

Fisheries Transport Systems

AQS325

1. Week

Carry fish by iced water

Weeks	Topics
1. Week	Carry fish by iced water
2. Week	Carrying the fishes by cooled sea water
3. Week	Carry fishes with ice
4. Week	Carry by cooled store
5. Week	Carry by freezing
6. Week	Carry by salt
7. Week	Fish transport: rules
8. Week	Carry alive fish
9. Week	Carry alive fish with oxygen
10. Week	Carry alive crustacean
11. Week	Carry alive larvae
12. Week	Carrying equipment
13. Week	Carry by frigorific track
14. Week	Carry fishes long distance

Fish survival in a good state of health during transport is influenced by a number of factors, or combination of factors.

When the fish are of poor quality, even a great reduction of fish density in the transport container fails to prevent fish losses.

Weak fish are killed at a much higher rate than fish in good condition when the transport time is longer.

<http://www.fao.org/docrep/009/af000e/AF000E02.htm>

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A need for adapting the fish to a lower water temperature may also arise before transport.

Natural ice is used to cool the water; the ice of carbonic acid should be avoided.

As a guide ratio, 25 kg of ice will cool 1 000 litres of water by 2°C.

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If the water contains fish during the cooling process, the temperature drop should not be faster than 5°C per hour.

Direct contact of fish with ice should be prevented at the same time.

The total temperature difference should not be greater than 12-15°C, with respect to the species and age of the fish (FRG recommendation, 1979).

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The fish to be transported, except for the larval stages should be left to starve for at least a day; if the digestive tract of the fish is not totally cleaned, the possible time of transport is reduced to a half, though the conditions may be the same (Pecha, Berka and Kouril, 1983; Orlov et al., 1974).

The fish with full digestive tracts also need more oxygen, are more susceptible to stress, and produce excrements which take up much of the oxygen of the water.

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However, when fish larvae are transported, their time of survival without food should be taken into consideration.

The transport time of the larvae of herbivorous fishes should not last longer than 20 hours and that of many aquarium species should be shorter than 12 hours (Orlov, 1971).

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Water temperature is an important factor.

When water temperature is low, the pH remains higher and fish metabolism decreases.

The generally applicable zones of optimum temperatures for transported fish are

6-8°C for cold-water fishes and

10-12°C for warm-water fishes in summer,

3-5°C for cold-water fishes and

5-6°C for warm-water fishes in spring and autumn, and 1-2°C for all in winter.

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Naturally, these temperature ranges do not apply to the early stages of fish fry. The early fry of cyprinids cannot be transported at temperatures below 15°C, early fry of salmonids at temperatures higher than 15-20°C, and the temperature of 10°C, is considered as optimum for the early stages of the fry of coregonids (Pecha, Berka and Kouril, 1983; Orlov et al., 1971, 1974; Shevchenko, 1978).

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References

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