

## Question

How often can scallop juveniles (spat) be measured to assess their growth in field trials, without handling them too frequently?

## Experimental Methods

Samples of 30 small hatchery-reared spat of two size groups (A and B) were taken in December (experiment 1) and May (experiment 2) and further divided into three treatments. All individuals were measured initially (shell height, mm) using hand-held callipers (Photo 1) and placed into mesh-based trays (experiment 1, Photo 2) or up-welling cylinders (experiment 2, Photo 3) and held in a through-flow of unfiltered seawater (salinity > 30 psu). Scallops were sampled at monthly, 2-monthly and 3-monthly intervals. Sampling was designed to simulate that which might be carried out in the field (Photo 1).



Photo 1: Sampling

All scallops were removed from their container and each individual measured. Any dead scallops were counted and discarded. This took 10-15 min, after which the scallops were returned to their containers in seawater and not disturbed until the next sample was taken.



Photo 2:

Mesh based trays containing scallops in a through-flow of seawater.



Photo 3:

Up-welling cylinders containing scallops in a through-flow of seawater.

## Results

The sizes of scallops at each sampling are shown in Figures 1 (experiment 1) and 2 (experiment 2). In experiment 1, average mortality (both size groups) was 10.1% per month (monthly samples), 6.23% per month (2-monthly treatment) and 2.22% per month (3-monthly sample). There was no mortality in any of the treatments in experiment 2.

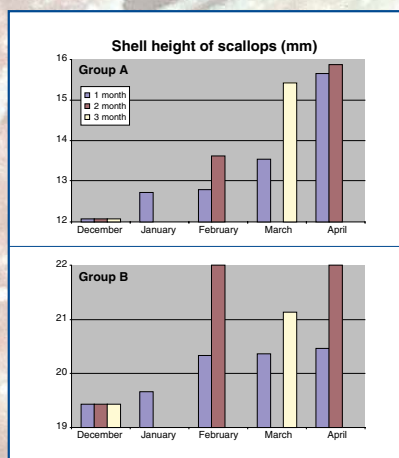


Figure 1:

Experiment 1 (winter/spring). Scallops of the same initial size and sampled monthly were nearly always smaller than scallops sampled less frequently, and usually significantly so.

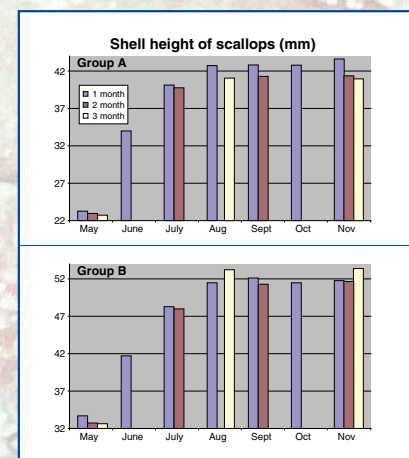


Figure 2:

Experiment 2 (summer/autumn). There was only one instance (Group B, August) in which monthly sampled scallops were significantly smaller than scallops sampled less frequently. In all other cases monthly sampled scallops grew better, sometimes significantly so. Condition index (ratio of dry meat weight to dry shell weight) of the scallops at the end of experiment 2 was similar in all treatments for both size groups.

## Conclusions

Growth and survival of king scallops is not affected by sampling for measurement at monthly intervals during or immediately following the season of most active growth (summer/autumn). During the seasons when the juveniles are growing slowly (winter/early spring), when regular sampling is less important, monthly sampling gives reduced growth and higher mortalities.

## Acknowledgement

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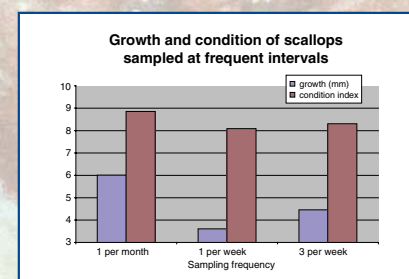


Figure 3:

Handling more frequently than once a month during the summer may reduce the growth and condition of king scallops.