Design a net pen

SLO: Students will be able to plan and design, plus possibly build and trial, a net pen suitable for the Marlborough Sounds to farm King salmon.

INTRODUCTION:

Net pens are a key piece of equipment for King salmon farming. One of the reasons they are used is to keep King salmon in and predators out. Read the information and get students to design and even make their own net pen.

WHAT YOU WILL NEED:

- Design a net pen activity sheet (Level 3)

Or

- Design a net pen activity sheet (Level 4-5)

ONLINE VERSION:

kingsalmon.co.nz/ed/activity19

ACTIVITY:

Students design a new type of net pen and surrounding environment suitable for King salmon. Includes thinking about the types of materials they would use, how big the fish are, how many fish in each pen and how much space they need, and the environment that the net pen is placed in. For levels 4 and 5, also includes measurement.

Design a net pen

There are a number of important factors that need to be taken into consideration for designing a net pen for King salmon farming, such as the depth and flow of water, temperature and shelter.

Water

King salmon need a plentiful supply of clean and clear water. A good depth of water allows adequate space between the pen and seabed, while a good water flow ensures a constant supply of oxygen and maintains the water quality.

Temperature

Temperature is an important factor in determining fish health and growth. King salmon thrive in cooler waters and best growth is achieved at a temperature of 12-17°C.

Protection

Sea-based net pens in New Zealand require a fence around the top to protect the King salmon from predators such as seals and birds.
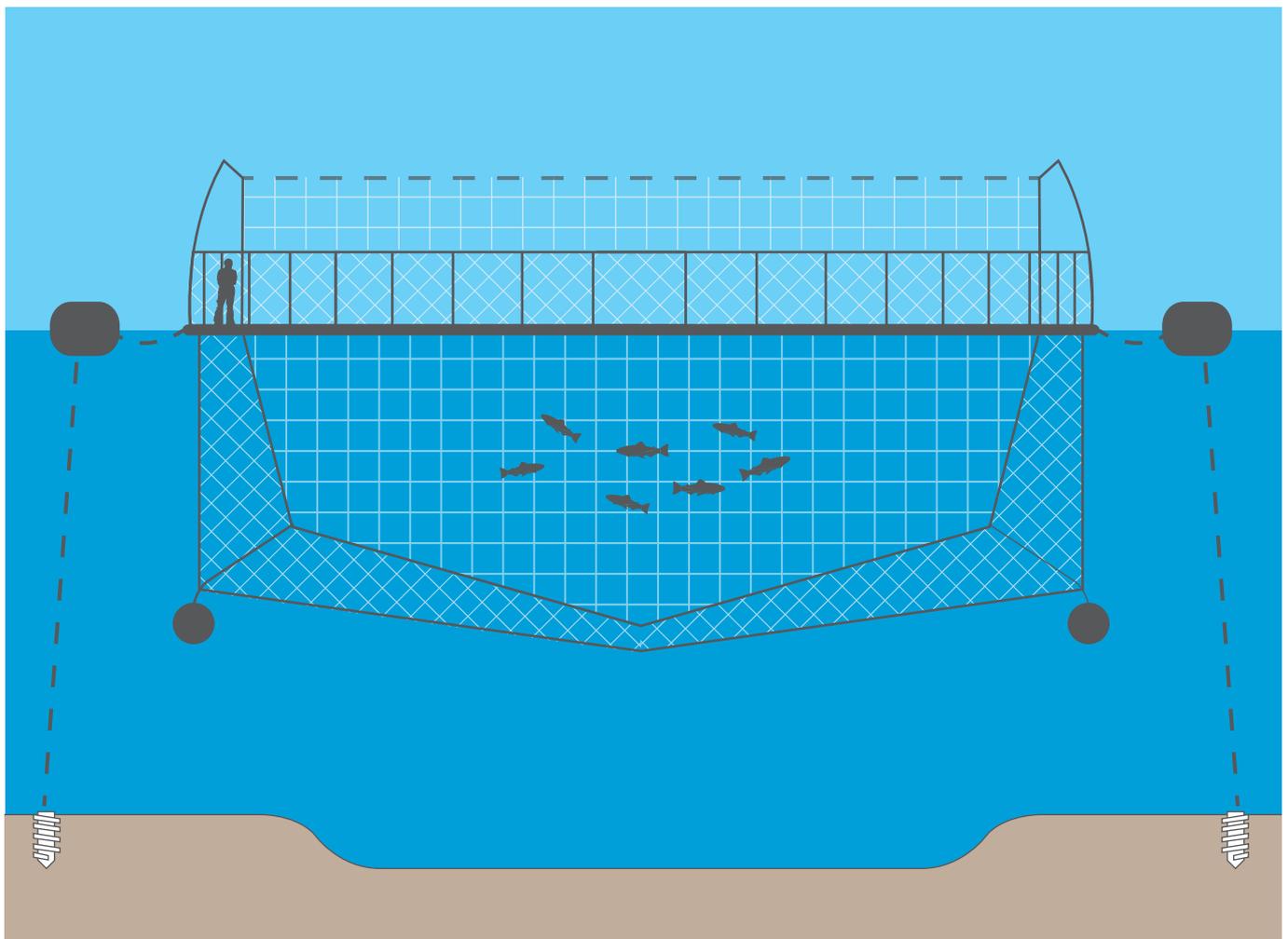
Shelter

Shelter is important. Wind and waves can affect feeding even with the protection of net pen structures. Net movement during rough weather may also cause stress, as does the presence of predators like seals, sharks and dolphins.

Pens for NZ

King salmon is the main fin fish farmed in New Zealand. The net pens used by The New Zealand King Salmon Company sea farms are chosen because they work for New Zealand conditions and are up to 40m wide. The net depth is around 18-20m deep and a re suspended from floatation pontoons.

King salmon are fed until ready for harvest. King salmon are visual feeders, so only feed during the day. The depth of the pens offer improved growing conditions, allowing the fish to move below the surface water.

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Design a net pen – Level 3

Using the information below and your own research, design a new type of net pen and surrounding environment suitable for King salmon.

Think about the types of materials you would use, how big the fish are, how many fish are in each pen and how much space they need, and the environment that the sea pen is placed in.

Your pen needs to include:

1. Net – to keep the fish in and predators out
2. Ropes – to keep it in one place
3. Floatation collar – to keep it floating
4. Depth – to give the fish space
5. Shelter – to keep waves and wind down
6. Strong flow of cool water – for oxygen and cleanliness

Design a net pen – Level 4 - 5

Using the information below and your own research, design a new type of net pen and surrounding environment suitable for King salmon, including measurements.

Think about the types of materials you would use, how big the fish are, how many fish in each pen and how much space they need, and the environment that the sea pen is placed in.

Your pen needs to include:

- Net – to keep the fish in and predators out

- Ropes – to keep it in one place

- Floatation collar – to keep it floating

- Depth – to give the fish space

- Shelter – to keep waves and wind down

- Strong flow of cool water – for oxygen and cleanliness

Extension:

You could build a model of your net pen and test in water, using Robo Fish. Straws are good to use when designing net pens.