



BIOLOGY AND CULTURE

Of *Oyster*



- SOURCES -

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Collect stone and wrap it with B-net.

3

Use monofilament nylon to seal the stone.

Attach this at the end of each collector.



STEP 3 PREPARE THE FLOATERS AND MOORING



Mix part A and B.



Put marine epoxy to the cover and covering of the empty plastic jugs. This will seal the jugs completely. These will serve as **floaters** of the modular long line.



Place sand to the empty rice sacks. These will serve as **sinkers** as part of the mooring system of the module

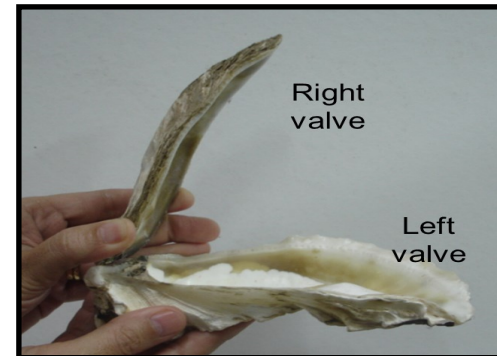
BIOLOGY OF OYSTER

Basic Description

Family and Class

Phylum Mollusca

Class Bivalvia



- ✓ Found in brackish water and salty areas like tidal rivers, creeks, swamp lands, bays, and lagoons.
- ✓ Left valve is larger and usually cupped
- ✓ Right valve is smaller and almost flat. Attachment of the shell on any surface is always on the left valve.
- ✓ Shell – calcium carbonate/conchiolin (3 layers)

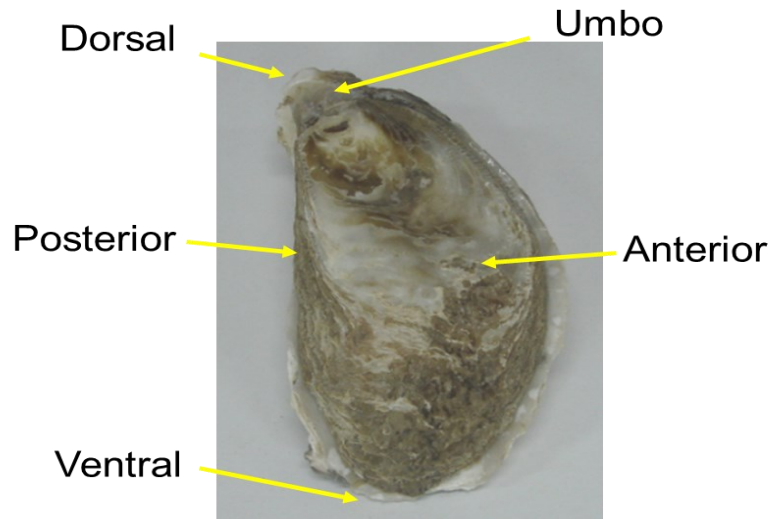
✓ Thickness/width- largest dimension when the valves are closed



Thickness /
depth

✓ Height- largest dimension of the dorso-ventral axis

✓ Length – largest dimension of the anterior-posterior axis



STEP 2 PREPARE THE COLLECTORS

1 Cut the PE rope into 2-3.5 meters. Length depends on the kind of collector that you will use. (2m for collectors with b-nets, 3.5m for collectors with coconut shells.

2 Steps for each specific collector.



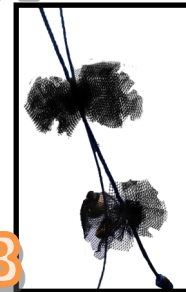
DIFFERENT KINDS OF COLLECTORS

Used Gears



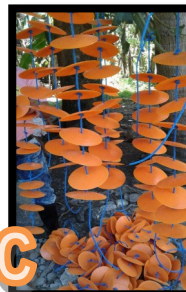
Tie the B-net into the rope through 1.00 mm monofilament nylon.

A



Cut the b-net into 3x8 inch strips. Twist the PE rope and insert 6 strips one-by-one.

B



Insert the HDPE spot collector one-by-one in the PE rope. Tie a knot after each shell to serve as "stoppers".

C

Culches



Bore a hole at the apex of the coconut shells. Insert them one-by-one in the PE rope. Tie a knot after each shell to serve as "stoppers".

D

Fabrication of the Modular Long-Line

STEP 1 PREPARE THE MOTHER LINE

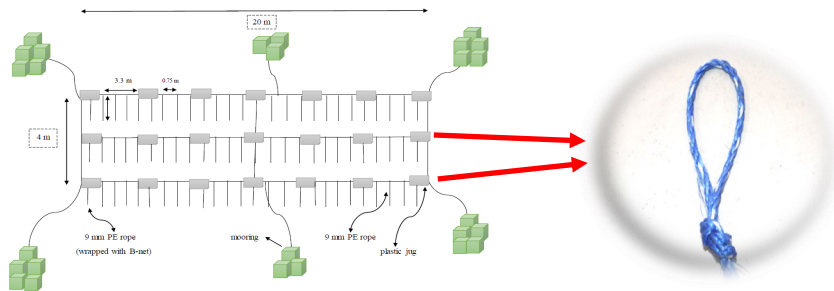
Cut 20m x 4m PE rope. Create markers or tie in each corner of the rectangle for easy distinction.



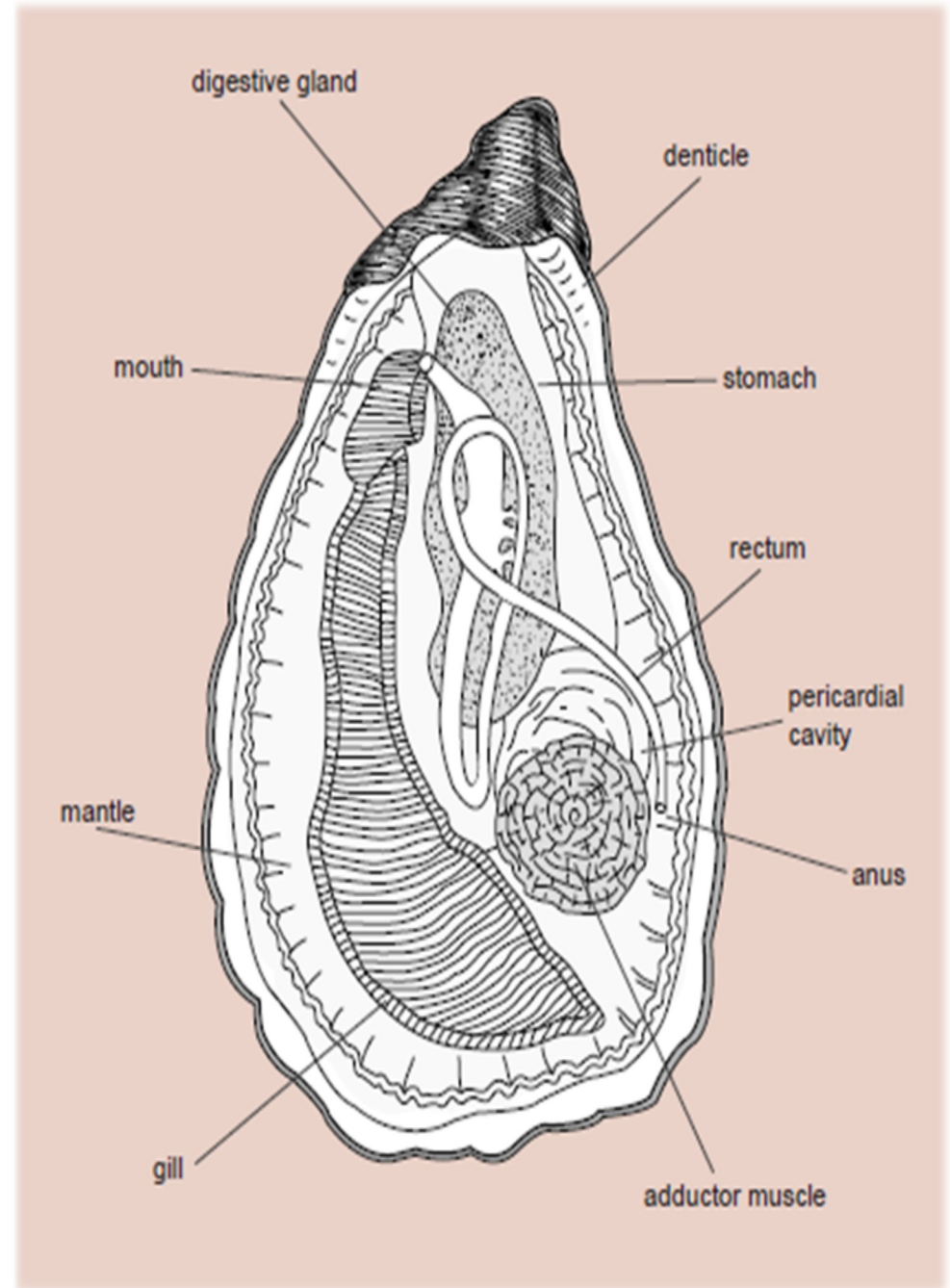
Add one line in the center of the module. Splice the middle line to the mother line to prevent it from moving.



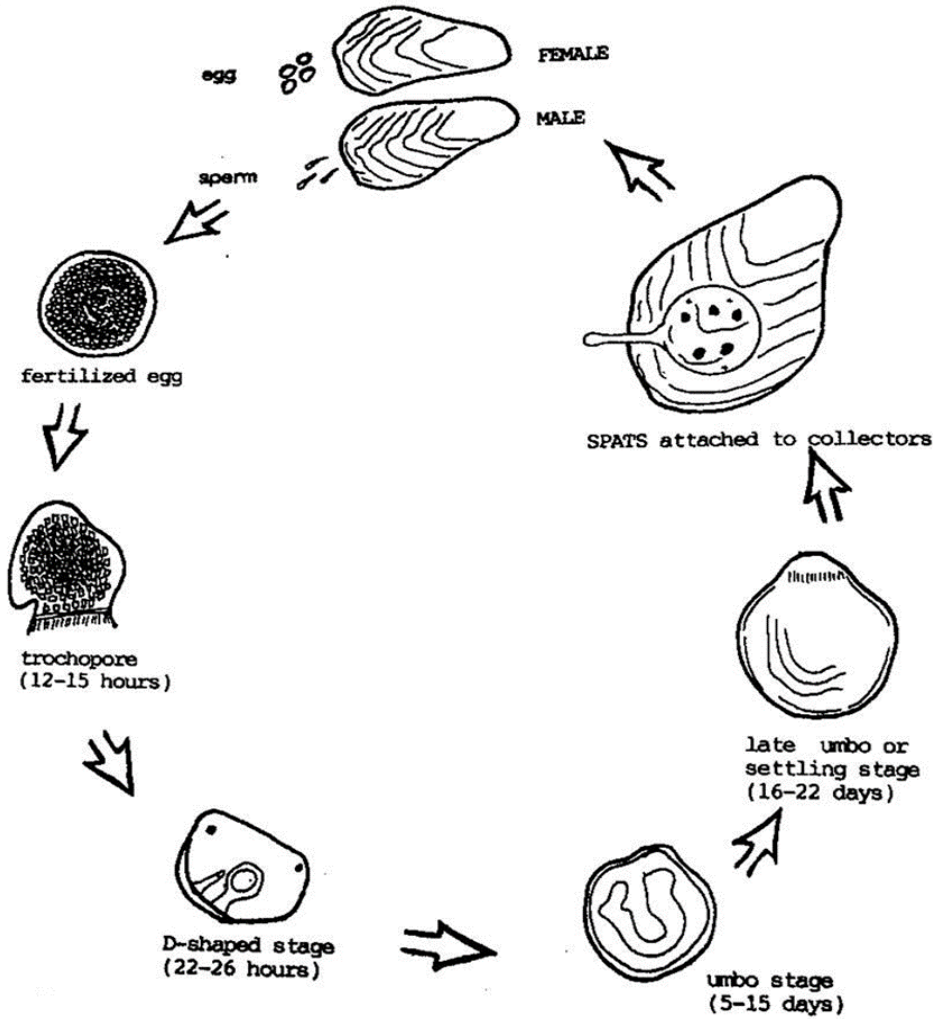
Add eye-splice to the mother line where the mooring and floaters will be attached.



Anatomy of an Oyster



Life Cycle of the Oyster



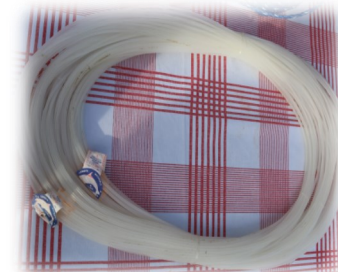
A Fertilized egg develops into a planktonic (free-swimming) trochophore larva in about 12-15 hours. Larva remains planktonic for about 3 weeks. At the end, it settles to the bottom of the water column where it seeks a hard substrate.

LONG-LINE CULTURE METHOD

Modular long line method is an off – bottom method suitable in area of at least 2.5 m depth during the lowest tide. It has a dimension 20m x 4m with 2m culture lines. The framework has three mother lines which made up of 9 mm PE rope. While the culture lines are 9 mm PE rope wrapped with B-net for oyster culture and 9 mm PE rope wrapped with sack for mussel culture. The interval of culture/hanging line from another is 0.75 m. There will be 80 culture/hanging lines per module. Empty container jugs will be used as floaters supported by concrete mooring system.



0.5 pint Marine epoxy



0.5 kl 150 mm monofilament nylon



36 pcs Rice sacks



3 rolls 9 mm PE ropes



40 pcs Plastic jugs



30 m B-net

MATERIALS NEEDED

⇒ **Grow-out**

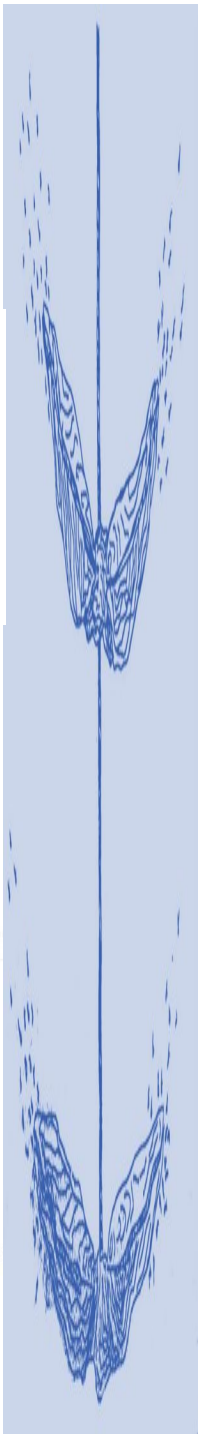
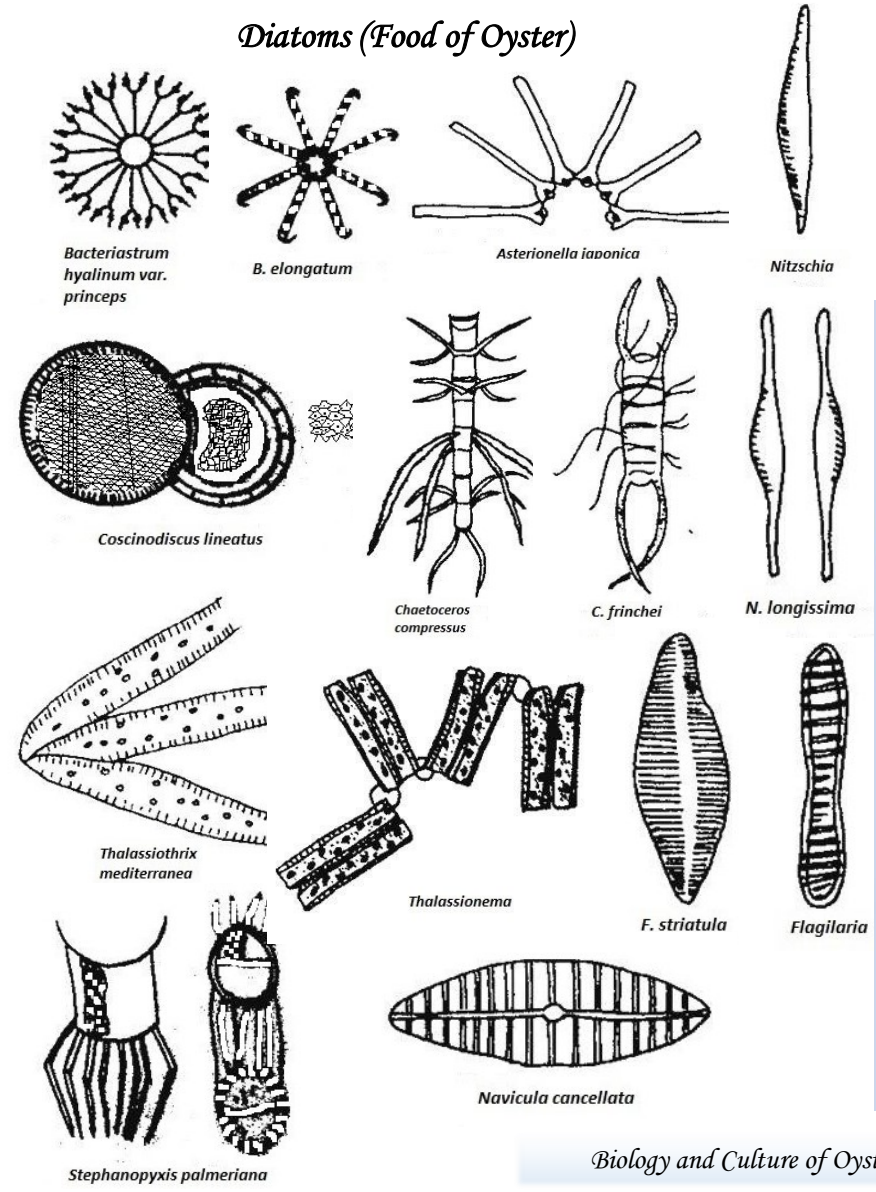
- Harvesting of oysters after 4 - 6 months of culture



Feeding Habits

- filter feeders (plankton, suspended organic matter, detritus)
- water entering the shells are strained and nutrients are obtained.
- Salinity: 17-26ppt
- Temperature: 18-28°C

Diatoms (Food of Oyster)



Reproduction



- ✓ Oysters are broadcast spawners, they release their egg in the water.
- ✓ Male and female sexes are either separated or combined.
- ✓ Oyster with both sexes: male to female or vice versa.
 - Oyster with both sexes: is able to fertilize their own egg but it is disadvantageous because this will limit genetic variations among oysters.
- ✓ **Protandric** – alternating hermaphrodites (food availability, optimum temperature and other oysters).
 - During the First year, they spawn as males ,2-3 years after they develop greater energy reserves and spawn as female.

- ✓ Peak months: May - early September
- ✓ Spawning – temp & salinity variation
- ✓ Fecundity: very high (11 to 170 M eggs)
- ✓ Less than 1% survival: predators and adverse environmental conditions



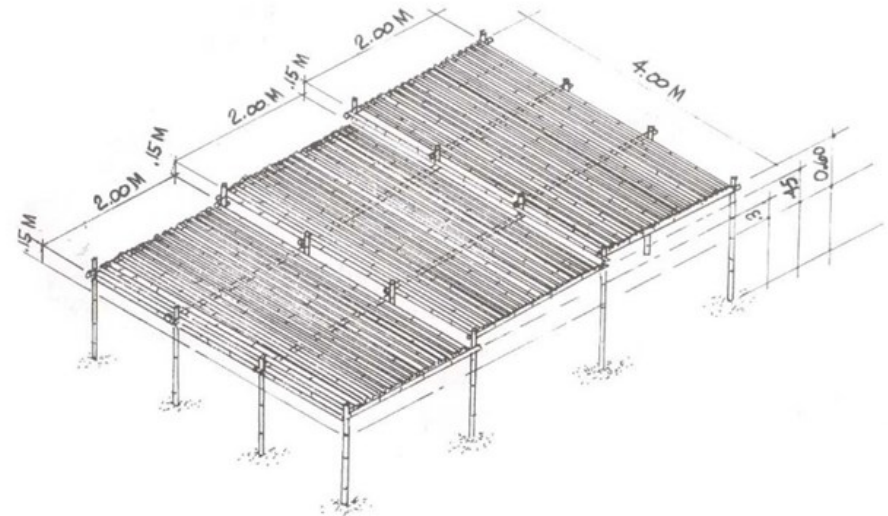
⇒ Seed Collection

- Collection of oyster spat



⇒ Hardening

- Hardening of oyster shells for better survival



Phases of Oyster Culture

⇒ Spatfall Monitoring and Forecasting

- Spatfall forecasting is an important activity to determine spatial and seasonal abundance of oyster seeds
- Spat collectors must be set in the right timing to prevent unwanted animals attached to the collectors (barnacles, sponges, etc.)
- 10 spats attached on oyster spat monitoring string is the suitable number for good growth
- The oyster seeded collectors can be cultured in the seeding area or transferred to other growing area

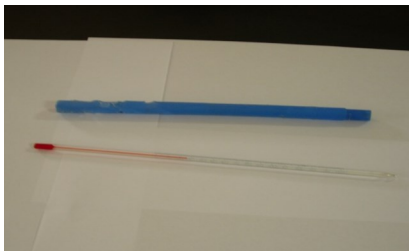
● Materials for Spatfall forecasting ●



Plankton Net



Monitoring string collector



Thermometer



Sample Bottle



Refractometer

Important Local Oyster Species

Talabang Tsinelas *Crassostrea iredalei*

- Most excellent flavor and appearance.
- Have higher commercial value and are most desirable for culture.
- Shell outline - variable but generally elongated and slipper-shaped
- Length 10 – 15 cm in 4 – 6 cm in width



Kukong kabayo *Saccostrea malabonensis*

- Often found together with *C. iredalei* because of similar environmental requirements.
- Shell outline – oblong
- Length: 4 - 5 cm; width: 2.3 - 5 cm



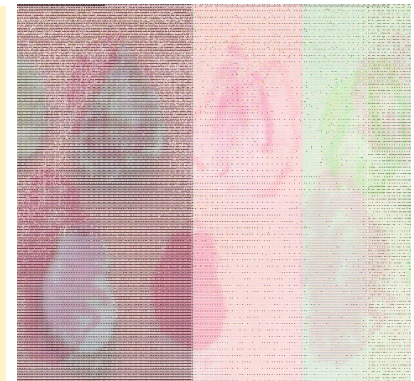
Pulid-pulid *Saccostrea palmipes*

- Shell outline – sub-oval to sub-quadrate
- Length: 2.3 - 5 cm; width: 2-3 cm



Kulot

- Small size
- Less commercial value for processing except as salted condiment or “bagoong”.
- Preferred for raw eating which are believed to be better tasting than the bigger ones
- Shell outline – sub-quadrate
- Length: 4-5 cm ; width: 2.5 – 4 cm



***The last three species used to be identified under the genus *Crassostrea* but later reclassified under *Saccostrea*.

CULTURE OF OYSTER

Culture Technologies

TRADITIONAL METHODS

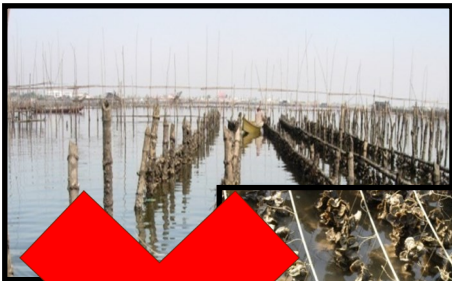
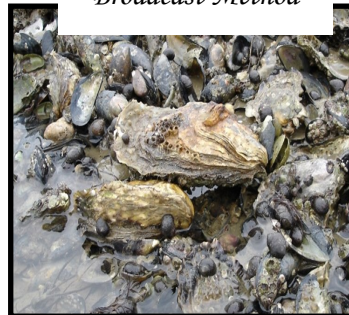
- Broadcast method
- "Tulos" method
- Plot hanging method



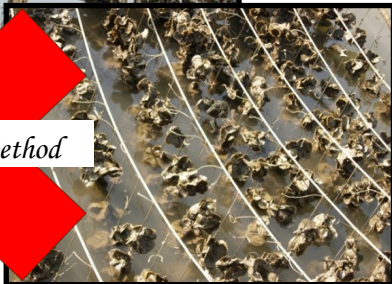
Tulos Method



Broadcast Method



Plot hanging Method



NON-TRADITIONAL METHODS

- Raft method
- Long Line method



Raft Method



Long-Line Method

