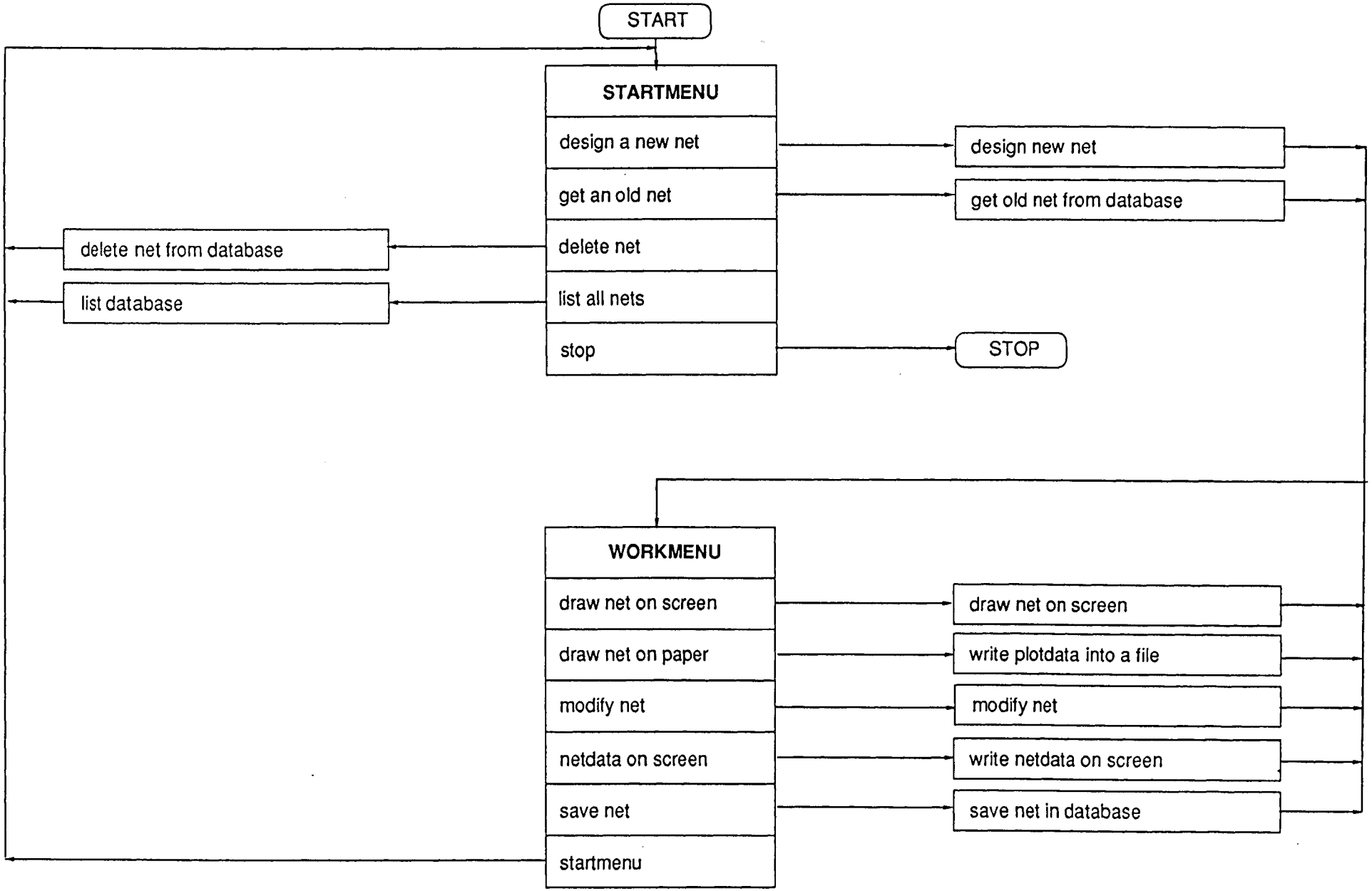
Problems D.I.S.-3169 may not be very suitable for computer applications.
All software designers are more or less solving the same problems. We can learn more from each other by better communication, but commercial interests may hemper detailed exchange of information.

Proposed method
Invite leading scientists in this field to attend a special study group and let them demonstrate their software to their own liking and discuss and define a standard to use.

Result Council Resolution C.Res.1987/2:6 founding the STUDY GROUP ON NET DRAWING and stating its terms of reference.

vM/ML

NET DRAW AND DESIGN PROGRAM



DESIGN SCREEN

Design of UPPER, LOWER or SIDEPANEL [U/L/S] :

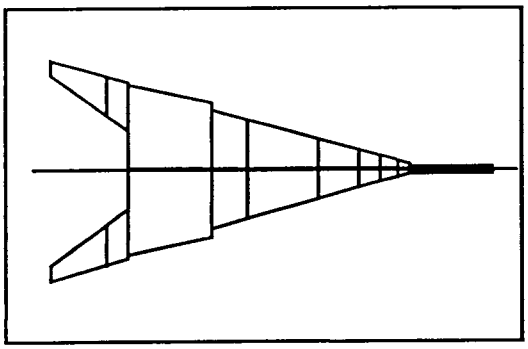
What is your missing variable of section 1 ? Option [1 - 9]
:

1	Wing,	top
2	Wing,	bottom
3	Wing,	depth
4	Wing,	taper rate leftside
5	Wing,	taper rate rightside
6	Body,	top
7	Body,	bottom
8	Body,	depth
9	Body,	taper rate

Number of meshes top :
Number of meshes bottom :
Number of meshes depth :
Taper rate left :
Taper rate right :
Mesh size (mm.) :
twine size (denier) : 210/

Values OK Y/N :
more sections Y/N :

MODIFY SCREEN



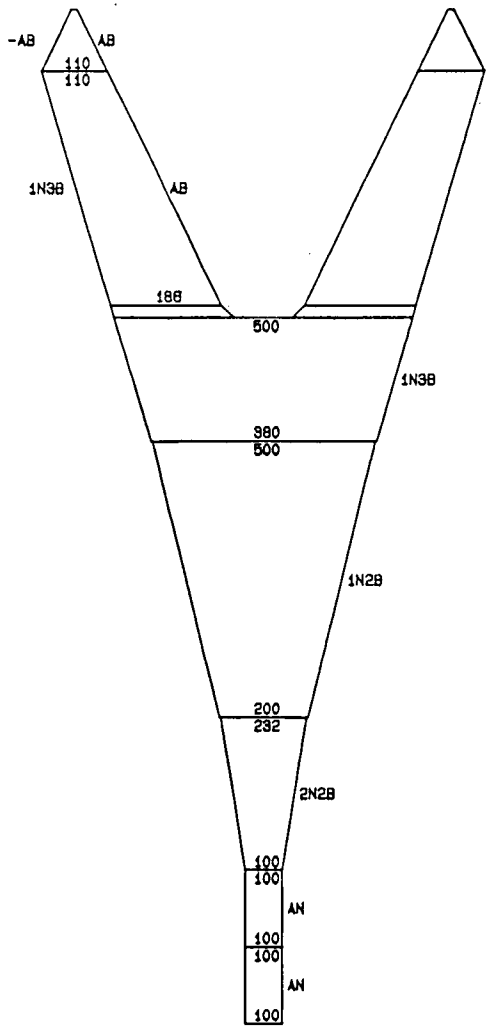
Which section do you want to modify :5
What do you want to modify, Option [0-12]:

1- conn. top of section	8- split section
2- conn. bottom of section	9-taper left
3- conn. top & bottom	10- taper right
4- numb. of mesh. top	11- delete sect.
5- numb. of mesh. bottom	12- twine size
6- numb. of mesh. N	0- workmenu
7- mesh size	

		previous section	current section	next section
Number of meshes top of sect.	:	90	148	160
Number of meshes bott. of sect.	:	70	82	94
Number of meshes N direction	:	15	50	50
Taper rate left side	:	1N4B	1N4B	1N4B
Taper rate right side	:	1N4B	1N4B	1N4B
Mesh size (mm.)	:	1800.0	800.0	400.0
Twine size (denier)	:	210/408	210/180	210/180
Length of section (m.)	:	27.0	40.0	20.0

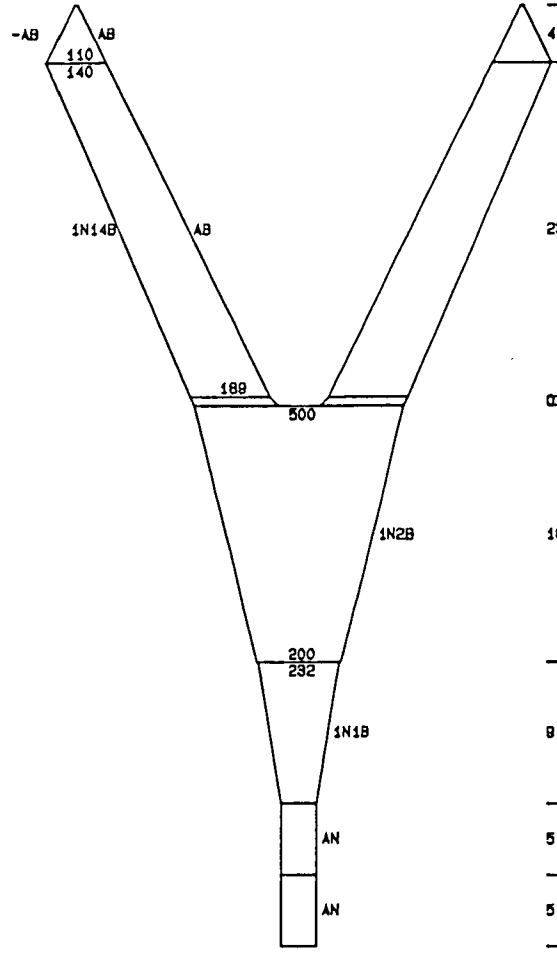
PERKL.		NW.	GARENDIKTE
m	ms	mm	denier
4.0	50	80	210/132
15.2	190		
0.8	10		
8.0	100		
18.0	300	80	210/96
9.8	198	50	
5.0	100		210/132
5.0	100		210/96

bovenkant



NetLengte : 65.9 m
Garenopp. : 71.6 m2

onderkant



PERKL.		NW.	GARENDIKTE
m	ms	mm	denier
4.0	50	80	210/132
23.4	390	60	
0.8	10		
18.0	300		210/96
9.8	198	50	
5.0	100		210/132
5.0	100		

NetLengte : 65.9 m
Garenopp. : 81.8 m2

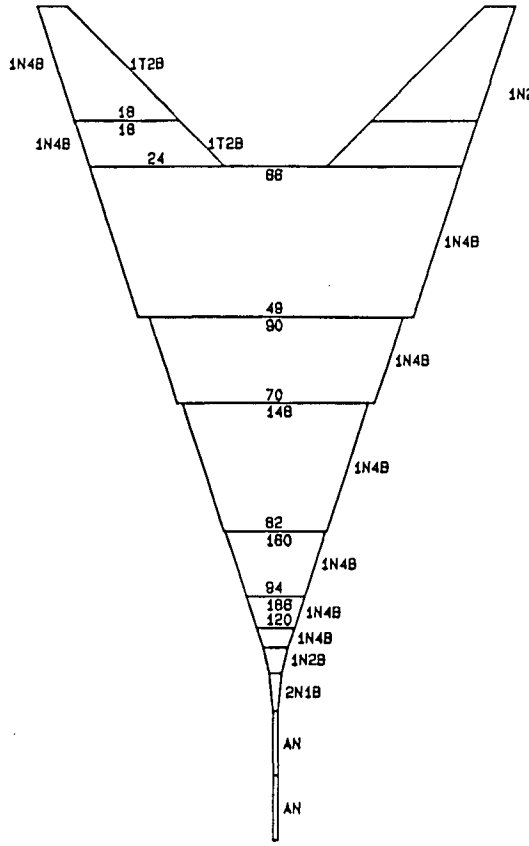
R.I.V.O. afd Technish Onderzoek

SEN19

Datum
10-APR-1988

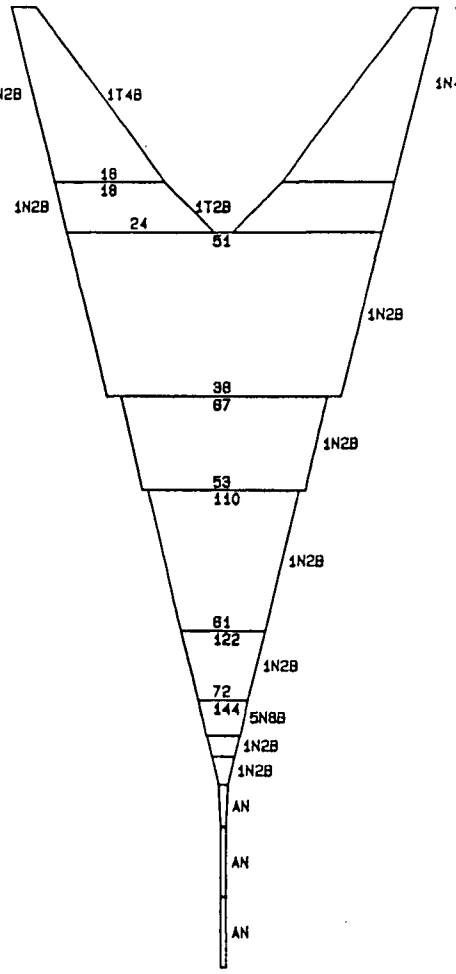
PERKL.		NW.	GAREN DIKTE
m	ms	mm	denier
36.0	10	3600	210/864
14.4	4		
48.8	13		
27.0	15	1800	210/408
40.0	50	800	210/180
20.0	50	400	
10.0	50	200	210/108
6.0	50	120	
8.0	100	80	
12.0	300	40	
20.0	500		
20.0	500		

bovenkant



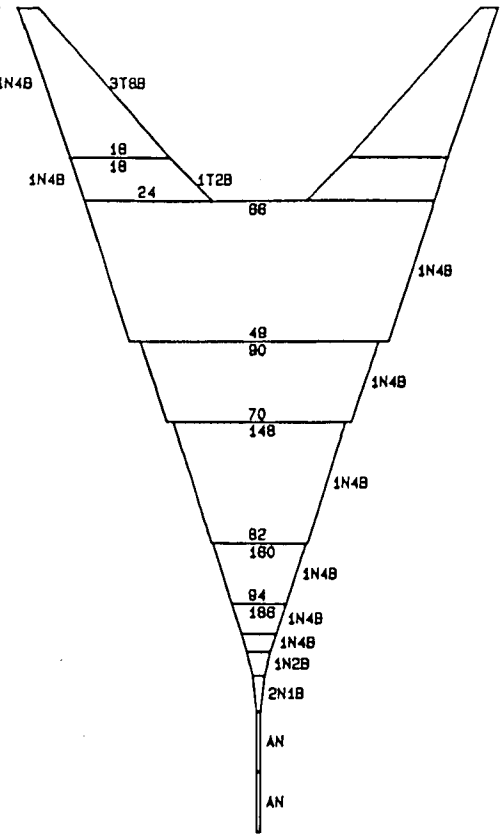
NetLengte : 260.2 m
Garenopp. : 147.0 m2

zijkant



NetLengte : 274.6 m
Garenopp. : 118.7 m2

onderkant



NetLengte : 274.6 m
Garenopp. : 148.3 m2

PERKL.		NW.	GAREN DIKTE
m	ms	mm	denier
50.4	14	3600	210/864
14.4	4		
48.8	13		
27.0	15	1800	210/408
40.0	50	800	210/180
20.0	50	400	
10.0	50	200	210/108
6.0	50	120	
8.0	100	80	
12.0	300	40	
20.0	500		
20.0	500		

R.I.V.O. afd Technish Onderzoek

PELAGISH NET P108

Datum
10-APR-1988

Study Group on Net drawing
Ostende 21-22 avril 1988

NET DRAWING IN FRANCE AND GENERAL PROBLEMS

J.C. BRABANT - IFREMER
BP699 - 62321 Boulogne sur mer

A STANDARD

An international standard is a good thing but it seems the first step is to know what is done in each country or national standards. Even without an international standard it is possible to understand other people when you know their rules.

In this paper I will deal with the french situation.

Some problems neglected with the small meshed trawls are now very obvious when using very large meshes in pelagic trawls.

FRENCH STANDARD

** Generalities

- Meshsize indicated is halfmesh. Generally 5 streched meshes are measured and the result is divided by 10. There are sometimes confusion with measurements along an all bar line.

- Usually twine strength are given as m/kg and not R-tex.

- Cutting ratios are expressed by p, tp, m, tm, mf which corresponds to B, AB, N, AN, T.

- Pieces of netting are classically drawn with a mesh opening equal to 10%: for 1 mesh the great diagonal equals 0.9 x full length and the small one 0.436 x full length. However our software "Planchalut" is using full and half mesh instead as many

countries do. The main difference between the 2 methods is about the scale but the angles are very near: 25°8 instead of 26°5 for AB cut.

WHAT DOES THE PLAN REPRESENT ?

The drawing can describe different stages of elaboration.

we choose to draw the trawl as finished, so:

- the number of meshes in width exclude the meshes in the selvedges. The net maker has to add the number of meshes he intends to put in the selvedges.

- the depth of netting panels includes the joining row.

Some plans coming from netmakers are not following the above rules.

SOME PROBLEMS ABOUT DRAWING

The usual way of drawing a piece of netting is to draw its edges by lines so you obtain the overall shape as a trapezium.

Individual meshes are only drawn when very large. It seems this custom for large meshes is related to the difficulty to describe precisely a piece of netting; the difficulty is increasing up to an intolerable level when meshes are very few.

** Few large meshes.

The usual way to count the meshes across is based on the number of flymeshes. When drawing, the length of the corresponding line equals to the number of meshes x length of meshbar.
example fig.1

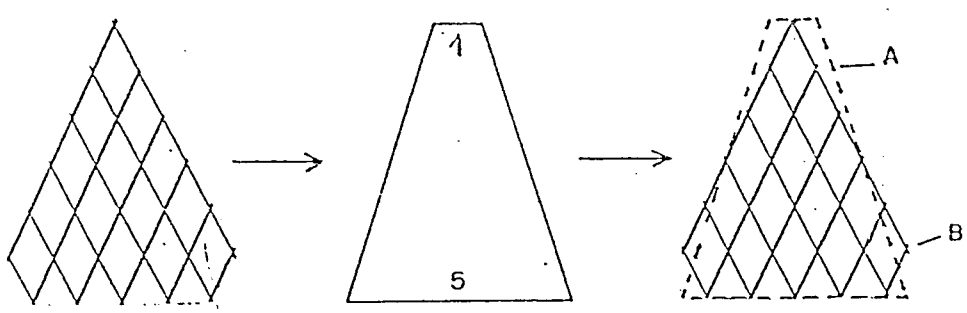


Fig 1

Actually the width at the top is not 1 but 0, because the tip of 1 mesh is only a point.

At the bottom the 5 meshes width seems too short
The trapezium gives a distorted picture of the netting and the taper is wrong.

Remark 1: when counting the meshes the actual width is situated a half mesh far from the edge (level A and B). The main reason is that only full meshes (4 sides) are counted.

The same remark can be made at the joining between two pieces (n°1 and 2, fig.2) of the same meshsize. At this point there is only one line drawn but the number of meshes can be different above (7) and under (8) this line. (fig.2)

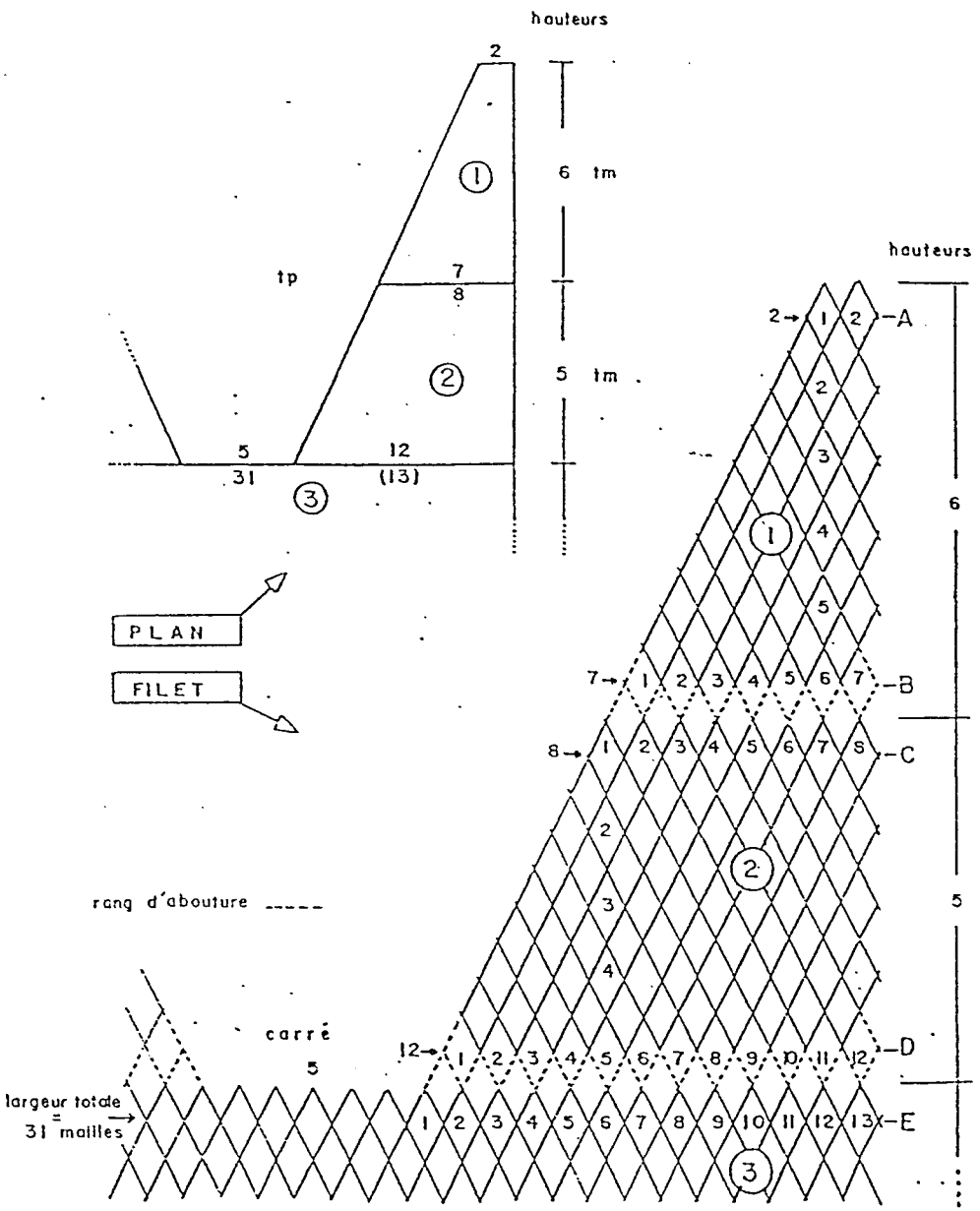


Fig. 2

If we want to draw a trapezium just following the shape of the netting the joining line has to be 7.5 meshes long. We notice that for the upper edge of piece n° 1, the actual width would be 1.5 meshes and not 2. In that example we are dealing with half meshes because we use only AB and AN cuttings. Decimal parts have to be considered with less simple cutting ratios.

Remark 2 : the difference between the number of meshes and the width of the trapezium basis depends on the cutting ratio.
At the joining of the wing on the square we can see the same effect: the number of meshes is different above and under the drawn line. At this point the inside cutting ratio along the wing is extended up to the bosom and a variable number of meshes is taken on it. (fig.3)

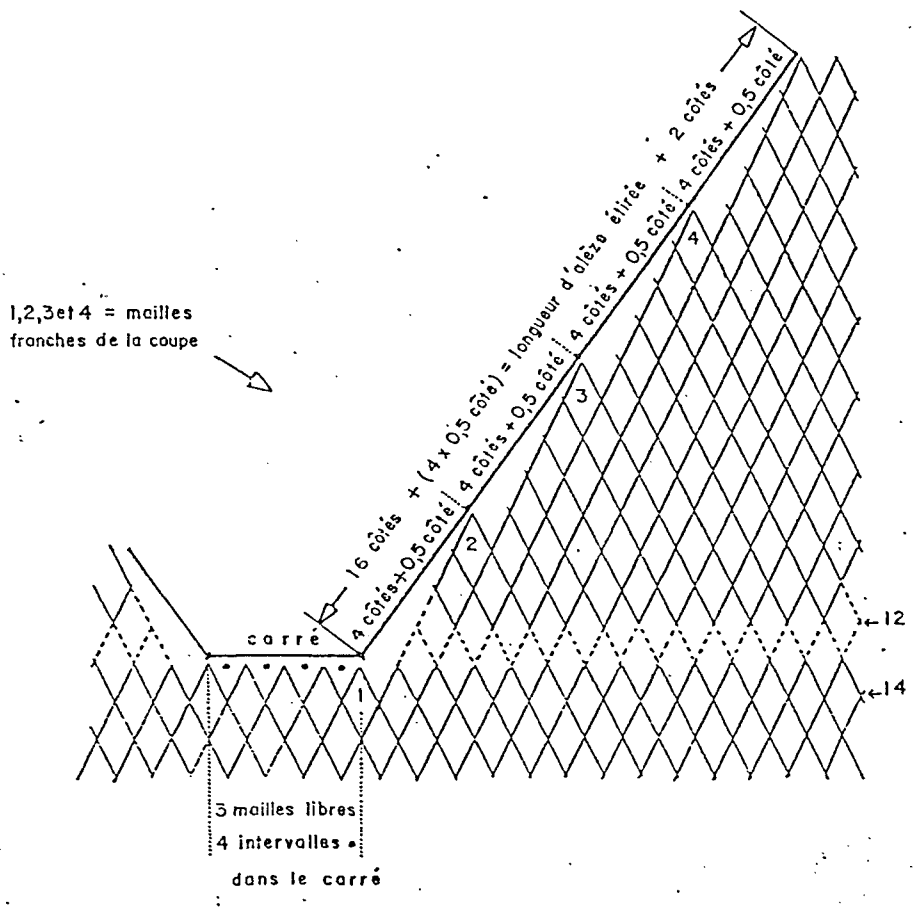


Fig. 3

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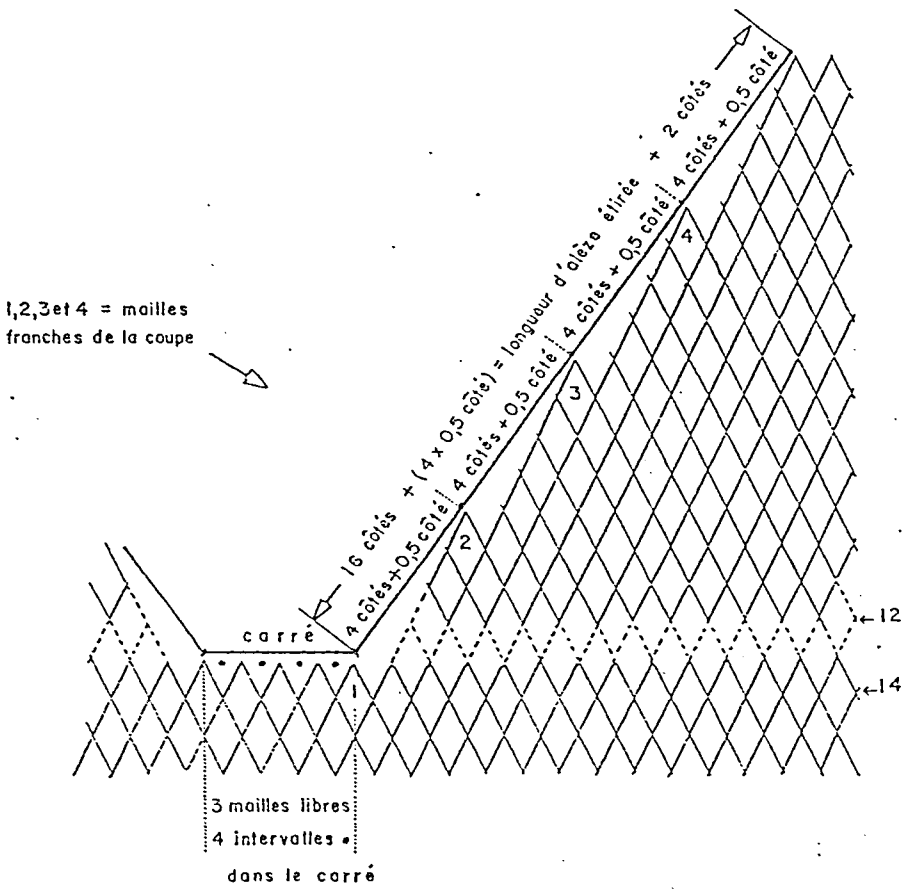


Fig. 3

On the other hand, as we consider meshes in the bosom, the important parameter for calculating rope length is the number of spaces (4) between the meshes and not the number of meshes (3) itself.

** Calculations

When calculating numbers of meshes gained or lost the same type of problems occurs. In fig 2 the piece n°1 is 6 meshes deep and with AB as cutting rate the number of meshes lost is 6. This difference can be found between points A and C (piece n°2) but not between A and B. The height between A and B is only 5 meshes (remark 1) and 6 between A and C.

Remark 3:There is a difference between single piece and joined ones. The common way of calculation applies with difficulties on single pieces of netting.

If we consider a trapezium as before with 1.5 and 7.5 meshes as actual width for upper and lower basis we notice the calculation applies quite good.

It seems a hiatus occurs between the practical way of counting the meshes and the mathematical approach. We need a method for counting the meshes.

- PLANCHALUT SOFTWARE

At the present stage it is a drawing software and the data has to be input by means of the keyboard. It works on IBM PC XT/AT and compatibles and with a plotter.

The first step is the general description of the trawl as follows:

1- number of panels

2- number of sets as in each panel the differents pieces are put together into sets. One set is made up of pieces with:
+ same type of symetry (fig. 4)
+ same representation: trapezium, large meshes

3- number of pieces in each set

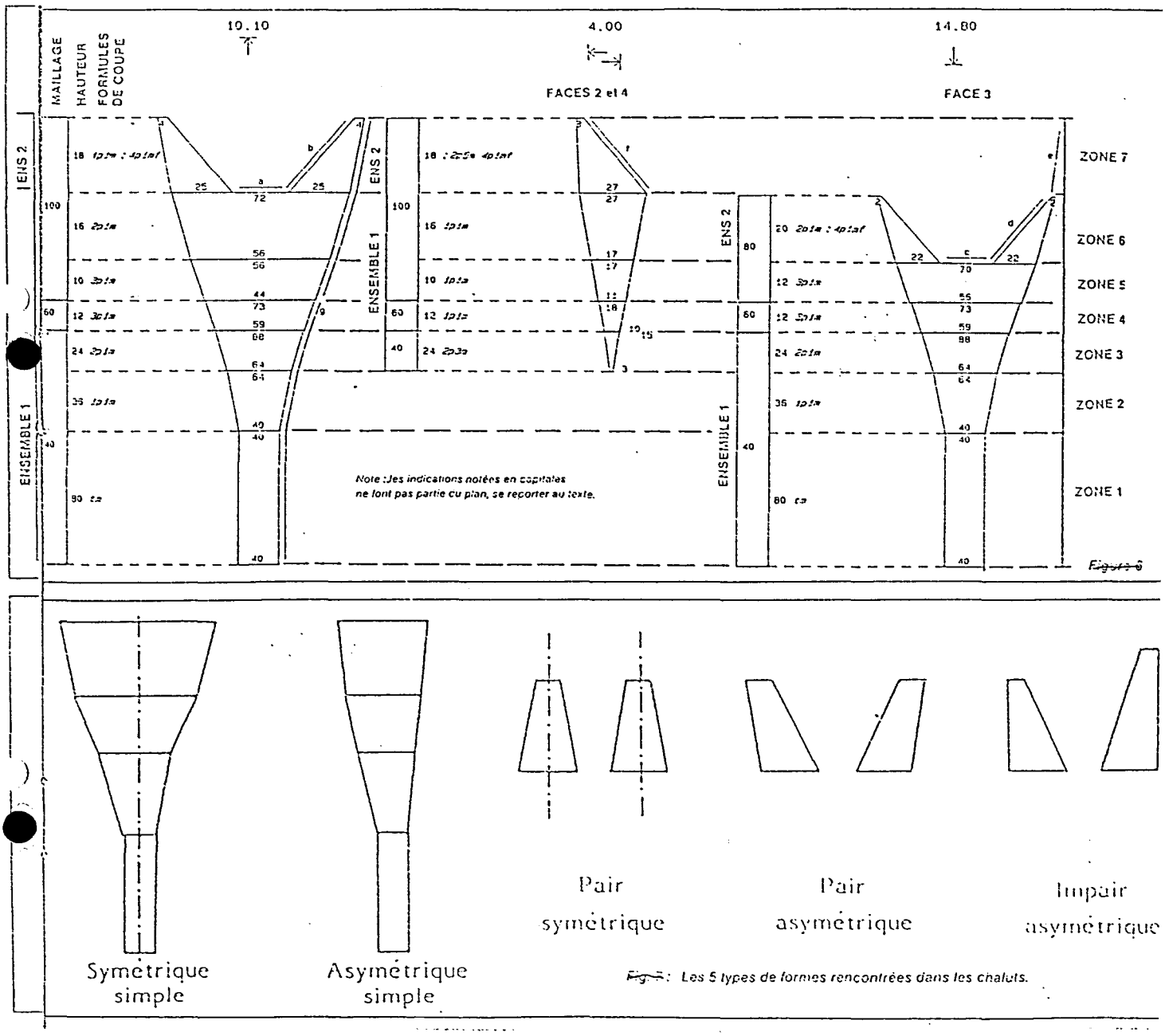


Fig. 5 : Les 5 types de formes rencontrées dans les chaluts.

Fig. 4

Then dimensions, meshsize, cutting ratio of every pieces are entered in a table. Each panel is handled separately.

Then a new table is used for the ropes. Its position on the drawing is determined by the sections concerned with and by a code: 1 horizontal ropes (bosom, wingline)
2 free ropes starting from one section of netting
3 along the netting

negative code if on the left side or if internal side (wing)

On the drawing the ropes are referenced by a letter (small) and material and diameter are indicated in a table.

A new table is filled with the strength and the nature of the twine. The same reference is used for every section in the trawl with the characteristics (meshsize, strength, material). Several sections can be grouped together.
The references are written down near the netting and the characteristics in a separate table.

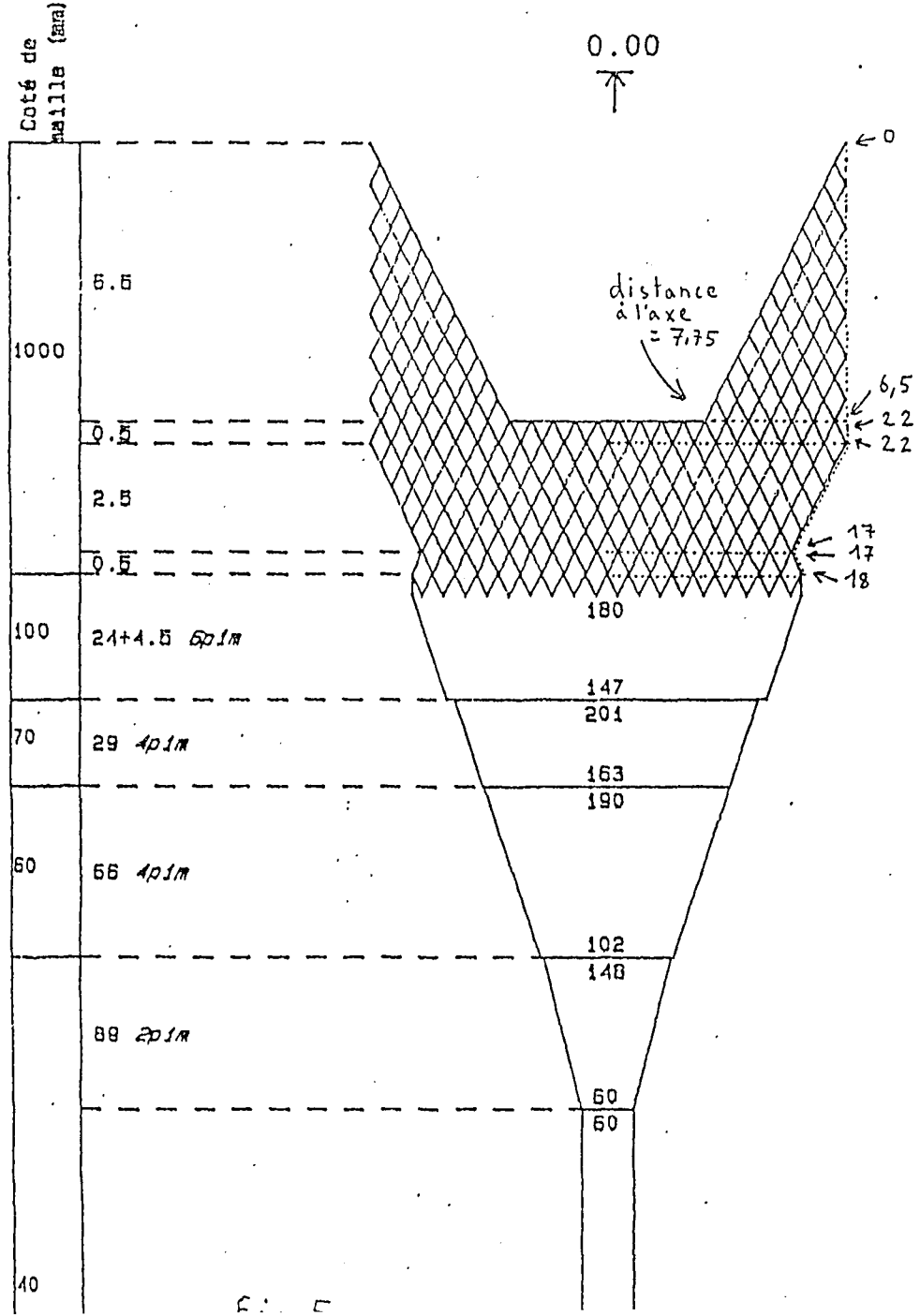
Last table is for general informations: reference, overall dimensions, horse power, twine area etc...).

** The input of data in the tables is not sequential and any data in the tables can be reached and modified immediately.

** We are developing a graphical screen display of the plan with the possibility to modify step by step but immediately the shape of a trawl by modifying the data of aone piece of netting.
It follows our usual way of designing trawls. However the possibility to insert a new piece of netting will allow to begin a drawing from nothing.

** The problems defined in the first part are encountered when using a software for drawing plan.
The figure 5 shows that for drawing the big meshes you have to imagine your netting inscribed in a trapezium in order to know the widths of the two basis. The plotter fills a virtual trapezium with meshes. A new algorythm for drawing individual meshes can be found but it must be based on a good theory.

Version 2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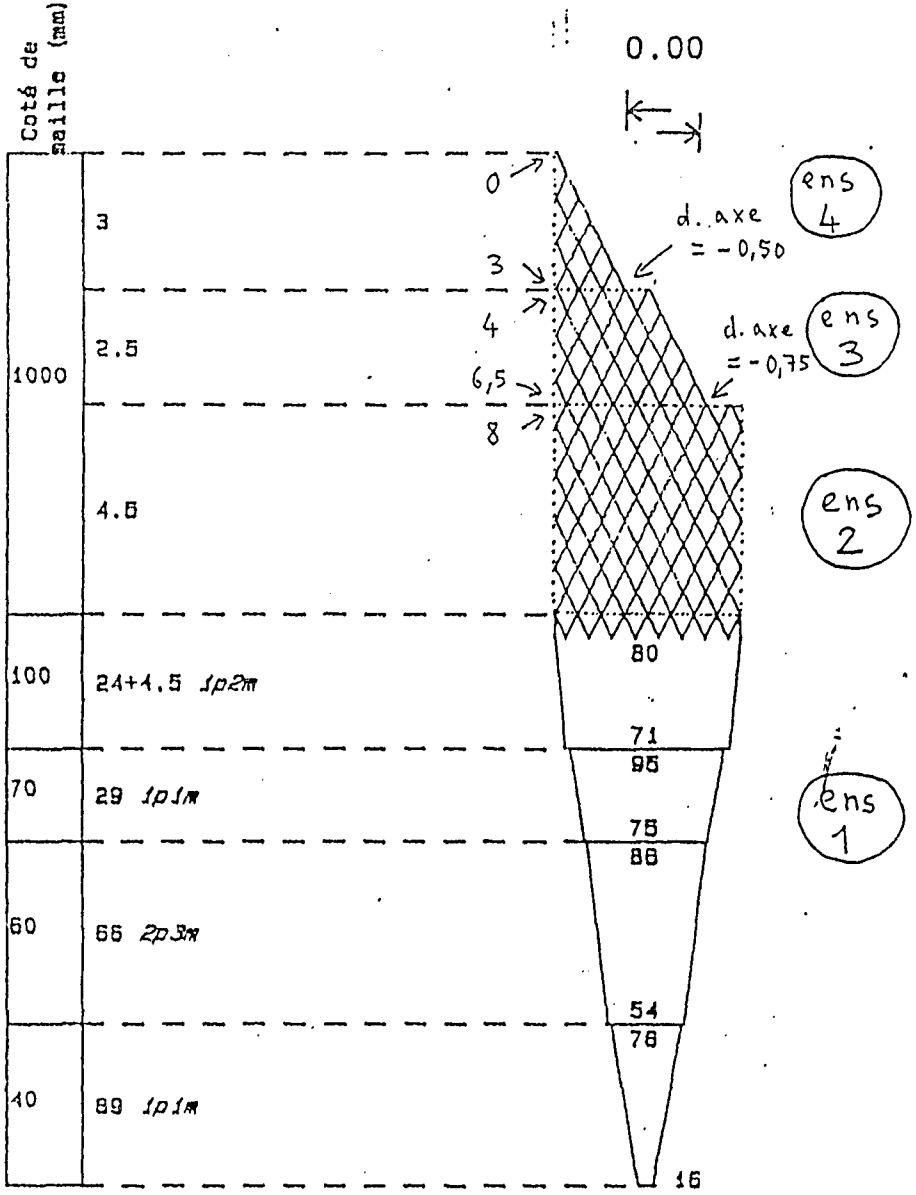
0
distance à l'axe = 7,75
6,5
2.2
2.2
17
17
18
1000
5.5
0.5
2.5
0.5
100
24+4.5 6p1m
180
147
201
70
29 4p1m
163
190
60
66 4p1m
102
148
89 2p1m
60
60
40


Coté de maille (mm)
0.00
0
3
3
4
6,5
8
d. axe = - 0,50
d. axe = - 0,75
ens 4
ens 3
ens 2
ens 1
1000
3
2.5
4.5
100
24+4.5 1p2m
80
71
95
70
29 1p1m
75
88
60
66 2p3m
54
78
40
89 1p1m
16

CENTRE NATIONAL DE LA MER

PLANCHALUT

LOGICIEL DE TRACE ET DE CALCUL AUTOMATIQUES DE PLANS DE CHALUTS.

L'institut Français de Recherche pour l'Exploitation de la Mer (IFREMER) et le Centre National de la Mer ont développé un logiciel permettant d'accélérer considérablement le dessin des plans de chaluts, grâce à l'utilisation d'un micro-ordinateur connecté à une table traçante.

Les données de chaque plan sont stockées sur disquettes ou sur disque dur, l'informatique rend leur exploitation très aisée.

Destiné aux entreprises, organismes professionnels et laboratoires, PLANCHALUT, permet un tracé complet de grande qualité.

Ce logiciel est multilingue et fonctionne sur les micro-ordinateurs les plus courants, son coût est modique.

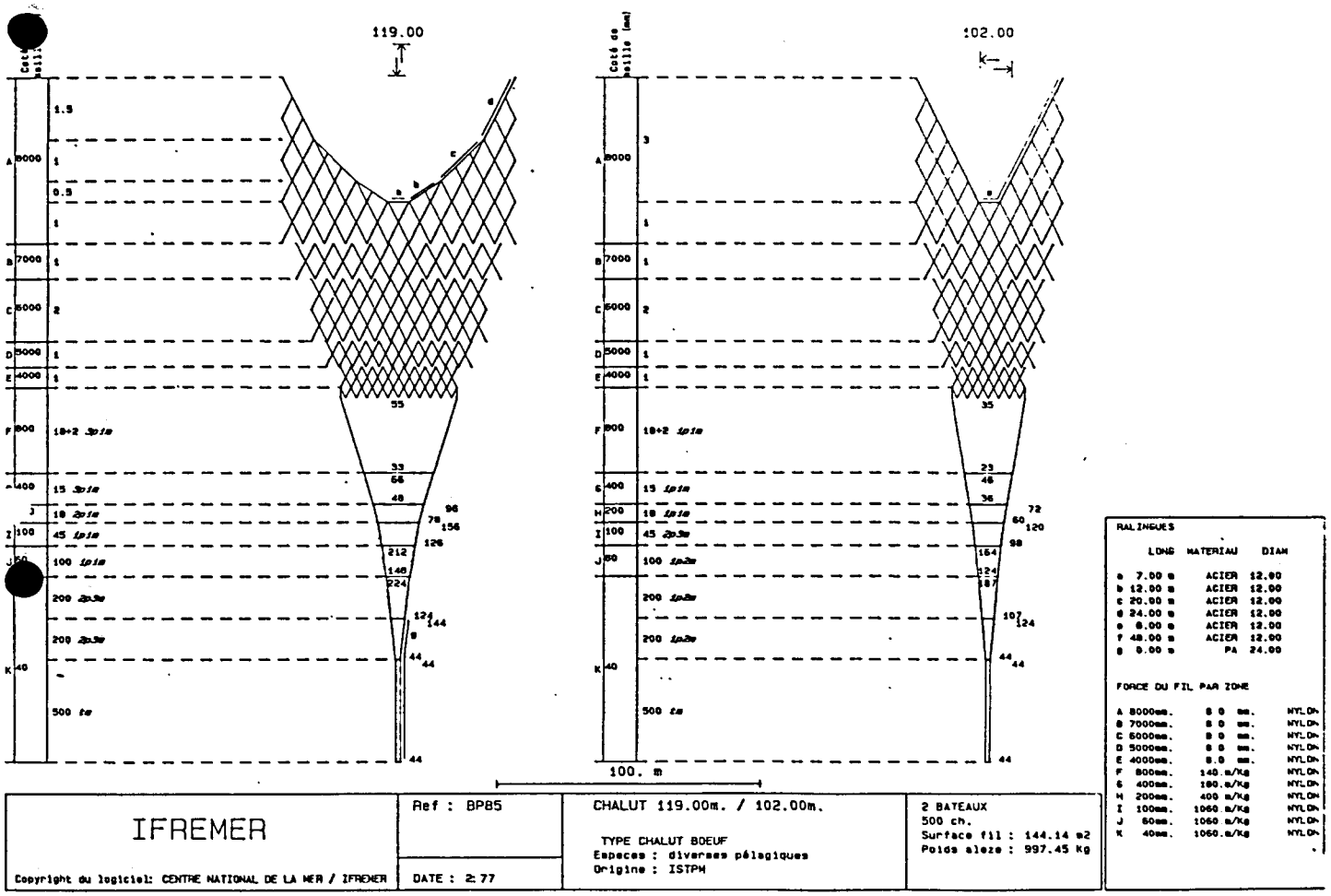
A SOFTWARE FOR AUTOMATIC DRAWING AND CALCULATION OF TRAWL PLANS.

The French Research Institute for the Exploitation of the Sea (IFREMER) and the Centre National de la Mer have developed a software in order to draw faster trawl plans drawings using a microcomputer linked to a plotter.

Each trawl's data are saved on a floppy disk or a hard disk and microcomputer makes their processing very easy.

Designed for companies, fishing institutions and laboratories, PLANCHALUT, brings them a complete and high quality tracing.

This software is adaptable to any languages and is running on the most common computers, the price is moderate.



Exemple de tracé obtenu par PLANCHALUT (Format réel : 42 x 29,7 cm.)

Drawing obtained by PLANCHALUT (Actual size : 42 x 29,7 cm.)

Pour tous renseignements ou commande adressez-vous à : */For any enquiries or order please contact :*

IFREMER

Centre de BOULOGNE-SUR-MER

150, Quai Gambetta, B.P. 699 - 62321 BOULOGNE-SUR-MER Cédex - FRANCE

Tél. 21.31.61.48 - Télex : IPMBOUL 131565 F

.../...

INFORMATIONS ON "PLANCHALUT" SOFTWARE

This software applies to pelagic or bottom trawls drawings with 2 or 4 panels.
Data of each trawl are gathered into two files, first one includes the parameters concerning the different pieces of netting, the second one some general data on the trawl.

The files are stored on a floppy disk or a hard disk (about 6 Ko for each trawl).
The various parameters are input by means of the keyboard into several tables (1- overall structure, 2-3-4- dimensions of netting parts, 5-6- position ,length and material of ropelines, 7- net material and 8- general informations).

MAIN MENU

The different options are:

- Creation of a new file
- Loading an existing file in order to work on it (alteration, calculation, drawing...)
- Saving a file
- Drawing the plan on paper
- Calculation of the twine area and netting weight.

SOME FACILITIES

* Direct access to a given page.
* Two standards for data and drawing:
- french (mesh bar, m/kg, p. and m. for the cutting ratios)
- international (full mesh, R-tex, A, B and N for the cutting ratios) with automatic translation from one standard to the other.

* Many languages can be used. French, english, spanish and portuguese are available at the present time. New translation can be made by the user.

DRAWING ON PAPER

The drawing includes the different pieces of netting, the ropelines with their length and the description of the materials used (see example on the other side). It takes about ten minutes to draw the plan on paper (size 42 x 29.7 cm).
The drawing can be made using a different standard or language as for the input of data.
The different pieces of netting can be drawn as trapezium or mesh by mesh (for large meshes).

The cartouche on the drawing includes indications on the trawl but also the references of the company which delivers the plan.

TECHNICAL INFORMATIONS

This software is written in MS/Pascal and is running on IBM PC/XT or AT and compatible computers with MS/DOS.

A minimum of 512 Ko RAM is required and a hard disk is commonly used.

The plotter is linked to the computer through a serial transmission and has to support HP-GL (Hewlett-Packard Graphic Language). Many types of plotter, drawing on A3 size of paper, are available: HP7075 and HP7550 have been tested. Be aware of some plotters with restricted plotting area.

SUPPORT

A booklet, written in french, with many figures guides you for the installation and the use of the software.
Help screens can be called at any time during the work.

Maintainance and small improvments (rope trawls...) are free of charge.
A new extension including a graphic display on the screen and interactive building up of the trawl is under development.

IFREMER

DRAFT INTERNATIONAL STANDARD ISO/DIS 3169

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION-ORGANISATION INTERNATIONALE DE NORMALISATION-МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

This Draft International Standard was submitted to Member Bodies on 26 July 1973

Voting on this Draft International Standard will terminate on 26 January 1974

FISHING NETS – DRAWINGS – GENERAL DIRECTIVES

UDC 677.664.22 : 744.4 : 003.62

ISO/TC 38

Secretariat United Kingdom

DRAFT INTERNATIONAL STANDARD ISO/DIS 3169

FISHING NETS – DRAWINGS – GENERAL DIRECTIVES

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the details required for the manufacture of fishing nets. It specifies the manner in which these details are to be indicated on drawings and in the form of additional information.

2 REFERENCES

ISO 858, Fishing nets – Designation of netting yarns in the Tex System.[1)]

ISO 1107, Fishing nets – Netting – Basic terms and definitions.

ISO 1531, Fishing nets – Hanging of netting – Basic terms and definitions.

ISO 1532, Fishing nets – Cutting knotted netting to shape ("tapering").

ISO 1805, Fishing nets – Determination of breaking load and knot breaking load of netting yarns.

ISO 1806, Fishing nets – Determination of mesh breaking load of netting.

ISO 2307, Ropes – Determination of certain physical and mechanical properties.

ISO ..., Fishing nets – Mounting and joining of netting.[2)]

3 METHOD OF SPECIFYING FISHING NETS

3.1 Net drawings

3.1.1 The net drawings shall indicate the name of the net, the country of origin and, whenever necessary, the fish species sought and the main characteristics of the boats which are intended to use the net (length overall, gross tonnage, horsepower).

3.1.2 For fishing nets composed of more than one section of netting, each individual section is to be designated in a suitable way.

3.1.3 For each section of the net, the following details shall be specified :

a) the number of meshes at the upper edge;

b) the number of meshes at the lower edge;

c) the number of meshes or length (in a recognized unit, for example metre) between the upper and lower edges;

d) the cutting rate according to ISO 1532;

e) the material to be used for the yarn, and designation of the netting yarn according to ISO 858;

f) the size of mesh as length of mesh in millimetres according to ISO 1107;

NOTE – If, instead of the length of mesh, another dimension is indicated, for example the opening of mesh, this has to be recorded specifically.

1) At present at the stage of draft. (Revision of ISO/R 858.)

2) In preparation.

g) double twine by the symbol ⊕ at the section or row(s) of meshes in question;

h) the desired method of joining the different sections with reference to ISO .... .

i) the hanging of the sections in question according to ISO 1531.

3.1.4 Each rope shall be represented in a suitable way. As far as necessary, the following information for each rope should be given, either in the drawing or as separate, complementary information :

a) the length, specifying, when necessary, whether or not the eye-splices are included in this dimenion;

b) the material or materials to be used for the rope;

c) the diameter or circumference of the rope (see ISO 2307).

3.2 Complementary information

Whenever more information is required, the following can be added :

3.2.1 For net sections

a) the preparation of the netting yarns and/or the netting and colour;

b) the breaking strength, knot breaking strength, mesh breaking strength, dry and/or wet, of the netting yarn and/or the netting (see ISO 1805 and ISO 1806).

3.2.2 For ropes

a) the construction;

b) the resultant linear density (mass per metre, see ISO 2307);

c) the lay (see ISO 2307);

d) the preparation, including preservation, means of preventing unlaying, etc.;

e) the breaking strength (see ISO 2307).

Examples of drawings are given in the Annex.

ANNEX

EXAMPLES OF NET DRAWINGS

A.1 TYPES OF NET

Drawings of the following types of net are included as examples :

a) two-seam trawl-net;

b) gill-net (drift-net);

c) purse seine (tuna).

A.2 BASIC RULES

For the presentation of net drawings, the following basic rules shall be observed :

A.2.1 Dimensions

The dimensions of net panels or sections in width and length or depth are defined by the number of meshes in a straight row along the N- and T-directions.

A.2.1.1 Trawls, Danish seines

The width of netting sections is drawn according to half the stretched netting and the depth or length according to the fully stretched netting. (See figure 1.)

A.2.1.2 Surrounding nets (purse seines, lamparas etc.)

The length (horizontal) is drawn according to the length of the float-line and the depth (vertical) according to the fully stretched netting. For very large specimens of this gear type, this rule cannot be followed without the specification drawing losing in detail. In such cases, an additional schematic outline drawing to the above-mentioned scaling rules is given for comparison of size and shape and the main specification drawing is then not to scale. (See figure 3.)

A.2.1.3 Gill-nets, tangle nets

The length is drawn according to the length of the float-line. When the net has side-lines, the depth is drawn in accordance with their length. The depth of nets without side-lines is shown according to the fully stretched netting. (See figure 2).

A.2.2 Units of length to be used

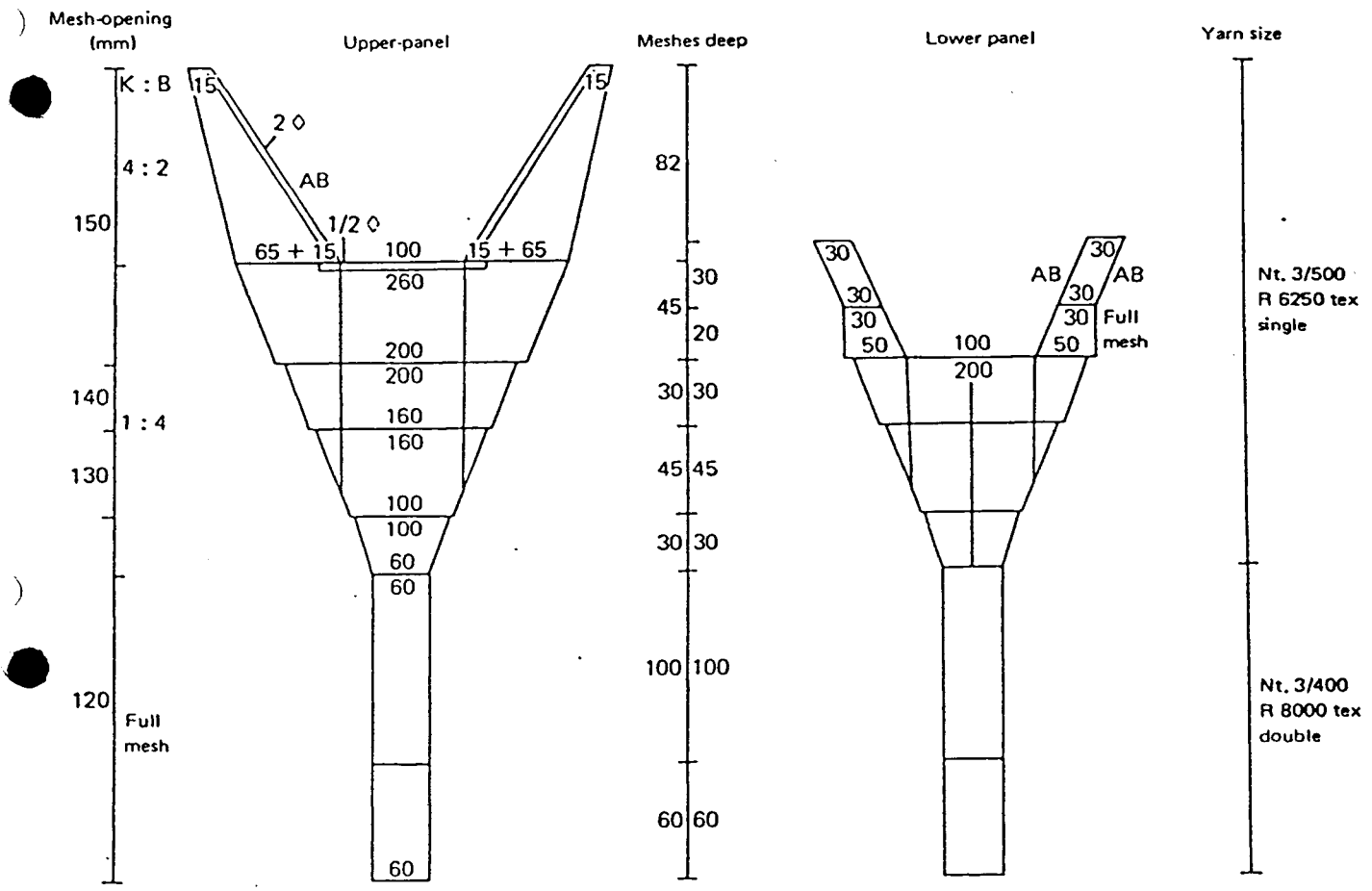
Of the metric system, which has been adopted throughout for dimensions, only the units metre (m) and millimetre (mm) shall be utilized. In order to avoid overcrowding of the drawings, the units cannot always be indicated. They can, however, always be recognized from the context and the mode of presentation. The unit metre is used for larger dimensions such as lengths of foot-ropes, head-lines, float-lines and bridles and applies to figures given to two decimal places (for example 5,25; 90,20). The unit millimetre is used for smaller dimensions such as mesh size (stretched), diameters of ropes, floats or bobbins and in the detail drawings. It applies to the figures which are integers (for example 12; 527; 2 305).

A.2.3 Materials

Materials are indicated by abbreviations which are based on terms in common international use. Some examples of abbreviations are listed in the following table.

TABLE – Examples of abbreviations used on the drawings

Abbreviation	Term	Abbreviation	Term
AL	aluminium	PE	polyethylene
FE	iron	PES	polyester
L	length	PP	polytpropylene
PA	polyamide	PVA	polyvinyl alcohol
PB	lead	PVC	polyvinyl chloride



Head-line : steel wire rope ϕ 20, length 31,20 (12,50 + 6,20 + 12,50)
Foot-rope : combined rope ϕ 64, length 19,00 (6,50 + 6,00 + 6,50)
Lengths in metres are indicated as follows : 5,25; 90,20
Lengths in millimetres are indicated as follows : 12; 527

FIGURE 1 – Two-seam trawl-net

Separate drawings for the upper and lower sections.
Applicable for two-seam trawl-nets.

GILL-NET

drift-net
Eastern English Channel
herring
France

VESSEL

Loa	7-10 m
GT	7-15
hp	25-100

Lengths in metres are indicated as follows : 5,25; 90,20
Lengths in millimetres are indicated as follows : 12; 527

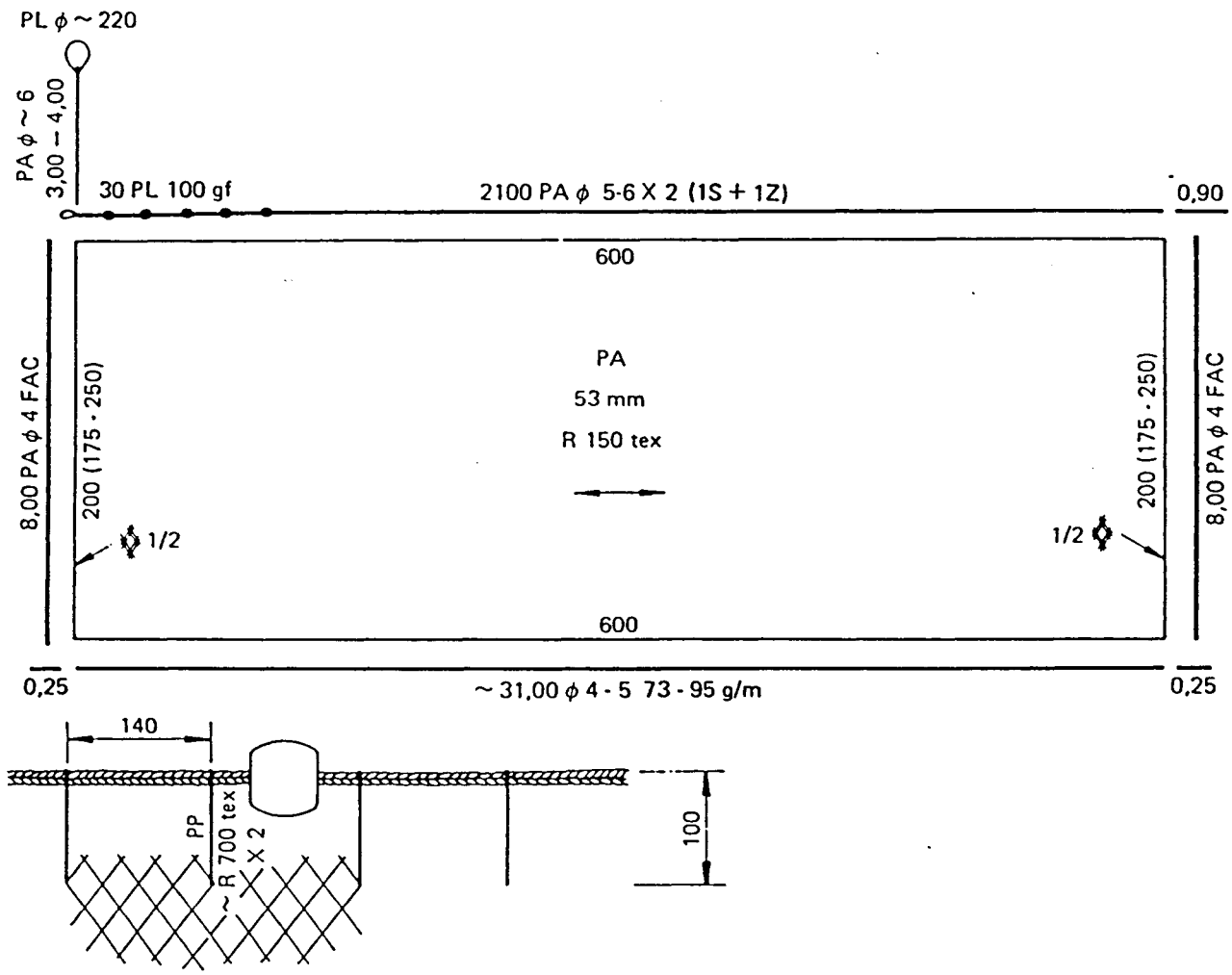


FIGURE 2 – Gill-net

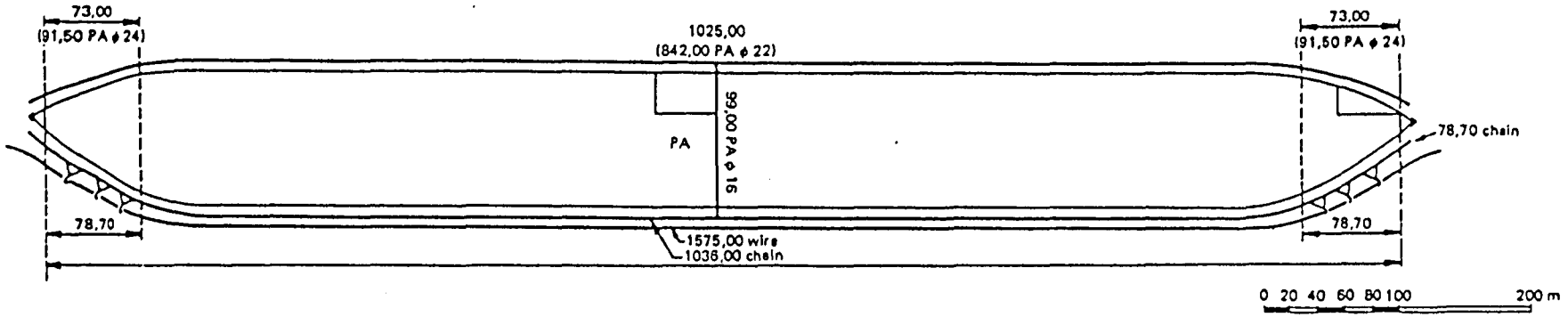
PURSE SEINE

tuna
Eastern Pacific, West Africa
tunas, skipjack, bonito
U.S.A.

VESSEL

Loa	35-50 m
GT	500-1000
hp	800-2400

Lengths in metres are indicated as follows : 5,25; 90,20
Lengths in millimetres are indicated as follows : 12; 527



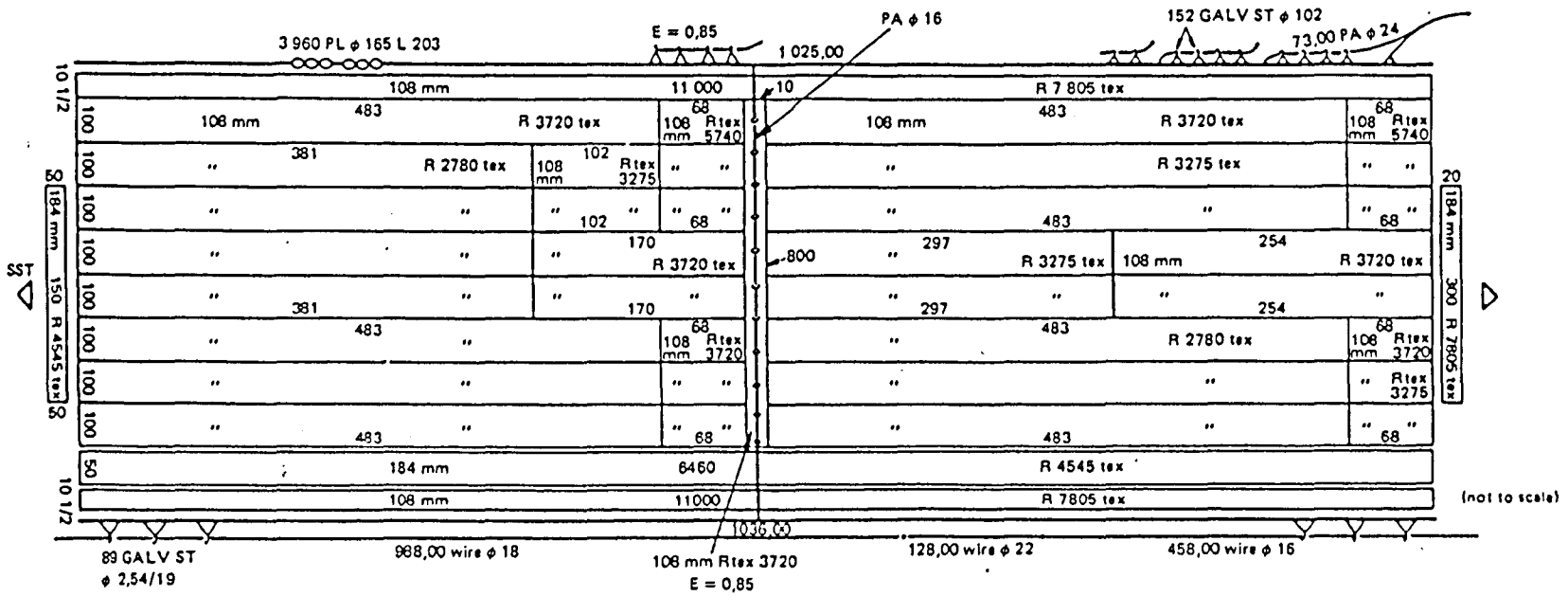


FIGURE 3 – Purse seine net

January 1973

EXPLANATORY REPORT

of the ISO/TC 38 Secretariat (United Kingdom) concerning

draft International Standard ISO/DIS 3169 - Fishing Nets Drawings - General directives

proposed by Technical Committee ISO/TC 38 - Textiles.

At the 6th meeting of ISO/TC 38/SC 9 - Textile products for fishing nets, held in Hamburg on 12 and 13 November 1969, it was agreed that the Secretariat should draft a proposal on the Standardization of Net Drawings, in co-operation with the Food and Agriculture Organization of the United Nations, Fishing Gear and Methods Branch, and that this proposal would be the basis for further discussion.

In 1970 the Secretariat circulated the proposal as document 38/9 N 137 - Net drawings, general directives. Comments were received from the Member Countries and these comments were circulated (documents 38/9 N 140 and 38/9 N 142).

At the 7th meeting of ISO/TC 38/SC 9 held in Paris on 25 and 26 October 1971, the document 38/9 N 137 and the comments received were discussed in detail (see the reports of this meeting, document 38/9 N 156, section II clause 5 and Resolution No. 29). As agreed by the delegates at this meeting, the Secretariat of SC 9 (Germany) has prepared an amended version of the document in co-operation with the United Kingdom, France and the FAO.

This amended proposal is now being circulated as a draft International Standard to all Member Bodies for postal ballot.
