

# Ornamental fishes

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14. WEEK: ORNAMENTAL FISH WELFARE AND SUSTAINABLE CULTURE PRACTICES

# WEEKLY TOPICS (CONTENT)

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<b>1. Week</b>	Ornamental fishes: General information
<b>2. Week</b>	Information on commercially valuable ornamental fish species
<b>3. Week</b>	Biology of ornamental fish (freshwater, brackish-water and marine, species.
<b>4. Week</b>	Popular ornamental fish species for culture.
<b>5. Week</b>	Candidate ornamental fish species for culture.
<b>6. Week</b>	Culture environment.
<b>7. Week</b>	Physical, chemical and biological requirements of Ornamental fish
<b>8. Week</b>	Freshwater ornamental fish keeping
<b>9. Week</b>	Brackishwater fish species keeping.
<b>10. Week</b>	Marine ornamental fish keeping.
<b>11. Week</b>	Feeding, reproduction, larva and fry rearing for freshwater ornamental fishes.
<b>12. Week</b>	Feeding, reproduction, larva and fry rearing for Brackshwater ornamental fishes.
<b>13. Week</b>	Feeding, reproduction, larva and fry rearing for marine ornamental fishes.
<b>14. Week</b>	Ornamental fish welfare and sustainable culture practices.

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With the continued growth of the aquaculture sector and increasing scientific and social discussion over the potential for negative events to give rise to suffering, research into the welfare of cultured fish is important.

The subject of define and measure welfare is cause for debate, particularly in fish.

However, research into the effects of aquaculture procedures on welfare is crucial to produce data and recommendations for best practice and future legislation.

[https://www.appliedanimalbehaviour.com/article/S0168-1591\(06\)00295-4/abstract](https://www.appliedanimalbehaviour.com/article/S0168-1591(06)00295-4/abstract)

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## Behavioural and physiological measures of welfare

Effects of disease, handling, transport, food deprivation, and slaughter technique on fish welfare

Effects of stocking density, also an area of welfare concern, are complex and appear to comprise of numerous interacting and case specific factors.

To improve welfare:

Stocking density, diet, feeding technique, and management procedures

Effects on stress responses, subsequent stress tolerance, health, and the occurrence of aggressive behaviour

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Strategies to reduce disease susceptibility, minimise stress responses, and avoid aggression

Abnormal fish behaviour

Natural behaviours

To improve our knowledge of the impacts of aquaculture and intensive culture procedures on fish welfare

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What is Animal Welfare?

Welfare and Fish

The Stress Response in Fish

Pain and Fear in Fish

Can Fish Suffer?

[https://books.google.com.tr/books?hl=en&lr=&id=-NNIWxyXPIYC&oi=fnd&pg=PA19&dq=fish+welfare+&ots=ec5qmMcy6g&sig=gaLwCVyxRSNfl4pVY3PGyRZ8xmM&redir\\_esc=y#v=onepage&q=fish%20welfare&f=false](https://books.google.com.tr/books?hl=en&lr=&id=-NNIWxyXPIYC&oi=fnd&pg=PA19&dq=fish+welfare+&ots=ec5qmMcy6g&sig=gaLwCVyxRSNfl4pVY3PGyRZ8xmM&redir_esc=y#v=onepage&q=fish%20welfare&f=false)

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Welfare Legislation Applying to Farmed Fish

Fish Farmer's Perspective of Welfare

Stocking Density

Fin Erosion

The Influences of Water Quality on the Welfare

[https://books.google.com.tr/books?hl=en&lr=&id=-NNIWxyXPIYC&oi=fnd&pg=PA19&dq=fish+welfare+&ots=ec5qmMcy6g&sig=gaLwCVyxRSNfl4pVY3PGyRZ8xmM&redir\\_esc=y#v=onepage&q=fish%20welfare&f=false](https://books.google.com.tr/books?hl=en&lr=&id=-NNIWxyXPIYC&oi=fnd&pg=PA19&dq=fish+welfare+&ots=ec5qmMcy6g&sig=gaLwCVyxRSNfl4pVY3PGyRZ8xmM&redir_esc=y#v=onepage&q=fish%20welfare&f=false)

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Welfare of Fish During Transport

Disease and Medicines: Welfare Implications

Welfare and Deformities in Fish

Welfare of Fish at Harvest

The Use of Stakeholder Focus Groups to Identify Indicators for the On-Farm Assessment of Trout Welfare (pages 243–267): Ben P. North, Tim Ellis, James Bron, Toby G. Knowles and James F. Turnbull

Chapter 16 The Welfare of Ornamental Fish (pages 269–290): Chris Walster

[https://books.google.com.tr/books?hl=en&lr=&id=-NNIWxyXPIYC&oi=fnd&pg=PA19&dq=fish+welfare+&ots=ec5qmMcy6g&sig=gaLwCVyxRSNfl4pVY3PGyRZ8xmM&redir\\_esc=y#v=onepage&q=fish%20welfare&f=false](https://books.google.com.tr/books?hl=en&lr=&id=-NNIWxyXPIYC&oi=fnd&pg=PA19&dq=fish+welfare+&ots=ec5qmMcy6g&sig=gaLwCVyxRSNfl4pVY3PGyRZ8xmM&redir_esc=y#v=onepage&q=fish%20welfare&f=false)



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Use of Stakeholder Focus

Welfare of Ornamental Fish

[https://books.google.com.tr/books?hl=en&lr=&id=-NNIWxyXPIYC&oi=fnd&pg=PA19&dq=fish+welfare+&ots=ec5qmMcy6g&sig=gaLwCVyxRSNfl4pVY3PGyRZ8xmM&redir\\_esc=y#v=onepage&q=fish%20welfare&f=false](https://books.google.com.tr/books?hl=en&lr=&id=-NNIWxyXPIYC&oi=fnd&pg=PA19&dq=fish+welfare+&ots=ec5qmMcy6g&sig=gaLwCVyxRSNfl4pVY3PGyRZ8xmM&redir_esc=y#v=onepage&q=fish%20welfare&f=false)

# References

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Ashley, P. J. (2007). Fish welfare: current issues in aquaculture *Applied Animal Behaviour Science*, 104(3), 199-235.

Huntingford, F. A., & Kadri, S. (2008). Welfare and fish. *Fish welfare*, 1, 19-32.