COURSE TITLE: FISH GEAR DESIGN AND PRODUCTION

COURSE CODE: FIS 304

COURSE UNITS: 3

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Definition of Common Terms in Fishing Gear Technology

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TWINE WORK

Tools for making nets:

a. Needle: It is used to hand-knit webbing. It can be constructed by using materials like wood, plastic and metal.

b. Mesh gauge: It is helpful to make equal-sized meshes during knitting.

\[
\text{Width of gauge } (G_w) = (M/2 - 2T)
\]

where \( M \) = desired mesh size

\( T \) = thickness of gauge

c. Sharp knife: Needed for trimming and cutting of knots preferably pocket knife.
CLASSIFICATION AND TYPES OF FIBRE

Types of fishing fibers:

Natural fibers: These are fibers obtained from plants and animals. They are predominantly vegetable fibres. Their characteristics and examples (e.g. coir, manila etc). Preservation of natural fibers.

Synthetic fibers: These are man-made materials made from simple basic substances via chemical process. Advantages of synthetic fibers: They are have high strength, abrasion resistance and rot resistance. Classification of synthetic fibers and examples of each group.
PHYSICAL PROPERTIES AND FORMS OF SYNTHETIC FIBRE AND STRAND SYSTEM

Physical properties of synthetic fibers include the following:

* Elasticity
* Resistance to abrasion
* Breaking strength
* Elongation
* Density
* Changes in water
* Strength

FORMS: There are various types or forms of synthetic fibres which provide different properties. The most common forms of synthetic fibers are:

1. Continuous fiber
2. Stable fiber
3. Monofilament
4. Split fiber
AND SYSTEM:
Two-yarn system
Three-yarn system
Four-yarn system

AND TWINES

Fibers → Yarns → Twines

Main types of twine: a. twisted

“S” Twist
“Z” Twist

Soft
Medium
DESIGNATION OF FISHING TWINE

Types of numbering system:

* DIRECT METHODS: British and Metric systems
* INDIRECT METHODS: Denier and Tex systems

Standardization:

Direct methods

(a) British system: 840 yards = 1 pound
(b) Metric system: 1000 m = 1 Kg

Indirect methods

(a) Denier system: A unit of denier refers to the weight in grams of 9000 meters of a yarn or single filament i.e. 1 denier = 1 g / 9000 m.
(b) Tex system: 1 tex = 1 g/1000 m e.g. 23 tex
twine means a single yarn of
which 1000 m has a mass of
23 g. Example: 23 tex
x 3.

Conversion from Denier system to Tex system and
vice versa.
Calculation of runnage (kg/m) and twine diameter
(mm)
NETTING

Definition: A netting is a meshed structure of indefinite shape and size composed of one yarn (monofilament) or one or more systems of yarns joined or interlaced. It is also called 'webbing’ or simply ‘web’.

Mesh size: It is the distance from the center of one knot to the center of the opposite knot when the mesh is fully stretched. It is also measured in mm. 2 bar length = 1 mesh size.
Information on the netting label:

- Standard length = 91.5m
- Width = 100 meshes
- Twine size = 210D/18
- Mesh size = 20mm
- Colour = white
MOUNTING

Definition: It is the fixing of the head, foot and sides (if any) to the netting. Mounting can be done with or without loops. Important factors to be considered include

Primary hanging coefficient = % of hanging ($E_1$)

$\frac{\text{mounted length}}{\text{stretched length}}$

Percentage of looseness = excess length/stretched length

% of hanging + % of looseness = 100%

Secondary hanging coefficient ($E_2$)
Fictitious area \( (A_f) \): It is an area of unmounted netting. \( A_f = L_o \times H_o \) m\(^2\)

where \( L_o = \) no of meshes along the length \( \times \) mesh size

\( H_o = \) no of meshes along the depth \( \times \) mesh size

Area of a mounted netting \( (A_w) \) is referred to as actual working area.

\[ A_w = L_w \times H_w \] m\(^2\)

where \( L_w = \) no of meshes along the length \( \times \) mesh size \( \times E_1 \)

\( H_w = \) no of meshes along the depth \( \times \) mesh size \( \times E_2 \)

Netting utilization coefficient \( (E_u) \) defines how well netting materials are used in fabrication.
Materials for further reading: