A Deep Dive in Cephalopod Welfare
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Cephalopods are among the most intelligent and behaviourally complex invertebrates, and their welfare in aquarium settings is a topic of growing importance. In this talk, I explore the biological, behavioural, and legislative considerations surrounding cephalopod care, highlighting the need for species-specific approaches to husbandry and enrichment.

The presentation begins with a discussion of why cephalopod welfare matters, emphasizing recent developments in our understanding of their cognitive and neurological capacities. These animals possess advanced learning abilities, problem-solving skills, and exhibit a range of sophisticated behaviours that suggest a high degree of sentience. Scientific findings, such as the abundance of protocadherin genes – important for neural complexity – support this view.

I then review the natural behaviours and biology of different cephalopod species, illustrating how their unique anatomy and ecological roles inform their welfare needs. From cuttlefishes' easily damaged mantles to the octopus's arm-based cognition and manipulation of objects, it is clear that tank design and environmental features must be tailored accordingly. I also addressed problematic behaviours that can arise in captivity, such as bubble-eating, and the importance of replicating naturalistic habitats through appropriate substrates, theming, and social arrangements.

Enrichment strategies are also discussed, which are essential for mental stimulation and overall well-being. I examined different forms of enrichment – cognitive, sensory, physical – and discuss their benefits and potential drawbacks. Providing meaningful enrichment is not optional; it is foundational to ethical and effective care.

Finally, I outline methods for assessing cephalopod welfare, drawing on frameworks such as Cooke and Tonkins (2015), and highlighting the need for regular quality of life (QoL) evaluations. I also emphasize the role of staff training in recognizing species-specific and individual-specific behaviours, and include insights from a veterinary perspective, including how to navigate senescence and end-of-life decisions.

In conclusion, cephalopods present unique welfare challenges and opportunities. As our understanding of their intelligence and sentience deepens, so must our commitment to improving the environments in which they live. Through thoughtful design, ongoing enrichment, and rigorous welfare assessment, we can better meet the complex needs of these remarkable animals.