**Appendix I** Radiocarbon data for the Kure Atoll coral core sample series with the validated date of formation. The reported F14C values were fractionation-corrected using online δ13C obtained during the AMS measurement (Reimer et al. 2004). Uncertainties associated with ∆14C values are 1σ. Robust δ13C measurements were made for this sample series, and will be reported on in a follow-on study of coral growth (mean δ13C = –1.61 ± 1.83‰ 2SD).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sample number | NOSAMS number | Year of  formation | F14C | ∆14C  (‰) | ∆14C  error |
| K041 | OS-120543 | 1939.50 | 0.9550 | –43.8 | 2.3 |
| K042 | OS-120544 | 1939.75 | 0.9531 | –45.7 | 2.1 |
| K043 | OS-120545 | 1940.00 | 0.9551 | –43.7 | 2.0 |
| K044 | OS-120546 | 1940.25 | 0.9524 | –46.5 | 2.2 |
| K045 | OS-120547 | 1940.50 | 0.9545 | –44.4 | 1.9 |
| K046 | OS-120548 | 1940.75 | 0.9526 | –46.3 | 1.9 |
| K047 | OS-120549 | 1941.00 | 0.9547 | –44.3 | 1.9 |
| K048 | OS-120550 | 1941.25 | 0.9546 | –44.4 | 1.9 |
| K040 | OS-120542 | 1941.50 | 0.9532 | –45.8 | 2.0 |
| K049 | OS-120551 | 1941.75 | 0.9525 | –46.6 | 1.9 |
| K050 | OS-113746 | 1942.00 | 0.9516 | –47.5 | 2.1 |
| K051 | OS-113747 | 1942.25 | 0.9522 | –46.9 | 3.0 |
| K052 | OS-109884 | 1942.50 | 0.9462 | –52.9 | 2.8 |
| K053 | OS-113748 | 1942.75 | 0.9517 | –47.5 | 2.4 |
| K054 | OS-113749 | 1943.00 | 0.9560 | –43.2 | 2.3 |
| K055 | OS-113750 | 1943.33 | 0.9522 | –47.0 | 2.4 |
| K039 | OS-96211 | 1943.66 | 0.9554 | –43.9 | 2.4 |
| K056 | OS-113751 | 1944.00 | 0.9526 | –46.7 | 2.1 |
| K057 | OS-113752 | 1944.25 | 0.9559 | –43.4 | 3.2 |
| K058 | OS-113753 | 1944.50 | 0.9491 | –50.3 | 2.4 |
| K059 | OS-109885 | 1944.75 | 0.9505 | –48.9 | 4.7 |
| K060 | OS-113754 | 1945.00 | 0.9522 | –47.2 | 2.3 |
| K061 | OS-113755 | 1945.25 | 0.9534 | –46.1 | 2.4 |
| K062 | OS-113756 | 1945.50 | 0.9516 | –47.9 | 3.7 |
| K038 | OS-96435 | 1945.75 | 0.9529 | –46.6 | 2.5 |
| K063 | OS-113757 | 1946.00 | 0.9564 | –43.1 | 2.3 |
| K064 | OS-113758 | 1946.25 | 0.9505 | –49.1 | 2.2 |
| K065 | OS-113759 | 1946.50 | 0.9518 | –47.8 | 2.2 |
| K066 | OS-109886 | 1946.75 | 0.9504 | –49.2 | 2.9 |
| K067 | OS-113760 | 1947.00 | 0.9524 | –47.3 | 2.0 |
| K068 | OS-113761 | 1947.25 | 0.9496 | –50.1 | 2.0 |
| K069 | OS-113762 | 1947.50 | 0.9496 | –50.1 | 2.2 |
| K037 | OS-96438 | 1947.75 | 0.9494 | –50.3 | 3.3 |
| K070 | OS-113763 | 1948.00 | 0.9477 | –52.1 | 2.0 |
| K071 | OS-113764 | 1948.25 | 0.9470 | –52.8 | 2.2 |
| K072 | OS-113765 | 1948.50 | 0.9528 | –47.0 | 2.1 |
| K036 | OS-96434 | 1948.75 | 0.9561 | –43.8 | 3.5 |
| K073 | OS-113766 | 1949.00 | 0.9502 | –49.7 | 2.4 |
| K074 | OS-113767 | 1949.25 | 0.9512 | –48.7 | 3.4 |
| K075 | OS-113768 | 1949.50 | 0.9535 | –46.4 | 2.1 |
| K076 | OS-109887 | 1949.75 | 0.9412 | –58.8 | 3.7 |
| K077 | OS-113769 | 1950.00 | 0.9547 | –45.3 | 2.6 |
| K078 | OS-113770 | 1950.25 | 0.9535 | –46.5 | 2.9 |
| K079 | OS-113771 | 1950.50 | 0.9531 | –47.0 | 2.0 |
| K035 | OS-96439 | 1950.75 | 0.9465 | –53.6 | 2.5 |
| K080 | OS-113919 | 1951.00 | 0.9529 | –47.2 | 2.1 |
| K081 | OS-113920 | 1951.25 | 0.9546 | –45.5 | 2.0 |
| K082 | OS-113921 | 1951.50 | 0.9519 | –48.3 | 2.3 |
| K083 | OS-109888 | 1951.75 | 0.9503 | –49.9 | 2.3 |
| K084 | OS-113922 | 1952.00 | 0.9565 | –43.7 | 2.3 |
| K085 | OS-113923 | 1952.25 | 0.9522 | –48.1 | 2.0 |
| K086 | OS-113924 | 1952.50 | 0.9558 | –44.5 | 2.7 |
| K034 | OS-96441 | 1952.75 | 0.9487 | –51.6 | 2.5 |
| K087 | OS-109889 | 1953.00 | 0.9501 | –50.2 | 3.3 |
| K088 | OS-109933 | 1953.20 | 0.9444 | –56.0 | 3.8 |
| K089 | OS-109934 | 1953.40 | 0.9500 | –50.4 | 2.6 |
| K033 | OS-96436 | 1953.60 | 0.9489 | –51.5 | 3.6 |
| K090 | OS-109935 | 1953.80 | 0.9420 | –58.4 | 3.0 |
| K091 | OS-109936 | 1954.00 | 0.9444 | –56.1 | 2.7 |
| K092 | OS-109989 | 1954.25 | 0.9527 | –47.8 | 2.1 |
| K032 | OS-96443 | 1954.50 | 0.9345 | –66.0 | 2.6 |
| K093 | OS-109990 | 1954.75 | 0.9512 | –49.3 | 2.3 |
| K094 | OS-109991 | 1955.00 | 0.9547 | –45.9 | 2.3 |
| K095 | OS-109992 | 1955.33 | 0.9539 | –46.7 | 2.1 |
| K031 | OS-96339 | 1955.66 | 0.959 | –41.7 | 2.8 |
| K096 | OS-109993 | 1956.00 | 0.9513 | –49.4 | 2.1 |
| K097 | OS-109994 | 1956.20 | 0.9474 | –53.3 | 2.1 |
| K098 | OS-109995 | 1956.40 | 0.9545 | –46.2 | 2.4 |
| K030 | OS-96338 | 1956.60 | 0.9611 | –39.7 | 2.3 |
| K099 | OS-109996 | 1956.80 | 0.9607 | –40.1 | 2.1 |
| K100 | OS-109997 | 1957.00 | 0.9615 | –39.3 | 2.3 |
| K101 | OS-110046 | 1957.25 | 0.9555 | –45.3 | 2.7 |
| K029 | OS-96337 | 1957.50 | 0.9648 | –36.1 | 2.9 |
| K102 | OS-109998 | 1957.75 | 0.9690 | –31.9 | 2.2 |
| K103 | OS-109999 | 1958.00 | 0.9664 | –34.5 | 2.2 |
| K104 | OS-110000 | 1958.25 | 0.9677 | –33.3 | 2.4 |
| K028 | OS-96336 | 1958.50 | 0.9745 | –26.5 | 2.5 |
| K105 | OS-110001 | 1958.75 | 0.9767 | –24.3 | 2.3 |
| K106 | OS-110002 | 1959.00 | 0.9777 | –23.4 | 2.2 |
| K107 | OS-110003 | 1959.33 | 0.9906 | –10.5 | 2.3 |
| K027 | OS-96335 | 1959.66 | 0.9908 | –10.4 | 2.4 |
| K108 | OS-110004 | 1960.00 | 0.9860 | –15.2 | 2.2 |
| K109 | OS-110005 | 1960.25 | 0.9935 | –7.7 | 3.1 |
| K110 | OS-110006 | 1960.50 | 1.0019 | 0.6 | 2.4 |
| K026 | OS-96259 | 1960.75 | 0.9888 | –12.5 | 2.5 |
| K111 | OS-110007 | 1961.00 | 0.9955 | –5.8 | 2.9 |
| K112 | OS-110008 | 1961.25 | 0.9961 | –5.3 | 2.2 |
| K113 | OS-110009 | 1961.50 | 1.0054 | 4.0 | 2.3 |
| K025 | OS-96281 | 1961.75 | 0.9950 | –6.4 | 3.0 |
| K114 | OS-110010 | 1962.00 | 1.0047 | 3.2 | 2.5 |
| K115 | OS-110011 | 1962.25 | 1.0100 | 8.5 | 3.0 |
| K116 | OS-110014 | 1962.50 | 1.0186 | 17.1 | 2.3 |
| K024 | OS-96258 | 1962.75 | 1.0116 | 10.0 | 2.5 |
| K117 | OS-110015 | 1963.00 | 1.0204 | 18.8 | 2.3 |
| K118 | OS-110016 | 1963.25 | 1.0331 | 31.4 | 4.1 |
| K119 | OS-110017 | 1963.50 | 1.0606 | 58.9 | 3.4 |
| K023 | OS-96257 | 1963.75 | 1.0575 | 55.7 | 2.6 |
| K022.1 | OS-96209 | 1964.00 | 1.0652 | 63.4 | 2.7 |
| K022.2 | OS-96210 | 1964.25 | 1.0733 | 71.5 | 2.7 |
| K022.3 | OS-96256 | 1964.50 | 1.0847 | 82.8 | 2.7 |
| K022 | OS-96208 | 1964.75 | 1.1020 | 100.0 | 2.8 |
| K120 | OS-110018 | 1965.00 | 1.0877 | 85.7 | 2.7 |
| K121 | OS-110019 | 1965.20 | 1.0891 | 87.1 | 3.1 |
| K122 | OS-110020 | 1965.40 | 1.1057 | 103.6 | 2.5 |
| K021 | OS-96255 | 1965.60 | 1.1085 | 106.4 | 3.5 |
| K123 | OS-110021 | 1965.80 | 1.1153 | 113.2 | 3.1 |
| K124 | OS-110022 | 1966.00 | 1.1059 | 103.8 | 2.5 |
| K125 | OS-110047 | 1966.25 | 1.1110 | 108.8 | 4.3 |
| K020 | OS-96254 | 1966.50 | 1.1265 | 124.3 | 2.8 |
| K126 | OS-110048 | 1966.75 | 1.1206 | 118.3 | 3.3 |
| K127 | OS-110049 | 1967.00 | 1.1087 | 106.4 | 2.7 |
| K128 | OS-110050 | 1967.25 | 1.1253 | 123.0 | 2.9 |
| K019 | OS-96253 | 1967.50 | 1.1398 | 137.4 | 3.9 |
| K129 | OS-110051 | 1967.75 | 1.1435 | 141.0 | 3.0 |
| K130 | OS-110052 | 1968.00 | 1.1329 | 130.4 | 2.9 |
| K131 | OS-110053 | 1968.33 | 1.1478 | 145.3 | 4.2 |
| K018 | OS-96252 | 1968.66 | 1.1589 | 156.3 | 2.9 |
| K132 | OS-110054 | 1969.00 | 1.1563 | 153.6 | 2.9 |
| K133 | OS-110055 | 1969.25 | 1.1427 | 140.0 | 4.1 |
| K134 | OS-110056 | 1969.50 | 1.1525 | 149.8 | 2.8 |
| K017 | OS-96251 | 1969.75 | 1.1524 | 149.7 | 2.9 |
| K135 | OS-110057 | 1970.00 | 1.1448 | 142.0 | 2.8 |
| K136 | OS-110058 | 1970.25 | 1.1576 | 154.8 | 2.9 |
| K137 | OS-110059 | 1970.50 | 1.1580 | 155.1 | 3.8 |
| K016 | OS-96250 | 1970.75 | 1.1582 | 155.3 | 3.0 |
| K138 | OS-113925 | 1971.00 | 1.1614 | 158.5 | 2.6 |
| K139 | OS-113926 | 1971.25 | 1.1745 | 171.5 | 2.4 |
| K140 | OS-113927 | 1971.50 | 1.1763 | 173.2 | 3.8 |
| K141 | OS-110060 | 1971.75 | 1.1633 | 160.2 | 3.0 |
| K142 | OS-113928 | 1972.00 | 1.1657 | 162.6 | 2.5 |
| K143 | OS-113929 | 1972.20 | 1.1693 | 166.2 | 2.3 |
| K144 | OS-113930 | 1972.40 | 1.1781 | 174.9 | 2.3 |
| K015 | OS-96249 | 1972.60 | 1.1742 | 171.0 | 2.9 |
| K145 | OS-113931 | 1972.80 | 1.1754 | 172.2 | 2.3 |
| K146 | OS-113932 | 1973.00 | 1.1652 | 162.0 | 2.3 |
| K147 | OS-113933 | 1973.25 | 1.1824 | 179.1 | 2.4 |
| K148 | OS-110061 | 1973.50 | 1.1723 | 169.0 | 2.8 |
| K149 | OS-113934 | 1973.75 | 1.1781 | 174.7 | 2.3 |
| K150 | OS-113935 | 1974.00 | 1.1759 | 172.5 | 2.8 |
| K151 | OS-113936 | 1974.33 | 1.1824 | 178.9 | 2.7 |
| K014 | OS-96248 | 1974.66 | 1.1811 | 177.6 | 3.2 |
| K152 | OS-113937 | 1975.00 | 1.1720 | 168.5 | 2.4 |
| K153 | OS-113938 | 1975.20 | 1.1741 | 170.5 | 3.0 |
| K154 | OS-113976 | 1975.40 | 1.1777 | 174.1 | 2.3 |
| K155 | OS-110062 | 1975.60 | 1.1752 | 171.6 | 2.9 |
| K156 | OS-113977 | 1975.80 | 1.1706 | 167.0 | 2.5 |
| K157 | OS-113978 | 1976.00 | 1.1701 | 166.4 | 2.4 |
| K158 | OS-113979 | 1976.25 | 1.1724 | 168.7 | 2.3 |
| K013 | OS-96246 | 1976.50 | 1.1764 | 172.6 | 2.9 |
| K159 | OS-113980 | 1976.75 | 1.1738 | 170.0 | 2.9 |
| K160 | OS-113981 | 1977.00 | 1.1633 | 159.5 | 2.3 |
| K161 | OS-113982 | 1977.25 | 1.1599 | 156.1 | 2.5 |
| K162 | OS-110063 | 1977.50 | 1.1554 | 151.6 | 3.0 |
| K163 | OS-113983 | 1977.75 | 1.1726 | 168.7 | 2.8 |
| K164 | OS-113984 | 1978.00 | 1.1676 | 163.7 | 2.3 |
| K165 | OS-113985 | 1978.33 | 1.1642 | 160.2 | 2.4 |
| K012 | OS-96247 | 1978.66 | 1.1638 | 159.8 | 3.7 |
| K166 | OS-113986 | 1979.00 | 1.1719 | 167.8 | 2.3 |
| K167 | OS-110064 | 1979.33 | 1.1532 | 149.1 | 3.3 |
| K168 | OS-113987 | 1979.66 | 1.1681 | 163.9 | 2.4 |
| K169 | OS-110065 | 1980.00 | 1.1564 | 152.2 | 3.2 |
| K170 | OS-113988 | 1980.25 | 1.1623 | 158.1 | 2.6 |
| K171 | OS-110066 | 1980.50 | 1.1519 | 147.7 | 3.0 |
| K172 | OS-113989 | 1980.75 | 1.1621 | 157.8 | 3.1 |
| K011 | OS-96280 | 1981.00 | 1.1481 | 143.8 | 3.3 |
| K173 | OS-113990 | 1981.20 | 1.1605 | 156.1 | 2.3 |
| K174 | OS-110067 | 1981.40 | 1.1513 | 146.9 | 4.5 |
| K175 | OS-113991 | 1981.60 | 1.1495 | 145.1 | 2.9 |
| K176 | OS-110068 | 1981.80 | 1.1482 | 143.8 | 3.7 |
| K177 | OS-114136 | 1982.00 | 1.1579 | 153.4 | 2.8 |
| K178 | OS-110069 | 1982.33 | 1.1579 | 153.4 | 4.2 |
| K179 | OS-114137 | 1982.66 | 1.1627 | 158.1 | 3.5 |
| K010 | OS-96245 | 1983.00 | 1.1427 | 138.1 | 2.9 |
| K180 | OS-112298 | 1983.20 | 1.1469 | 142.3 | 2.6 |
| K181 | OS-110070 | 1983.40 | 1.1556 | 150.9 | 5.5 |
| K182 | Lost | 1983.60 | – | – | – |
| K183 | OS-110071 | 1983.80 | 1.1486 | 143.9 | 5.0 |
| K184 | OS-112297 | 1984.00 | 1.1496 | 144.9 | 2.8 |
| K185 | OS-110072 | 1984.25 | 1.1612 | 156.4 | 4.5 |
| K186 | OS-112296 | 1984.50 | 1.1463 | 141.5 | 3.2 |
| K009 | OS-96244 | 1984.75 | 1.1489 | 144.1 | 2.8 |
| K187 | OS-112295 | 1985.00 | 1.1431 | 138.3 | 2.6 |
| K188 | OS-110073 | 1985.25 | 1.1509 | 146.0 | 3.6 |
| K189 | OS-112294 | 1985.50 | 1.1387 | 133.8 | 3.4 |
| K190 | OS-110074 | 1985.75 | 1.1459 | 141.0 | 5.7 |
| K191 | OS-112293 | 1986.00 | 1.1346 | 129.7 | 2.9 |
| K192 | OS-110075 | 1986.25 | 1.1515 | 146.5 | 4.5 |
| K193 | OS-112292 | 1986.50 | 1.1490 | 143.9 | 2.6 |
| K008 | OS-96207 | 1986.75 | 1.1414 | 136.3 | 3.7 |
| K246 | OS-112291 | 1987.00 | 1.1284 | 123.4 | 2.5 |
| K247 | OS-110241 | 1987.25 | 1.1397 | 134.6 | 2.8 |
| K248 | OS-112290 | 1987.50 | 1.1400 | 134.8 | 2.8 |
| K249 | OS-110242 | 1987.75 | 1.1308 | 125.6 | 2.4 |
| K250 | OS-112289 | 1988.00 | 1.1296 | 124.4 | 2.6 |
| K195 | OS-110202 | 1988.25 | 1.1259 | 120.7 | 2.4 |
| K196 | OS-112288 | 1988.50 | 1.1420 | 136.7 | 3.6 |
| K197 | OS-110203 | 1988.75 | 1.1301 | 124.8 | 2.7 |
| K198 | OS-112287 | 1989.00 | 1.1331 | 127.8 | 2.7 |
| K199 | OS-110204 | 1989.25 | 1.1292 | 123.9 | 2.5 |
| K200 | OS-112286 | 1989.50 | 1.1504 | 144.9 | 2.5 |
| K007 | OS-96206 | 1989.75 | 1.1292 | 123.8 | 2.9 |
| K201 | OS-112285 | 1990.00 | 1.1347 | 129.2 | 2.5 |
| K202 | OS-110076 | 1990.20 | 1.1213 | 115.9 | 3.4 |
| K203 | OS-112284 | 1990.40 | 1.1362 | 130.7 | 3.4 |
| K204 | OS-110205 | 1990.60 | 1.1126 | 107.1 | 2.2 |
| K205 | OS-112283 | 1990.80 | 1.1285 | 122.9 | 2.6 |
| K206 | OS-110077 | 1991.00 | 1.1308 | 125.2 | 3.6 |
| K207 | OS-112282 | 1991.33 | 1.1233 | 117.7 | 4.2 |
| K006 | OS-96205 | 1991.66 | 1.1287 | 123.0 | 2.9 |
| K208 | OS-112281 | 1992.00 | 1.1237 | 118.0 | 2.5 |
| K209 | OS-110078 | 1992.33 | 1.1146 | 108.9 | 3.8 |
| K210 | OS-112280 | 1992.66 | 1.1243 | 118.5 | 2.5 |
| K211 | OS-110206 | 1993.00 | 1.1111 | 105.3 | 2.2 |
| K212 | OS-112279 | 1993.20 | 1.1027 | 97.0 | 3.8 |
| K213 | OS-110079 | 1993.40 | 1.1033 | 97.5 | 3.7 |
| K214 | OS-112278 | 1993.60 | 1.1212 | 115.3 | 3.1 |
| K005 | OS-96204 | 1993.80 | 1.1200 | 114.1 | 3.3 |
| K215 | OS-112277 | 1994.00 | 1.1152 | 109.3 | 2.5 |
| K216 | OS-110207 | 1994.25 | 1.1099 | 104.0 | 3.5 |
| K217 | OS-112276 | 1994.50 | 1.1188 | 112.8 | 3.6 |
| K218 | OS-110080 | 1994.75 | 1.1126 | 106.6 | 3.4 |
| K219 | OS-112275 | 1995.00 | 1.1227 | 116.6 | 2.5 |
| K220 | OS-110208 | 1995.17 | 1.0983 | 92.3 | 2.2 |
| K221 | OS-112274 | 1995.33 | 1.1236 | 117.5 | 2.6 |
| K004 | OS-96216 | 1995.50 | 1.1124 | 106.3 | 3.5 |
| K222 | OS-112273 | 1995.67 | 1.1123 | 106.2 | 2.5 |
| K223 | OS-110081 | 1995.83 | 1.1020 | 95.9 | 3.2 |
| K224 | OS-112272 | 1996.00 | 1.1215 | 115.3 | 2.5 |
| K225 | OS-110234 | 1996.33 | 1.0961 | 90.0 | 3.0 |
| K226 | OS-112271 | 1996.66 | 1.1075 | 101.3 | 2.6 |
| K227 | OS-110082 | 1997.00 | 1.0967 | 90.5 | 6.2 |
| K228 | OS-114138 | 1997.25 | 1.1022 | 95.9 | 2.2 |
| K003 | OS-96215 | 1997.50 | 1.1050 | 98.7 | 2.8 |
| K229 | OS-112270 | 1997.75 | 1.0984 | 92.1 | 2.6 |
| K230 | OS-110083 | 1998.00 | 1.0983 | 91.9 | 5.7 |
| K231 | OS-112269 | 1998.25 | 1.1112 | 104.7 | 2.9 |
| K232 | OS-110235 | 1998.50 | 1.0909 | 84.5 | 2.5 |
| K233 | OS-112268 | 1998.75 | 1.0993 | 92.8 | 3.2 |
| K234 | OS-110236 | 1999.00 | 1.0996 | 93.1 | 2.8 |
| K235 | OS-112267 | 1999.25 | 1.1072 | 100.6 | 4.0 |
| K002 | OS-96203 | 1999.50 | 1.0949 | 88.4 | 2.8 |
| K236 | OS-114139 | 1999.75 | 1.0952 | 88.6 | 2.2 |
| K237 | OS-110237 | 2000.00 | 1.0903 | 83.7 | 2.5 |
| K238 | OS-112266 | 2000.25 | 1.1036 | 96.9 | 3.7 |
| K239 | OS-110238 | 2000.50 | 1.0889 | 82.3 | 2.5 |
| K240 | OS-112265 | 2000.75 | 1.0963 | 89.6 | 3.8 |
| K241 | OS-110239 | 2001.00 | 1.0906 | 83.9 | 2.3 |
| K242 | OS-112264 | 2001.33 | 1.0896 | 82.9 | 2.4 |
| K001 | OS-96202 | 2001.66 | 1.0910 | 84.2 | 2.8 |
| K243 | OS-114140 | 2002.00 | 1.0949 | 88.0 | 2.2 |
| K244 | OS-114141 | 2002.25 | 1.0907 | 83.8 | 2.2 |
| K245 | OS-110240 | 2002.50 | 1.0890 | 82.1 | 2.4 |

**Appendix II**  List of DIC ∆14C measurements that were used in this study. Linick (1975) was chosen as the source for older survey data because a reassessment of the original 14C data led to more robust values in some cases.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Cruise/Station | Date | Latitude-Longitude | Depth (m) | ∆14C (‰) | Reference |
| Tethys |  |  |  |  | Linick (1975) |
| #1 | 21 Jul 1960 | 15.70°N– 155.37°W | Surface | –18 ± 12 |  |
|  |  |  |  |  |  |
| Swan Song |  |  |  |  | “ |
| #2 | 20 Aug 1961 | 27.45°N–150.58°W | 10 | –4 ± 30 |  |
|  |  |  |  |  |  |
| Lusiad |  |  |  |  | “ |
| #0–5 | 28 May 1962 | 35.08°N–180.00 | Surface | 42 ± 15 |  |
|  |  |  |  |  |  |
| Ursa Major |  |  |  |  | “ |
| #4 | 11 Aug 1964 | 27.35°N–155.00°W | Surface | 148 ± 16 |  |
| #36 | 10 Sep 1964 | 31.48°N–155.00°W | Surface | 123 ± 12 |  |
| #39 | 12 Sep 1964 | 35.02°N–155.00°W | Surface | 137 ± 12 |  |
|  |  |  |  |  |  |
| Zetes |  |  |  |  | “ |
| #I-01 | 11 Jan 1966 | 26°N–155°W | Surface | 136 ± 10 |  |
| #I-03 | 12 Jan 1966 | 28°N–155°W | Surface | 134 ± 9 |  |
| #I-05 | 13 Jan 1966 | 30°N–155°W | Surface | 125 ± 9 |  |
| #I-07 | 14 Jan 1966 | 32°N–155°W | Surface | 127 ± 9 |  |
| #I-09 | 15 Jan 1966 | 34°N–155°W | Surface | 142 ± 10 |  |
|  |  |  |  |  |  |
| Radford |  |  |  |  | “ |
| #12 | 14 Sep 1968 | 32.12°N–157.78°W | Surface | 120 ± 34 |  |
| #13 | 14 Sep 1968 | 30.00°N–157.83°W | Surface | 165 ± 18 |  |
| #14 | 14 Sep 1968 | 28.23°N–157.75°W | Surface | 152 ± 20 |  |
| #15 | 15 Sep 1968 | 26.23°N–157.82°W | Surface | 131 ± 24 |  |
| #16 | 15 Sep 1968 | 24.00°N–157.83°W | Surface | 137 ± 18 |  |
|  |  |  |  |  |  |
| Climax II |  |  |  |  | “ |
| #1 | 7 Sep 1969 | 28.38°N–155.33°W | Surface | 169 ± 20 |  |
| #2 | 10 Sep 1969 | 26.47°N–155.68°W | Surface | 221 ± 15 |  |
| #3 | 10 Sep 1969 | 24.50°N–155.42°W | Surface | 141 ± 14 |  |
| #4 | 20 Sep 1969 | 17.97°N–155.63°W | Surface | 160 ± 11 |  |
| #5 | 21 Sep 1969 | 15.72°N–155.00°W | Surface | 167 ± 9 |  |
|  |  |  |  |  |  |
| NPSC-7 |  |  |  |  | “ |
| #1 | 29 Jun 1970 | 29.98°N–165.02°W | Surface | 169 ± 8 |  |
| #2 | 30 Jun 1970 | 31.00°N–164.45°W | Surface | 111 ± 11 |  |
| #3 | 1 Jul 1970 | 34.00°N–162.80°W | Surface | 145 ± 29 |  |
|  |  |  |  |  |  |
| Hudson 70 |  |  |  |  | “ |
| #26 | 26 May 1970 | 16.02°N–150.03°W | Surface | 131± 6 |  |
| #27 | 27 May 1970 | 20.17°N–150.05°W | Surface | 152 ± 7 |  |
| #28 | 28 May 1970 | 25.00°N–150.02°W | Surface | 194 ± 8 |  |
| #29 | 29 May 1970 | 28.80°N–149.95°W | Surface | 190 ± 7 |  |
|  |  |  |  |  |  |
| Seven-Tow |  |  |  |  | “ |
| #1 | 8 Apr 1970 | 18.07°N–161.45°W | Surface | 176 ±8 |  |
| #2 | 9 Apr 1970 | 15.68°N–164.30°W | Surface | 145 ± 6 |  |
| #26 | 4 Jul 1970 | 23.90°N–156.80°W | Surface | 150 ± 18 |  |
| #27 | 5 Jul 1970 | 23.45°N–155.78°W | Surface | 192 ± 11 |  |
| #28 | 5 Jul 1970 | 27.97°N–155.22°W | Surface | 188 ± 9 |  |
| #29 | 7 Jul 1970 | 30.05°N–156.18°W | Surface | 157 ± 9 |  |
| #31 | 12 Jul 1970 | 33.97°N–161.15°W | Surface | 158 ± 12 |  |
|  |  |  |  |  |  |
| GEOSECS |  |  |  |  | Ostlund and Stuiver (1980) |
| #204 | 5 Sep 1973 | 30.97°N–168.47°W | 13 | 178.4 ± 3.5 |  |
| #213 | 22 Sep 1973 | 31.37°N–150.03°W | 20 | 186.6 ± 3.5 |  |
| #214 | 25 Sep 1973 | 32.02°N–176.98°W | 20 | 145.2 ± 3.5 |  |
| #223 | 20 Oct 1973 | 34.97°N–151.83°W | 10 | 163.2 ± 3.5 |  |
| #235 | 6 Dec 1973 | 16.75°N–161.32°W | 10 | 144.7 ± 3.5 |  |
|  |  |  |  |  |  |
| Alcyone-5 |  |  |  |  | “ |
| NPC | 8 Oct 1985 | 31.00°N–150.00°W | 3 | 136.7 ± 3.0 |  |
|  | 8 Oct 1985 | “ | 20 | 148.6 ± 3.0 |  |
|  | 9 Oct 1985 | “ | 50 | 144.4 ± 2.9 |  |
|  | 10 Oct 1985 | “ | 1 | 151.4 ± 2.9 |  |
|  | 12 Oct 1985 | “ | 1 | 150.5 ± 3.0 |  |
|  | 14 Oct 1985 | “ | 1 | 152.1 ± 2.9 |  |
|  | 17 Oct 1985 | “ | 1 | 148.8 ± 3.5 |  |
|  | 20 Oct 1985 | “ | 1 | 152.5 ± 3.0 |  |
|  | 22 Oct 1985 | “ | 1 | 143.7 ± 2.8 |  |
|  | 25 Oct 1985 | “ | 1 | 151.3 ± 3.0 |  |
|  | 25 Oct 1985 | “ | 20 | 145.2 ± 3.4 |  |
|  | 25 Oct 1985 | “ | 50 | 148.2 ± 3.5 |  |
|  | 29 Oct 1985 | “ | 1 | 136.6 ± 3.0 |  |
|  | 31 Oct 1985 | “ | 1 | 154.0 ± 3.2 |  |
|  | 3 Nov 1985 | “ | 1 | 144.5 ± 3.2 |  |
|  | 5 Nov 1985 | “ | 1 | 143.6 ± 3.4 |  |
|  | 8 Nov 1985 | “ | 1 | 136.7 ± 3.0 |  |
|  |  |  |  |  |  |
| Eve-1 |  |  |  |  | Druffel and Griffin (2008) |
| NPC | 20 Jun 1987\* | 31.00°N–150.00°W | Surface | 134.4 ± 7.4 |  |
|  |  |  |  |  |  |
| Avon |  |  |  |  | Druffel et al. (2008) |
| NPC | 3 Jun 1999\* | 31.00°N–150.00°W | 3 | 95.3 ± 3.9 |  |
|  | “ | “ | 20 | 77.3 ± 3.9 |  |
|  | “ | “ | 50 | 94.9 ± 3.9 |  |
|  |  |  |  |  |  |
| WHP-P03 |  |  |  |  | Kumamoto et al. (2013) |
| 114 | 17 Nov 2005 | 24.28°N–155.96°W | 10 | 58.9 ± 3.7 |  |
|  |  | “ | 50 | 48.9 ± 3.7 |  |
| 173 | 3 Dec 2005 | 23.39°N–170.74°W | 10 | 70.9 ± 3.4 |  |
|  |  | “ | 50 | 70.5 ± 3.4 |  |
| 189 | 6 Dec 2005 | 24.24°N–176.76°W | 10 | 56.5 ± 3.4 |  |
|  |  | “ | 50 | 72.4 ± 3.3 |  |
| X14 | 8 Dec 2005 | 23.99°N–179.00°W | 10 | 68.8 ± 7.7 |  |
|  |  | “ | 50 | 66.2 ± 7.3 |  |
|  |  |  |  |  |  |
| WHP-P14 |  |  |  |  | “ |
| 56 | 5 Nov 2007 | 34.49°N–178.99°E | 10 | 59.5 ± 3.4 |  |
|  |  |  | 50 | 61.4 ± 3.4 |  |
| X02 | 7 Nov 2007 | 29.99°N–178.95°E | 10 | 56.4 ± 3.4 |  |
|  |  |  | 50 | 65.9 ± 3.2 |  |
| 77 | 11 Nov 2007 | 24.01°N–178.99°E | 10 | 64.3 ± 3.5 |  |
|  |  |  | 50 | 74.6 ± 3.7 |  |
| 87 | 13 Nov 2007 | 19.01°N–178.99°E | 10 | 65.6 ± 4.4 |  |
|  |  |  | 50 | 63.2 ± 4.4 |  |

\* Median date of sample series.

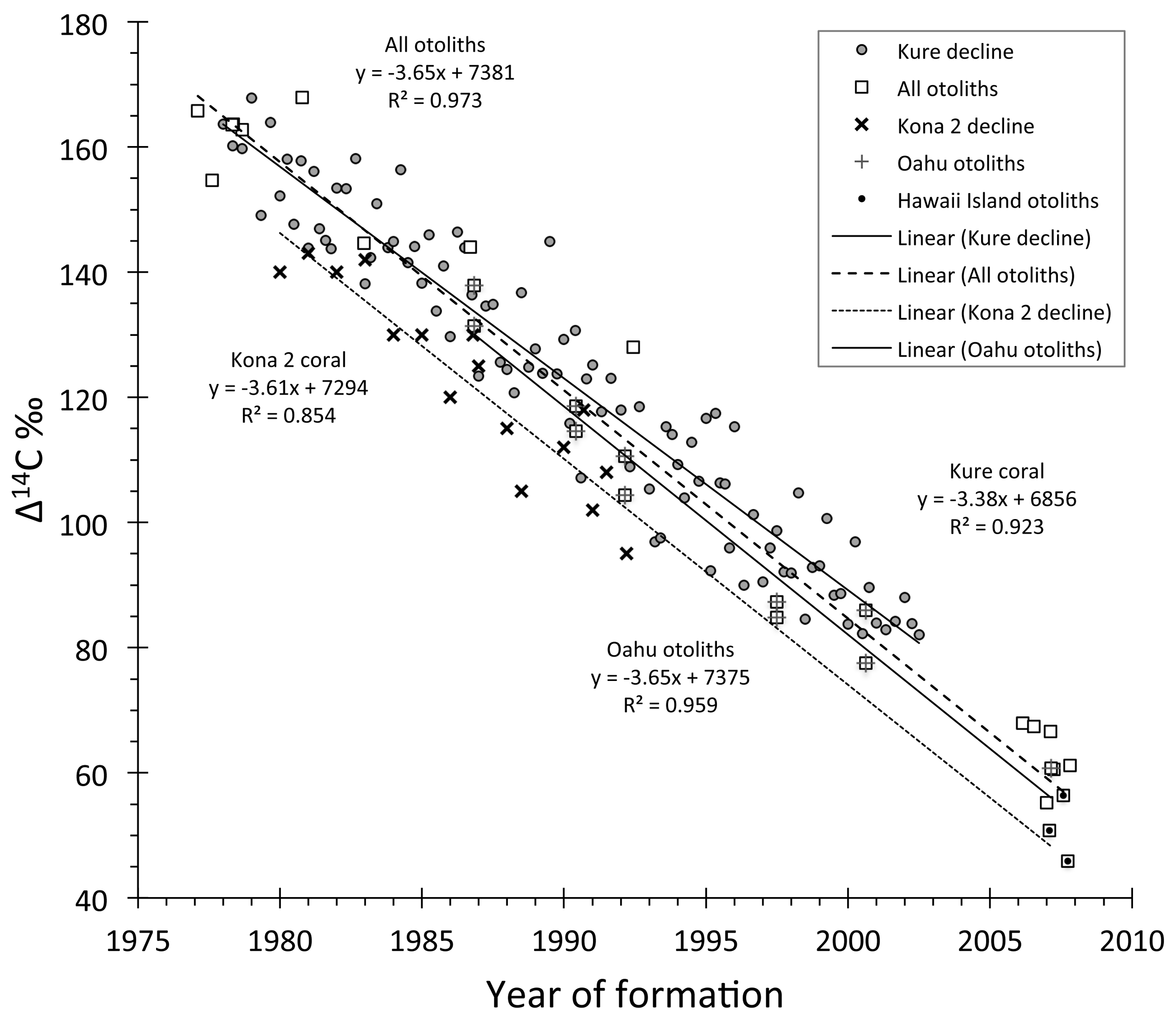
**Supplemental Material – otolith and coral ∆14C decline records**

The regional interrelationships between the MHI and NWHI otolith and coral ∆14C records during the decline period can be described in an exploratory manner. Due to limited sample and data availability, and differences in coverage of the full decline timespan, only preliminary tests for decline differences or similarities can be performed (Supplemental Figure A).

Between the extremes of the coral ∆14C records for the Hawaiian Archipelago, differences in the ∆14C decline period for Kona 2 and Kure Atoll can be compared for differences in the ∆14C decline period. While the ∆14C decline slopes were indistinguishable (ANCOVA, n=113, *P* = 0.623), the intercepts differed significantly, with ∆14C values from Kure Atoll consistently elevated relative to Kona 2 levels (ANCOVA, *P* < 0.0001). The mean offset of the Kona 2 decline record (representing the intercept differences) was ~3 to 4 years older than the Kure Atoll record across a shorter ∆14C-decline age calibration range of 100–140‰ (1980–1992). An extension of the Kona 2 trend is consistent with 3 of the most recent otolith references from Hawaii Island (51.0 ± 5.3‰) and considerably lower than 3 otolith references from a similar time period at Gardner Pinnacles (64.3 ± 3.7‰), suggesting that the offset has continued thru recent years.

Otolith decline records from Oahu and FFS/Gardner provided sufficient samples to test for differences between these geographically distinct regions of the Hawaiian Archipelago and the NPG. The Oahu samples were all pink Hawaiian snapper, with a series of date-replicated samples ranging from 1986 to 2007 (n = 11, y = –3.65x + 7375, R2 = 0.959). The FFS/Gardner group consisted of 6 Hawaiian grouper and 3 pink Hawaiian snapper ranging from 1977 to 2007 (n = 9, y = –3.41x + 6924, R2 = 0.970). While the slopes of the ∆14C declines were indistinguishable (ANCOVA, *P* = 0.551), the intercepts differed, with ∆14C in the FFS/Gardner samples consistently elevated through time relative to Oahu (ANCOVA, *P* = 0.016). The mean offset of the Oahu otolith decline record was ~1 to 3 years earlier than the FFS/Gardner record across a ∆14C-decline age calibration range of 60–160‰.

Within the MHI, the otolith records from Oahu appear to be slightly elevated relative to the Kona 2 coral ∆14C-decline series. An approximation of the Kona 2 ∆14C decline period (n = 16, y = –3.61x + 7294, R2 = 0.854) was made using digitized data from Figure 8 of Roark et al. (2006). While the ∆14C decline slopes were indistinguishable (ANCOVA, *P* = 0.938), the intercepts were significantly different with ∆14C in the Oahu samples consistently elevated relative to Kona 2 (ANCOVA, *P* = 0.006). The mean offset of the Kona 2 decline record was ~2 years earlier than the Oahu otolith record across a ∆14C-decline age calibration range of 60–160‰.



Supplemental Figure A. Plots of coral and otolith ∆14C decline records from across the Hawaiian Archipelago, with linear regressions noted for each of the 4 sample series.