#34

BOMB RADIOCARBON DATING OF WHITE ABALONE (*HALIOTIS SORENSENI*): INVESTIGATIONS OF AGE, GROWTH, AND LIFESPAN

Allen H Andrews[1], Gregor M Cailliet[1], Robert T Leaf[2], Thomas Brown[3], Laura Rogers-Bennett[4], Kenneth H Coale[1]

1. Moss Landing Marine Laboratories - Age and Longevity Research, California State University, 8272 Moss Landing Road, Moss Landing, CA 95039, USA.
2. Department of Fisheries and Wildlife Sciences, Virginia Tech, 101 Cheatham Hall, Blacksburg, VA 24061, USA.
3. Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory, 7000 East Avenue, Livermore, CA 94551, USA.
4. Bodega Marine Laboratory, California Dept. Fish and Game, 2099 Westside Road, Bodega Bay, CA 94923, USA.

Bomb radiocarbon dating was used to answer unresolved questions about age, growth, and lifespan of white abalone (*Haliotis sorenseni*). Abalone species in central and southern California have suffered population declines resulting in the closure of both commercial and recreational fisheries. Of the seven Haliotis species in California, white abalone is perhaps the most threatened and was the first marine invertebrate listed as an endangered species under the federal Endangered Species Act. An understanding of life history information is critical to restoring the species from its extirpated state and will be necessary, if the population can recover, for harvest management. A significant issue in this regard is to determine accurate age and growth parameters that describe ontogenetic growth and to estimate lifespan. It is possible that remnant white abalone populations may be composed of senescent individuals that are incapable of contributing to population growth, and that natural mortality may take the remaining population due to recruitment failure. Age, growth rates, and lifespan were estimated in previous studies from limited observations of growth in the field and captive environments. Growth was described as initially rapid, slower with increasing size, and highly variable. From those observations, age near maximum size (~210 mm MSL) was extrapolated to ~35 years; however, these estimates of age, growth, and lifespan remain unconfirmed. Bomb radiocarbon dating has provided well-constrained age determinations from a series of white abalone shells with known collection dates. In this work, a series of shells with a range of lengths (148–200 mm MSL) and collection years (1952–1996) were used in concert with a reference bomb radiocarbon data series to examine growth parameters for this species. The lifespan of a large shell (193 mm MSL) was confirmed at 24 ± 2 years, and a larger shell (200 mm MSL) may have lived 29 ± 2 years. These independent estimates of age provide support for early age and growth estimates, and greater confidence in the development of growth parameters necessary for population recovery and responsible management of white abalone.

Parallel Session 3-2: Radiocarbon & AMS - Small and Large II

#35

DATING MICADAS AT THE NEW AMS LABORATORY AT CEZA, MANNHEIM, GERMANY

B Kromer[1], H-A Synal, L Wacker, I Levin, E Pernicka

1. Heidelberg Academy of Sciences, INF 229, Heidelberg, Germany, D-69120, Germany.

We present a status report on the newly founded AMS laboratory (Klaus Tschira Laboratory, KTL) at the Curt-Engelhorn Centre for Archaeometry, CEZA, Mannheim, Germany. The AMS machine is