**Aging Coral**
From: **Nick Tagliareni**, 2002

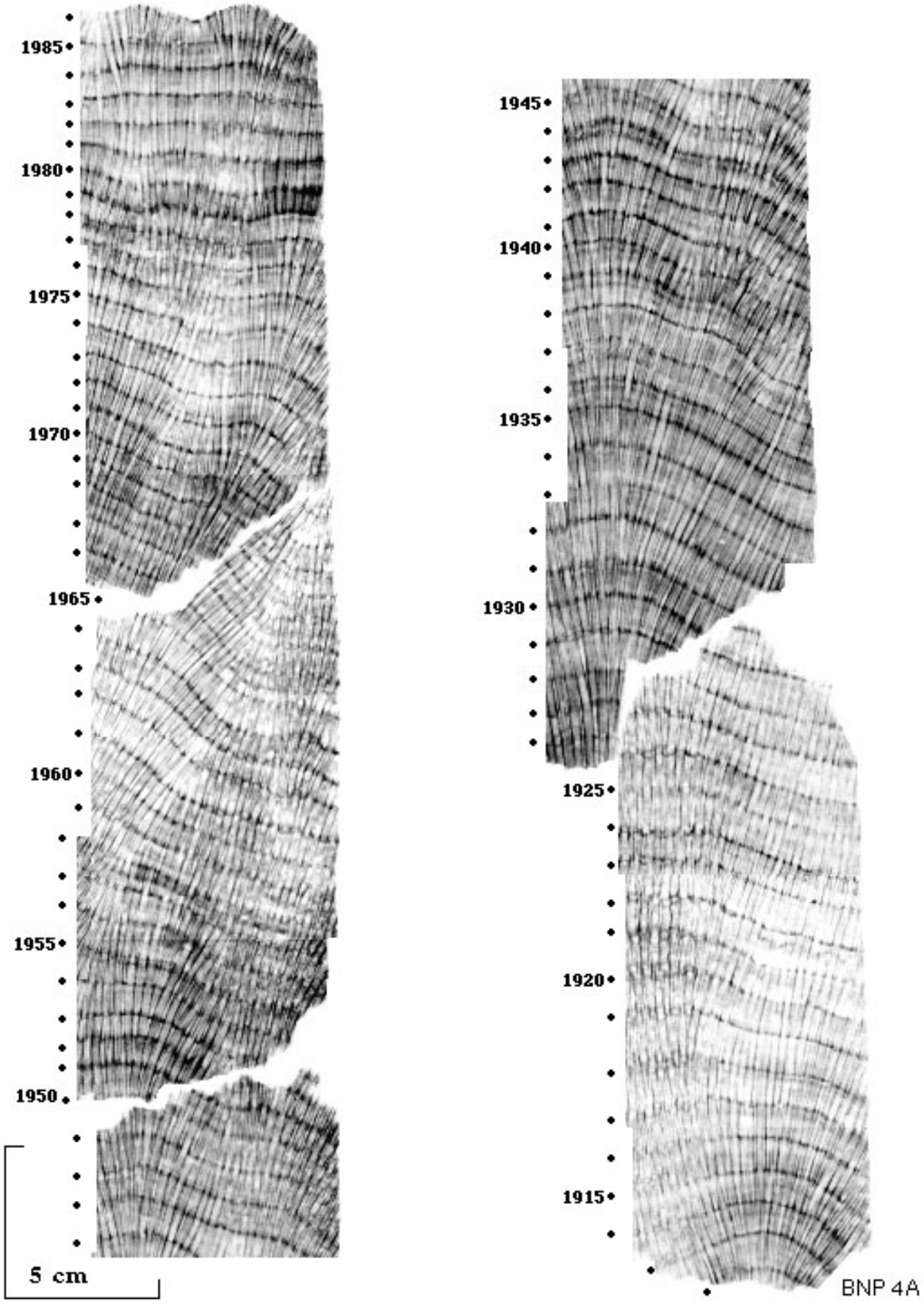
I submitted this response during the last workshop and thought teachers in this workshop could use the images in their class.

Many times when teaching about corals and reefs, we tell our students that corals are slow growing and we leave it at that. We may mention a measurement per year as well. Here is a set of photographs you can use to show your point. These photos came from the USGS. They are digital images from a CD-ROM authored by Y. Tao, L.M. Roulier, K.M. Higgins, M.L. Hayes, R.B.Halley, and J.H. Hudson. The following abstract, from the original paper, describes how the dates were determined:

Hudson, J. H., K. J. Hanson, R. B. Halley, and J. K. Kindinger. 1994. Environmental implications of growth rate changes in Montastrea faveolata: Biscayne National Park, Florida. Bulletin of Marine Science 54(3): 647-669.
ENVIRONMENTAL IMPLICATIONS OF GROWTH RATE
CHANGES IN MONTASTREA FAVEOLATA:BISCAYNE NATIONAL PARK, FLORIDA
J. Harold Hudson, Kirby J. Hanson,
Robert B. Halley and Jack L. Kindinger

**ABSTRACT**
Long-term annual growth rates were determined for 25 Montastrea faveolata colonies at eight reef sites in Biscayne National Park, Florida. X-radiographs of slabbed coral cores revealed chronologies that averaged 113.5 years in length with a range of 40 to 242 years. A total of 2,837 annual growth increments were identified and measured. Dating of density bands was verified by visually cross dating fluorescent bands within the coral skeleton. Average accretion rates of individual colonies varied from 5.0mm·yr -1 in the northernmost sector of the Park to 11.3 mm·yr -1 in the southernmost sector. Long-term growth rates of most corals in this study were greatest prior to about 1950 except for a major, 3-5 year, decline in the growth record of older corals centered around 1878. Waxing and waning coral growth rates are discussed in relation to natural and anthropogenic perturbations that impact this high latitude reef ecosystem. Attention is drawn to nutrients from sewage outfalls as a possible contributing factor to observed growth rate decline since 1950.

A number of activities could be developed from these photos. A math activity could include averaging the growths rate over ten year increments and graphing the results. To help students get a feel for the time frame associated with coral growth, you could ask them to identify world or U.S. events for some of the years listed.


1985
1980
1975
1970
1965
1960
1955
1950
1945
1940
1935
1930
1925
1920
1915
5 cm
BNP 4A