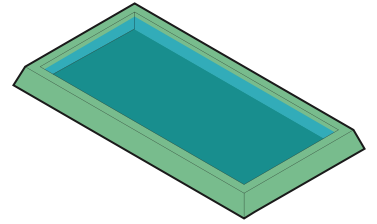# 1

Sourcing & Raising Brood Stock

Brood Stock Pond

2 earthen ponds of 100x4x2 m each are used for managing brood for about 4-5 months prior to breeding.
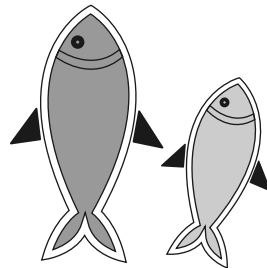
Brood Stock Pond

Sourcing & Raising Brood Stock
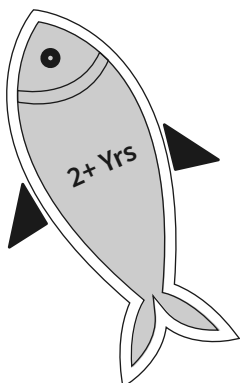
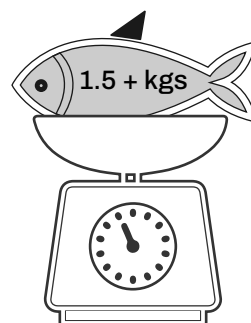Chose brood from reliable source & **genetic makeup**

Genetic Makeup

Sourcing & Raising Brood Stock

Use healthy broods of **2+ years of age** with minimum **body weight of 1.5 kg**
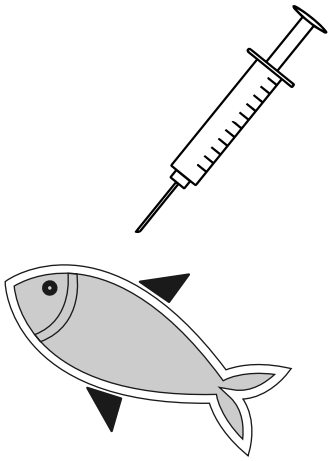
2+ Yrs
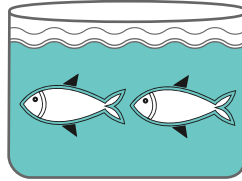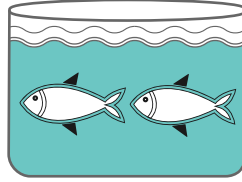
Age

1.5 + kgs

Weight

Sourcing & Raising Brood Stock

Segregate male & female breeders & keep them in **separate tanks/ hapas** for ease of handling while **injecting hormones**
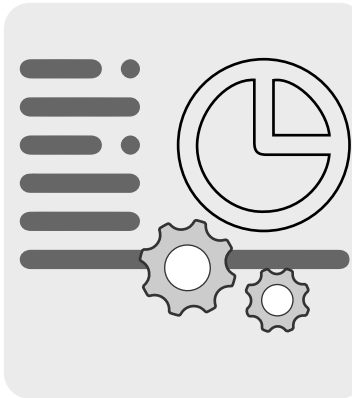
Inject Hormones

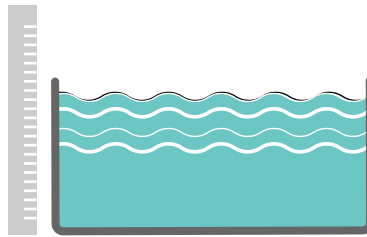**Separate Tanks/ Hapas**

Sourcing & Raising Brood Stock

• •

Prepare brood stock pond with **SOP** maintaining minimum **water depth of 2 m**

Standard SOP

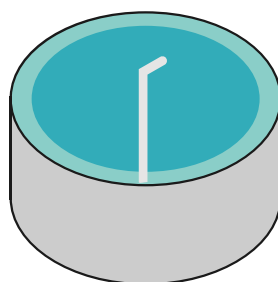**Water Depth 2 m**

2

Breeding

Breeding Tank

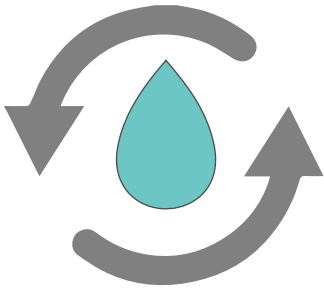Concrete circular tank of 5.2 m diameter situated at slightly higher elevation than hatching tank
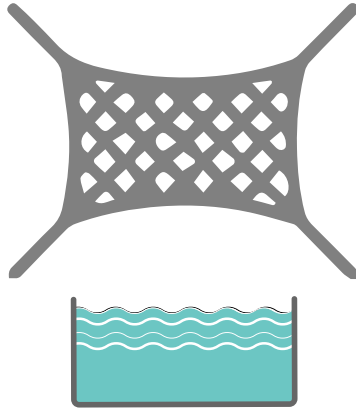
Breeding Tank

Breeding

• •

Maintain **water circulation** & hygiene in tank. Provide tank with **net coverings.**

Continuous Water Circulation

Net Covering

Breeding

● ●

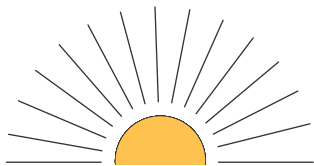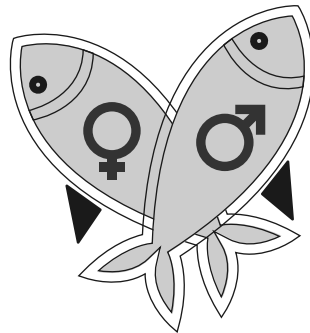**Separate Male & Female brood** in separate happas & inject hormone during **late evening hours**

Late Evening

Male Female Fish

Breeding

●

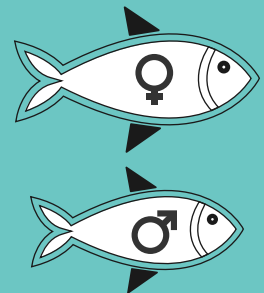Select only healthy & active breeders of **2-5 yr of age**

2-5 Yrs
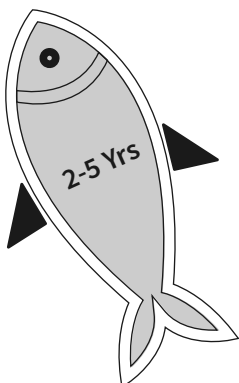
Age

Breeding

● ●
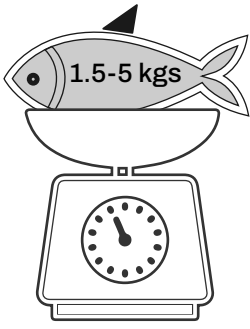
Maintain **1:1 sex ratio** for breeders by numbers & by weight. Weight should be between **1.5 - 5 Kg**

1:1

Sex ratio

1.5-5 kgs

Weight

3

Hatching

Hatching Tank

2 circular concrete tanks with of 3.2 m dia, with inner & outer chamber in each tank. After hatching, spawn are flown from here to spawn collection tank.

Hatching Tank
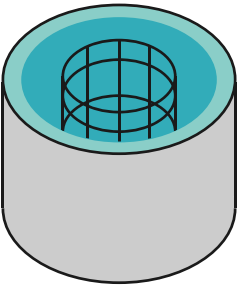
Hatching

• •

Maintain water temperate at **27-30°C** and water alkalinity **below 130 ppm**

27-30°C

<130 ppm

| 4 | 5 | 6 | 7 | 8 | 9 |
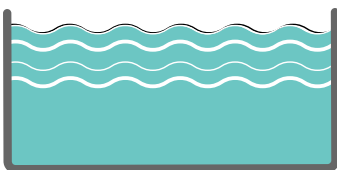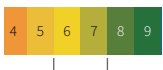
Water Alkalinity

Hatching

•

Regularly clean the tank & **remove dead eggs or hatchlings** if any

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Remove Dead Eggs or Hatchling

Hatching

Stock the hatching tanks in morning hours & **maintain proper stocking density**
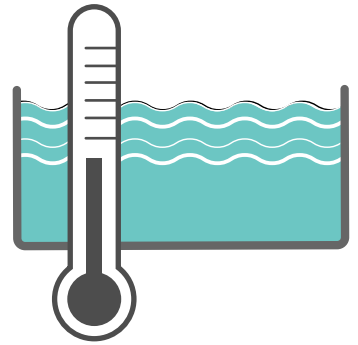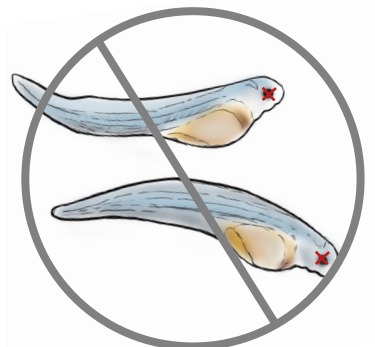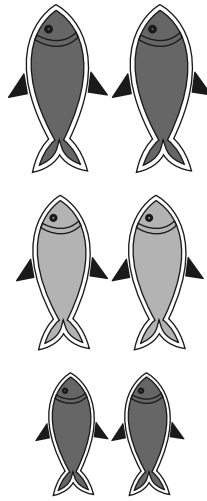

Stocking Density

Hatching

Throughout hatching period, maintain water circulation at required rate of **0.2-0.3 m/sec**
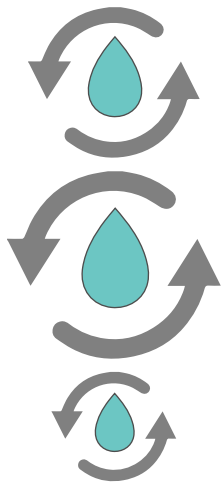
Circulation rate: 0.2-0.3 m/sec

4

Spawn Collection & Conditioning

Spawn Collection Tank

4x2.5 x 1.2 m rectangular spawn collection tank is located at lower elevation than hatching tanks to collect spawn from it with gravity

Spawn Collection Tank

Conditioning tank

Rectangular concrete tank of 5 x 4 x 1.2m is used for conditioning the spawn/fry before packaging & transporting

Conditioning tank

Spawn Collection & Conditioning

•

Give **powdered feed** for 1st week & monitor growth & health
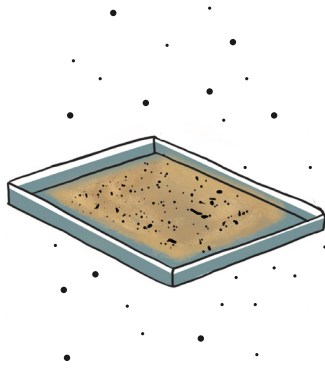
Powdered Feed

Spawn Collection & Conditioning
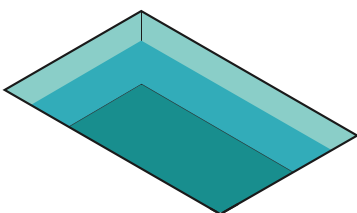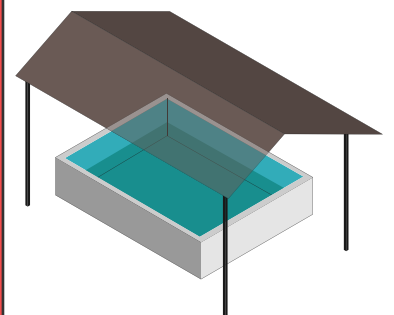
•

Count the spawns & condition them in small tank with water tank before shifting
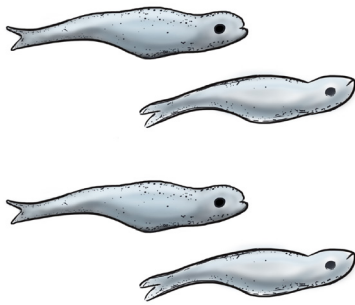
Spawn

Spawn Collection & Conditioning

•

Stock spawn to well-prepared nursery ponds with **sufficient zooplankton** in morning hours

Zooplankton

Spawn Collection & Conditioning

• •

Collect the spawn in **early morning or evening** only after **complete resorption of eggs** is observed

Early morning or evening
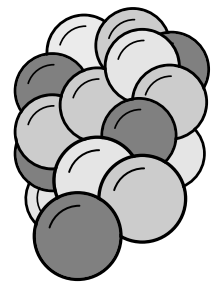
Resorbed Eggs

5

Supporting Infrastructure

Supporting Infrastructure

The overhead tank is used to supply sufficient water for the spawning, incubation and storage tanks.

Supporting Infrastructure
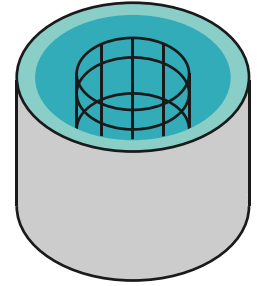
Supporting Infrastructure

•
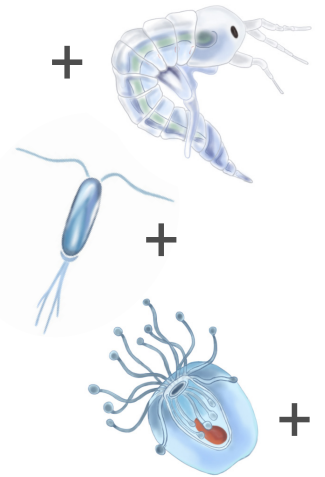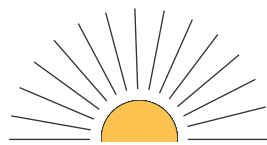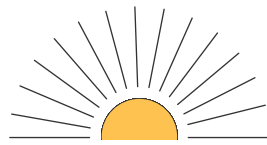
Power supply with a backup should be provided to ensure uninterrupted working of hatchery unit

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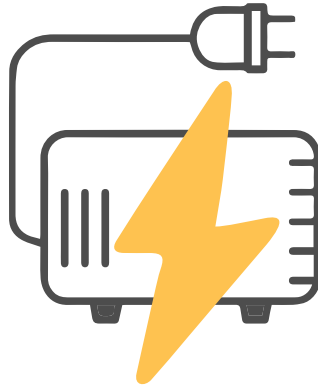
Power supply w/ backup

Supporting Infrastructure

•

50 x 30 ft room to **store materials & packing of seed** for transportation

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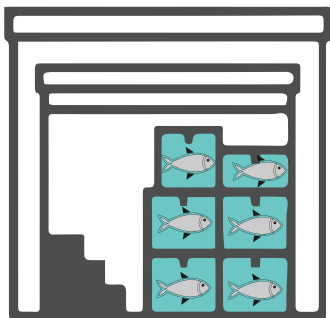
Packing & Storage Unit

Supporting Infrastructure

•

Provide **fencing** to the compound **with a gate**
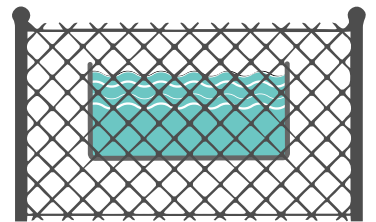
Fencing w/ a Gate

Floor of the tank should be min. **4-5m above ground lvl.** with arrangement to pump water in it
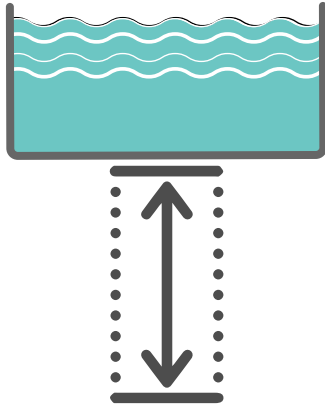
4-5 m above ground lvl.

The **tank should have 30,000 L capacity** and the water should be from a reliable source like **open well or tube well**
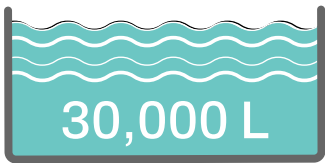
30,000 L

30, 000 L Tank Capacity
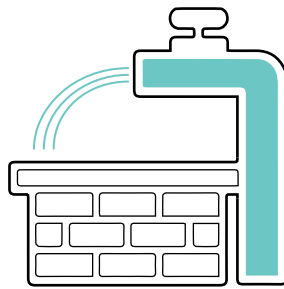
Tube Well or Open Well

Give Away 1
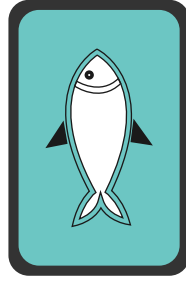
Using this card, you can select one player who gets 1 card from all other players.

Give Away 1
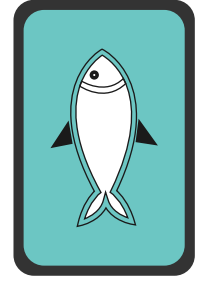
Using this card, you can select one player who gets 1 card from all other players.

Draw 1
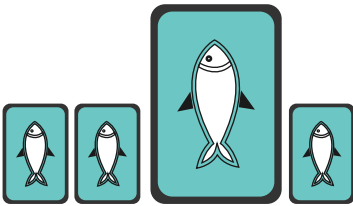
Each player draws 1 cards at random from player next to them

Draw 1
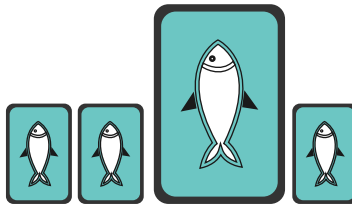
Each player draws 1 cards at random from player next to them

Draw 2
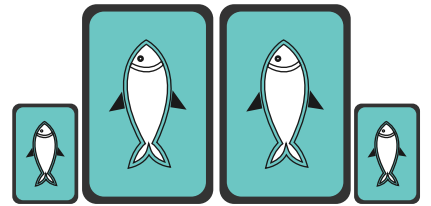
Each player draws 2 cards at random from player next to them

Swap the hand
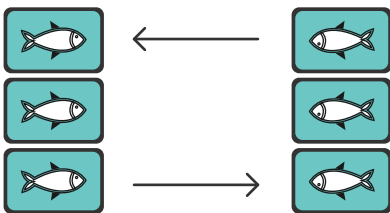
Swap your hand with any player

Immunity
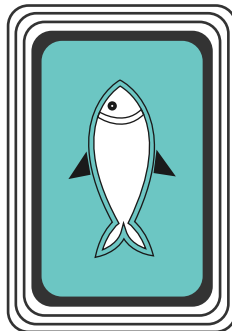
Use this card after a power card is played to become immune to its effect

Immunity
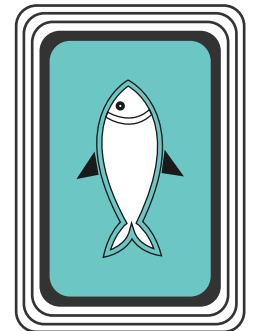
Use this card after a power card is played to become immune to its effect

Hatchery Card Game

Use fun game cards cleverly to complete an entire fish hatchery system.
And learn how fishes are hatched for aquaculture.

Objective:

Play with your friends and match your cards to setup a hatchery system.

Requirements:

• Players: **4 to 8**
• Time: **20-30 mins**

Game Components

Deck of Cards:

• The deck contains 78 cards in total
• There are 5 suits of 14 cards each. These suits are represented by different colours.
• Apart from suit, deck also contains 8 power cards
• Types of cards in each suit are as follows

1. Suit Cards:

• Each of 5 suit card represent key component of a hatchery systemrepresenting each player
• These suit cards follow a sequence as shown below
• Suit cards are essential to start a suit (explained later)

Suit cards in sequence

2. Word cards:

• Each suit contains certain cards with information written on it. Each word card has one or two picture cards that matches with it.
• The colour on the word card represents the suit it belongs to
• Number of dots at the bottom of word card represent number of picture cards that can be matched with it
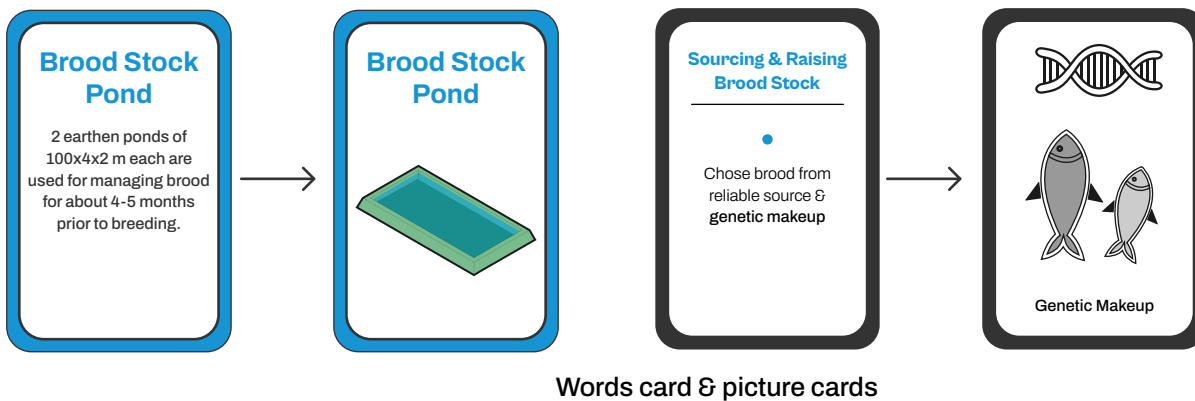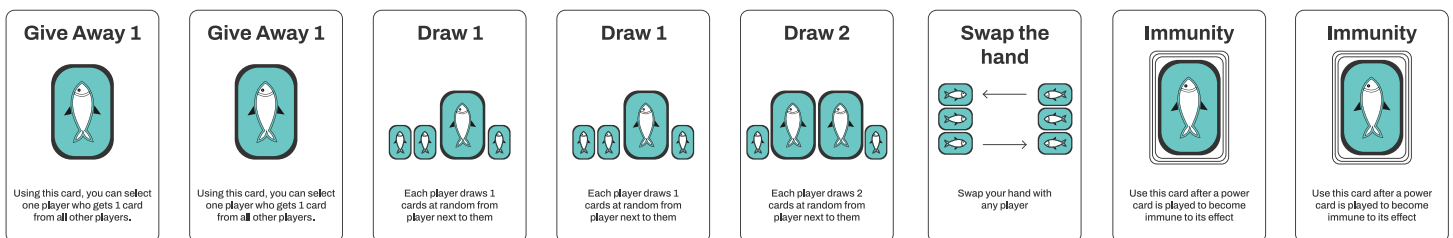• The word card representing the key element of the suit is called a key card as shown

3. Picture cards
For each word cards, there are one or two matching picture cards

Words card & picture cards

4. Power cards:

• Power cards come with special instructions written on them which can be used by the players to their advantage.
• Total power cards: 8

Power cards

Setup:

• One player shuffles the deck and deals all the cards between players
• Reshuffle and deal again if one player gets more than or equal to half the power cards

How to play?/ Play mode:

• Players take turns to play a suitable card from the cards they have

• The sequence to place cards is as follows:

    1. Suit card in its own sequence: to open the suit

    2. Word card in open suit

    3. Picture card(s) matching the word card

• Sequence for suit cards:

    i) Sourcing & raising brood stock

    ii) Breeding

iii) Hatching

iv) Spawn collection & conditioning

v) Supporting infrastructure

Starting a turn:

• The game starts with the player who got the first suit card, i.e. Sourcing & raising brood stock. Player places the card face-up on the table. This "opens the suit"

Typical turn:

• Player take turns clockwise to play a card that matches with cards present on the table
• Word cards are laid below a suit card, with their matching picture cards beside them as shown in fig 1.
• A player cannot skip a turn unless they don't have a suitable card to play

Cards arrangement on table
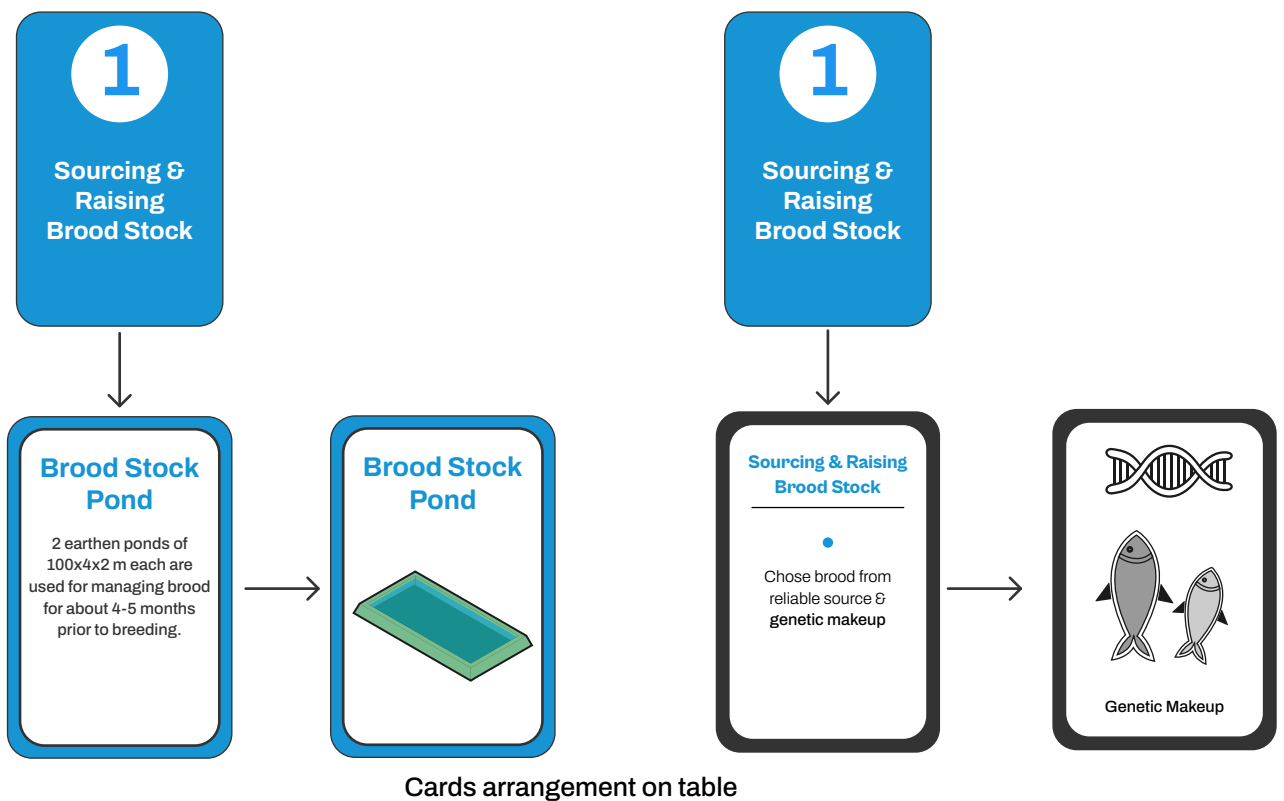
Special moves:

• At any time during the game, a player can play a power card and all players need to follow the instructions on the card.
• A player can refuse to follow instruction from a card by using an immunity card

Win state:

• The first player to use all their cards wins the game. Remaining players can continue with the game.