Iconography and Jellyfish Evolution

EVOLUTIONARY ICONOGRAPHY, SUCH AS THE ASCENT OF MAN PARODIED IN THE FIGURE ABOVE, HOLDS A PARTICULAR PLACE IN THE PUBLIC UNDERSTANDING OF SCIENCE. IT SIMPLIFIES A COMPLEX PROCESS AND, IN DOING SO, PRESENTS AN INCREDIBLY POWERFUL MESSAGE: **EVOLUTION HAPPENS AND IT CAN HAVE AMAZING RESULTS.**

The message embodied in a study of ancestral ocean (left) and derived marine lake (centre-left to right) populations of *Mastigias* medusae in Palau, is that dramatic evolution can be exceedingly rapid in marine taxa. This has important implications for the study of marine species world-wide. The diversity of *Mastigias* medusae shown in the image evolved in between 5000 and 15,000 years. Moreover, the morphological radiation was accompanied by dramatic behavioural and likely also physiological adaptations to differing selective regimes. Feeding—energy and nutrient acquisition via symbioses with zooxanthellae, eating plankton, and uptake of dissolved organic matter—had to be balanced with each other and also with avoiding predation—for example by the jellyfish-eating sea anemone, *Entacmaea medusivora*, endemic to only a subset of lakes. The result is the evolution of five subspecies of *Mastigias*, each in a separate lake, during the Holocene in Palau. This radiation is analogous to other icons of evolution such as the three-spined sticklebacks of freshwater lakes in British Columbia, the cichlids of African rift lakes, the finches of the Galapagos Islands, *Anolis* lizards in the Antilles, and *Drosophila* in Hawaii. Moreover, it presents a forum for unifying theory on the evolution of 'island' species whether they are freshwater, marine, or terrestrial.

Michael N Dawson
Email:mndawson@ucdavis.edu

Published in volume 85 of JMBA
Lynam, C.P. et al., 2005. Jellyfish abundance and climatic variation: contrasting responses in oceanographically distinct regions of the North Sea, and possible implications for fisheries. JMBA **85(3)**, 435–450.
Purcell, J.E., 2005. Climate effects on jellyfish and ctenophore blooms: A Review. JMBA **85(3)**, 461–476.