

CRC REEF RESEARCH TECHNICAL REPORT

VARIABILITY IN GROWTH CHARACTERISTICS OF MASSIVE *PORITES* ON THE GREAT BARRIER REEF

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A Report funded by the CRC Reef Research Centre

The CRC Reef Research Centre was established under the Australian Government's Cooperative Research Centres Program. The Centre provides strategic scientific information, education and training to enhance reef-based industry and management of the Great Barrier Reef World Heritage Area.

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National Library of Australia Cataloguing-in-Publication entry

Variability in growth characteristics of massive *Porites* on the Great Barrier Reef.

Bibliography.

Includes index.

ISBN 1 876054 28 X

1. *Porites* - Queensland - Great Barrier Reef. 2. Corals - Queensland - Great Barrier Reef. 3. Corals - Growth. 4. Corals - Ecology. I. Lough, J.M. II. Cooperative Research Centre for the Great Barrier Reef World Heritage Area (Australia). (Series: CRC Reef Research technical report; 28).

593.609943

This publication should be cited as:

Lough, J.M., Barnes, D.J., Devereux, M.J., Tobin, B.J., & Tobin, S. (1999)

*Variability in growth characteristics of massive *Porites* on the Great Barrier Reef.*

CRC Reef Research Centre

Technical Report No. 28.

Townsville; CRC Reef Research Centre, 95 pp.

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Published by the Cooperative Research Centre for the Great Barrier Reef World Heritage Area
? 1999

Further copies may be obtained from CRC Reef Research Centre, c/- James Cook University Post Office, Townsville, QLD 4811.

Printed by James Cook University.

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FOREWORD

Corals belonging to the genus *Porites* exhibit one of the most simple growth forms within a class of organisms which is second only to sponges in its primitive simplicity of body structure. One might think that this, together with the facts that growth is one of the most fundamental of biological processes, and corals are among the best studied of all reef animals, would mean that growth in *Porites* was well understood and that it could all be summarised in just a few pages. Janice Lough and Dave Barnes have made careers out of demonstrating the fallacy of this assumption. In this CRC report Lough and Barnes gather together the basic growth data for over 350 coral colonies scattered between PNG and the southern GBR. This is an extraordinary data set and represents a resource to other coral growth researchers which is often not available in such rich detail due to the constraints imposed by publishers of international science journals.

By virtue of the great age which *Porites* can attain, and their tendency to lay down alternate bands of high and low density skeleton, these corals have the potential to reveal an incredible amount of information about past environmental conditions. Unlocking the information contained in skeletal records requires a good understanding of how growth characteristics can change between colonies at scales from an individual reef to half a continent. The extensive data set analysed in this report indicates that growth characteristics can change significantly from north to south along the GBR and across the continental shelf. They also demonstrate the importance of temperature in determining extension and calcification rates. This knowledge is essential when extracting long-term trend data on coral health and climatic variables from small coral samples at different locations - a situation many other researchers find themselves in.

The larger research effort by Barnes & Lough, of which this report is just a small part, is making a significant contribution to our understanding of how coral are affected by long-term climatic trends, and geographic location. This information is vital to managers who need to predict how corals will react to and recover from perturbations at smaller scales caused by human activity. In essence their data provide the kind of baseline needed to put modern activities and impacts into context.

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EXECUTIVE SUMMARY

Annual density banding patterns in massive coral skeletons provide a means to “retrospectively monitor” growth characteristics of massive corals on the Great Barrier Reef (GBR). We have analysed annual growth characteristics for colonies of the major reef-building genus, *Porites*, collected from shallow water (< 5 m) over 14° of latitude (1500 km), and from the coast to 200 km offshore. Growth characteristics have been extracted for 357 colonies and 35 cores. This provides information about geographic variation in the performance of this major reef-building coral and the natural range in *Porites* performance over space and time. This provides baseline data against which the significance of observed or suspected natural and unnatural changes in reef environments can be assessed.

Major findings of this study of colonies of *Porites* from shallow water are:

- ?? Growth characteristics of *Porites* colonies from the GBR show a high degree of variability in space and time. Despite this variability there is evidence of broad scale geographic patterns.
- ?? Some growth characteristics varied significantly with latitude: extension and calcification were lowest and effective tissue layer thickness was highest in the southern GBR
- ?? Linear extension and calcification were significantly and directly correlated with latitudinal variations in average sea surface temperature.
- ?? Linear extension and calcification were not linked with latitudinal variations in solar radiation, rainfall, river flow or tropical cyclone activity. Lack of linkage with solar radiation arose because these shallow water *Porites* would have been light saturated through most of the day.
- ?? Some growth characteristics varied significantly from inshore to offshore sites: effective tissue layer thickness and average skeletal density were highest at offshore sites and lowest at inshore sites whilst extension was highest at inshore and lowest at offshore sites.
- ?? There were significant differences in some growth characteristics with colony size and age: tissue layer thickness, effective tissue layer thickness and annual extension were significantly higher and average skeletal density was significantly lower in the larger and older coral cores compared with the smaller and younger coral colonies.
- ?? Some growth characteristics varied significantly from the top to the sides of colonies: tissue layer thickness, high-low density, extension and calcification were significantly higher when measured along the most vertical colony growth axis compared with the near horizontal track (at the side) of the colony.

- ?? Massive *Porites* colonies should be identified to species level before they are used in recovery of environmental information. *Porites solida* is significantly denser than the 5 other species of massive *Porites* from the GBR. *Porites mayeri* tends to be the least dense species.
- ?? Data reported here fit well with the Townsville model of *Porites* growth in which annual density variations are due to thickening of skeletal elements below the outside surface of colonies.

INTRODUCTION

One of the problems in studying, assessing and, perhaps, managing change in a marine ecosystem, such as the Great Barrier Reef (GBR), is lack of knowledge about the natural range of spatial and temporal variability expressed by its constituent organisms. Detailed observations and measurements of the GBR, as with other coral reef systems, began only about 20 years ago. Systematic monitoring programs have been instigated only within the past decade. Any trends or variations observed within recent decades may be due to natural environmental change or to natural variations in the system, or they may be responses to increasing anthropogenic stress. Unnatural change in reef environments will be recognised with certainty only when it can be distinguished from natural variability. Climatic change and human activities in the near-shore zone have raised concerns for coral reefs (see, for example, Brown & Howard, 1985; Hopley, 1988; Ginsburg, 1994; Wilkinson & Buddemeier, 1994). Such concerns have highlighted the importance of making use of the histories of coral growth stored in massive corals (eg D'Elia *et al.*, 1991; Smith & Buddemeier, 1992). The discovery of annual growth bands in massive corals as revealed by X-radiography (Knutson *et al.*, 1972) "...rendered almost trivial the previous unsolved problem of measuring long-term growth rates and growth histories retrospectively..." (Buddemeier & Kinzie, 1976). Such records allow us to establish the "expected" performance of massive corals over time and across different environments. Such baseline data makes it possible to distinguish natural variability from unnatural change. Coral growth records, which can extend back 100s of years, provide information about how massive corals have responded to natural and unnatural changes in their environment.

Previous studies of *Porites* growth on the GBR have shown that growth characteristics measured from density banding patterns vary along environmental gradients with change in environment and over time (see Barnes & Lough, 1996; Lough & Barnes, 1997, for recent reviews). Isdale (1983) found that linear extension of *Porites* decreased from inshore to offshore locations in the central and northern regions of the GBR and was highest in the more northerly regions. Risk & Sammarco (1991) found that skeletal density in *Porites* increased with distance from shore in the central GBR and suggested this reflected higher calcification rates at less turbid, more turbulent, offshore reef sites. Lough & Barnes (1992) measured both extension and density in *Porites* along an inshore-offshore transect in the central GBR (~18.3°S). The transect comprised Pandora, Rib and Myrmidon Reefs which are 16, 60 and 120 km from shore, respectively. They found that annual calcification, the product of annual extension and average annual density (see Chalker *et al.*, 1985), decreased with distance from

shore and was distinctly lower at Myrmidon Reef, which lies at the margin of the continental shelf.

In this report we provide average growth characteristics for massive colonies of the common reef-building coral *Porites* from the length and breadth of the GBR. We report on 264 small (0.1 to 0.5m) *Porites* colonies from 31 reefs on the GBR (Fig. 1; Table 1) and 35 cores obtained from very large (1.6 to 8.0m) *Porites* colonies (Fig. 2; Table 2). These data are supplemented by growth characteristics for (a) 93 *Porites* colonies from the fringing reef at Misima Island, Papua New Guinea (PNG; Fig. 3, Table 1), (b) 2 modern and 6 recent (6-8,000 year-old) *Porites* colonies from the Huon Peninsula, PNG (Table 1) and (c) 7 cores from very large *Porites* colonies from near Darwin, PNG and Tahiti (Table 2). Coral cores were collected by Dr P.J. Isdale of Australian Institute of Marine Science (AIMS). Coral colonies from Misima Island were collected by Misima Mines Pty. Ltd. and analysed as part of their Environmental Monitoring Program. Dr J. Pandolfi (then at AIMS) collected the corals from the Huon Peninsula. Mr Andy Steven (then at Great Barrier Reef Marine Park Authority) collected the corals from One Tree Island in the extreme south of the GBR as part of his PhD work at James Cook University.

This report provides information about geographic variations in the performance of massive *Porites*, a major reef-building coral in the GBR region. Species of massive *Porites* are most commonly used in coral environmental record studies. Around 40% of all coral record papers report studies with *Porites*. The next most commonly used genus is the Atlantic coral, *Montastrea annularis*. Around 20% of all coral record papers report studies with *Montastrea annularis* (*Porites* does not form massive colonies in the Atlantic).

This study was aimed at gaining better understanding of the geographical variations in growth performance of *Porites* in the GBR region. Variation of *Porites* growth on the GBR over several centuries has been reported previously (Lough & Barnes, 1997). Most importantly, this study was intended to provide a baseline against which to assess variations in the performance of *Porites* on the GBR (and, perhaps, elsewhere), and against which to judge any apparent anomalies and changes in the performance of *Porites*.

This report brings together all measurements of *Porites* growth characteristics from the GBR region and consists of:

1. A description of the methods used to obtain average annual growth characteristics from the density banding patterns in massive corals.
2. A summary of environmental conditions along the length of the GBR.
3. A summary of average coral growth characteristics by region along the GBR.

Appendix A provides detailed information about collection of coral colonies.

Appendix B gives average growth characteristics for each of the colonies (n=365).

This report is supplemented by a database containing all annually dated growth measurements for the colonies and cores, available, on request, from the authors.

MATERIALS AND METHODS

Coral colonies

Whole colonies of *Porites*, between ~0.2 and 0.5 m in height, were collected from depths of 3-5 m relative to mean low water spring tide levels from various reefs on the Great Barrier Reef (GBR; Fig. 1, Table 1; Lough and Barnes, 1992). We tried to collect 3 colonies of each of the 5 massive species of *Porites* at each site. Between 6 and 15 colonies were collected from each site. This collection was supplemented by 93 colonies of massive *Porites* collected from Misima Island, Papua New Guinea (PNG; Lough *et al.*, 1995; Barnes & Lough, in press). Andy Steven (then at the Great Barrier Reef Marine Park Authority) collected 10 small colonies of *P. lobata* (0.09-0.16 m high) from One Tree Island (Steven, 1998; in prep.). John Pandolfi (then at AIMS) collected 2 living and 6 recent (estimated to be 6-8000 years old) *Porites* colonies from the Huon Peninsula. Further details of these collections are given in Appendix A. Andy Steven identified colonies from One Tree Island; all other colonies were identified to species by Monty Devereux (AIMS).

Coral cores

The Australian Institute of Marine Science began collecting cores from very large massive colonies of *Porites* in the early 1980s. An underwater pneumatic drilling rig (Isdale & Daniel, 1989) was used to extract cores in 700-800 mm lengths. Holes left in colonies were sealed with a concrete plug. Early coral cores were 50 mm in diameter; later cores were 90 mm in diameter. Once extracted, cores-lengths were washed in fresh water, dried in trays,

coded and transported to the laboratory. Core-lengths were then mounted and 6-7 mm thick slices were sawn from close to their central axes. As far as possible, core-lengths comprising a single core were aligned such that slices were removed from the same axis. Normally we were not able to identify cores to species level because of damage to the calicinary surface caused during drilling. Data is presented here for 35 cores from the GBR (Fig. 2; Table 2) supplemented by 7 *Porites* coral cores collected from northern Australia, near PNG and Tahiti (see “Other sites” in Table 2).

Coral sample preparation and density measurements

Coral colonies were cut in half with a chain saw fitted with a masonry blade. Fresh water was played onto the blade during cutting. One half of the colony was placed on the moveable bed of a circular masonry saw and at least two, 6-7 mm thick slices were removed from the centre. The circular saw blade was lubricated by fresh water. With the exception of colonies from the central transect of the GBR, slices represented the colony diameter. Colonies from the central transect were too big to pass through the saw which was then available. These colonies were first cut into quarters and the slices represented half the colony diameter (see Lough & Barnes, 1990a).

Colony slices and cores slices were air-dried and X-radiographed. An X-ray positive was used to identify the position of tracks along which density was to be measured. Tracks were positioned along regions with the best-defined density banding pattern. We avoided imperfections in the slices due to, for instance, boring organisms. We also aligned the tracks so that they followed, as far as possible, an individual corallite fan - thus minimizing density variations between and across corallite fans. Three densitometric tracks were selected on slices from the 254 colonies we collected from the GBR (ie, all GBR colonies, excluding those collected by Andy Steven from One Tree Island). All tracks started close to the origin of the colony. Two of the tracks were usually close to the vertical (upward) growth axis of the colony. A third track was directed towards the side of the colony, usually along a horizontal or nearly horizontal growth axis (see Lough & Barnes, 1990a, 1992). Measurements were made along 1-2 more or less vertical tracks on the small colonies from One Tree Island. Two tracks close to the vertical growth axis were measured on the colonies from Misima Island. A single track was measured down the length of coral cores.

Density was measured along each track using a gamma densitometer. The density measurements were based on the attenuation, through the thickness of the coral slice, of a beam of gamma photons (see Lough & Barnes, 1992 for a full description of the measurement system). Density measurements were made using a 4 mm diameter collimated beam (see

Lough & Barnes, 1990b) at 0.254 mm intervals along the selected track. A data series of absolute density vs. distance along the slice was generated for each track (see example in Fig. 4).

The corals were not bleached and the tissue formed a dark band at the outside of each skeletal slice. The thickness of this band was measured where it was crossed by a densitometric track. This provided a measure of the depth to which skeleton was occupied by tissue (Barnes & Lough, 1992). This measurement is known as the thickness of the tissue layer (*ttl*).

Dating and extraction of coral density variables

In dating the annual density bands we have assumed that high density bands form in (austral) summer and low density bands form in winter (see Lough & Barnes, 1990a, 1992). Based on this assumption and the date of collection of a particular sample, high density bands were successively dated backwards from the outside edge of the coral colony or core. The complex 3-dimensional architecture of the coral skeleton often distorts and confuses the density image presented by X-radiography and the density signal resulting from gamma densitometry (Barnes *et al.*, 1989; Barnes & Lough, 1990; Lough & Barnes, 1992). This sometimes can introduce uncertainties into dating of density peaks. A subjective index was used to describe the confidence in dating each specimen (see Lough & Barnes, 1992). A value of 1 indicates reasonable confidence that all annual growth layers were identified and correctly dated. A value of 2 indicates general confidence about dating while recognizing that problems may have occurred in 1 or 2 years. A value of 3 indicates low confidence in dating because of difficulties with identifying several to many of the annual growth bands. We present and analyse here only coral colonies with dating categories 1 and 2. In Appendix B colonies assigned to dating category 1 are flagged by *; all other colonies are assigned to category 2.

Ten variables were obtained from each density track and dated year (more detail is given in Fig. 2, Lough & Barnes, 1992):

1. annual average density (A_{den} ; $\text{g.cm}^{-3}.\text{yr}^{-1}$)
2. high density (H_{den} ; $\text{g.cm}^{-3}.\text{yr}^{-1}$)
3. low density (L_{den} ; $\text{g.cm}^{-3}.\text{yr}^{-1}$)
4. annual density range; high minus low density ($H-L_{den}$; $\text{g.cm}^{-3}.\text{yr}^{-1}$)
5. annual extension rate measured as the distance between successive high density maxima ($H-H_{dist}$; mm.yr^{-1})
6. extension from high density maximum to low density minimum ($H-L_{dist}$; mm.yr^{-1})[‡]
7. extension from low density minimum to high density maximum ($L-H_{dist}$; mm.yr^{-1})^{*}
8. annual calcification rate - the mass of CaCO_3 deposited per unit area per year – the product of average annual density and annual extension ($calcn$; $\text{g.cm}^{-2}.\text{yr}^{-1}$).
9. depth of the living tissue layer (ttl ; mm)[†].
10. effective tissue layer thickness = $ttl/H-H_{dist} = \text{mm/mm.yr}^{-1} = \text{yr}$; see Taylor *et al.*, 1993 (etl ; yr)[†].

Rejection of coral specimens

Samples were rejected when it proved difficult to extract reliable density variables because densitometer traces could not be dated with confidence (ie category 3 dating). Colonies were also rejected at earlier stages of analysis. For example, examination of the X-ray positives sometimes led to a sample being rejected because the annual banding pattern was not clearly displayed due to, for example, bore holes, convolutions in the growth surface, etc. (see Fig. 1 in Lough & Barnes, 1992). Including colonies assigned to category 3 dating, we rejected 18% of the 444 colonies collected.

[‡] Assuming high density forms in summer and low density in winter, $H-L_{dist}$ represents the distance grown from the winter to the following summer (see Fig. 2 in Lough & Barnes, 1992).

^{*} Assuming high density forms in summer and low density in winter $L-H_{dist}$ represents the distance grown from the summer to the following winter (see Fig. 2 in Lough & Barnes, 1992).

[†] ttl and etl are based upon the thickness of the tissue layer at the time that the colonies were collected. It is not possible to determine tissue thickness across the length of the density record.

Identification of coral specimens

AIMS uses the following labeling codes for coral cores:

XXX YY Z where XXX is 3 letter reef code
 YY is 2 digit coral colony (bommie) number
 Z is 1 letter identification for different cores from same coral

(eg PAN 04 B is a core from Pandora Reef, colony number 04, core B; see Table 2)

AIMS uses the following labeling codes for coral colonies:

XXX B YY where XXX is 3 letter reef code
 YY is 2 digit colony (bommie) number
(eg DOU B06 is colony 06 from Double Island).

Where more than 1 slice is taken from a core or colony, the label *Sn* is added to the code to indicate the slice number (eg S2 indicates slice 2). Slices are numbered sequentially from the first slice removed.

Environmental data

Monthly sea surface temperatures (SSTs) for 1° squares were obtained from the Integrated Global Ocean Services System (IGOSS) data set of the National Meteorological Center (NMC; available from <http://ingrid.ldgo.columbia.edu>). These are a blend of data from ship, bouy and bias-corrected satellite measurements. Average monthly mean SSTs were extracted for the period 1982-1997 for fourteen, 1° squares covering the length of the GBR from 10.5°S, 143.5°E to 23.5°S, 151.5°E.

Monthly mean (1949-1979 base period) values of incoming solar radiation for 2° squares were obtained from the Global Ocean Surface Temperature Atlas Plus (GOSTAPlus). These values are calculated as follows (see Bottomley *et al.*, 1990, p.11):

$$\text{Incoming solar radiation} = Q_0 (1 - 0.62C + 0.0019?) (1 - A)$$

where Q_0 = total radiation received at surface in W.m^{-2} when sky is clear
 C = cloud cover in tenths (as observed by “ships of opportunity”)
 $?$ = solar noon altitude
 A = oceanic albedo

Monthly mean values of incoming solar radiation were obtained for the seven, 2° latitude by 4° longitude blocks along the GBR from 10-12°S, 140-144°E to 22-24°S, 150-154°E.

Monthly rainfall totals were obtained from the Australian Bureau of Meteorology for stations along the Queensland coast. Data from several stations were combined to form four coastal district rainfall series centred on the following latitudes: Region 1 ~12°S, Region 2 ~17°S, Region 3 ~20°S and Region 4 ~24°S (see Lough, 1994, 1998).

Estimates of the annual volume of river flow from the Queensland drainage basins entering the GBR were obtained from the Department of Natural Resources, Queensland. Estimates of annual volume of flow were summed by 1° latitude bands along the Queensland coast.

Details of tropical cyclone activity were obtained from Lourensz (1981) for the period up to 1980 and from the Australian Meteorological Magazine for more recent years. A tropical cyclone in the Australian region is defined when average wind speeds associated with a low pressure centre are at least 63km.hr⁻¹. Each day while a tropical cyclone remains within a specified area is defined as a tropical cyclone day. Counts were made for each year, over the period 1958-1992, of the total number of tropical cyclones and total number of tropical cyclone days for each 2° latitude band, between 10-12°S and 22-24°S, and extending 220km out from the coast, (see Lough, 1994,1998).

Analyses

The mean and standard deviation were used to describe coral growth characteristics and their variability. Growth characteristics for coral colonies were averaged for a common period for each collection. These base periods, varying in length from 10-17 years, are identified in Appendix B. The earliest start year for the base periods is 1972 for the southern GBR collection and the latest end year is 1995 for colonies from One-Tree Island. For the analysis of the 250 similar-sized colonies on the GBR, the base periods for the 5 different collections have at least 8 years in common. Analyses of growth characteristics are based on averages over the respective base periods of 10-17 years in length – mainly from the mid-1970s to late 1980s. It is unlikely that these minor differences in base periods would significantly bias the analyses of spatial variations. Growth characteristics for the coral cores were averaged for the common period 1934-1982. Comparisons of growth characteristics within and between reef locations were made using ANOVA. The correlation coefficient was used to assess the degree of similarity between different growth variables and between coral growth variables and environmental variables.

RESULTS

Environmental conditions along the GBR

Porites growth characteristics have been obtained from colonies collected or sampled along the length (10°-24° S) of the Great Barrier Reef (GBR). Variations in average climatic conditions along the length of the GBR provide a background against which to assess spatial variations in coral growth (further climate information is given by Lough (1994, 1998).

Sea surface temperatures (SSTs) on the GBR (10°-24° S) vary seasonally from >29° C to <21° C (Fig. 5a). North of ~20° S, average annual SSTs are >26° C and the annual range is <5° C. South of ~20° S, average annual SSTs are < 25° C and the annual range is >6° C. Incoming solar radiation on the GBR varies seasonally from >260 W.m⁻² to <160 W.m⁻² (Fig. 6a). Average annual solar radiation is highest south of ~18° S (>200 W.m⁻², Fig. 6b) because, further north, solar radiation is modulated by increased cloud cover during the summer wet season. The seasonal maximum in solar radiation occurs in October-December. Annual rainfall is concentrated into the summer half of the year (October to March) in all regions adjacent to the GBR (Fig. 7). Rainfall in all regions exhibits very high inter-annual variability (illustrated by the large decile ranges in Fig. 7). Rainfall is highest in coastal regions north of ~20° S. Annual freshwater input to the GBR from rivers is concentrated in the belt from ~17-20° S (Fig. 8). As with rainfall, year-to-year variability of river flow is extremely high. Furnas *et al.* (1997) estimated that average freshwater discharge into the GBR was ~42km³.yr⁻¹ over the period 1958-1992. The maximum discharge over this period was estimated to be ~120km³.yr⁻¹ in 1974; the minimum was estimated to be ~12km³.yr⁻¹ in 1987. Waves and winds associated with tropical cyclones are another source of disturbance to reef communities (eg Massel & Done, 1993; Done, 1997). On average, the amount of tropical cyclone activity along the GBR peaks in the belt 16-18° S (Fig. 9; see Puotinen *et al.*, 1997 for more details of tropical cyclone movements along the GBR).

Average growth characteristics of *Porites*

Analyses of average *Porites* growth characteristics have been presented previously for 25 colonies from the central GBR transect (Lough & Barnes, 1992), for 35 long cores of the GBR (Lough & Barnes, 1997) and for 93 colonies from Misima Island (Lough *et al.*, 1995; Barnes & Lough, in press). The *Porites* colonies from Misima Island were collected to test whether a change in the environment due to mining activities altered *Porites* growth characteristics. Extension, density and calcification of these colonies showed no significant effect that could be associated with mining activities (Barnes & Lough, in press). Tissue layer thickness was the only variable that showed a change that could be linked with proximity to mining activities. Thus, it seemed reasonable to include this data set in the

analysis of geographical patterns of *Porites* growth. Here we present analyses of *Porites* growth characteristics for:

1. 250 similar-sized *Porites* colonies collected along the GBR. These comprise the 139 colonies from the northern, central and southern transects, 90 colonies from the Cairns-Cape Melville transect and 21 colonies from Mission Beach.
2. 357 *Porites* colonies collected over latitudes from Misima Island, PNG, in the north to One-Tree Island in the south. These comprise the 250 colonies mentioned above (1), 93 colonies from Misima Island (Lough *et al.*, 1995; Barnes & Lough, in press), 4 colonies from Ashmore Reef and 10 colonies from One-Tree Island (see Table 1).
3. 35 cores extracted from very large (>1.6 m high) *Porites* colonies from locations covering the length of the GBR (Lough & Barnes, 1997).

Average growth characteristics for all 357 coral colonies, summarized by reef (or transect for Misima Island) are presented in Table 3. Equivalent data for the 35 coral cores are presented in Table 4.

Average growth characteristics of 250 similar-sized *Porites* colonies on the GBR

Variation with species (250 colonies)

Five species of *Porites* were represented in the 250 colonies; *P. lobata*, *P. lutea*, *P. australiensis*, *P. mayeri* and *P. solida*. The 5 species comprised 56%, 25%, 8%, 6% and 4%, respectively, of the 250 colonies. Analyses of data for the most vertical track (track 1) showed significant species-related differences in 4 of the 10 growth parameters. These were effective tissue layer thickness ($F = 3.32$, $p = 0.01$), average annual density ($F = 5.98$, $p < 0.00$), average high density ($F = 6.26$, $p < 0.00$) and average low density ($F = 5.43$, $p < 0.00$). Effective tissue layer thickness was highest in *P. australiensis* (0.52 ± 0.20) and lowest in *P. lobata* (0.41 ± 0.14) (if either of these 2 species were excluded from the analysis there was no significant difference amongst the remaining 4 species). Average annual density (and high and low density) was highest in *P. solida* ($1.46 \pm 0.21 \text{ g.cm}^{-3}.\text{yr}^{-1}$) and lowest in *P. mayeri* ($1.21 \pm 0.14 \text{ g.cm}^{-3}.\text{yr}^{-1}$). If *P. solida* was removed from the analyses there was no significant difference in average density amongst the remaining four species but if *P. mayeri* was removed there was still a significant difference in average density of the remaining 4 species ($F = 6.74$, $p < 0.00$).

Variation around colonies (250 colonies)

The average height of the 250 colonies was 360 ± 94 mm, average width was 447 ± 101 mm and average height to width ratio was 0.82 ± 0.17 . Thus, on average, these colonies were nearly 20% wider than they were tall. Six of the 10 growth characteristics showed significant differences between the 3 tracks on a coral slice. These were calcification ($F = 33.49$, $p < 0.00$), tissue layer thickness ($F = 25.19$, $p < 0.00$), high-low density ($F = 6.09$, $p < 0.00$), annual extension ($F = 26.35$, $p < 0.00$), high-low extension ($F = 27.11$, $p < 0.00$) and low-high extension ($F = 15.95$, $p < 0.00$). Values for track 1 (most vertical) averaged 15%, 13%, 10%, 16%, 17% and 14%, respectively, higher than values for track 3 (horizontal or near horizontal) for these six growth variables. The other four variables; effective tissue layer thickness, density, high density and low density showed no significant difference with location of the measurement around the coral colonies.

Sub-annual variations in extension and density (250 colonies)

High-low extension (6.6 ± 1.8 mm.yr⁻¹) was significantly different to low-high extension (6.4 ± 1.7 mm.yr⁻¹) when track 1 data was examined for all 250 colonies ($t = 2.55$, $p = 0.01$). Thus, there was a slight (3%) skewing of the annual density profile. Variations in high and low density were much the same as variations in average density. Similarly, variations in high-low and low-high extension were much the same as variations in average extension. Consequently, these four parameters for the “250 coral collection” are not considered further.

Variation from inshore to offshore location (250 colonies)

Of the 250 colonies, 49% came from inshore locations, 33% from midshelf locations and 18% from offshore locations. When analysed by shelf location (the variable IMO: Inshore, Midshelf or Offshore), 4 of the 6 growth variables showed significant differences. These were effective tissue layer thickness ($F = 6.99$, $p < 0.00$), average density ($F = 30.86$, $p < 0.00$), high-low density ($F = 11.06$, $p < 0.00$) and annual extension ($F = 9.23$, $p < 0.00$). Effective tissue layer was highest at offshore sites (0.50 ± 0.16 yr) and lowest at inshore sites (0.41 ± 0.16 yr). Average density was also highest at offshore sites (1.40 ± 0.16 g.cm⁻³.yr⁻¹) and lowest at inshore sites (1.22 ± 0.14 g.cm⁻³.yr⁻¹). High-low density was highest at inshore sites (0.13 ± 0.04 g.cm⁻³.yr⁻¹) and lowest at offshore sites (0.11 ± 0.04 g.cm⁻³.yr⁻¹). Annual extension was highest at inshore sites (13.7 ± 3.5 mm.yr⁻¹) and lowest at offshore sites (11.6 ± 3.0 mm.yr⁻¹). There was no significant difference in calcification or tissue layer thickness with inshore to offshore location.

Variation from north to south location on the GBR (250 colonies)

The six growth characteristics were averaged for nine latitude bands between 12-13°S and 21-22°S (no data were available for 19-20°S; Fig. 10). All six variables showed significant differences with latitude: tissue layer thickness ($F = 5.23$, $p < 0.00$), effective tissue layer thickness ($F = 6.28$, $p < 0.00$), average density ($F = 11.15$, $p < 0.00$), high-low density ($F = 7.10$, $p < 0.00$), annual extension ($F = 10.97$, $p < 0.00$) and calcification ($F = 14.11$, $p < 0.00$). Tissue layer thickness, effective tissue layer thickness and average density were all highest in the central GBR, 18-19°S (Fig. 10a, b & c). Annual extension and calcification were both lowest in the southern GBR (Fig. 10e and f).

Relationships between growth variables (250 colonies)

Interrelationships between growth variables were examined by correlating values for the six growth parameters for all 250 colonies together with the latitude, distance offshore and height of colony (Table 5).

Tissue layer thickness was significantly, though weakly, correlated with calcification and colony height. Inverse correlations of tissue layer thickness with latitude and distance offshore were not significant when allowance was made (using partial correlations) for the high correlation between latitude and distance (ie colonies from further south tended to have been collected further offshore).

Effective tissue layer thickness was significantly correlated with average density and significantly inversely correlated with annual density range, annual extension and calcification. Allowing for the correlation between distance and latitude, effective tissue layer thickness was significantly, though weakly, correlated with distance offshore.

Average density was significantly inversely correlated with annual density range and annual extension. Average density was not significantly correlated with calcification. Allowing for the correlation between latitude and distance offshore, average density was significantly inversely correlated with latitude (ie, density decreased with increasing latitude) and directly correlated with distance from shore (ie, density increased with distance offshore).

The annual density range was significantly correlated with annual extension, calcification and height of the colony (there is greater scope for variation in density in bigger colonies). Allowing for the correlation between latitude and distance, the annual density range

significantly increased with increasing latitude and significantly decreased with distance from shore.

Annual extension significantly increased with colony height and, allowing for the correlation between distance and latitude, decreased significantly with distance from shore. Annual calcification also significantly increased with colony height and decreased significantly with latitude south and distance from shore.

Average growth characteristics of 357 Porites colonies from Misima Island to One-Tree Island

Variation with species (357 colonies)

Five species of *Porites* were represented in the 357 colonies; *P. lobata*, *P. lutea*, *P. australiensis*, *P. mayeri* and *P. solida*. The 5 species comprised 51%, 29%, 9%, 7% and 4%, respectively, of the 357 colonies. Analyses of data for the most vertical track (track 1) showed significant species-related differences in 3 of the 10 growth parameters. These were average annual density ($F = 4.78$, $p < 0.00$), average high density ($F = 5.15$, $p < 0.00$) and average low density ($F = 4.35$, $p < 0.00$). Average annual (and high and low density) was highest in *P. solida* ($1.46 \pm 0.20 \text{ g.cm}^{-3}.\text{yr}^{-1}$) and lowest in *P. mayeri* ($1.24 \pm 0.13 \text{ g.cm}^{-3}.\text{yr}^{-1}$). If *P. solida* was removed from the analysis there was no significant difference in the average density of the remaining 4 species but if *P. mayeri* was removed there was still a significant difference in average density of the remaining 4 species ($F = 4.732$, $p < 0.00$).

Sub-annual variations in extension and density (375 colonies)

High-low extension ($6.4 \pm 2.0 \text{ mm.yr}^{-1}$) was significantly different to low-high extension ($6.2 \pm 1.9 \text{ mm.yr}^{-1}$) when track 1 data was examined for all 357 colonies ($t = 2.69$, $p = 0.01$). Thus, there was a slight (3%) skewing of the annual density profile. Variations in high-low extension and low-high extension were much the same as variations in average extension. Similarly, variations in high and low density were much the same as variations in average density. Consequently, these four parameters for the “357 colony collection” are not considered further.

Variation from inshore to offshore location (357 colonies)

Of the 357 colonies, 61% came from inshore locations, 23% from midshelf locations and 16% from offshore locations. When analysed by shelf location (IMO) all six growth variables showed significant differences. Tissue thickness ($F = 11.02$, $p < 0.00$) was highest midshelf and lowest inshore. Effective tissue layer thickness ($F = 39.29$, $p < 0.00$) and average density ($F = 34.56$, $p < 0.00$) were highest offshore and lowest inshore. High-low density ($F = 4.70$, p

= 0.01) was lowest midshelf and of similar magnitude inshore and offshore. Annual extension ($F = 18.56$, $p < 0.00$) and calcification ($F = 7.48$, $p < 0.00$) were both highest inshore and lowest offshore.

Variation from north to south location (357 colonies)

The six growth characteristics for the 357 coral colonies were averaged for 11 latitude bands between 10-11°S and 23-24°S – no data were available for 11-12°S, 19-20°S and 22-23°S. All six growth variables (Table 6) showed significant differences with latitudinal location: tissue layer thickness ($F = 16.62$, $p < 0.00$), effective tissue layer thickness ($F = 31.58$, $p < 0.00$), average density ($F = 16.96$, $p < 0.00$), high-low density ($F = 7.45$, $p < 0.00$), annual extension ($F = 17.16$, $p < 0.00$), and annual calcification ($F = 19.03$, $p < 0.00$). Effective tissue layer thickness tended to be higher in the more southerly sites while annual extension and calcification tended to be lower in the more southerly sites.

Relationships between growth variables (357 colonies)

Interrelationships between growth variables were examined by correlating values for the six growth parameters for all 357 colonies together with the latitude, distance offshore and height of colony (Table 7). The majority of the significant relationships identified for the 250 GBR coral colonies (Table 5) were evident in the 357 coral colonies. Exceptions were: 1) tissue layer thickness which increased significantly with latitude and decreased significantly with distance offshore in the 357 colonies, even allowing for the correlation of latitude with distance offshore and 2) effective tissue layer thickness which increased significantly with latitude, again allowing for the correlation of latitude with distance offshore.

Average growth characteristics of 35 coral cores

Average growth characteristics, for the common period 1934 to 1982, for the 35 long coral cores are summarized in Table 4. The coral cores were not identified to species and only a single track was measured along each coral core. Therefore, it was not possible to analyse coral core growth characteristics for variation with species or location around colony.

The coral cores averaged 3.7 ± 1.6 m in height whereas the coral colonies averaged 0.3 ± 0.1 m in height. The average growth characteristics obtained from the 35 coral cores were different to those obtained from the 357 coral colonies (compare overall means and sds in Tables 4 and 6). Three of the 6 growth characteristics were significantly higher in the coral cores than in the coral colonies: tissue layer thickness ($t = 10.03$, $p < 0.00$), effective tissue layer thickness ($t = 2.69$, $p = 0.01$) and extension ($t = 3.83$, $p < 0.00$). Average density ($t = -5.00$, $p < 0.00$) was significantly less in the coral cores than in the coral colonies. The annual density range was

the same for both coral cores and colonies and there was no significant difference in calcification between the coral cores and the coral colonies.

Sub-annual variations in extension and density (35 cores)

High-low extension ($7.6 \pm 1.7 \text{ mm.yr}^{-1}$) was significantly different to low-high extension ($7.2 \pm 1.6 \text{ mm.yr}^{-1}$) for the 35 coral cores ($t = 2.80$, $p = 0.01$). Thus, there was a slight (5%) skewing of the annual density profile. Variations in high-low extension and low-high extension were much the same as variations in average extension. Similarly, variations of high and low density were much the same as variations in average density. Consequently, these 4 parameters for the coral core collection are not considered further.

Variation from inshore to offshore location (35 cores)

Of the 35 coral cores, 60% came from inshore sites, 26% from midshelf sites and 14% from offshore sites. None of the 6 growth parameters in the 35 coral cores showed significant differences with inshore-offshore location.

Variation from north to south location on the GBR (35 cores)

Because of the uneven latitudinal distribution of the coral cores (see Fig. 2), the data were grouped into 3 latitudinal bands: 9-17°S (9 cores), 17-20°S (16 cores) and 20-24°S (10 cores). Three of the 6 growth parameters showed significant differences between these 3 latitudinal bands: effective tissue layer thickness was lowest in the north and highest in the south ($F = 4.15$, $p = 0.03$); annual extension ($F = 4.34$, $p = 0.02$) and calcification ($F = 4.83$, $p = 0.02$) were both highest in the north and lowest in the south. There was no significant difference in tissue layer thickness, average density or high-low density with latitude.

Relationships between growth variables (35 cores)

Interrelationships between growth variables were examined by correlating values for the six growth parameters for all 35 cores, together with latitude, distance offshore and height of colony (Table 8). Comparisons of these correlations with those for the 250 coral colonies (Table 5) and 357 coral colonies (Table 7) showed the following relationships to be consistent amongst the 3 data-sets: high-low density was significantly correlated with annual extension and calcification; annual extension significantly decreased with distance offshore; and annual calcification significantly decreased with distance offshore and increasing latitude.

Relationships between coral growth characteristics and environmental gradients

Average coral calcification and extension both showed clear latitudinal gradients, with lowest values observed in more southerly latitudes of the GBR region (see Tables 5, 6, and 7). Both average annual SST and solar radiation decreased with increasing latitude (Fig. 5b and 6b). Based on 2° latitude data (only 7 data pairs, solar radiation averages were only available at this resolution), the correlation between calcification and SST was 0.86 (significant at 5% level) and between calcification and solar radiation was -0.62 (not significant); the correlation between extension and SST was 0.81 (significant at 5% level) and between extension and solar radiation was -0.65 (not significant). Solar radiation could not be analysed at the 1° latitude scale. Based on 1° latitude data (11 data pairs), the correlation between SST and calcification was 0.93 and between SST and extension was 0.89 (both coefficients significant at 5% level, see Fig. 11). There were no significant correlations between coral growth parameters and other environmental variables such as river flow and tropical cyclone activity.

SUMMARY

Average growth characteristics of the major reef-building coral, *Porites*, have been obtained for 357 coral colonies and 35 long coral cores from the region of the Great Barrier Reef (GBR). Annual growth characteristics were obtained from the annual density banding pattern which is characteristic of massive coral species. We provide (new) baseline data for average growth characteristics and range in growth characteristics for *Porites* through 14° (~1,500 km) of latitude along the GBR and from the coast to ~200 km offshore in colonies ranging in size from 0.1-8.0 m in height. This is by far the most comprehensive database of coral growth characteristics so far published.

The database allows testing for a) systematic differences in various growth characteristics of corals growing at different locations in the GBR region, b) relationships amongst coral growth characteristics, and c) possible linkages between coral growth characteristics and environmental gradients. In earlier studies we examined components of this database for evidence of inshore-to-offshore gradients in growth characteristics for the central GBR (Lough & Barnes, 1992), long-term (several centuries) variations in growth characteristics (Lough & Barnes, 1997) and changes in growth characteristics with changes in environment (Lough *et al.*, 1995; Barnes & Lough, in press).

In this report we present new analyses of the entire database (rather than components of the database). Growth characteristics are analysed in three groups: a) 250 colonies from the GBR all collected from similar reef environments by our group for the present study (colony height averaging 360 mm and ranging from 170-700 mm), b) 357 colonies from Misima Island and Ashmore Reef to the north of the GBR to One-Tree Island to the south of the GBR. This set of colonies comprises the 250 colonies from the GBR, supplemented by colonies not collected by our group from Misima Island, Ashmore Reef and One-Tree Island. Colonies from Misima Island and colonies from One-Tree Island were different in size and age to colonies from the various GBR transects (Table 3), and c) 35 long coral cores from large colonies of *Porites* from the GBR. The coral cores came from colonies between 1.6-8.0 m in height.

The major findings from analyses of these data are as follows:

- ?? Tissue layer thickness, effective tissue layer thickness and annual extension were significantly higher in the coral cores (1.6-8 m in height) than in the coral colonies (0.1-0.7 m in height) by 33%, 17% and 16%, respectively. Average skeletal density was significantly less in the coral cores than in the coral colonies by 11%. There was no significant difference in the annual density range or average calcification between the coral cores and coral colonies.
- ?? The 357 coral colonies comprised 5 species: *P. lobata* (51%), *P. lutea* (29%), *P. australiensis* (9%), *P. mayeri* (7%) and *P. solida* (4%). Coral cores were not identified to species. The only coral growth parameter to show a significant difference with species was average density. This was significantly higher in *P. solida* compared with the other 4 species.
- ?? Growth parameters for the 250 colonies from the GBR were examined along 3 densitometer tracks around the coral colony: 2 tracks nearly vertical to the major growth axis and one track near horizontal to the major growth axis. Tissue layer thickness, high-low density, annual extension and calcification varied significantly with location of track around colony. Average values for the most vertical track were, respectively, 13%, 10%, 16% and 15% higher than for the near horizontal track. There was no significant variation in effective tissue layer thickness or average skeletal density with location around the coral colony. The 250 coral colonies averaged 20% wider than they were tall.
- ?? The annual density profile was significantly skewed in all data sets with high-low extension (growth from winter to summer) averaging 3-5% greater than low-high extension (growth from summer to winter).

- ?? 61% of the coral colonies (60% coral cores) came from inshore reef sites, 23% (26% coral cores) came from midshelf sites and 16% (14% coral cores) came from offshore reef sites. No significant differences were found with shelf location for growth characteristics obtained from the coral cores. Three growth parameters showed the same significant differences between shelf location when the 250 colony and 357 colony data sets were examined: effective tissue layer thickness and average skeletal density were highest at offshore sites and lowest at inshore sites and extension was highest at inshore sites and lowest at offshore sites.
- ?? Growth characteristics were compared between 9 latitude bands for the 250 colonies, 11 latitude bands for the 357 colonies and 3 latitude bands for the 35 coral cores. Three growth parameters showed significant and similar differences in the three data sets with north to south location: effective tissue layer thickness was highest in the southern GBR and average extension and calcification were both lowest in the southern GBR.
- ?? Cross-correlations between the different growth variables showed a) the following relationships to be significant and of similar magnitude in the 2 coral colony data sets: tissue layer thickness was correlated with calcification, effective tissue layer thickness was correlated with average density, and average density was inversely correlated with annual density range and extension, and b) the following relationships to be significant and of similar magnitude in the 2 coral colony and coral core data sets: the annual density range was inversely correlated with effective tissue layer thickness and directly correlated with both extension and calcification.
- ?? Both linear extension and calcification decreased with increasing latitude. Based on the 357 colony data, extension and calcification were significantly correlated with average annual sea surface temperature. Extension and calcification were not correlated with average incoming solar radiation, rainfall, tropical cyclone activity or river flow.

DISCUSSION

Tissue layer thickness, effective tissue layer thickness and annual extension were all significantly higher and annual density significantly lower in the larger (=older) colonies compared with the smaller (=younger) colonies. There were no significant differences in average calcification or annual density range with colony age and size. These results are based on comparisons of average colony growth characteristics for the most recent (1934-1982) part of the long coral cores, the oldest of which are ~4-500 years old. Increase in tissue layer thickness with colony size has been reported previously (Barnes & Lough, 1992). We have also previously noted, from examination of the 35 long coral cores (Lough & Barnes,

1997), a tendency for the oldest parts of the very old colonies (equivalent to the coral colonies) to have higher density and lower extension than the younger parts of the same colonies. These changes over time in extension and density appeared to compensate each other and there was no overall change in calcification with colony age. Evidence presented here supports this conclusion. There was a significant increase in extension and decrease in density with increasing colony size and age. The width of annual rings in trees also shows a systematic change with tree age (Fritts, 1976). The width of the annual ring tends to be highest in young trees and decreases in size with increase in tree age. As a consequence, it is necessary for dendroclimatologists to remove this “growth curve” before attempting to interpret any environmental information contained in the tree rings series. This procedure also limits the amount of century-time scale variability that can be obtained from tree-ring reconstructions (eg Cook *et al.*, 1995). Evidence, presented here, of age-growth trends has implications for the measurement and interpretation of long-term environmental changes from records contained in long-lived colonies of *Porites*. First, in assessing long-term changes in coral growth characteristics and possible environmental changes, calcification rate should be used rather than skeletal density or extension rate. Second, sub-sampling of “annual” growth increments for inclusive records (eg O^{18} , Sr/Ca) should take into account different extension rates between the younger and older part of a colony.

Average skeletal density was the only coral growth characteristic to show a significant difference amongst the 5 species of *Porites* examined. Skeletal density was significantly higher in *P. solida* compared with the other 4 species. There was no significant difference in tissue layer thickness or effective tissue layer thickness between species. Consequently, differences in density between species probably result from species-related differences in the thickness of the initial skeletal “scaffolding” and in the amount of thickening applied to that scaffolding through the depth of the tissue layer (see Barnes & Lough, 1993; Taylor *et al.*, 1993). This suggests that species may be a factor affecting reconstruction of environmental information from stable isotopes and trace inclusions in *P. solida* (see Taylor *et al.*, 1995; Barnes *et al.*, 1995) and this species of *Porites* should be used with caution. This finding emphasises the need to identify massive *Porites* to species level when using them for environmental reconstructions.

Tissue layer thickness, high-low density, annual extension and calcification were significantly higher at the top than at the side of the 250 coral colonies (13%, 10%, 16%, 15%, respectively). These colonies were generally hemispherical in shape and averaged 20% wider than they were tall. As skeletal density did not vary from tops to sides of colonies while annual extension and calcification decreased by equivalent amounts, the decrease in

calcification was mostly due to a decrease in annual extension. Effective tissue thickness is the only factor that might modify this complete linkage of annual extension rate with calcification rate. A differing residence time of tissue over skeletal elements could alter the estimated calcification rate in a fashion unconnected with extension rate. Tissue layer thickness did decrease from tops to sides of colonies, as reported previously (Barnes & Lough, 1992). However, a concomitant decrease in extension rates meant that effective tissue layer thickness was not significantly different between tops and sides of colonies. Thus, there was no significant change around the colonies in the time that tissue resided over skeletal elements. It does then seem that the decrease in calcification from tops to sides of colonies is mostly due to a decrease in extension. It seems probable that variation in light between tops and sides of colonies is the only factor that could produce such a systematic trend across many colonies from many locations. Thus, light may be a major factor influencing extension in *Porites*. Such influence may not arise from the well-recognised linkage between light intensity and calcification rate. Indeed, calcification in these colonies from very shallow water is not likely to have been light-limited since photosynthesis would have been saturated through most of the day (see Lough & Barnes, 1997). The link between extension and light seen here may have simply resulted because the colonies tend to distribute their resources so that they grow more towards the light (eg, Kawaguti, 1937a,b; see also Yonge, 1963).

The annual density profile was significantly skewed with $H-L_{dist}$ (? extension from winter to summer) averaging 35% higher than $L-H_{dist}$ (? extension from summer to winter). On average, peaks in SST lagged 2.5 months behind peaks in solar radiation at all latitudes. However, times between summer peaks and winter troughs, and winter troughs and summer peaks for SST and solar radiation differed with latitude:

- ?? from 10-14°S, SST and solar radiation maxima to minima were 5 months and 4 months, respectively,
- ?? from 16-18°S, SST and solar radiation maxima to minima were 7 months and 4 months, respectively,
- ?? from 18-20°S, SST and solar radiation maxima to minima were 7 months and 5 months, respectively,
- ?? south of 20°S, SST and solar radiation maxima to minima were both 6 months.

Thus, the skewness in temperature and solar radiation were considerably greater than the skewness in coral density profiles. This suggests that neither SST nor solar radiation are the sole driving force for coral skeletal growth. Rather, it suggests that both factors play a role in

the formation of coral density bands. More accurate intra-annual timing of density peaks and troughs is required to resolve this problem.

Significant cross-shelf trends in *Porites* growth characteristics were only found for the most northerly ($\sim 12.50^{\circ}\text{S}$) and central ($\sim 18.30^{\circ}\text{S}$) transects (Lough & Barnes, 1992). Extension was found to decrease and density increase with distance offshore in these two transects. Only in the central transect was there a significant decrease in average calcification with distance offshore. Analyses presented here show no significant differences with distance offshore for the long coral cores but for the coral colonies, effective tissue layer thickness and average density were significantly higher offshore than at inshore sites and average extension was significantly lower at offshore sites than at inshore sites. The most likely cause of inshore-offshore gradients in coral growth characteristics is the availability of nutrients which will be lowest at offshore reefs. In the offshore reefs of the southern GBR there is evidence (M. Furnas, AIMS pers. comm.) of large planktonic populations and the reefs appear most similar to the mid-shelf reefs of lower latitudes. Nutrients limit tissue growth which limits extension and in turn causes higher skeletal density. Wave energy may also be a factor in inshore-offshore trends in growth characteristics.

Previous studies (Grigg, 1982a,b; Isdale, 1983; Lough & Barnes, 1997; submitted) have suggested changes in *Porites* growth characteristics with latitude. Results presented here support these findings with effective tissue layer thickness being highest and average extension and calcification being lowest in colonies from the southern GBR. Inter-annual variations of calcification in *Porites* are significantly related with sea surface temperature but not with light (Lough & Barnes, 1997). The north-south variations in average annual calcification and annual extension reported here were found to be significantly correlated with latitudinal variations in average annual sea surface temperatures. Thus, sea surface temperature appears to be the primary forcing factor for average and inter-annual variations in extension and calcification in *Porites*. Using the relationship between average annual SST and coral calcification in space presented in this report (Fig. 11a) a 1°C increase in SST would lead to an increase in calcification of $0.34 \text{ g.cm}^{-2}.\text{yr}^{-1}$. Using the relationship between annual SST and coral calcification in time published earlier (Fig. 10 in Lough & Barnes, 1997) a 1°C increase in SST would lead to an increase in calcification of $0.32 \text{ g.cm}^{-2}.\text{yr}^{-1}$. Thus, SST appears to be a primary control of calcification in *Porites* in both space and time.

Examination of the interrelationships between the coral growth variables showed that annual calcification tended to increase with increased thickness of the tissue layer and that this was most evident at offshore sites. However, variations in calcification were almost entirely

associated with variations in extension and, consequently, it may not be appropriate to link tissue thickness with calcification (see below). It should be noted that calcification is expressed here per unit surface area of colony rather than per unit area of all skeletal elements covered by tissue. This has been one common way for standardising calcification (another is to standardise by tissue protein, which is probably a better measure of skeleton available for new growth). It may be that some of the problems encountered in standardising experimental measurements of calcification (Barnes & Crossland, 1977; Crossland & Barnes, 1977) may have arisen because the thickness of the tissue layer has not previously been considered an important parameter in corals (see Barnes & Lough, 1992).

Density was correlated with effective tissue layer thickness but not with tissue layer thickness. This fits well with the concept that density variations in *Porites* result from variations in the amount of thickening applied to skeletal elements over the time that those elements were covered by tissue (Barnes & Lough, 1993; Taylor *et al.*, 1993).

Annual extension varied significantly and inversely with average skeletal density. A weak, inverse relationship between annual extension and density has been previously noted in *Porites* (Scoffin *et al.*, 1992; Lough & Barnes, 1997). This accords with the notion that variations in density result from variations in the thickening applied to the initial deposits responsible for extension (Barnes & Lough, 1993) because a higher extension rate might allow less time for thickening.

Data presented here demonstrate north-south gradients in coral growth on the GBR that accord with previous work. Until the early 1980's most work concentrated upon such north-south variations in coral performance and ecology, and in the performance and ecology of whole reefs and their fauna and flora. It then became apparent that there exist on the GBR east-west (inshore-offshore) gradients over a few 10s of km that are more marked than north-south gradients over several 100s of km (eg Done, 1982). Work presented here confirms that there are marked inshore-offshore gradients in coral growth parameters in regions where shelf-width and reef structure are likely to set up environmental gradients between the coast and the Coral Sea. However, the results suggest that such inshore-offshore gradients may not be as simple and clear-cut as they have previously been thought. Measurements of coral growth performance over 10s of years from annual banding patterns are one simple way to identify and map environmental gradients. It seems likely that we do not yet have sufficient coral performance data to understand why and which environmental factors are setting up and maintaining the inshore-offshore gradients that have importance to corals and coral reefs. It is however apparent that we have gained much better knowledge of growth mechanisms in

Porites. We are now much better able to link variations in growth parameters one with another and we are beginning to recognise how variation in growth parameters links with variation in environmental conditions.

ACKNOWLEDGEMENTS

The long coral cores used in this work were obtained by Dr P.J. Isdale of AIMS. We thank Misima Mines Pty Ltd for allowing us to publish the growth information obtained for *Porites* colonies collected as part of their Environmental Monitoring Program. We thank Rob White (formerly of Misima Mines Pty Ltd) for collecting the colonies at Misima Island. We thank Andy Steven (formerly of Great Barrier Reef Marine Park Authority) for making available to us his *Porites* data from One-Tree Island. Ray Taylor engaged us in thoughtful discussion of many aspects of the data presented here. He also provided useful comments upon the final drafts of this report.

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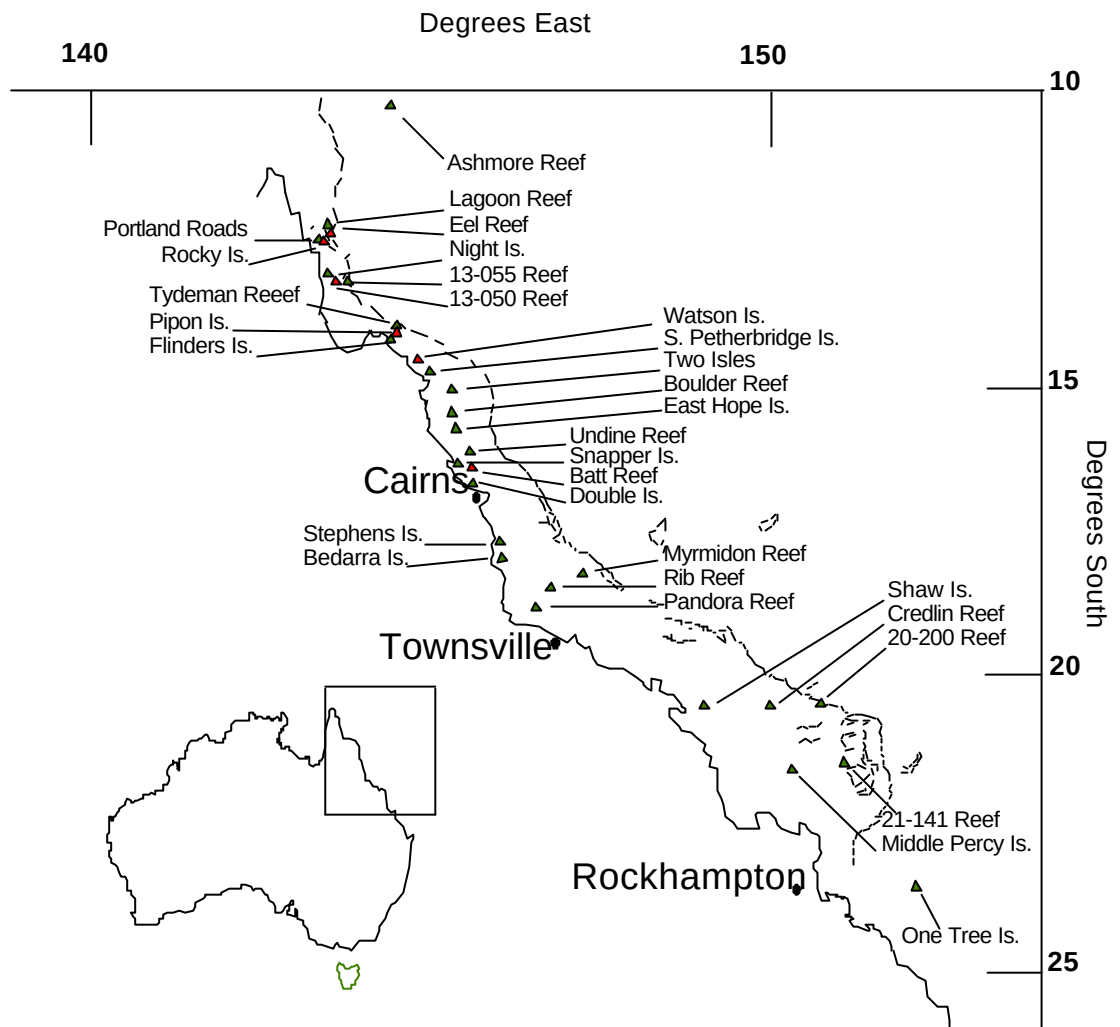


Fig. 1. Location of 31 reef sites on the Great Barrier Reef for which whole coral colony data are available for identified species of massive *Porites*.

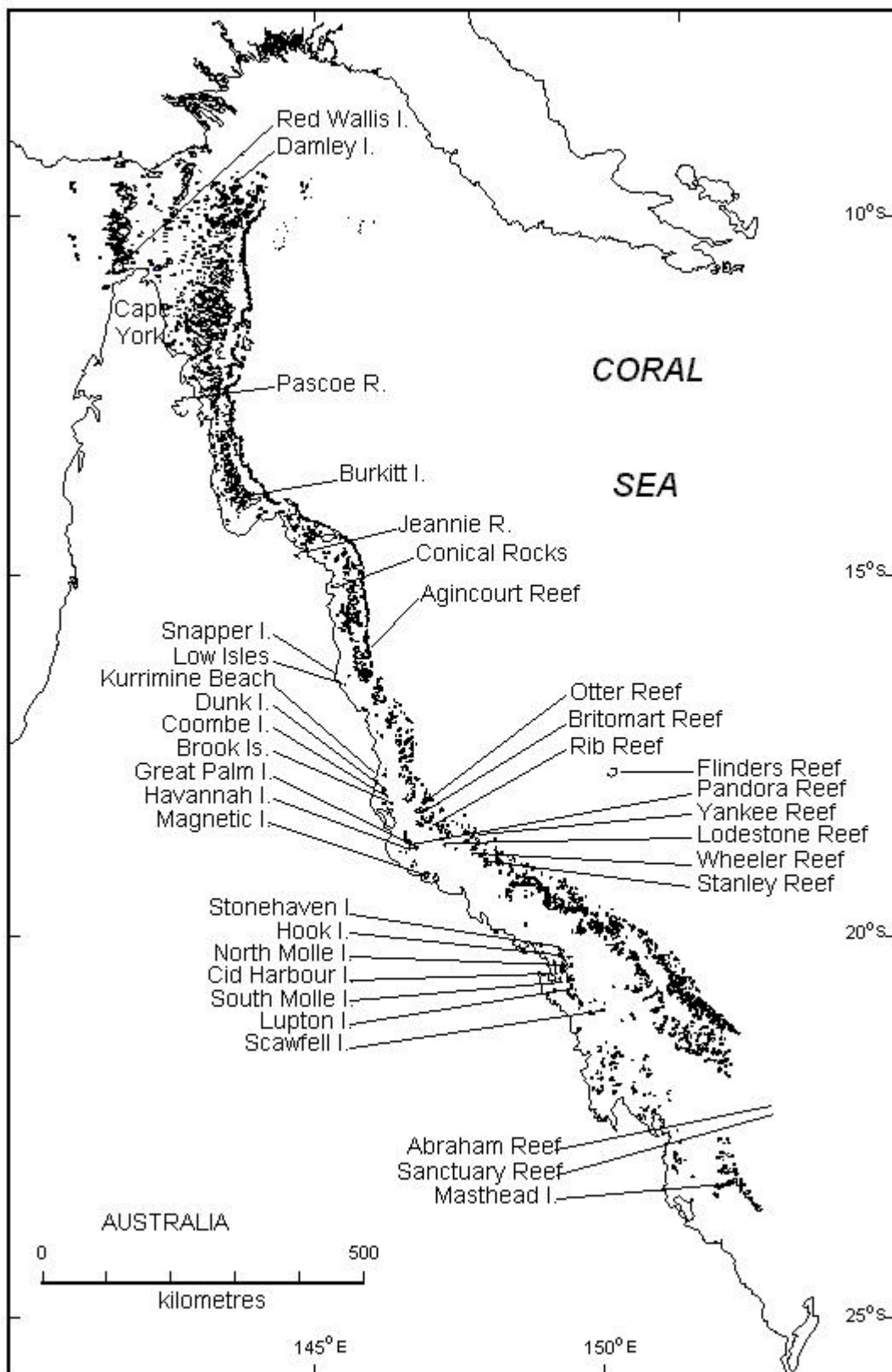


Fig. 2. Location of 35 reef sites on the Great Barrier Reef for which coral core data are available for very large colonies of massive *Porites*.

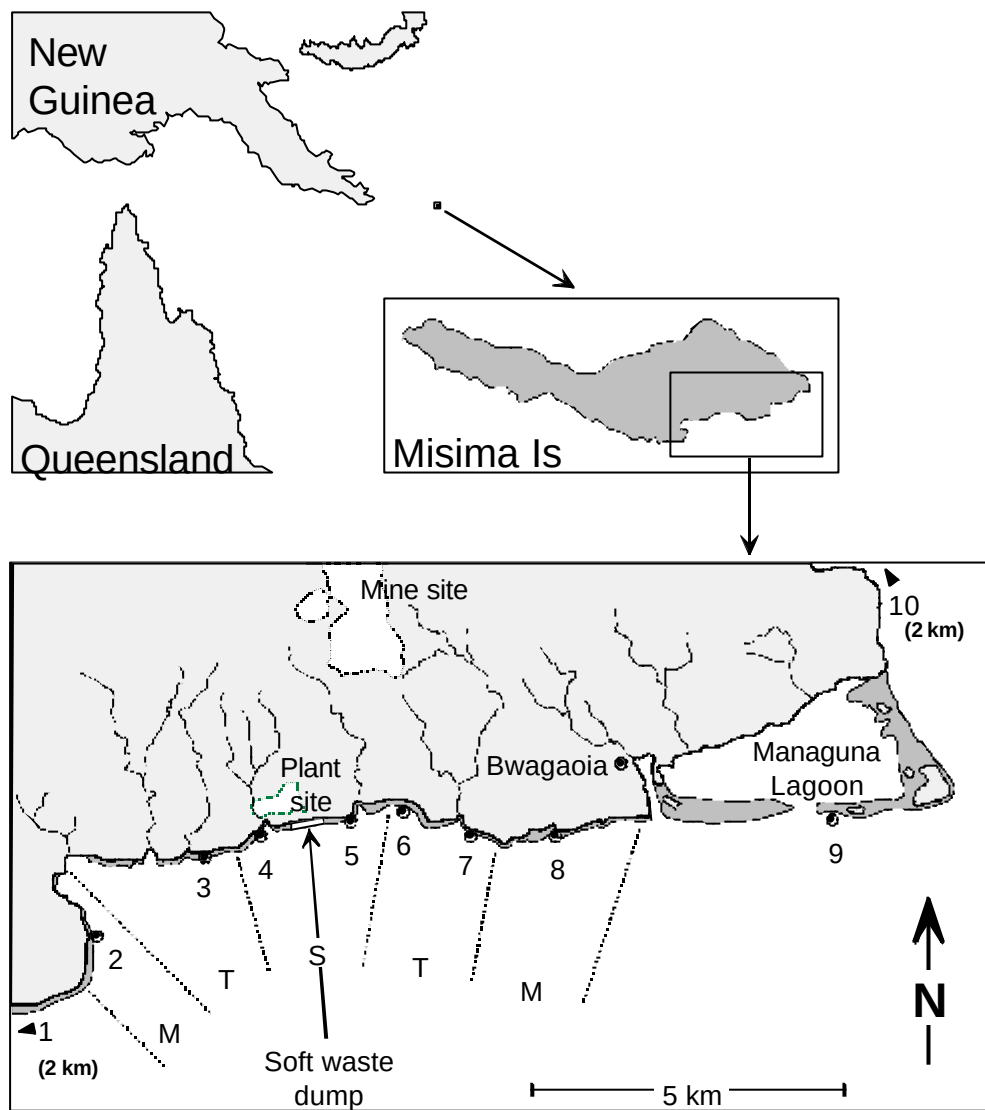


Fig. 3. Locations of 10 transects from which massive *Porites* colonies were collected from Misima Island, Papua New Guinea.

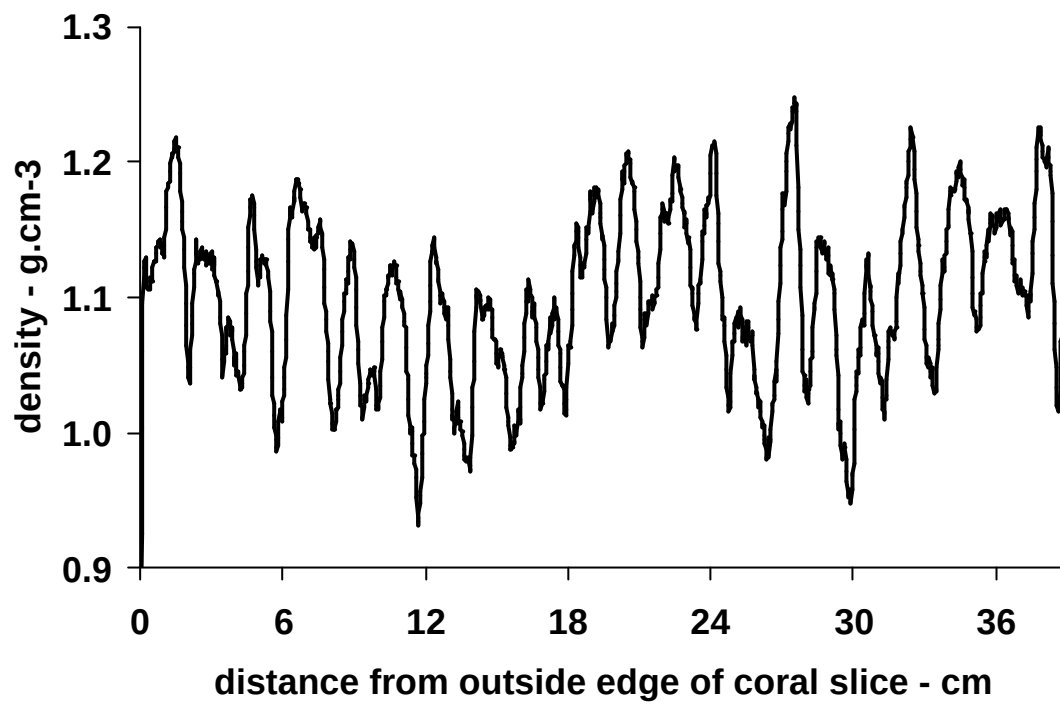


Fig. 4. Distance along coral slice vs skeletal density trace for track 1 of coral B07 from Watson Island, 14.47°S, 144.85°E, Great Barrier Reef.

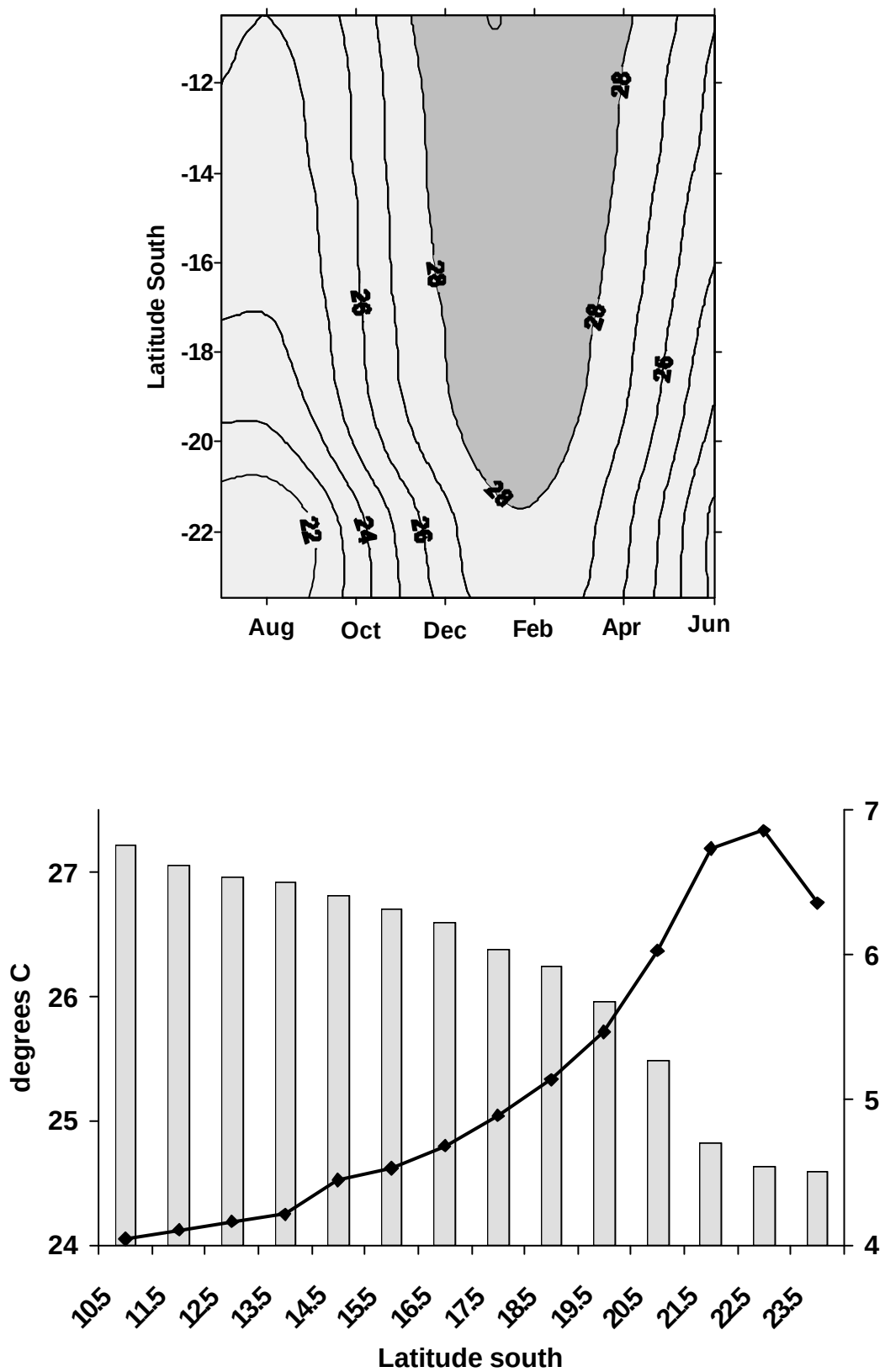


Fig. 5. Sea surface temperatures along the Great Barrier Reef, 10.5°-23.5°S, 1982-1997: a) monthly mean by latitude, b) annual mean (bar, scale to left) and range (line, scale to right).

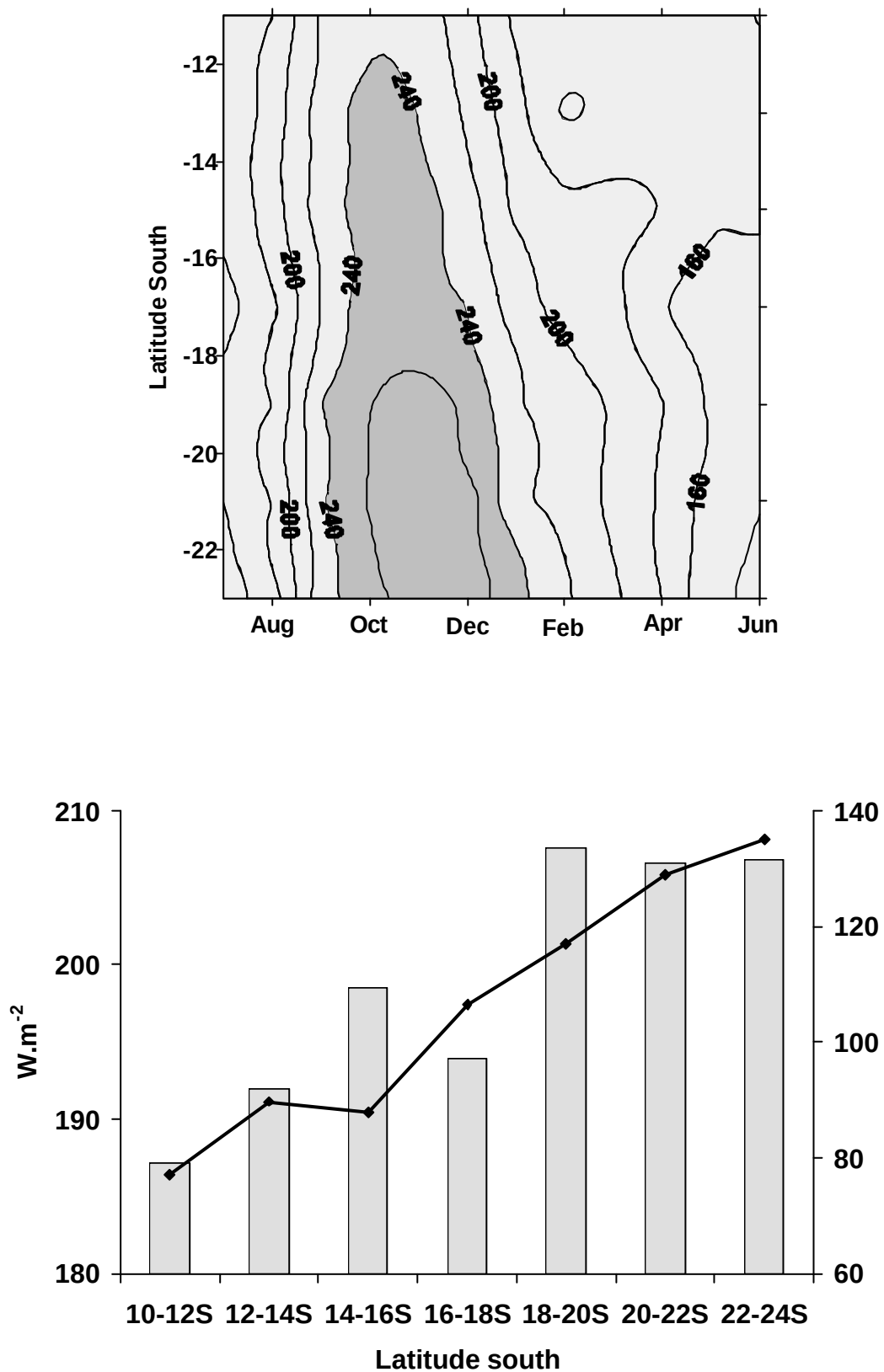


Fig. 6. Incoming solar radiation along the Great Barrier Reef, 2° latitude by 4° longitude boxes, 10-12°S to 22-24°S, 1949-1979: a) monthly mean by latitude, b) annual mean (bar, scale to left) and range (line, scale to right).

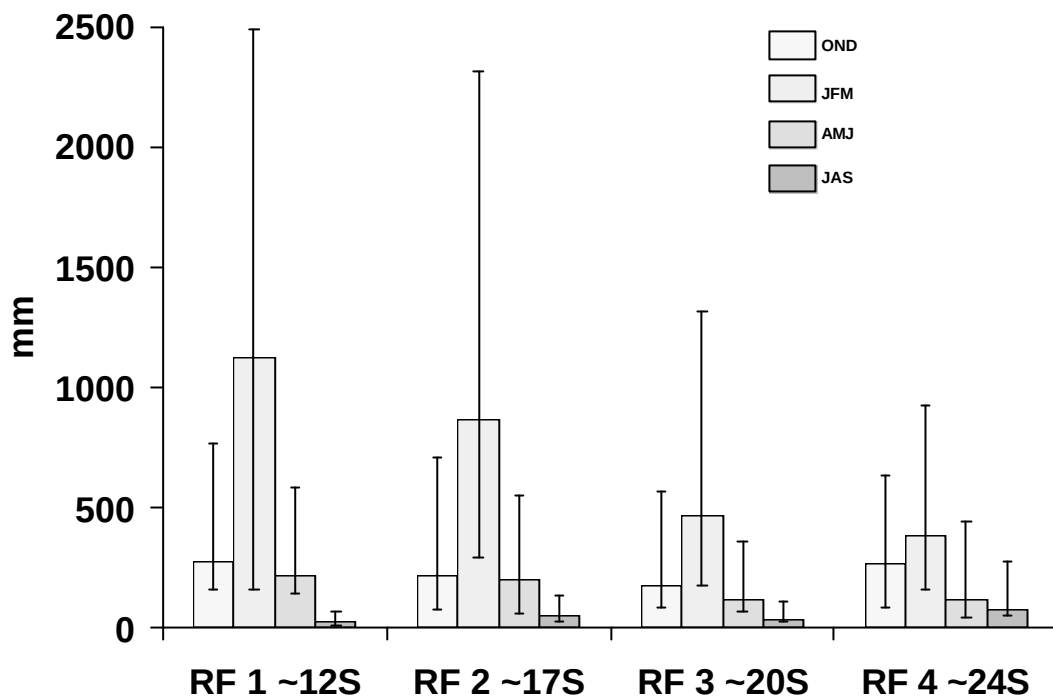


Fig. 7. Median rainfall for four, 3-month seasons and four coastal districts adjacent to the Great Barrier Reef, 1958-1992; error bars are upper and lower deciles.

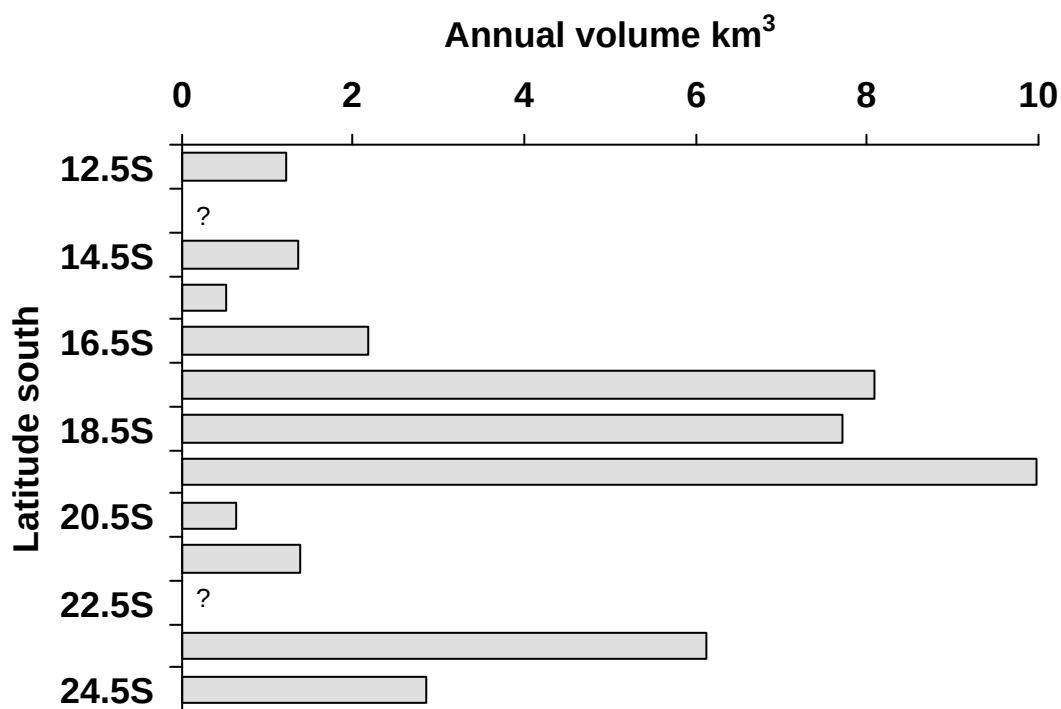


Fig. 8. Estimated annual volume (km^3) of river flow into the Great Barrier Reef by 1° latitude bands; estimates based on ~20-30 years of data; ? indicates insufficient data.

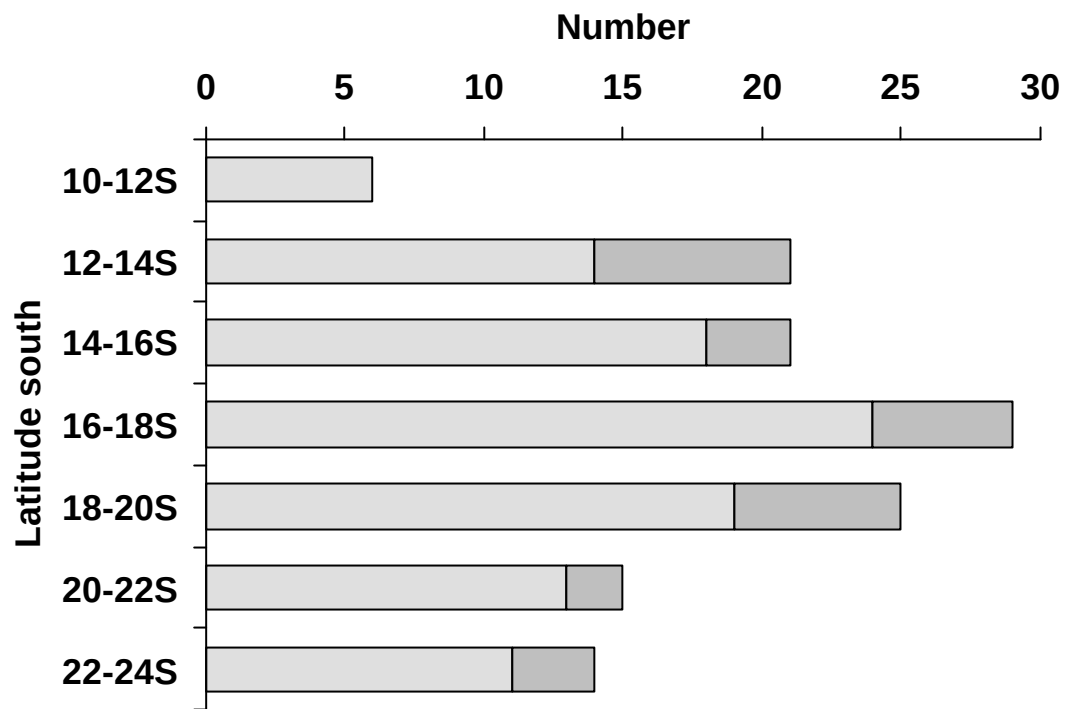


Fig. 9. Total number of tropical cyclones (light shaded bars) and tropical cyclone days (total length of bars) by 2° latitude bands along the Great Barrier Reef, from 10-12°S to 22-24°S, 1960-1992.

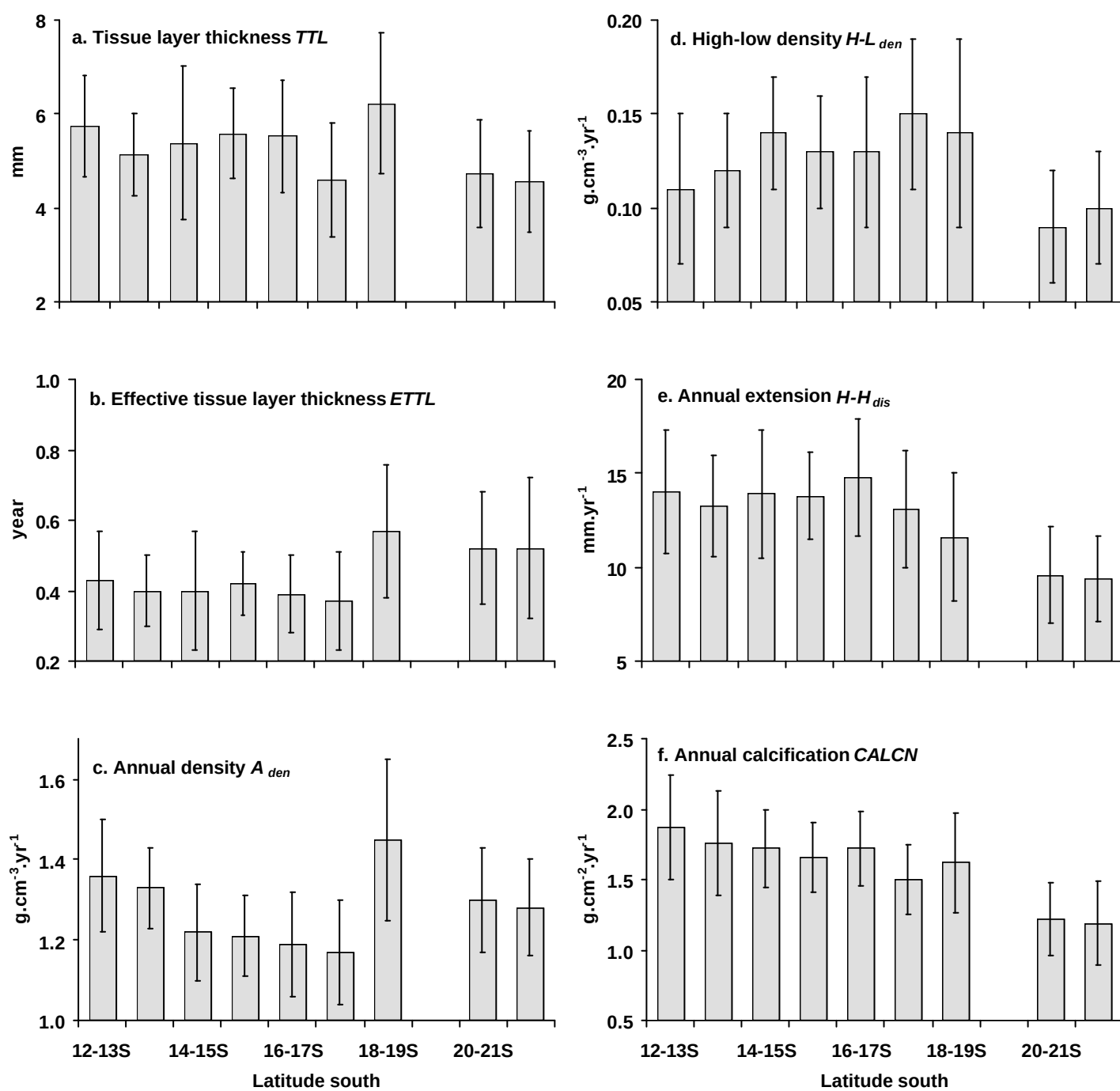


Fig. 10. Average *Porites* growth characteristics based on 250 colonies for 1° latitude bands along the Great Barrier Reef; error bars are ± 1 sd.

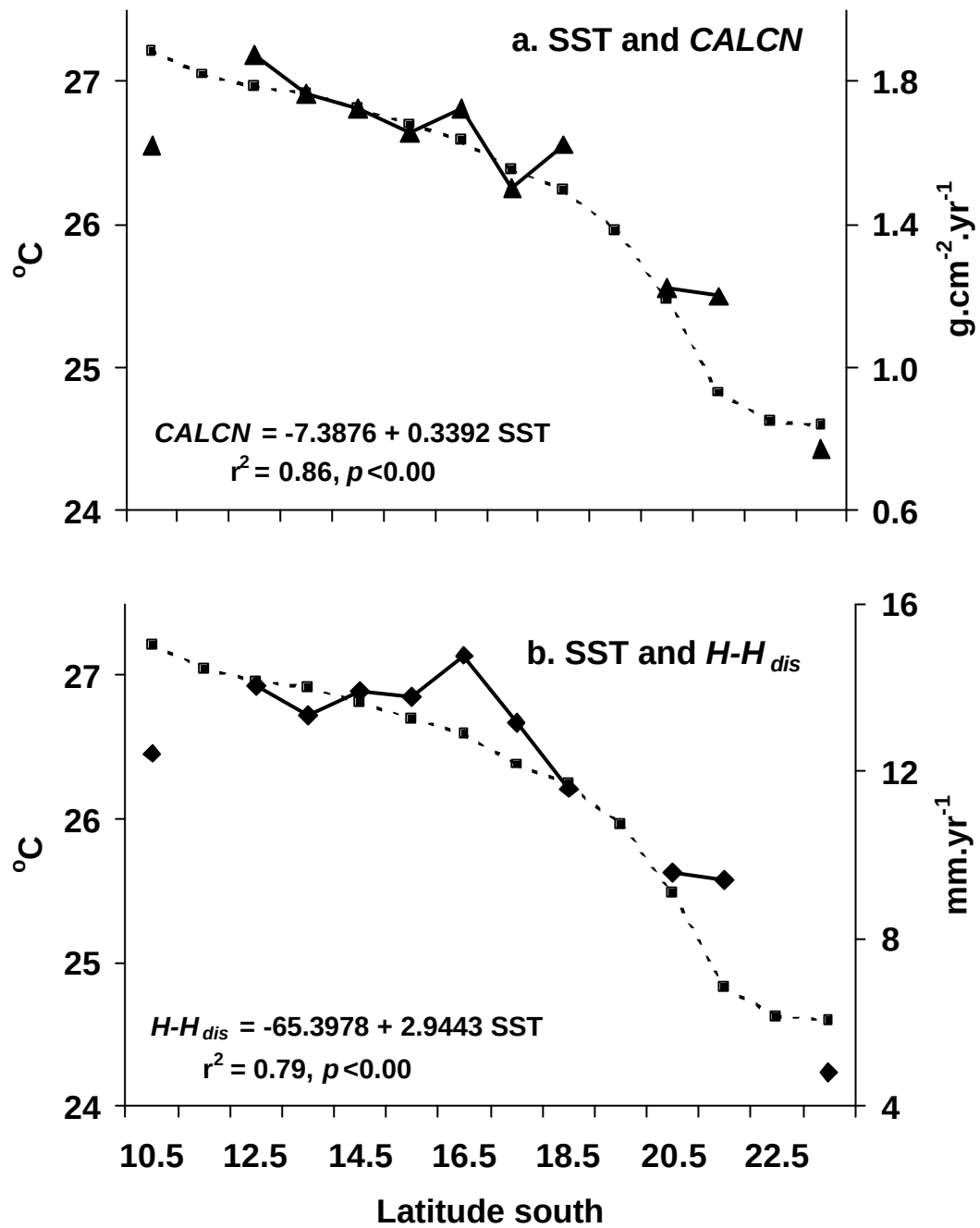


Fig. 11. Average annual sea surface temperature (squares-dashed line, scale to left) and a) average annual *Porites* calcification (triangle-solid line, scale to right), and b) average annual *Porites* extension (diamond-solid line, scale to right).

Table 1. Details of coral colonies. Distance is distance from shore; IMO indicates Inshore, Midshelf or Offshore site; # of colonies is total collected at each site with number analysed in rackets.

Reef	ID	Latitude °S	Longitude °E	Collection date	Distance km	IMO	# colonies
Ashmore Reef							
Ashmore Reef	ASH	10.25	144.50	Dec-1989	176 [†]	O	8 (4)
Northern GBR							
Lagoon Reef	LAG	12.38	143.73	Jul-1990	42	O	13 (12)
Eel Reef	EEL	12.50	143.52	Jul-1990	14	M	13 (13)
Portland Roads	POR	12.60	143.42	Jul-1990	0	I	6 (4)
Rocky Island	ROC	12.60	143.40	Jul-1990	1	I	8 (5)
Night Island	NIG	13.18	143.57	Jul-1990	6	I	15 (12)
13-055 Reef	055	13.30	143.77	Jul-1990	19	M	15 (14)
13-050 Reef	050	13.33	143.95	Jul-1990	40	O	14 (9)
Cairns-Cape Melville							
Tydemman Reef	TYD	14.00	144.52	May-1992	20	O	8 (6)
Pipon Island	PIP	14.12	144.52	May-1992	6	I	6 (6)
Flinders Is.	FLI	14.15	144.27	May-1992	13	I	7 (7)
Watson Island	WAT	14.47	144.88	May-1992	16	I	11 (10)
S. Petherbridge Is.	PET	14.73	145.10	May-1992	8	I	6 (6)
Two Isles	TWO	15.03	145.42	May-1992	10	I	9 (9)
Boulder Reef	BOU	15.42	145.42	May-1992	14	M	6 (6)
East Hope Is.	HOP	15.73	145.45	May-1992	10	I	9 (9)
Undine Reef	UND	16.12	145.63	May-1992	19	M	6 (5)
Snapper Is.	SNA	16.29	145.46	May-1992	2	I	9 (8)
Batt Reef	BAT	16.38	145.70	May-1992	28	M	12 (10)
Double Is.	DOU	16.73	145.68	May-1992	1	I	8 (8)
Mission Beach							
Stephens Is.	STE	17.73	146.15	Jun-1988	6	I	3 (2)
	STE	17.73	146.15	Apr-1989	6	I	11 (10)
Bedarra Is.	BED	18.00	146.13	Jun-1988	6	I	3 (2)
	BED	18.00	146.13	Apr-1989	6	I	10 (7)
Central GBR							
Myrmdon Reef	MYR	18.27	147.38	Nov-1987	110	O	16 (9)
Rib Reef	RIB	18.48	146.88	Nov-1987	56	M	16 (9)
Pandora Reef	PAN	18.80	146.43	Nov-1987	16	I	12 (7)
Southern GBR							
Shaw Is.	SHW	20.45	149.07	May-1989	18	I	13 (5)
20-200 Reef	200	20.50	150.55	May-1989	174	O	12 (9)
Credlin Reef	CRE	20.53	149.95	May-1989	106	M	12 (11)
21-141 Reef	141	21.52	151.22	Jun-1989	145	M	14 (14)
Middle Percy Is.	PER	21.65	150.25	Jun-1989	80	I	10 (6)
One Tree Is.							
One Tree Island	OTR	23.50	152.08	Dec-1995	80	O	2 (2)
	OTR	23.50	152.08	Mar-1996	80	O	8 (8)
Misima Island							
Transect T01	MIS	10.60	152.80	Mar-1994	0	I	10 (10)
Transect T02	MIS	10.60	152.80	Mar-1994	0	I	10 (9)
Transect T03	MIS	10.60	152.80	Mar-1994	0	I	10 (10)
Transect T03D	MIS	10.60	152.80	Mar-1994	0	I	10 (8)
Transect T04	MIS	10.60	152.80	Mar-1994	0	I	8 (7)
Transect T05	MIS	10.60	152.80	Mar-1994	0	I	10 (9)
Transect T06	MIS	10.60	152.80	Mar-1994	0	I	10 (7)
Transect T07	MIS	10.60	152.80	Mar-1994	0	I	10 (9)
Transect T08	MIS	10.60	152.80	Mar-1994	0	I	10 (9)
Transect T09	MIS	10.60	152.80	Mar-1994	0	I	10 (10)
Transect T10	MIS	10.60	152.80	Mar-1994	0	I	6 (5)
Huon Peninsula							
Old & modern	HUB	~6.00	~147.00	Oct-93	0	I	9 (8)

[†] Distance from Papua New Guinea

Table 2. Details of coral cores. Distance is distance from shore; IMO indicates Inshore, Midshelf or Offshore site.

Reef	ID	Latitude °S	Longitude °E	Collection date	Distance km	IMO
Great Barrier Reef						
Darnley Is.	DNL 02B	09.58	143.77	Sep-1986	80	M
Red Wallis Is.	RWI 01B	10.83	142.17	Oct-1986	7	I
Pascoe River	PCO 01B	12.52	143.27	Sep-1986	0	I
Burkitt Is.	BKT 01A	13.95	143.75	Sep-1986	9	I
Jeannie River	JNE 01A	14.67	144.93	Sep-1986	0	I
Conical Rocks	CNR 01B	15.13	145.32	Jun-1985	8	I
Agincourt Reef	AGC 01B	15.90	145.82	May-1989	40	O
Snapper Is.	SNA 01A	16.30	145.45	Jun-1985	4	I
Low Isles	LOW 01B	16.38	145.57	Jun-1985	17	I
Flinders Reef	FLI 01A	17.73	148.43	May-1992	270	O
Kurrimine Beach	KMN 02B	17.78	146.13	Mar-1984	0	I
Dunk Is.	DUN 02B	17.95	146.17	Jun-1988	6	I
Coombe Is.	COO 01E	18.03	146.18	May-1988	12	I
Otter Reef	OTT 01A	18.05	146.58	Jun-1988	60	M
Brook Is.	BRO 01A	18.15	146.28	May-1987	29	I
Britomart Reef	BRT 01B	18.23	146.73	May-1987	36	M
Rib Reef	RIB 01A	18.48	147.88	Jun-1984	56	M
Yankee Reef	YNK 01A	18.57	147.50	Jun-1985	95	O
Great Palm Is.	GPI 02A	18.68	146.58	Feb-1986	33	I
Lodestone Reef	LOD 01A	18.70	147.10	Jul-1984	70	M
Wheeler Reef	WHE 01A	18.80	147.53	Aug-1985	70	M
Pandora Reef	PAN 04B	18.82	146.43	Sep-1983	16	I
Havannah Is.	HAV 01A	18.85	146.55	Jun-1988	24	I
Magnetic Is.	MAG 01D	19.15	146.87	May-1987	8	I
Stanley Reef	SLY 01A	19.25	148.12	Apr-1984	56	M
Hook Is.	HKO 01B	20.07	148.95	Sep-1985	32	I
Stonehaven Is.	SNH 01A	20.10	148.90	Mar-1992	22	I
N. Molle Is.	NMI 01B	20.23	148.80	Sep-1984	6	I
S. Molle Is.	SMI 01C	20.27	148.83	Sep-1985	6	I
Cid Harbour Is.	CID 01A	20.27	148.93	Mar-1992	15	I
Lupton Is.	LUP 01C	20.28	149.12	Sep-1984	30	I
Scawfell Is.	SCF 01A	20.88	149.60	Mar-1987	50	M
Sanctuary Reef	SAN 01A	22.07	152.67	Nov-1985	222	O
Abraham Reef	ABR 01A	22.10	152.50	Dec-1985	195	O
Masthead Is.	MAS 01C	23.55	151.73	Feb-1987	60	M
Other sites						
Pt Essington	ESS01B	11.11	132.50	Aug-86	<1	I
Pt Essington	ESS02B	11.11	132.50	Aug-86	<1	I
Nightcliffe	NCF01C	12.23	130.50	Aug-86	<1	I
Moorea (Tahiti)	MOO03A	~17.5	~149.83W	Oct-90	<1	I
Bramble Cay	BMR02B	9.13	143.88	Feb-94	50 [‡]	M
Bramble Cay	BRM03C	9.13	143.88	Feb-94	50	M
Madang	MAD 1a	5.22	145.82	1991	<5	I

[‡] Distance from Papua New Guinea

Table 3. Average (± 1 sd) annual coral growth characteristics for coral colonies, averaged by reef.

Reef	ASH	LAG	EEL	POR	ROC	NIG	13-055	13-050	TYD	PIP	FLI	WAT	PET	TWO
Latitude °S	10.25	12.38	12.50	12.60	12.60	13.18	13.30	13.33	14.00	14.12	14.15	14.47	14.73	15.03
Longitude °E	144.50	143.73	143.52	143.42	143.40	143.57	143.77	143.95	144.52	144.52	144.27	144.88	145.10	145.42
Height mm	298±142	333±60	348±74	365±40	300±28	313±70	367±72	382±69	453±45	395±94	396±51	389±94	403±83	441±133
Width mm	338±95	456±83	430±106	593±221	426±53	431±115	441±66	506±64	462±59	505±117	509±55	457±84	502±84	471±86
H/W ratio	0.86±0.19	0.73±0.08	0.83±0.21	0.66±0.18	0.71±0.12	0.74±0.13	0.84±0.14	0.75±0.08	0.99±0.13	0.79±0.08	0.79±0.13	0.85±0.13	0.81±0.14	0.94±0.21
# colonies	4	12	13	4	5	12	14	9	6	6	7	10	6	9
Track 1														
<i>TTL</i> mm	4.05±0.84	5.93±0.99	6.19±0.77	5.53±0.29	4.21±1.12	4.59±0.89	5.27±0.68	5.63±0.82	5.08±0.95	5.52±0.97	6.65±1.90	4.25±0.68	5.95±2.43	5.28±0.72
<i>ETTL</i> yr	0.43±0.11	0.52±0.13	0.45±0.12	0.33±0.05	0.28±0.07	0.40±0.14	0.40±0.08	0.39±0.08	0.39±0.11	0.36±0.08	0.55±0.19	0.30±0.06	0.42±0.25	0.44±0.09
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.34±0.12	1.46±0.10	1.32±0.13	1.19±0.11	1.32±0.10	1.34±0.10	1.30±0.10	1.35±0.10	1.24±0.10	1.24±0.10	1.19±0.10	1.27±0.14	1.14±0.10	1.24±0.10
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.38±0.13	1.52±0.11	1.38±0.12	1.25±0.11	1.38±0.12	1.41±0.09	1.35±0.10	1.42±0.11	1.33±0.11	1.31±0.08	1.25±0.09	1.34±0.13	1.22±0.10	1.30±0.09
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.31±0.12	1.41±0.10	1.27±0.13	1.12±0.12	1.27±0.09	1.28±0.11	1.25±0.10	1.29±0.10	1.16±0.10	1.17±0.11	1.14±0.11	1.19±0.15	1.07±0.10	1.18±0.10
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.08±0.01	0.11±0.03	0.11±0.05	0.13±0.01	0.11±0.03	0.12±0.03	0.10±0.03	0.13±0.04	0.16±0.03	0.14±0.03	0.11±0.03	0.15±0.03	0.15±0.04	0.12±0.03
<i>H-H_{dis}</i> mm.yr ⁻¹	9.4±0.6	11.8±2.2	14.6±3.8	17.3±2.4	15.1±0.8	12.0±2.3	13.6±2.8	14.6±2.4	13.4±1.8	15.6±1.0	12.6±2.9	13.1±4.7	15.7±3.5	12.3±2.3
<i>H-L_{dis}</i> mm.yr ⁻¹	5.0±0.4	5.6±1.2	7.4±2.0	9.4±2.0	8.0±1.0	6.2±1.3	7.2±2.0	7.3±1.7	7.3±1.5	7.9±0.7	6.4±1.8	7.0±1.2	7.8±2.1	6.4±1.1
<i>L-H_{dis}</i> mm.yr ⁻¹	4.6±0.8	6.3±1.2	7.1±2.2	7.9±0.5	7.2±0.2	5.8±1.0	6.5±1.2	7.3±1.2	6.1±0.7	7.7±0.8	6.3±1.6	7.2±1.5	7.8±1.8	5.9±1.4
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.27±0.18	1.72±0.30	1.91±0.45	2.05±0.37	1.99±0.16	1.60±0.27	1.77±0.39	1.97±0.37	1.64±0.15	1.92±0.17	1.51±0.41	1.78±0.24	1.76±0.27	1.52±0.22
Track 2														
<i>TTL</i> mm	4.48±1.24	5.50±0.75	5.82±0.59	5.66±0.35	5.35±1.17	4.62±1.03	5.13±0.71	5.60±0.52	5.62±0.93	5.50±0.65	5.97±1.57	4.16±0.58	6.35±2.24	4.78±0.39
<i>ETTL</i> yr	0.41±0.14	0.49±0.09	0.43±0.10	0.34±0.07	0.37±0.06	0.38±0.12	0.40±0.08	0.41±0.11	0.44±0.11	0.37±0.04	0.51±0.16	0.30±0.06	0.44±0.22	0.39±0.09
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.37±0.11	1.46±0.09	1.31±0.10	1.20±0.12	1.29±0.09	1.33±0.08	1.33±0.08	1.37±0.11	1.25±0.11	1.23±0.10	1.19±0.08	1.24±0.09	1.15±0.09	1.26±0.11
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.41±0.12	1.51±0.09	1.36±0.10	1.26±0.13	1.35±0.10	1.40±0.07	1.37±0.07	1.43±0.11	1.01±1.32	1.30±0.09	1.25±0.08	1.31±0.09	1.22±0.09	1.32±0.10
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.32±0.11	1.41±0.10	1.25±0.11	1.14±0.12	1.24±0.08	1.27±0.09	1.28±0.08	1.31±0.11	1.17±0.11	1.16±0.11	1.14±0.08	1.16±0.10	1.08±0.10	1.21±0.13
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.09±0.01	0.10±0.03	0.12±0.06	0.12±0.02	0.11±0.02	0.13±0.04	0.10±0.03	0.12±0.03	0.15±0.03	0.14±0.03	0.11±0.02	0.15±0.03	0.14±0.02	0.11±0.03
<i>H-H_{dis}</i> mm.yr ⁻¹	11.0±0.8	11.4±1.8	14.0±3.0	17.1±2.6	14.4±1.7	12.7±2.7	13.1±3.0	14.5±3.0	13.1±1.7	14.8±1.5	12.3±2.3	14.3±1.7	15.5±3.0	12.6±2.3
<i>H-L_{dis}</i> mm.yr ⁻¹	5.5±0.3	5.8±1.3	7.1±1.6	8.9±1.6	7.3±1.1	6.6±1.6	6.9±1.8	7.4±2.4	6.7±0.8	7.3±1.1	5.8±1.1	7.5±1.5	7.8±1.2	6.4±1.1
<i>L-H_{dis}</i> mm.yr ⁻¹	5.6±0.6	5.6±0.8	7.0±1.7	8.2±1.2	7.1±0.8	6.2±1.4	6.2±1.4	7.1±2.1	6.4±1.2	7.5±0.8	6.4±1.6	6.9±0.9	7.7±1.9	6.3±1.6
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.50±0.11	1.66±0.25	1.82±0.36	2.03±0.24	1.85±0.20	1.69±0.31	1.73±0.38	1.96±0.40	1.62±0.15	1.81±0.22	1.46±0.31	1.76±0.18	1.75±0.24	1.57±0.21
Track 3														
<i>TTL</i> mm	3.77±0.87	5.11±0.86	5.66±0.52	5.58±0.61	4.94±0.99	4.32±1.19	4.35±0.78	4.82±0.86	4.23±1.24	4.53±1.26	5.53±1.03	3.64±0.64	5.10±1.53	3.73±1.06
<i>ETTL</i> yr	0.43±0.08	0.52±0.19	0.48±0.12	0.36±0.09	0.37±0.09	0.38±0.14	0.41±0.09	0.40±0.14	0.43±0.11	0.38±0.06	0.65±0.11	0.32±0.06	0.45±0.26	0.40±0.11
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.38±0.12	1.46±0.07	1.32±0.11	1.16±0.12	1.27±0.06	1.34±0.12	1.30±0.08	1.36±0.06	1.26±0.07	1.23±0.05	1.20±0.09	1.27±0.10	1.13±0.06	1.25±0.07
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.43±0.12	1.51±0.06	1.38±0.11	1.22±0.14	1.32±0.06	1.40±0.11	1.35±0.08	1.41±0.06	1.00±0.08	1.29±0.05	1.25±0.09	1.32±0.09	1.20±0.05	1.30±0.07
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.34±0.12	1.42±0.08	1.27±0.11	1.10±0.12	1.22±0.05	1.28±0.12	1.26±0.08	1.31±0.07	1.19±0.07	1.17±0.06	1.14±0.10	1.22±0.10	1.06±0.08	1.20±0.08
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.08±0.01	0.10±0.03	0.11±0.06	0.13±0.02	0.10±0.03	0.12±0.03	0.09±0.03	0.10±0.04	0.14±0.03	0.12±0.04	0.12±0.06	0.11±0.02	0.14±0.05	0.10±0.03
<i>H-H_{dis}</i> mm.yr ⁻¹	8.7±0.7	10.6±2.9	12.4±3.4	16.2±2.5	13.5±2.3	11.8±2.8	10.8±2.3	12.9±3.1	10.0±2.3	11.8±1.8	8.7±1.0	11.9±2.5	13.1±3.9	9.5±1.3
<i>H-L_{dis}</i> mm.yr ⁻¹	4.4±0.5	5.3±1.5	6.2±1.9	8.1±1.5	7.2±1.5	5.9±1.5	5.4±1.1	6.7±2.2	5.2±1.3	6.0±0.7	3.9±0.4	5.9±1.2	6.3±1.8	4.7±0.7
<i>L-H_{dis}</i> mm.yr ⁻¹	4.4±0.3	5.3±1.4	6.2±1.6	8.1±1.6	6.2±1.1	5.8±1.4	5.5±1.4	6.2±1.3	4.9±1.0	5.8±1.2	4.9±0.8	6.0±1.6	6.8±2.2	4.7±0.9
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.20±0.19	1.53±0.37	1.62±0.41	1.85±0.08	1.70±0.28	1.56±0.33	1.40±0.29	1.74±0.41	1.25±0.29	1.45±0.22	1.04±0.15	1.50±0.30	1.46±0.39	1.18±0.15

Table 3 continued. Average ($\pm$ 1sd) annual coral growth characteristics for coral colonies, averaged by reef.

Reef	BOU	HOP	UND	SNA	BATT	DOU	STE	BED	MYR	RIB	PAN	SHW	20-200	CRE
Latitude °S	15.42	15.73	16.12	16.29	16.38	16.73	17.73	18.00	18.27	18.48	18.80	20.45	20.50	20.53
Longitude °E	145.42	145.45	145.63	145.46	145.70	145.68	146.15	146.13	147.38	146.88	146.43	149.07	150.55	149.95
Height mm	395 $\pm$ 31	461 $\pm$ 91	456 $\pm$ 154	409 $\pm$ 85	409 $\pm$ 154	366 $\pm$ 59	276 $\pm$ 68	308 $\pm$ 86	357 $\pm$ 93	361 $\pm$ 50	293 $\pm$ 63	316 $\pm$ 78	352 $\pm$ 102	315 $\pm$ 83
Width mm	460 $\pm$ 20	444 $\pm$ 47	514 $\pm$ 104	421 $\pm$ 90	422 $\pm$ 143	474 $\pm$ 95	328 $\pm$ 65	339 $\pm$ 87	461 $\pm$ 87	460 $\pm$ 72	427 $\pm$ 55	450 $\pm$ 69	461 $\pm$ 105	412 $\pm$ 104
H/W ratio	0.86 $\pm$ 0.06	1.04 $\pm$ 0.18	0.88 $\pm$ 0.17	0.98 $\pm$ 0.18	0.97 $\pm$ 0.17	0.79 $\pm$ 0.17	0.85 $\pm$ 0.23	0.93 $\pm$ 0.18	0.78 $\pm$ 0.14	0.79 $\pm$ 0.11	0.68 $\pm$ 0.12	0.70 $\pm$ 0.14	0.77 $\pm$ 0.16	0.77 $\pm$ 0.09
# colonies	6	9	5	8	10	8	12	9	9	9	7	5	9	11
Track 1														
TTL mm	5.50 $\pm$ 0.97	5.95 $\pm$ 1.11	6.07 $\pm$ 0.79	5.28 $\pm$ 1.30	4.99 $\pm$ 1.21	6.17 $\pm$ 1.03	4.87 $\pm$ 1.22	4.24 $\pm$ 1.15	5.34 $\pm$ 1.50	7.25 $\pm$ 1.29	6.03 $\pm$ 0.96	5.20 $\pm$ 0.32	5.09 $\pm$ 1.41	4.21 $\pm$ 1.00
ETTL yr	0.42 $\pm$ 0.09	0.39 $\pm$ 0.08	0.52 $\pm$ 0.07	0.33 $\pm$ 0.08	0.40 $\pm$ 0.14	0.37 $\pm$ 0.07	0.40 $\pm$ 0.15	0.33 $\pm$ 0.12	0.63 $\pm$ 0.20	0.61 $\pm$ 0.18	0.44 $\pm$ 0.13	0.61 $\pm$ 0.18	0.52 $\pm$ 0.16	0.48 $\pm$ 0.15
A_{den} g.cm ⁻³ .yr ⁻¹	1.21 $\pm$ 0.09	1.18 $\pm$ 0.11	1.29 $\pm$ 0.10	1.10 $\pm$ 0.08	1.28 $\pm$ 0.10	1.10 $\pm$ 0.10	1.17 $\pm$ 0.14	1.16 $\pm$ 0.12	1.55 $\pm$ 0.19	1.42 $\pm$ 0.19	1.34 $\pm$ 0.20	1.30 $\pm$ 0.10	1.34 $\pm$ 0.15	1.28 $\pm$ 0.13
H_{den} g.cm ⁻³ .yr ⁻¹	1.27 $\pm$ 0.09	1.26 $\pm$ 0.11	1.35 $\pm$ 0.10	1.17 $\pm$ 0.08	1.34 $\pm$ 0.10	1.18 $\pm$ 0.09	1.25 $\pm$ 0.13	1.23 $\pm$ 0.11	1.60 $\pm$ 0.19	1.49 $\pm$ 0.20	1.41 $\pm$ 0.20	1.35 $\pm$ 0.09	1.38 $\pm$ 0.15	1.32 $\pm$ 0.12
L_{den} g.cm ⁻³ .yr ⁻¹	1.16 $\pm$ 0.09	1.11 $\pm$ 0.12	1.24 $\pm$ 0.09	1.03 $\pm$ 0.08	1.22 $\pm$ 0.11	1.03 $\pm$ 0.11	1.10 $\pm$ 0.15	1.08 $\pm$ 0.13	1.49 $\pm$ 0.20	1.35 $\pm$ 0.19	1.27 $\pm$ 0.20	1.26 $\pm$ 0.10	1.29 $\pm$ 0.16	1.23 $\pm$ 0.14
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.11 $\pm$ 0.01	0.14 $\pm$ 0.03	0.11 $\pm$ 0.02	0.15 $\pm$ 0.03	0.12 $\pm$ 0.03	0.15 $\pm$ 0.05	0.15 $\pm$ 0.04	0.15 $\pm$ 0.05	0.11 $\pm$ 0.04	0.14 $\pm$ 0.05	0.15 $\pm$ 0.03	0.09 $\pm$ 0.02	0.10 $\pm$ 0.03	0.09 $\pm$ 0.03
$H-H_{dis}$ mm.yr ⁻¹	13.4 $\pm$ 2.6	15.4 $\pm$ 0.7	11.8 $\pm$ 1.3	16.3 $\pm$ 2.7	13.2 $\pm$ 2.3	17.0 $\pm$ 2.8	12.7 $\pm$ 2.4	13.7 $\pm$ 3.8	8.5 $\pm$ 1.1	12.5 $\pm$ 2.6	14.4 $\pm$ 3.5	9.2 $\pm$ 3.2	10.4 $\pm$ 2.8	9.1 $\pm$ 2.1
$H-L_{dis}$ mm.yr ⁻¹	7.1 $\pm$ 1.4	7.6 $\pm$ 0.8	5.9 $\pm$ 0.8	8.3 $\pm$ 1.8	6.3 $\pm$ 1.1	8.5 $\pm$ 1.8	6.1 $\pm$ 1.2	7.1 $\pm$ 2.0	4.2 $\pm$ 0.3	6.3 $\pm$ 1.5	7.4 $\pm$ 2.0	4.7 $\pm$ 2.0	5.5 $\pm$ 1.7	5.0 $\pm$ 1.6
$L-H_{dis}$ mm.yr ⁻¹	6.3 $\pm$ 1.3	7.9 $\pm$ 1.1	5.9 $\pm$ 0.7	8.0 $\pm$ 1.2	6.9 $\pm$ 1.5	8.5 $\pm$ 1.3	6.6 $\pm$ 1.4	6.7 $\pm$ 1.9	4.3 $\pm$ 0.9	6.1 $\pm$ 1.5	6.9 $\pm$ 1.8	4.5 $\pm$ 1.2	4.9 $\pm$ 1.2	4.1 $\pm$ 0.8
CALCN g.cm ⁻² .yr ⁻¹	1.61 $\pm$ 0.26	1.82 $\pm$ 0.20	1.52 $\pm$ 0.19	1.79 $\pm$ 0.33	1.67 $\pm$ 0.20	1.85 $\pm$ 0.21	1.46 $\pm$ 0.19	1.55 $\pm$ 0.33	1.31 $\pm$ 0.17	1.75 $\pm$ 0.32	1.86 $\pm$ 0.24	1.18 $\pm$ 0.32	1.35 $\pm$ 0.27	1.14 $\pm$ 0.19
Track 2														
TTL mm	5.58 $\pm$ 0.57	5.97 $\pm$ 0.85	6.71 $\pm$ 1.01	4.83 $\pm$ 1.50	5.19 $\pm$ 1.07	6.39 $\pm$ 1.10	4.84 $\pm$ 0.98	4.21 $\pm$ 0.74	5.50 $\pm$ 1.03	7.16 $\pm$ 1.59	6.54 $\pm$ 0.98	5.59 $\pm$ 0.62	4.48 $\pm$ 1.09	4.45 $\pm$ 0.72
ETTL yr	0.45 $\pm$ 0.09	0.38 $\pm$ 0.06	0.58 $\pm$ 0.09	0.30 $\pm$ 0.07	0.43 $\pm$ 0.14	0.38 $\pm$ 0.07	0.42 $\pm$ 0.12	0.36 $\pm$ 0.13	0.68 $\pm$ 0.15	0.60 $\pm$ 0.17	0.52 $\pm$ 0.15	0.69 $\pm$ 0.16	0.49 $\pm$ 0.14	0.52 $\pm$ 0.12
A_{den} g.cm ⁻³ .yr ⁻¹	1.23 $\pm$ 0.08	1.16 $\pm$ 0.09	1.24 $\pm$ 0.10	1.10 $\pm$ 0.10	1.28 $\pm$ 0.09	1.07 $\pm$ 0.09	1.16 $\pm$ 0.12	1.16 $\pm$ 0.10	1.59 $\pm$ 0.15	1.39 $\pm$ 0.12	1.34 $\pm$ 0.20	1.32 $\pm$ 0.12	1.33 $\pm$ 0.11	1.30 $\pm$ 0.11
H_{den} g.cm ⁻³ .yr ⁻¹	1.29 $\pm$ 0.08	1.23 $\pm$ 0.08	1.30 $\pm$ 0.11	1.17 $\pm$ 0.10	1.35 $\pm$ 0.09	1.14 $\pm$ 0.09	1.23 $\pm$ 0.11	1.23 $\pm$ 0.10	1.65 $\pm$ 0.15	1.46 $\pm$ 0.11	1.41 $\pm$ 0.19	1.37 $\pm$ 0.11	1.38 $\pm$ 0.10	1.35 $\pm$ 0.11
L_{den} g.cm ⁻³ .yr ⁻¹	1.17 $\pm$ 0.08	1.09 $\pm$ 0.10	1.18 $\pm$ 0.10	1.04 $\pm$ 0.11	1.22 $\pm$ 0.10	0.99 $\pm$ 0.09	1.09 $\pm$ 0.13	1.10 $\pm$ 0.11	1.54 $\pm$ 0.16	1.32 $\pm$ 0.13	1.27 $\pm$ 0.22	1.28 $\pm$ 0.13	1.29 $\pm$ 0.11	1.26 $\pm$ 0.11
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.11 $\pm$ 0.02	0.14 $\pm$ 0.03	0.12 $\pm$ 0.05	0.13 $\pm$ 0.04	0.13 $\pm$ 0.03	0.15 $\pm$ 0.04	0.14 $\pm$ 0.04	0.13 $\pm$ 0.04	0.11 $\pm$ 0.02	0.15 $\pm$ 0.06	0.14 $\pm$ 0.05	0.09 $\pm$ 0.04	0.09 $\pm$ 0.03	0.09 $\pm$ 0.02
$H-H_{dis}$ mm.yr ⁻¹	12.8 $\pm$ 2.1	15.6 $\pm$ 1.2	11.8 $\pm$ 1.5	16.3 $\pm$ 3.2	12.8 $\pm$ 2.3	16.8 $\pm$ 2.0	12.2 $\pm$ 2.8	12.7 $\pm$ 2.9	8.2 $\pm$ 1.2	12.3 $\pm$ 2.7	13.4 $\pm$ 3.5	8.5 $\pm$ 2.7	9.6 $\pm$ 2.6	8.9 $\pm$ 2.4
$H-L_{dis}$ mm.yr ⁻¹	6.4 $\pm$ 1.5	7.1 $\pm$ 1.2	5.7 $\pm$ 0.6	7.9 $\pm$ 1.9	6.2 $\pm$ 1.0	8.5 $\pm$ 1.5	6.3 $\pm$ 1.3	6.5 $\pm$ 1.4	4.2 $\pm$ 0.7	6.4 $\pm$ 1.4	6.7 $\pm$ 2.0	4.3 $\pm$ 1.9	4.8 $\pm$ 1.3	4.7 $\pm$ 1.3
$L-H_{dis}$ mm.yr ⁻¹	6.3 $\pm$ 1.0	8.5 $\pm$ 0.9	6.1 $\pm$ 1.3	8.4 $\pm$ 1.9	6.7 $\pm$ 1.5	8.3 $\pm$ 1.2	5.8 $\pm$ 1.9	6.2 $\pm$ 1.8	4.0 $\pm$ 0.5	6.3 $\pm$ 1.6	6.8 $\pm$ 1.7	4.1 $\pm$ 0.8	4.8 $\pm$ 1.3	4.3 $\pm$ 1.2
CALCN g.cm ⁻² .yr ⁻¹	1.55 $\pm$ 0.21	1.81 $\pm$ 0.22	1.46 $\pm$ 0.21	1.81 $\pm$ 0.44	1.63 $\pm$ 0.21	1.78 $\pm$ 0.20	1.39 $\pm$ 0.25	1.46 $\pm$ 0.35	1.29 $\pm$ 0.14	1.69 $\pm$ 0.28	1.74 $\pm$ 0.25	1.09 $\pm$ 0.26	1.26 $\pm$ 0.28	1.14 $\pm$ 0.23
Track 3														
TTL mm	4.00 $\pm$ 0.39	4.75 $\pm$ 0.63	5.46 $\pm$ 0.96	4.28 $\pm$ 1.18	4.06 $\pm$ 0.59	4.40 $\pm$ 1.41	4.55 $\pm$ 1.07	4.12 $\pm$ 1.26	4.95 $\pm$ 1.24	6.48 $\pm$ 1.29	5.29 $\pm$ 0.78	4.74 $\pm$ 1.02	3.97 $\pm$ 0.98	4.35 $\pm$ 0.89
ETTL yr	0.43 $\pm$ 0.09	0.40 $\pm$ 0.05	0.56 $\pm$ 0.09	0.32 $\pm$ 0.09	0.43 $\pm$ 0.17	0.33 $\pm$ 0.10	0.41 $\pm$ 0.07	0.40 $\pm$ 0.09	0.64 $\pm$ 0.26	0.57 $\pm$ 0.16	0.44 $\pm$ 0.12	0.83 $\pm$ 0.28	0.49 $\pm$ 0.15	0.53 $\pm$ 0.13
A_{den} g.cm ⁻³ .yr ⁻¹	1.26 $\pm$ 0.07	1.20 $\pm$ 0.12	1.25 $\pm$ 0.06	1.13 $\pm$ 0.09	1.27 $\pm$ 0.14	1.09 $\pm$ 0.10	1.12 $\pm$ 0.11	1.11 $\pm$ 0.07	1.58 $\pm$ 0.17	1.42 $\pm$ 0.09	1.36 $\pm$ 0.23	1.30 $\pm$ 0.15	1.38 $\pm$ 0.12	1.30 $\pm$ 0.11
H_{den} g.cm ⁻³ .yr ⁻¹	1.31 $\pm$ 0.07	1.26 $\pm$ 0.11	1.30 $\pm$ 0.06	1.22 $\pm$ 0.10	1.33 $\pm$ 0.14	1.15 $\pm$ 0.11	1.18 $\pm$ 0.11	1.18 $\pm$ 0.08	1.64 $\pm$ 0.17	1.49 $\pm$ 0.10	1.42 $\pm$ 0.22	1.32 $\pm$ 0.19	1.42 $\pm$ 0.12	1.34 $\pm$ 0.11
L_{den} g.cm ⁻³ .yr ⁻¹	1.21 $\pm$ 0.07	1.14 $\pm$ 0.12	1.21 $\pm$ 0.06	1.07 $\pm$ 0.09	1.21 $\pm$ 0.14	1.02 $\pm$ 0.10	1.05 $\pm$ 0.11	1.04 $\pm$ 0.06	1.52 $\pm$ 0.17	1.34 $\pm$ 0.10	1.29 $\pm$ 0.24	1.23 $\pm$ 0.21	1.33 $\pm$ 0.12	1.26 $\pm$ 0.12
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.10 $\pm$ 0.03	0.12 $\pm$ 0.03	0.09 $\pm$ 0.03	0.13 $\pm$ 0.04	0.12 $\pm$ 0.04	0.13 $\pm$ 0.03	0.13 $\pm$ 0.03	0.14 $\pm$ 0.03	0.12 $\pm$ 0.02	0.15 $\pm$ 0.06	0.13 $\pm$ 0.04	0.09 $\pm$ 0.04	0.08 $\pm$ 0.02	0.09 $\pm$ 0.02
$H-H_{dis}$ mm.yr ⁻¹	9.7 $\pm$ 1.8	11.6 $\pm$ 2.2	9.7 $\pm$ 1.3	14.1 $\pm$ 3.9	10.2 $\pm$ 2.5	13.6 $\pm$ 1.6	11.5 $\pm$ 2.6	11.5 $\pm$ 3.0	8.0 $\pm$ 1.1	11.8 $\pm$ 2.2	12.5 $\pm$ 3.1	6.5 $\pm$ 3.5	8.7 $\pm$ 2.6	8.5 $\pm$ 2.3
$H-L_{dis}$ mm.yr ⁻¹	4.7 $\pm$ 1.0	5.6 $\pm$ 1.3	4.7 $\pm$ 0.5	6.9 $\pm$ 1.8	5.2 $\pm$ 1.1	6.9 $\pm$ 1.3	5.8 $\pm$ 1.5	5.7 $\pm$ 2.0	3.9 $\pm$ 0.7	5.8 $\pm$ 1.5	6.1 $\pm$ 1.5	3.8 $\pm$ 1.8	4.5 $\pm$ 1.4	4.4 $\pm$ 1.6
$L-H_{dis}$ mm.yr ⁻¹	5.0 $\pm$ 1.0	6.0 $\pm$ 1.2	5.0 $\pm$ 0.8	7.1 $\pm$ 2.5	5.0 $\pm$ 1.5	6.8 $\pm$ 1.0	5.8 $\pm$ 1.5	5.8 $\pm$ 1.2	4.0 $\pm$ 0.7	6.0 $\pm$ 1.0	6.4 $\pm$ 1.6	4.0 $\pm$ 2.3	4.1 $\pm$ 1.1	4.1 $\pm$ 0.8
CALCN g.cm ⁻² .yr ⁻¹	1.21 $\pm$ 0.20	1.39 $\pm$ 0.30	1.21 $\pm$ 0.14	1.59 $\pm$ 0.48	1.27 $\pm$ 0.25	1.47 $\pm$ 0.10	1.27 $\pm$ 0.25	1.26 $\pm$ 0.31	1.24 $\pm$ 0.14	1.65 $\pm$ 0.25	1.65 $\pm$ 0.28	0.78 $\pm$ 0.28	1.17 $\pm$ 0.29	1.08 $\pm$ 0.21

Table 3 continued. Average ($\pm$ 1sd) annual coral growth characteristics for coral colonies, averaged by reef.

Reef	21-141	PER	OTR	MIST01	MIST02	MIST03	MIST03D	MIST04	MIST05	MIST06	MIST07	MIST08	MIST09	MIST10
Latitude °S	21.52	21.65	23.50	~10.60	~10.60	~10.60	~10.60	~10.60	~10.60	~10.60	~10.60	~10.60	~10.60	~10.60
Longitude °E	151.22	150.25	152.08	~152.80	~152.80	~152.80	~152.80	~152.80	~152.80	~152.80	~152.80	~152.80	~152.80	~152.80
Height mm	324±96	290±23	132±21	262±54	238±39	322±63	273±55	281±64	258±67	290±38	232±66	241±43	238±64	242±51
Width mm	446±122	503±136	181±28	250±25	256±24	295±33	211±33	314±85	241±33	225±18	239±34	239±61	262±47	224±36
H/W ratio	0.72±0.06	0.61±0.14	0.75±0.16	1.05±0.19	0.93±0.10	1.10±0.20	1.34±0.42	0.93±0.26	1.09±0.30	1.30±0.22	0.97±0.26	1.05±0.26	0.91±0.20	1.08±0.16
# colonies	14	6	10	10	9	10	8	7	9	7	9	9	10	5
Track 1														
TTL mm	4.29±0.79	5.20±1.47	4.85±0.51	4.27±1.08	3.58±0.60	4.15±0.81	2.89±0.30	3.55±0.79	3.33±0.44	3.37±0.47	4.01±0.64	4.41±0.81	4.56±0.61	4.04±0.72
ETTL yr	0.46±0.13	0.65±0.29	1.06±0.28	0.37±0.11	0.25±0.04	0.34±0.08	0.28±0.06	0.34±0.10	0.27±0.06	0.26±0.06	0.35±0.09	0.38±0.07	0.37±0.10	0.29±0.08
$A_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	1.30±0.11	1.24±0.14	1.61±0.20	1.25±0.15	1.23±0.06	1.32±0.06	1.32±0.11	1.39±0.15	1.29±0.08	1.37±0.10	1.33±0.06	1.32±0.05	1.36±0.13	1.36±0.15
$H_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	1.35±0.11	1.30±0.16	1.67±0.20	1.31±0.16	1.29±0.06	1.37±0.07	1.37±0.11	1.44±0.15	1.35±0.07	1.41±0.10	1.38±0.05	1.38±0.05	1.41±0.13	1.43±0.16
$L_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	1.25±0.12	1.19±0.15	1.54±0.20	1.20±0.14	1.18±0.06	1.26±0.07	1.27±0.12	1.33±0.14	1.22±0.08	1.33±0.10	1.28±0.07	1.25±0.05	1.31±0.14	1.29±0.15
$H-L_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	0.10±0.03	0.10±0.02	0.13±0.03	0.11±0.04	0.11±0.02	0.12±0.03	0.10±0.03	0.10±0.03	0.13±0.03	0.09±0.02	0.10±0.04	0.12±0.03	0.11±0.03	0.14±0.03
$H-H_{dis} \text{ mm.yr}^{-1}$	9.5±1.8	9.2±3.5	4.8±1.0	11.8±2.0	14.7±2.3	12.9±2.0	10.8±2.1	10.8±2.1	12.9±2.6	13.5±3.1	11.9±3.0	11.9±2.4	12.8±2.9	14.7±2.9
$H-L_{dis} \text{ mm.yr}^{-1}$	4.9±1.0	4.9±1.2	2.5±0.6											
$L-H_{dis} \text{ mm.yr}^{-1}$	4.6±1.0	5.0±2.1	2.3±0.6											
CALCN $\text{g.cm}^{-2} \text{ yr}^{-1}$	1.23±0.21	1.13±0.48	0.77±0.21	1.47±0.25	1.81±0.34	1.68±0.23	1.41±0.26	1.48±0.22	1.66±0.34	1.83±0.36	1.57±0.33	1.56±0.29	1.71±0.32	1.98±0.38
Track 2														
TTL mm	4.24±0.94	4.83±0.76	4.67±0.43	4.39±0.74	3.46±0.51	3.97±0.52	3.05±0.41	3.77±0.66	3.35±0.79	3.22±0.60	4.07±0.72	4.18±1.04	4.62±0.76	4.17±0.71
ETTL yr	0.47±0.15	0.68±0.11	1.05±0.27	0.39±0.08	0.24±0.04	0.33±0.06	0.31±0.11	0.38±0.07	0.27±0.07	0.29±0.10	0.37±0.09	0.35±0.12	0.40±0.10	0.31±0.10
$A_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	1.31±0.11	1.27±0.13	1.35±0.18	1.26±0.14	1.25±0.08	1.33±0.09	1.32±0.09	1.36±0.12	1.31±0.10	1.38±0.10	1.29±0.09	1.33±0.06	1.41±0.12	1.38±0.12
$H_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	1.35±0.11	1.33±0.16	1.41±0.17	1.31±0.15	1.30±0.07	1.39±0.08	1.37±0.10	1.41±0.14	1.37±0.09	1.43±0.10	1.34±0.08	1.39±0.05	1.46±0.12	1.44±0.12
$L_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	1.26±0.11	1.21±0.14	1.28±0.19	1.21±0.13	1.20±0.09	1.28±0.09	1.27±0.09	1.31±0.11	1.24±0.10	1.33±0.09	1.24±0.09	1.27±0.06	1.36±0.13	1.31±0.12
$H-L_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	0.09±0.02	0.11±0.03	0.13±0.03	0.10±0.03	0.10±0.03	0.11±0.02	0.10±0.04	0.10±0.03	0.13±0.03	0.10±0.02	0.10±0.02	0.12±0.03	0.10±0.03	0.12±0.03
$H-H_{dis} \text{ mm.yr}^{-1}$	9.4±1.7	7.4±2.2	4.6±0.7	11.6±1.9	14.3±1.6	12.4±1.8	10.5±2.4	9.9±0.8	12.8±2.4	12.2±3.1	11.6±3.0	12.4±2.7	12.2±3.0	13.9±2.7
$H-L_{dis} \text{ mm.yr}^{-1}$	4.7±0.9	4.1±0.9	2.3±0.4											
$L-H_{dis} \text{ mm.yr}^{-1}$	4.7±1.0	4.5±0.8	2.3±0.4											
CALCN $\text{g.cm}^{-2} \text{ yr}^{-1}$	1.21±0.19	0.95±0.32	0.61±0.08	1.45±0.23	1.79±0.28	1.64±0.21	1.38±0.34	1.34±0.13	1.66±0.30	1.66±0.36	1.49±0.36	1.63±0.33	1.68±0.35	1.91±0.39
Track 3														
TTL mm	3.50±0.80	4.81±0.98												
ETTL yr	0.46±0.19	0.70±0.15												
$A_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	1.34±0.12	1.23±0.11												
$H_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	1.38±0.12	1.27±0.12												
$L_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	1.30±0.13	1.18±0.12												
$H-L_{den} \text{ g.cm}^{-3} \text{ yr}^{-1}$	0.07±0.03	0.08±0.02												
$H-H_{dis} \text{ mm.yr}^{-1}$	7.8±2.1	7.0±1.1												
$H-L_{dis} \text{ mm.yr}^{-1}$	3.9±1.1	3.6±0.3												
$L-H_{dis} \text{ mm.yr}^{-1}$	3.9±1.2	3.7±0.7												
CALCN $\text{g.cm}^{-2} \text{ yr}^{-1}$	1.03±0.26	0.85±0.15												

Table 3 continued. Average ($\pm$ 1sd) annual coral growth characteristics for coral colonies, averaged by reef.

Reef	HUON old	HUON modern
Latitude °S	~6.00	~6.00
Longitude °E	~147.00	~147.00
Height mm	290 $\pm$ 107	245
Width mm	295 $\pm$ 38	180
H/W ratio	0.99 $\pm$ 0.33	1.44
# colonies	6	2
Track 1		
<i>TTL</i> mm	3.17	4.34
<i>ETTL</i> yr	0.27	0.39
<i>A_{den}</i> g.cm ³ .yr ⁻¹	1.26 $\pm$ 0.10	1.20
<i>H_{den}</i> g.cm ³ .yr ⁻¹	1.32 $\pm$ 0.10	1.24
<i>L_{den}</i> g.cm ³ .yr ⁻¹	1.20 $\pm$ 0.11	1.15
<i>H-L_{den}</i> g.cm ³ .yr ⁻¹	0.12 $\pm$ 0.04	0.10
<i>H-H_{dis}</i> mm.yr ⁻¹	13.5 $\pm$ 3.5	11.2
<i>H-L_{dis}</i> mm.yr ⁻¹	6.9 $\pm$ 2.2	5.3
<i>L-H_{dis}</i> mm.yr ⁻¹	6.6 $\pm$ 1.7	5.9
<i>CALCN</i> g.cm ² .yr ⁻¹	1.69 $\pm$ 0.47	1.33
Track 2		
<i>TTL</i> mm	2.47	4.22
<i>ETTL</i> yr	0.19	0.28
<i>A_{den}</i> g.cm ³ .yr ⁻¹	1.29 $\pm$ 0.11	1.12
<i>H_{den}</i> g.cm ³ .yr ⁻¹	1.35 $\pm$ 0.11	1.18
<i>L_{den}</i> g.cm ³ .yr ⁻¹	1.23 $\pm$ 0.13	1.06
<i>H-L_{den}</i> g.cm ³ .yr ⁻¹	0.12 $\pm$ 0.07	0.12
<i>H-H_{dis}</i> mm.yr ⁻¹	11.4 $\pm$ 4.2	12.8
<i>H-L_{dis}</i> mm.yr ⁻¹	6.4 $\pm$ 2.6	5.5
<i>L-H_{dis}</i> mm.yr ⁻¹	5.1 $\pm$ 1.8	7.4
<i>CALCN</i> g.cm ² .yr ⁻¹	1.46 $\pm$ 0.52	1.47
Track 3		
<i>TTL</i> mm	3.47	4.40
<i>ETTL</i> yr	0.40	0.53
<i>A_{den}</i> g.cm ³ .yr ⁻¹	1.28 $\pm$ 0.10	1.20
<i>H_{den}</i> g.cm ³ .yr ⁻¹	1.34 $\pm$ 0.10	1.25
<i>L_{den}</i> g.cm ³ .yr ⁻¹	1.22 $\pm$ 0.12	1.16
<i>H-L_{den}</i> g.cm ³ .yr ⁻¹	0.12 $\pm$ 0.06	0.09
<i>H-H_{dis}</i> mm.yr ⁻¹	11.7 $\pm$ 3.7	9.1
<i>H-L_{dis}</i> mm.yr ⁻¹	5.9 $\pm$ 1.9	4.4
<i>L-H_{dis}</i> mm.yr ⁻¹	5.9 $\pm$ 1.8	4.7
<i>CALCN</i> g.cm ² .yr ⁻¹	1.48 $\pm$ 0.44	1.06

Table 4. Average annual coral growth characteristics for coral cores, 1934-1982 base period.

Reef	Height m	Start year	End Year	TTL mm	ETTL yr	A_{den} g.cm ⁻³ .yr ⁻¹	H_{den} g.cm ⁻³ .yr ⁻¹	L_{den} g.cm ⁻³ .yr ⁻¹	$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	$H-H_{dis}$ mm.yr ⁻¹	$H-L_{dis}$ mm.yr ⁻¹	$L-H_{dis}$ mm.yr ⁻¹	CALCN g.cm ⁻² .yr ⁻¹
Darnley Is.	3.0	1788	1985	7.48	0.57	1.39±0.06	1.44±0.07	1.34±0.06	0.10±0.05	13.2±3.9	6.8±3.3	6.5±3.3	1.83±0.51
Red Wallis Is.	2.0	1860	1985	8.78	0.51	1.14±0.06	1.20±0.06	1.08±0.08	0.13±0.06	17.3±4.5	9.4±4.4	7.9±3.6	1.96±0.51
Pascoe River	1.6	1807	1985	6.92	0.53	1.12±0.06	1.15±0.06	1.08±0.06	0.07±0.04	13.0±3.9	6.7±3.3	6.3±3.1	1.45±0.44
Burkitt Is.	2.5	1916	1984	4.77	0.25	1.17±0.07	1.25±0.07	1.10±0.09	0.15±0.07	19.4±6.3	10.3±4.9	9.1±5.1	2.26±0.68
Jeannie River	3.2	1740	1985	4.58	0.39	0.99±0.03	1.03±0.04	0.95±0.04	0.08±0.05	11.6±3.9	6.1±2.8	5.5±2.2	1.15±0.38
Conical Rocks	3.0	1851	1984	8.34	0.45	1.17±0.07	1.23±0.06	1.11±0.08	0.12±0.05	18.7±6.5	9.7±4.7	9.0±6.2	2.17±0.71
Agincourt Reef	4.0	1779	1988	9.71	0.51	1.06±0.07	1.10±0.07	1.02±0.07	0.08±0.03	19.1±5.9	9.4±5.5	9.7±5.0	2.02±0.62
Snapper Is.	3.0	1923	1984	6.18	0.29	1.16±0.11	1.22±0.10	1.09±0.13	0.13±0.06	21.7±6.7	11.6±5.7	10.0±5.5	2.49±0.76
Low Isles	2.0	1934	1984	6.00	0.30	1.20±0.08	1.26±0.08	1.13±0.10	0.13±0.06	19.9±4.4	10.3±3.8	9.6±4.2	2.36±0.49
Flinders Reef	3.0	1718	1991	8.19	0.72	1.24±0.06	1.28±0.07	1.19±0.06	0.09±0.05	11.4±3.0	5.4±2.2	5.9±2.4	1.40±0.36
Kurrimine Beach	2.7	1771	1983	8.99	0.82	1.21±0.04	1.24±0.04	1.17±0.05	0.07±0.04	10.9±3.9	5.5±2.8	5.4±2.6	1.32±0.46
Dunk Is.	2.0	1875	1987	9.77	0.56	1.21±0.05	1.27±0.05	1.15±0.06	0.12±0.05	17.6±6.0	8.8±4.0	8.7±4.2	2.13±0.74
Coombe Is.	2.1	1822	1987	7.79	0.67	1.34±0.07	1.39±0.07	1.29±0.07	0.09±0.04	11.5±3.9	5.8±2.8	5.8±2.7	1.53±0.47
Otter Reef	4.0	1792	1987	8.42	0.48	1.12±0.06	1.17±0.06	1.07±0.07	0.10±0.04	17.6±4.5	8.2±3.9	9.3±4.0	1.96±0.51
Brook Is.	5.0	1746	1986	6.56	0.48	1.26±0.07	1.31±0.07	1.20±0.08	0.11±0.06	13.6±3.0	6.9±3.0	6.7±3.2	1.70±0.35
Britomart Reef	4.6	1574	1986	6.5	0.49	1.21±0.04	1.26±0.03	1.16±0.06	0.10±0.05	13.1±3.5	6.6±2.8	6.5±2.8	1.58±0.41
Rib Reef	4.0	1853	1983	6.15	0.44	1.22±0.04	1.27±0.05	1.17±0.05	0.10±0.06	14.1±4.8	7.8±3.9	6.3±2.7	1.72±0.59
Yankee Reef	4.0	1888	1984	5.23	0.34	1.07±0.08	1.14±0.09	1.00±0.07	0.14±0.05	15.2±2.2	7.7±2.7	7.5±3.0	1.62±0.25
Great Palm Is.	4.0	1872	1985	5.67	0.30	1.02±0.05	1.10±0.06	0.95±0.06	0.15±0.06	18.9±3.9	9.3±3.6	9.7±3.5	1.94±0.39
Lodestone Reef	5.0	1615	1983	6.28	0.43	1.17±0.06	1.23±0.07	1.10±0.07	0.14±0.06	14.6±3.8	6.8±2.4	7.8±2.8	1.70±0.44
Wheeler Reef	4.0	1744	1984	6.12	0.40	1.25±0.09	1.31±0.09	1.19±0.10	0.12±0.07	15.2±5.0	7.9±3.9	7.4±4.3	1.90±0.60
Pandora Reef	1.8	1875	1982	6.48	0.42	1.20±0.05	1.29±0.06	1.12±0.05	0.18±0.07	15.3±2.6	8.0±2.0	7.4±2.2	1.85±0.30
Havannah Is.	6.0	1583	1987	8.88	0.74	1.22±0.04	1.27±0.04	1.17±0.05	0.10±0.04	12.1±3.3	6.0±2.8	6.1±2.6	1.47±0.40
Magnetic Is.	2.4	1820	1986	7.23	0.50	1.01±0.11	1.11±0.10	0.92±0.13	0.20±0.09	14.5±3.6	7.1±2.9	7.4±3.2	1.45±0.34
Stanley Reef	3.5	1912	1985	6.95	0.40	1.21±0.08	1.27±0.08	1.15±0.08	0.12±0.05	17.4±5.3	9.3±4.8	8.1±3.5	2.10±0.66
Hook Is.	4.0	1690	1984	8.28	0.58	1.25±0.09	1.33±0.08	1.16±0.10	0.16±0.06	14.3±3.5	7.4±3.3	7.0±3.7	1.77±0.43
Stonehaven Is.	3.0	1793	1990	5.89	0.37	1.30±0.09	1.36±0.09	1.24±0.10	0.12±0.05	16.1±4.3	8.0±3.1	8.0±4.0	2.09±0.58
N. Molle Is.	6.0	1831	1983	8.76	0.54	0.99±0.07	1.04±0.07	0.93±0.08	0.11±0.06	16.3±5.5	7.6±3.7	8.8±4.2	1.61±0.56
S. Molle Is.	3.0	1814	1983	9.74	0.79	1.03±0.07	1.08±0.08	0.99±0.08	0.09±0.04	12.3±4.4	6.2±3.1	6.1±3.0	1.27±0.46
Cid Harbour Is.	2.0	1816	1991	7.38	0.75	1.17±0.05	1.21±0.05	1.13±0.06	0.08±0.04	9.8±3.3	5.2±2.5	4.7±2.3	1.16±0.39
Lupton Is.	4.0	1818	1983	7.60	0.48	0.98±0.05	1.07±0.06	0.89±0.05	0.18±0.05	15.8±3.3	8.8±2.5	7.0±2.5	1.55±0.34
Scawfell Is.	3.5	1821	1986	5.58	0.34	1.12±0.08	1.23±0.06	1.02±0.11	0.22±0.08	16.2±2.6	9.1±2.4	7.1±2.0	1.82±0.26
Sanctuary Reef	8.0	1501	1984	7.46	0.80	1.26±0.06	1.29±0.06	1.23±0.06	0.05±0.03	9.4±3.5	4.9±2.2	4.5±2.4	1.18±0.44
Abraham Reef	7.5	1479	1985	9.59	0.74	1.10±0.06	1.17±0.07	1.02±0.07	0.16±0.08	13.0±4.0	7.0±2.9	6.0±2.6	1.42±0.45
Masthead Is.	6.0	1753	1985	7.70	0.88	1.30±0.05	1.34±0.05	1.27±0.06	0.07±0.04	8.8±2.9	4.4±2.0	4.3±2.5	1.14±0.37
				TTL	ETTL	A_{den}	H_{den}	L_{den}	H-L_{den}	H-H_{dis}	H-L_{dis}	L-H_{dis}	CALCN
			Mean	7.31	0.52	1.17	1.23	1.11	0.12	14.8	7.6	7.2	1.72
			sd	1.45	0.17	0.10	0.10	0.11	0.04	3.2	1.7	1.6	0.36
			Maximum	9.77	0.88	1.39	1.44	1.34	0.22	21.7	11.6	10.0	2.49
			Minimum	4.58	0.25	0.98	1.03	0.89	0.05	8.8	4.4	4.3	1.14
Pt Essington 01B	2.5	1923	1985	6.03	0.30	1.00±0.09	1.08±0.10	0.92±0.10	0.16±0.09	20.1±5.8	10.4±5.4	9.8±5.6	2.00±0.56
Pt Essington 02B	2.5	1828	1985	6.02	0.49	1.09±0.04	1.12±0.05	1.07±0.05	0.06±0.03	12.4±4.4	6.4±3.5	6.0±3.2	1.36±0.49
Nightcliffe	2.5	1775	1985	3.28	0.46	1.30±0.05	1.33±0.05	1.27±0.06	0.05±0.04	7.2±3.0	3.4±1.8	3.8±2.2	0.93±0.38
Moorea (Tahiti)	3.5	1708	1989	?	?	1.02±0.08	1.06±0.09	0.98±0.09	0.08±0.06	12.8±5.0	6.4±3.7	6.4±3.3	1.31±0.52
Bramble Cay 02B	2.5	1939	1993	4.5	0.25	1.09±0.06	1.19±0.06	0.99±0.07	0.20±0.07	18.3±4.5	9.5±3.4	8.8±3.4	1.98±0.46
Bramble Cay 03C	?	1776	1993	6.5	0.51	1.33±0.07	1.41±0.07	1.26±0.08	0.16±0.06	12.7±2.4	6.1±1.9	6.5±2.1	1.69±0.32
Madang	?	1917	1990	?	?	1.21±0.05	1.25±0.06	1.17±0.06	0.07±0.06	13.3±4.5	6.6±3.3	6.8±3.3	1.61±0.54

Table 5. Correlations between average annual coral growth characteristics, 250 Great Barrier Reef colonies. Values in bold italics are significant at 5% level. Correlations in parentheses for Latitude and Distance are partial correlation coefficients allowing for the effects of Distance and Latitude, respectively.

Variable	<i>TTL</i>	<i>ETTL</i>	<i>A_{den}</i>	<i>H-L_{den}</i>	<i>H-H_{dis}</i>	<i>CALCN</i>	<i>Height</i>	<i>Latitude</i>	<i>Distance</i>
<i>TTL</i>	1								
<i>ETTL</i>	<i>0.62</i>	1							
<i>A_{den}</i>	0.07	<i>0.39</i>	1						
<i>H-L_{den}</i>	0.01	<i>-0.37</i>	<i>-0.29</i>	1					
<i>H-H_{dis}</i>	0.11	<i>-0.65</i>	<i>-0.47</i>	<i>0.48</i>	1				
<i>CALCN</i>	<i>0.15</i>	<i>-0.57</i>	-0.02	<i>0.41</i>	<i>0.85</i>	1			
<i>Height</i>	<i>0.16</i>	-0.06	-0.11	<i>0.13</i>	<i>0.23</i>	<i>0.19</i>	1		
<i>Latitude</i>	<i>-0.16</i> (-0.05)	<i>0.25</i> (0.07)	-0.02 (<i>-0.32</i>)	-0.11 (<i>0.14</i>)	<i>-0.40</i> (-0.11)	<i>-0.51</i> (<i>-0.33</i>)	<i>-0.18</i> (<i>-0.13</i>)	1	
<i>Distance</i>	<i>-0.15</i> (-0.09)	<i>0.30</i> (<i>0.19</i>)	<i>0.29</i> (<i>0.42</i>)	<i>-0.30</i> (<i>-0.31</i>)	<i>-0.49</i> (<i>-0.33</i>)	<i>-0.45</i> (<i>-0.15</i>)	<i>-0.13</i> (0.00)	<i>0.68</i>	1

Table 6. Average annual coral growth characteristics for 357 coral colonies of the Great Barrier Reef region summarized by latitude band.

Region	Height mm	Width mm	H/W ratio	<i>TTL</i> mm	<i>ETTL</i> yr	<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	<i>H-Lden</i> g.cm ⁻³ .yr ⁻¹	<i>H-H_{dis}</i> mm.yr ⁻¹	<i>CALCN</i> g.cm ⁻² .yr ⁻¹	# colonies
N of GBR 10-11°S¹	263±64	255±54	1.05±0.27	3.87±0.83	0.33±0.09	1.32±0.11	0.11±0.03	12.4±2.7	1.62±0.33	97
GBR 12-13°S²	338±62	458±118	0.76±0.16	5.73±1.08	0.43±0.14	1.36±0.14	0.11±0.04	14.0±3.3	1.87±0.37	34
GBR 13-14°S³	353±75	454±89	0.78±0.13	5.13±0.88	0.40±0.10	1.33±0.10	0.12±0.03	13.3±2.7	1.76±0.37	35
GBR 14-15°S⁴	405±77	484±81	0.84±0.14	5.38±1.64	0.40±0.17	1.22±0.12	0.14±0.03	13.9±3.4	1.72±0.29	35
GBR 15-16°S⁵	437±100	458±60	0.96±0.18	5.59±0.95	0.42±0.09	1.21±0.10	0.13±0.03	13.8±2.3	1.66±0.25	24
GBR 16-17°S⁶	405±117	450±114	0.91±0.18	5.54±1.20	0.39±0.11	1.19±0.13	0.13±0.04	14.8±3.1	1.72±0.26	31
GBR 17-18°S⁷	290±76	333±73	0.88±0.21	4.60±1.21	0.37±0.14	1.17±0.13	0.15±0.04	13.1±3.1	1.50±0.25	21
GBR 18-19°S⁸	340±75	451±72	0.76±0.13	6.22±1.50	0.57±0.19	1.44±0.20	0.14±0.05	11.6±3.4	1.62±0.35	25
GBR 20-21°S⁹	328±88	437±98	0.76±0.12	4.73±1.15	0.52±0.16	1.30±0.13	0.09±0.03	9.6±2.6	1.22±0.26	25
GBR 21-22°S¹⁰	314±82	463±125	0.69±0.10	4.56±1.09	0.52±0.20	1.28±0.12	0.10±0.03	9.4±2.3	1.20±0.30	20
S of GBR 23-24°S¹¹	132±21	181±28	0.75±0.16	4.85±0.51	1.06±0.28	1.61±0.20	0.13±0.03	4.8±1.0	0.77±0.21	10
Overall mean & sd	328±101	388±128	0.88±0.23	4.92±1.33	0.43±0.19	1.30±0.15	0.12±0.04	12.5±3.4	1.60±0.38	357
Overall maximum	700	920	2.17	10.13	1.50	1.93	0.26	22.1	2.81	
Overall minimum	91	156	0.43	2.39	0.16	0.92	0.04	1.3	0.51	

¹ Misima Island and Ashmore Reef

² Lagoon, Eel, Portland Roads and Rocky

³ Night, 13-055 and 13-050

⁴ Tydeman, Pison, Flinders, Watson and South Petherbridge

⁵ Two Isles, Boulder and East Hope

⁶ Undine, Snapper, Batt and Double

⁷ Stephens and Bedarra

⁸ Myrmidon, Rib and Pandora

⁹ Shaw, 20-200 and Credlin

¹⁰ 21-141 and Middle Percy

¹¹ One-Tree Island

Table 7. Correlations between average annual coral growth characteristics, 357 colonies. Values in bold italics are significant at 5% level. Correlations in parentheses for Latitude and Distance are partial correlation coefficients allowing for the effects of Distance and Latitude, respectively.

Variable	<i>TTL</i>	<i>ETTL</i>	<i>A_{den}</i>	<i>H-L_{den}</i>	<i>H-H_{dis}</i>	<i>CALCN</i>	Height	Latitude	Distance
<i>TTL</i>	1								
<i>ETTL</i>	<i>0.54</i>	1							
<i>A_{den}</i>	-0.01	<i>0.40</i>	1						
<i>H-L_{den}</i>	<i>0.10</i>	<i>-0.19</i>	<i>-0.22</i>	1					
<i>H-H_{dis}</i>	<i>0.12</i>	<i>-0.65</i>	<i>-0.51</i>	<i>0.43</i>	1				
<i>CALCN</i>	<i>0.12</i>	<i>-0.61</i>	<i>-0.12</i>	<i>0.38</i>	<i>0.88</i>	1			
Height	<i>0.31</i>	<i>-0.12</i>	<i>-0.21</i>	<i>0.14</i>	<i>0.32</i>	<i>0.28</i>	1		
Latitude	<i>0.22</i> (<i>0.26</i>)	<i>0.51</i> (<i>0.38</i>)	0.05 (<i>-0.14</i>)	0.08 (<i>0.26</i>)	<i>-0.32</i> (<i>-0.07</i>)	<i>-0.41</i> (<i>-0.22</i>)	0.06 (<i>0.08</i>)	1	
Distance	0.03 (<i>-0.14</i>)	<i>0.38</i> (<i>0.09</i>)	<i>0.24</i> (<i>0.28</i>)	<i>-0.20</i> (<i>-0.31</i>)	<i>-0.44</i> (<i>-0.32</i>)	<i>-0.41</i> (<i>-0.22</i>)	-0.01 (<i>-0.06</i>)	<i>0.63</i>	1

Table 8. Correlations between average annual coral growth characteristics, 35 Great Barrier Reef coral cores. Values in bold italics are significant at 5% level.

Variable	<i>TTL</i>	<i>ETTL</i>	<i>A_{den}</i>	<i>H-L_{den}</i>	<i>H-H_{dis}</i>	<i>CALCN</i>	Height	Latitude	Distance
<i>TTL</i>	1								
<i>ETTL</i>	<i>0.69</i>	1							
<i>A_{den}</i>	-0.01	0.24	1						
<i>H-L_{den}</i>	-0.26	<i>-0.53</i>	-0.31	1					
<i>H-H_{dis}</i>	-0.17	<i>-0.79</i>	-0.28	<i>0.47</i>	1				
<i>CALCN</i>	-0.19	<i>-0.74</i>	0.11	<i>0.37</i>	<i>0.92</i>	1			
Height	0.16	0.33	-0.01	-0.14	-0.30	<i>-0.34</i>	1		
Latitude	0.11	<i>0.34</i>	-0.07	0.13	-0.33	<i>-0.37</i>	<i>0.55</i>	1	
Distance	0.11	0.32	0.21	-0.13	<i>-0.34</i>	-0.28	<i>0.53</i>	0.28	1

APPENDIX A: Collection details for coral colonies

Average growth data are presented for 365 coral colonies from 31 reef sites on the Great Barrier Reef, the fringing reef of the southern coast of Misima Island, PNG and the Huon Peninsular, PNG. These data come from 9 collections of *Porites* coral colonies. A brief description of these 9 collections follows:

Ashmore Reef

8 *Porites* colonies were collected from Ashmore Reef (an offshore reef, 195 km from Papua New Guinea) in December 1989 by Bruce Chalker (then at AIMS). Colonies were collected on the lagoon side of the southwest end of the reef in water depths of 3-6m. Growth data were extracted for 4 of the colonies for the common period 1976-1988. This collection resulted from opportunistic sampling during an AIMS' research cruise.

Northern Great Barrier Reef

80 colonies of *Porites* were collected from 3 inshore, 2 mid-shelf and 2 offshore reefs lying between 12.50°S and 13.33°S in July 1990 by Monty Devereux (AIMS). Colonies, between 0.2m and 0.5m in height, were collected from depths of 3-5 m relative to mean low water spring tide levels from similar environments in deeper water on reef flats. These reefs formed 2 inshore-offshore transects separated by ~85km in the northern Great Barrier Reef (GBR). The more southerly of these transects was about 140km north of Princess Charlotte Bay. It was centred about 13.27°S and comprised Night Island, 13-055 Reef and 13-050 Reef. The other transect was centred about 12.52°S and comprised Portland Roads, Rocky Island, Eel Reef and Lagoon Reef. The GBR is narrow in this region and the shelf-edge reef sites (Lagoon and 13-050 Reefs) were only about 40km from the coast. The 3 inshore sites (Rocky and Night Island, and Portland Roads) were all reefs fringing islands. Colonies were collected from the north-west ends of these reefs, which were sheltered from the south-east trade winds. Colonies were collected at the southern end of mid-shelf and offshore reefs, towards the rear of the reef flat. These reefs are subject to a tidal range of ~2-3m. This collection was made to examine growth characteristics of *Porites* along an inshore to offshore transect in the northern GBR. Growth data were extracted for 69 of the colonies for the common period 1977-1989.

Cairns-Cape Melville

97 *Porites* colonies were collected from 12 inshore to mid-shelf reef sites lying along a north (Cape Melville, Tydeman Reef~14.00°S) to south (near Cairns, Double Island ~16.73°S) transect in May 1992 by Monty Devereux (AIMS). Most colonies were collected from the lee side of the islands (NW to SW), reef flats or just into the lagoon areas from 3-5m water depths. This collection was made to examine *Porites* growth characteristics in nearshore environments between Cairns and Cape Melville.

Mission Beach

6 *Porites* colonies were collected by Ted Daniel (then at AIMS) from Stephens and Bedarra Islands in June 1988 and 21 colonies (by Monty Devereux, AIMS) in April, 1989. Colonies were collected from sheltered parts (NW-SW) of reef flat areas in the lee of the islands from water depths of 2-3m at Stephens Island and 2-4m at Bedarra Island. Growth data were extracted for 21 of the colonies for the common period (1979-1988 for colonies collected in April 1989 and 1978-1987 for colonies collected in June 1988). This collection was made to examine *Porites* growth characteristics adjacent to the wet tropical coast of north Queensland.

Central Great Barrier Reef

40 colonies of *Porites* were collected from an inshore to mid-shelf to offshore transect between 18.16°S and 18.49°S in November 1987 by Monty Devereux (AIMS). The inshore site was Pandora Reef, the mid-shelf site was Rib Reef and the offshore site was Myrmidon Reef. The GBR is fairly wide in this central section, with the offshore reef located 110km from the coast. Colonies, between 0.2m and 0.5m in height, were collected from depths of 3-5 m relative to mean low water spring tide levels from similar environments in deeper water on reef flats. These sites were located on the south-southwest side of the reefs. These reefs are subject to a tidal range of ~2-3m. Growth data were

extracted for 25 of the colonies for the common period 1974-1986. This collection was made to examine growth characteristics of *Porites* along an inshore to offshore transect in the central GBR. (see Lough & Barnes, 1992).

Southern Great Barrier Reef

60 colonies of *Porites* were collected from 2 inshore, 1 mid-shelf and 2 offshore reefs lying between 20.27°S and 21.39°S in May 1989 by Monty Devereux (AIMS). These reefs formed 2 inshore-offshore transects, separated by ~130km, in the southern GBR. Colonies were collected from Shaw and Middle Percy Islands (inshore, Credlin and 21-141 Reefs (mid-shelf) and 20-200 Reef (offshore). We have classified Middle Percy Island as an inshore site, although it is 80km offshore. This is because of an extensive array of shoals and mud which separates it from the mainland. Charts and aerial photographs showed no reefs closer inshore at this point. The GBR is wide in this southern region and the site furthestmost offshore (20-200 Reef) was 174km from the coast. One transect, centred about 20.30°S, comprised Shaw Island, Credlin Reef and 20-200 Reef. The second transect, centred about 21.35°S, comprised Middle Percy Island and 21-141 Reef. There was no shelf-edge site in this second, most southerly transect. These southerly reefs are subject to a tidal range of ~5-6m. Colonies, between 0.2m and 0.5m in height, were collected from depths of 3-5 m relative to mean low water spring tide levels from similar environments in deeper water on reef flats. Corals were collected from fringing reefs in the lee of islands. Colonies were collected from the rear of the reef flat at the southern end of mid-shelf and offshore reefs. Growth data were extracted for 45 of the colonies for the common period 1972-1988. This collection was made to examine growth characteristics of *Porites* along an inshore to offshore transect in the southern GBR.

One-Tree Island

13 small colonies (0.09 to 0.16m in height) of *Porites lobata* were collected by Andy Steven (then at Great Barrier Reef Marine Park Authority) as part of his Ph.D. research during the ENCORE experiment at One Tree Island in the southern GBR. Three of the colonies were collected in December, 1995 and the remainder in March 1996. Growth data were extracted for 10 of the colonies for the common period 1985-1995 (colonies collected in March 1996) and 1984-1994 (for colonies collected in December 1995). (see Steven, to be submitted).

Misima Island, PNG

104 colonies of *Porites*, 0.2m-0.4m in height, were collected from the fringing reef at Misima Island, PNG (10.6°S, 152.8°E) in March 1994 by Rob White (Misima Mines Pty Ltd). Misima Island is a small (230km²), mountainous island lying to the southeast of Papua New Guinea. The construction in 1988 of an open cut gold mine and ore-processing facility resulted in disturbance of the adjacent fringing reef, mostly because of huge increases in sedimentation. This collection of *Porites* colonies was made (as part of the Environmental Monitoring Program of Misima Mines Pty Ltd) to examine whether growth characteristics of this major reef-building coral were altered by the mining activities. Colonies were collected from 10 transects (T1-T10), established by NSR Environmental Consultants Pty Ltd. They defined zones of expected “severe”, “transitional” and “minor” impact, and control zones (no impact) on the fringing reef to either side of the mine site. Colonies were collected from water depths of 6-8m. Growth data were extracted for 93 of the colonies for the common period 1984-1993. Seven of these colonies (from “severe” impacts transect T4) were dead at the time of collection. (see Lough *et al.*, 1995; Barnes & Lough, in press).

Huon Peninsula, PNG

John Pandolfi (then at AIMS) collected 9 colonies of *Porites* in October 1993 from the Huon Peninsula, PNG. Two of these colonies were living. The remaining seven colonies were from a reef uplifted *in situ* as a result of an earthquake and estimated to be 6-9,000 years old. Growth data were extracted for 8 of the colonies. These corals were collected to examine whether growth characteristics could be extracted from very old *Porites* colonies. The colonies were small in size but John Pandolfi reported much larger colonies (1-2m in height) from the site.

APPENDIX B: Average annual growth characteristics for coral colonies

The following tables contain average coral growth characteristics for each track and coral colony analysed. * indicates category 1 dating; all other samples are category 2 dating. Annual data are averaged over the indicated base periods. The following variables are listed:

Height:	of coral colony (mm)										
Width:	of coral colony (mm)										
H/W ratio:	Ratio of height to width (indicative of colony shape eg hemispherical, columnar etc)										
Species:	<i>Porites</i> species where: <table> <tr> <td>lob</td><td>= <i>P. lobata</i></td></tr> <tr> <td>lut</td><td>= <i>P. lutea</i></td></tr> <tr> <td>sol</td><td>= <i>P. solida</i></td></tr> <tr> <td>may</td><td>= <i>P. mayeri</i></td></tr> <tr> <td>aus</td><td>= <i>P. australiensis</i></td></tr> </table>	lob	= <i>P. lobata</i>	lut	= <i>P. lutea</i>	sol	= <i>P. solida</i>	may	= <i>P. mayeri</i>	aus	= <i>P. australiensis</i>
lob	= <i>P. lobata</i>										
lut	= <i>P. lutea</i>										
sol	= <i>P. solida</i>										
may	= <i>P. mayeri</i>										
aus	= <i>P. australiensis</i>										
Year:	earliest dated year for track 1 series										
	<i>TTL</i> : depth of living tissue layer at outer surface of colony (mm)										
<i>ETTL</i> :	effective tissue layer thickness; ratio of <i>TTL</i> to average extension, $H-H_{dis}$ (yr)										
A_{den} :	annual average density ($\text{g.cm}^{-3}.\text{yr}^{-1}$)										
H_{den} :	average high density ($\text{g.cm}^{-3}.\text{yr}^{-1}$)										
L_{den} :	average low density ($\text{g.cm}^{-3}.\text{yr}^{-1}$)										
$H-L_{den}$:	average annual density range; high minus low density ($\text{g.cm}^{-3}.\text{yr}^{-1}$)										
$H-H_{dis}$:	annual extension rate measured as distance between successive high density maxima (mm.yr^{-1})										
$H-L_{dis}$:	average extension from high density maximum to low density minimum (mm.yr^{-1})										
$L-H_{dis}$:	average extension from low density minimum to high density maximum (mm.yr^{-1})										
<i>CALCN</i> :	annual calcification rate or mass of CaCO_3 deposited per unit area per year ($\text{g.cm}^{-2}.\text{yr}^{-1}$): the product of average annual density and annual extension										

Table B1: Ashmore Reef, 10.25°S, 144.50°E: Average annual coral growth characteristics ($\pm$ sd), 1976-1988 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B04*	B06	B08*
Height mm	170	250	270	500
Width mm	290	280	300	480
H/W ratio	0.59	0.89	0.90	1.04
Species	sol	may	lut	may
Year	1976	1977	1972	1962
Track 1				
<i>TTL</i> mm	3.12	4.53	4.96	3.60
<i>ETTL</i> yr	0.30	0.53	0.51	0.39
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.31 $\pm$ 0.12	1.24 $\pm$ 0.04	1.52 $\pm$ 0.07	1.30 $\pm$ 0.05
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.36 $\pm$ 0.12	1.27 $\pm$ 0.05	1.57 $\pm$ 0.07	1.33 $\pm$ 0.05
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.27 $\pm$ 0.12	1.21 $\pm$ 0.04	1.48 $\pm$ 0.08	1.26 $\pm$ 0.05
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.08 $\pm$ 0.06	0.07 $\pm$ 0.04	0.09 $\pm$ 0.04	0.08 $\pm$ 0.02
<i>H-H_{dis}</i> mm.yr ⁻¹	10.5 $\pm$ 3.9	8.6 $\pm$ 2.8	9.7 $\pm$ 1.8	9.2 $\pm$ 1.5
<i>H-L_{dis}</i> mm.yr ⁻¹	4.7 $\pm$ 2.2	4.5 $\pm$ 2.2	5.4 $\pm$ 2.2	5.2 $\pm$ 1.3
<i>L-H_{dis}</i> mm.yr ⁻¹	5.8 $\pm$ 3.3	4.1 $\pm$ 1.5	4.3 $\pm$ 1.4	4.0 $\pm$ 1.2
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.35 $\pm$ 0.42	1.06 $\pm$ 0.33	1.47 $\pm$ 0.25	1.18 $\pm$ 0.17
Track 2				
<i>TTL</i> mm	3.15	5.94	5.02	3.82
<i>ETTL</i> yr	0.26	0.58	0.47	0.34
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.27 $\pm$ 0.08	1.32 $\pm$ 0.06	1.53 $\pm$ 0.08	1.34 $\pm$ 0.07
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.32 $\pm$ 0.08	1.36 $\pm$ 0.06	1.58 $\pm$ 0.08	1.39 $\pm$ 0.07
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.22 $\pm$ 0.09	1.28 $\pm$ 0.05	1.48 $\pm$ 0.08	1.30 $\pm$ 0.08
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.10 $\pm$ 0.06	0.08 $\pm$ 0.04	0.10 $\pm$ 0.05	0.09 $\pm$ 0.04
<i>H-H_{dis}</i> mm.yr ⁻¹	12.0 $\pm$ 3.8	10.3 $\pm$ 3.1	10.6 $\pm$ 3.3	11.2 $\pm$ 3.5
<i>H-L_{dis}</i> mm.yr ⁻¹	5.8 $\pm$ 3.7	5.2 $\pm$ 2.7	5.6 $\pm$ 3.2	5.2 $\pm$ 3.2
<i>L-H_{dis}</i> mm.yr ⁻¹	6.2 $\pm$ 3.3	5.1 $\pm$ 1.8	5.0 $\pm$ 2.5	6.0 $\pm$ 2.2
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.52 $\pm$ 4.8	1.36 $\pm$ 0.42	1.62 $\pm$ 0.53	1.49 $\pm$ 0.43
Track 3				
<i>TTL</i> mm	2.85	4.32	4.68	3.24
<i>ETTL</i> yr	0.37	0.50	0.49	0.36
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.38 $\pm$ 0.08	1.24 $\pm$ 0.03	1.54 $\pm$ 0.06	1.37 $\pm$ 0.07
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.42 $\pm$ 0.08	1.28 $\pm$ 0.05	1.58 $\pm$ 0.07	1.42 $\pm$ 0.08
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.35 $\pm$ 0.08	1.20 $\pm$ 0.03	1.50 $\pm$ 0.07	1.31 $\pm$ 0.08
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.07 $\pm$ 0.04	0.08 $\pm$ 0.06	0.08 $\pm$ 0.06	0.10 $\pm$ 0.06
<i>H-H_{dis}</i> mm.yr ⁻¹	7.7 $\pm$ 1.8	8.7 $\pm$ 1.9	9.5 $\pm$ 3.5	8.9 $\pm$ 2.5
<i>H-L_{dis}</i> mm.yr ⁻¹	3.7 $\pm$ 1.1	4.4 $\pm$ 1.9	4.9 $\pm$ 3.1	4.5 $\pm$ 2.2
<i>L-H_{dis}</i> mm.yr ⁻¹	4.0 $\pm$ 1.9	4.3 $\pm$ 0.9	4.7 $\pm$ 2.5	4.4 $\pm$ 1.5
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.05 $\pm$ 0.22	1.08 $\pm$ 0.23	1.47 $\pm$ 0.55	1.21 $\pm$ 0.33

Table B2: Lagoon Reef, 12.38°S, 143.73°E: Average annual coral growth characteristics ($\pm$ sd), 1977-1989 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02*	B03*	B04*	B06*	B07*	B08*	B09	B10*	B11*	B12*	B13*
Height mm	280	380	320	320	250	300	350	430	400	270	410	280
Width mm	400	560	460	390	350	480	420	470	560	400	610	370
H/W ratio	0.70	0.68	0.70	0.82	0.71	0.63	0.83	0.91	0.71	0.68	0.67	0.76
Species	lob	lut	lut	lut	lut	lut	lut	lob	lob	lob	lut	lob
Year	1973	1959	1977	1970	1972	1975	1948	1959	1972	1974	1972	1955
Track 1												
TTL mm	5.18	6.40	5.24	6.47	7.72	5.26	4.75	4.35	6.80	6.22	6.88	5.83
ETTL yr	0.48	0.51	0.42	0.73	0.75	0.57	0.37	0.37	0.44	0.59	0.43	0.53
A_{den} g.cm ⁻³ .yr ⁻¹	1.41 $\pm$ 0.03	1.38 $\pm$ 0.06	1.55 $\pm$ 0.05	1.64 $\pm$ 0.05	1.34 $\pm$ 0.08	1.46 $\pm$ 0.02	1.44 $\pm$ 0.08	1.34 $\pm$ 0.06	1.51 $\pm$ 0.08	1.54 $\pm$ 0.04	1.36 $\pm$ 0.05	1.60 $\pm$ 0.03
H_{den} g.cm ⁻³ .yr ⁻¹	1.47 $\pm$ 0.03	1.44 $\pm$ 0.06	1.61 $\pm$ 0.06	1.68 $\pm$ 0.06	1.37 $\pm$ 0.08	1.52 $\pm$ 0.03	1.49 $\pm$ 0.08	1.40 $\pm$ 0.07	1.60 $\pm$ 0.10	1.60 $\pm$ 0.05	1.40 $\pm$ 0.05	1.64 $\pm$ 0.03
L_{den} g.cm ⁻³ .yr ⁻¹	1.36 $\pm$ 0.04	1.33 $\pm$ 0.06	1.49 $\pm$ 0.04	1.59 $\pm$ 0.06	1.30 $\pm$ 0.07	1.40 $\pm$ 0.02	1.38 $\pm$ 0.10	1.28 $\pm$ 0.07	1.42 $\pm$ 0.09	1.48 $\pm$ 0.04	1.31 $\pm$ 0.06	1.56 $\pm$ 0.04
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.11 $\pm$ 0.03	0.12 $\pm$ 0.04	0.12 $\pm$ 0.04	0.09 $\pm$ 0.04	0.08 $\pm$ 0.03	0.12 $\pm$ 0.04	0.11 $\pm$ 0.06	0.13 $\pm$ 0.07	0.18 $\pm$ 0.08	0.11 $\pm$ 0.03	0.10 $\pm$ 0.03	0.08 $\pm$ 0.03
$H-H_{dis}$ mm.yr ⁻¹	10.8 $\pm$ 1.5	12.6 $\pm$ 2.9	12.4 $\pm$ 4.2	8.9 $\pm$ 2.5	10.3 $\pm$ 2.1	9.3 $\pm$ 1.2	12.7 $\pm$ 2.3	11.9 $\pm$ 3.6	15.4 $\pm$ 2.2	10.6 $\pm$ 3.6	16.1 $\pm$ 3.8	11.1 $\pm$ 1.7
$H-L_{dis}$ mm.yr ⁻¹	5.3 $\pm$ 1.4	6.3 $\pm$ 1.9	5.9 $\pm$ 3.8	4.0 $\pm$ 1.2	5.0 $\pm$ 1.7	4.7 $\pm$ 1.2	5.0 $\pm$ 2.6	5.1 $\pm$ 2.0	7.8 $\pm$ 2.6	5.7 $\pm$ 2.5	7.7 $\pm$ 4.7	4.6 $\pm$ 1.5
$L-H_{dis}$ mm.yr ⁻¹	5.5 $\pm$ 1.6	6.3 $\pm$ 1.9	6.5 $\pm$ 2.4	4.9 $\pm$ 2.7	5.4 $\pm$ 2.7	4.6 $\pm$ 0.9	7.7 $\pm$ 2.3	6.8 $\pm$ 3.3	7.6 $\pm$ 3.1	4.9 $\pm$ 2.1	8.3 $\pm$ 2.8	6.6 $\pm$ 1.0
CALCN g.cm ⁻² .yr ⁻¹	1.53 $\pm$ 0.20	1.73 $\pm$ 0.35	1.91 $\pm$ 0.63	1.45 $\pm$ 0.38	1.37 $\pm$ 0.23	1.36 $\pm$ 0.18	1.78 $\pm$ 0.30	1.58 $\pm$ 0.43	2.31 $\pm$ 0.24	1.63 $\pm$ 0.55	2.17 $\pm$ 0.51	1.78 $\pm$ 0.27
Track 1												
TTL mm	6.34	5.85	4.36	5.70	6.25	5.29	4.21	4.65	6.46	5.73	5.70	5.47
ETTL yr	0.55	0.45	0.40	0.63	0.64	0.54	0.35	0.45	0.44	0.54	0.40	0.54
A_{den} g.cm ⁻³ .yr ⁻¹	1.51 $\pm$ 0.09	1.38 $\pm$ 0.07	1.58 $\pm$ 0.07	1.66 $\pm$ 0.05	1.40 $\pm$ 0.07	1.43 $\pm$ 0.03	1.45 $\pm$ 0.05	1.32 $\pm$ 0.04	1.46 $\pm$ 0.04	1.41 $\pm$ 0.03	1.42 $\pm$ 0.03	1.54 $\pm$ 0.02
H_{den} g.cm ⁻³ .yr ⁻¹	1.55 $\pm$ 0.07	1.43 $\pm$ 0.08	1.63 $\pm$ 0.07	1.70 $\pm$ 0.06	1.43 $\pm$ 0.07	1.48 $\pm$ 0.03	1.50 $\pm$ 0.04	1.39 $\pm$ 0.04	1.54 $\pm$ 0.05	1.47 $\pm$ 0.04	1.45 $\pm$ 0.03	1.60 $\pm$ 0.03
L_{den} g.cm ⁻³ .yr ⁻¹	1.47 $\pm$ 0.11	1.32 $\pm$ 0.08	1.53 $\pm$ 0.07	1.63 $\pm$ 0.05	1.37 $\pm$ 0.08	1.39 $\pm$ 0.04	1.40 $\pm$ 0.06	1.25 $\pm$ 0.06	1.39 $\pm$ 0.05	1.36 $\pm$ 0.04	1.38 $\pm$ 0.04	1.48 $\pm$ 0.03
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.08 $\pm$ 0.06	0.11 $\pm$ 0.05	0.11 $\pm$ 0.05	0.07 $\pm$ 0.03	0.07 $\pm$ 0.03	0.10 $\pm$ 0.03	0.11 $\pm$ 0.04	0.14 $\pm$ 0.06	0.15 $\pm$ 0.06	0.11 $\pm$ 0.05	0.07 $\pm$ 0.03	0.12 $\pm$ 0.03
$H-H_{dis}$ mm.yr ⁻¹	11.6 $\pm$ 3.7	13.0 $\pm$ 4.8	10.9 $\pm$ 2.9	9.0 $\pm$ 2.6	9.7 $\pm$ 2.4	9.8 $\pm$ 1.1	12.2 $\pm$ 4.0	10.4 $\pm$ 1.6	14.7 $\pm$ 1.6	10.7 $\pm$ 1.9	14.2 $\pm$ 4.8	10.1 $\pm$ 1.7
$H-L_{dis}$ mm.yr ⁻¹	5.1 $\pm$ 3.2	5.8 $\pm$ 2.7	5.9 $\pm$ 2.6	4.0 $\pm$ 1.3	5.0 $\pm$ 2.2	5.2 $\pm$ 1.0	6.7 $\pm$ 2.8	5.4 $\pm$ 1.5	8.3 $\pm$ 1.8	5.3 $\pm$ 2.1	8.0 $\pm$ 4.7	4.8 $\pm$ 1.4
$L-H_{dis}$ mm.yr ⁻¹	6.5 $\pm$ 2.7	7.2 $\pm$ 4.5	5.0 $\pm$ 1.7	5.1 $\pm$ 2.0	4.7 $\pm$ 2.2	4.7 $\pm$ 0.8	5.5 $\pm$ 2.4	5.0 $\pm$ 1.3	6.4 $\pm$ 2.5	5.5 $\pm$ 1.8	6.2 $\pm$ 3.5	5.3 $\pm$ 1.5
CALCN g.cm ⁻² .yr ⁻¹	1.76 $\pm$ 0.62	1.77 $\pm$ 0.59	1.72 $\pm$ 0.45	1.50 $\pm$ 0.42	1.35 $\pm$ 0.34	1.41 $\pm$ 0.14	1.76 $\pm$ 0.56	1.37 $\pm$ 0.22	2.15 $\pm$ 0.22	1.52 $\pm$ 0.27	2.01 $\pm$ 0.70	1.55 $\pm$ 0.26
Track 1												
TTL mm	4.53	6.33	4.30	6.45	5.51	4.29	4.30	4.03	6.22	5.25	5.16	4.99
ETTL yr	0.34	0.50	0.35	0.95	0.80	0.46	0.41	0.44	0.48	0.58	0.32	0.60
A_{den} g.cm ⁻³ .yr ⁻¹	1.44 $\pm$ 0.05	1.41 $\pm$ 0.08	1.38 $\pm$ 0.07	1.65 $\pm$ 0.05	1.46 $\pm$ 0.11	1.46 $\pm$ 0.05	1.50 $\pm$ 0.04	1.48 $\pm$ 0.07	1.46 $\pm$ 0.07	1.47 $\pm$ 0.07	1.39 $\pm$ 0.13	1.46 $\pm$ 0.06
H_{den} g.cm ⁻³ .yr ⁻¹	1.50 $\pm$ 0.03	1.48 $\pm$ 0.08	1.46 $\pm$ 0.10	1.68 $\pm$ 0.05	1.49 $\pm$ 0.12	1.51 $\pm$ 0.06	1.54 $\pm$ 0.04	1.51 $\pm$ 0.07	1.51 $\pm$ 0.05	1.51 $\pm$ 0.07	1.44 $\pm$ 0.13	1.52 $\pm$ 0.05
L_{den} g.cm ⁻³ .yr ⁻¹	1.39 $\pm$ 0.08	1.34 $\pm$ 0.09	1.30 $\pm$ 0.07	1.62 $\pm$ 0.06	1.43 $\pm$ 0.11	1.41 $\pm$ 0.05	1.46 $\pm$ 0.07	1.45 $\pm$ 0.08	1.42 $\pm$ 0.06	1.44 $\pm$ 0.07	1.33 $\pm$ 0.13	1.40 $\pm$ 0.08
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.11 $\pm$ 0.07	0.13 $\pm$ 0.05	0.16 $\pm$ 0.09	0.07 $\pm$ 0.05	0.06 $\pm$ 0.06	0.09 $\pm$ 0.06	0.09 $\pm$ 0.07	0.07 $\pm$ 0.03	0.09 $\pm$ 0.04	0.07 $\pm$ 0.03	0.11 $\pm$ 0.05	0.12 $\pm$ 0.05
$H-H_{dis}$ mm.yr ⁻¹	13.5 $\pm$ 6.0	12.6 $\pm$ 2.7	12.2 $\pm$ 2.7	6.8 $\pm$ 1.5	6.9 $\pm$ 3.2	9.4 $\pm$ 3.5	10.4 $\pm$ 2.3	9.2 $\pm$ 2.6	12.9 $\pm$ 2.7	9.0 $\pm$ 2.6	16.1 $\pm$ 4.1	8.3 $\pm$ 2.2
$H-L_{dis}$ mm.yr ⁻¹	7.3 $\pm$ 3.9	6.8 $\pm$ 2.0	5.9 $\pm$ 1.9	3.3 $\pm$ 1.9	3.6 $\pm$ 2.0	5.1 $\pm$ 2.4	5.0 $\pm$ 2.0	4.6 $\pm$ 1.1	6.2 $\pm$ 2.0	4.3 $\pm$ 2.2	7.9 $\pm$ 4.1	4.0 $\pm$ 0.6
$L-H_{dis}$ mm.yr ⁻¹	6.1 $\pm$ 2.5	5.8 $\pm$ 1.7	6.3 $\pm$ 2.0	3.5 $\pm$ 1.3	3.3 $\pm$ 1.8	4.3 $\pm$ 3.0	5.4 $\pm$ 2.2	4.6 $\pm$ 2.7	6.7 $\pm$ 2.9	4.7 $\pm$ 2.4	8.1 $\pm$ 5.0	4.3 $\pm$ 2.0
CALCN g.cm ⁻² .yr ⁻¹	1.93 $\pm$ 0.83	1.77 $\pm$ 0.32	1.68 $\pm$ 0.37	1.11 $\pm$ 0.23	1.00 $\pm$ 0.46	1.37 $\pm$ 0.51	1.56 $\pm$ 0.33	1.35 $\pm$ 0.33	1.88 $\pm$ 0.38	1.33 $\pm$ 0.38	2.21 $\pm$ 0.50	1.20 $\pm$ 0.28

Table B3: Eel Reef, 12.50°S, 143.52°E: Average annual coral growth characteristics ($\pm$ sd), 1977-1989 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02	B03*	B04*	B05	B06	B07*	B08*	B09*	B10*	B11*	B12	B13*
Height mm	400	220	340	370	350	300	330	310	310	540	400	320	340
Width mm	570	310	380	420	240	400	410	420	440	640	470	360	530
H/W ratio	0.70	0.71	0.89	0.88	1.46	0.75	0.80	0.74	0.70	0.84	0.85	0.89	0.64
Species	aus	lut	lob	lob	sol	may	lob	sol	aus	lut	lob	lob	lut
Year	1968	1978	1965	1971	1977	1970	1964	1967	1973	1975	1973	1973	1969
Track 1													
TTL mm	5.38	6.14	5.73	5.98	7.25	6.25	7.44	6.37	5.39	5.00	6.89	5.66	7.03
ETTL yr	0.40	0.56	0.44	0.44	0.33	0.66	0.52	0.56	0.38	0.24	0.35	0.39	0.55
A_{den} g.cm ⁻³ .yr ⁻¹	1.36±0.06	1.28±0.06	1.52±0.03	1.54±0.08	1.25±0.11	1.30±0.07	1.19±0.06	1.32±0.06	1.42±0.07	1.27±0.08	1.13±0.05	1.40±0.05	1.18±0.04
H_{den} g.cm ⁻³ .yr ⁻¹	1.41±0.07	1.31±0.07	1.56±0.02	1.58±0.07	1.36±0.10	1.35±0.07	1.24±0.05	1.36±0.05	1.48±0.08	1.37±0.08	1.19±0.06	1.45±0.06	1.23±0.05
L_{den} g.cm ⁻³ .yr ⁻¹	1.32±0.06	1.25±0.06	1.48±0.03	1.49±0.08	1.14±0.13	1.26±0.08	1.14±0.08	1.28±0.07	1.36±0.08	1.18±0.09	1.08±0.04	1.36±0.06	1.13±0.04
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.08±0.03	0.06±0.04	0.08±0.03	0.09±0.03	0.23±0.09	0.09±0.05	0.10±0.07	0.08±0.04	0.12±0.05	0.19±0.04	0.11±0.04	0.09±0.05	0.10±0.04
$H-H_{dis}$ mm.yr ⁻¹	13.6±3.8	11.0±3.1	13.0±2.4	13.5±3.1	22.1±7.1	9.4±2.5	14.3±3.6	11.3±3.4	14.2±2.6	20.5±2.6	19.5±3.9	14.6±4.3	12.8±2.2
$H-L_{dis}$ mm.yr ⁻¹	7.6±3.8	5.5±2.3	6.2±2.5	9.0±3.4	10.3±3.5	4.9±2.6	7.2±3.0	5.8±2.3	6.0±2.5	10.3±2.9	10.8±4.4	7.0±2.8	6.2±2.3
$L-H_{dis}$ mm.yr ⁻¹	5.9±3.3	5.5±2.0	6.8±2.8	4.5±2.1	11.8±5.5	4.5±1.9	7.0±2.9	5.5±2.5	8.1±2.5	10.2±2.7	8.6±5.5	7.6±3.3	6.6±1.0
CALCN g.cm ⁻² .yr ⁻¹	1.84±0.51	1.41±0.40	1.97±0.36	2.07±0.43	2.77±0.95	1.22±0.28	1.69±0.44	1.48±0.42	2.03±0.42	2.59±0.23	2.20±0.39	2.04±0.58	1.51±0.24
Track 2													
TTL mm	5.15	5.24	5.62	5.51	6.44	6.46	6.44	6.50	5.98	4.59	6.00	5.85	5.92
ETTL yr	0.39	0.56	0.41	0.45	0.34	0.60	0.50	0.50	0.42	0.23	0.35	0.40	0.47
A_{den} g.cm ⁻³ .yr ⁻¹	1.36±0.04	1.29±0.06	1.37±0.05	1.46±0.03	1.22±0.08	1.26±0.09	1.29±0.04	1.21±0.09	1.44±0.04	1.25±0.11	1.16±0.04	1.46±0.05	1.22±0.03
H_{den} g.cm ⁻³ .yr ⁻¹	1.40±0.05	1.32±0.07	1.44±0.04	1.50±0.03	1.36±0.12	1.30±0.10	1.34±0.03	1.28±0.08	1.49±0.05	1.33±0.12	1.20±0.05	1.50±0.06	1.27±0.03
L_{den} g.cm ⁻³ .yr ⁻¹	1.31±0.03	1.25±0.04	1.31±0.08	1.42±0.04	1.07±0.09	1.22±0.08	1.24±0.06	1.14±0.09	1.38±0.04	1.16±0.10	1.12±0.04	1.42±0.05	1.17±0.04
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.09±0.02	0.07±0.04	0.13±0.06	0.09±0.04	0.29±0.14	0.08±0.06	0.11±0.05	0.14±0.04	0.10±0.04	0.17±0.05	0.08±0.04	0.08±0.04	0.10±0.03
$H-H_{dis}$ mm.yr ⁻¹	13.3±1.7	9.3±2.7	13.7±3.2	12.2±4.6	18.7±5.0	10.7±5.2	12.8±3.8	13.1±1.8	14.1±2.9	19.6±3.5	17.2±6.4	14.8±5.5	12.6±2.3
$H-L_{dis}$ mm.yr ⁻¹	7.3±2.4	4.6±2.0	7.1±2.6	5.9±3.9	9.6±4.1	5.6±3.0	6.2±2.3	7.5±2.2	5.9±2.2	8.9±3.6	10.1±5.2	7.1±3.6	5.9±2.0
$L-H_{dis}$ mm.yr ⁻¹	6.1±2.9	4.6±2.0	6.6±2.0	6.3±2.4	9.1±3.6	5.2±3.0	6.6±2.8	5.6±1.3	8.2±2.2	10.7±3.9	7.1±3.8	7.8±4.8	6.8±1.8
CALCN g.cm ⁻² .yr ⁻¹	1.80±0.21	1.20±0.36	1.88±0.42	1.78±0.67	2.28±0.61	1.34±0.63	1.64±0.47	1.57±0.19	2.02±0.43	2.43±0.35	1.99±0.75	2.16±0.77	1.54±0.27
Track 3													
TTL mm	5.80	6.00	5.59	4.90	6.53	5.74	5.81	5.54	6.16	4.49	5.89	5.42	5.77
ETTL yr	0.49	0.72	0.52	0.49	0.37	0.62	0.51	0.48	0.40	0.25	0.36	0.62	0.46
A_{den} g.cm ⁻³ .yr ⁻¹	1.33±0.04	1.33±0.06	1.37±0.07	1.43±0.03	1.30±0.09	1.31±0.06	1.29±0.07	1.24±0.05	1.37±0.04	1.34±0.09	1.10±0.06	1.54±0.04	1.21±0.04
H_{den} g.cm ⁻³ .yr ⁻¹	1.37±0.05	1.37±0.06	1.40±0.08	1.49±0.03	1.44±0.12	1.33±0.07	1.34±0.08	1.30±0.05	1.43±0.03	1.44±0.10	1.16±0.07	1.60±0.04	1.25±0.04
L_{den} g.cm ⁻³ .yr ⁻¹	1.30±0.05	1.30±0.06	1.34±0.07	1.38±0.03	1.16±0.11	1.29±0.06	1.24±0.07	1.17±0.05	1.32±0.06	1.25±0.08	1.04±0.06	1.49±0.06	1.17±0.05
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.07±0.04	0.06±0.03	0.07±0.05	0.11±0.04	0.28±0.15	0.05±0.04	0.10±0.06	0.13±0.05	0.12±0.04	0.19±0.05	0.12±0.07	0.11±0.06	0.08±0.05
$H-H_{dis}$ mm.yr ⁻¹	11.8±2.9	8.3±3.1	10.7±2.9	10.0±2.5	17.7±4.6	9.3±2.5	11.3±2.5	11.5±2.2	15.3±3.9	18.2±3.3	16.2±6.0	8.7±2.6	12.5±2.7
$H-L_{dis}$ mm.yr ⁻¹	5.0±2.0	4.3±2.0	5.7±2.6	5.1±2.0	9.0±3.0	4.6±2.7	5.0±1.4	5.9±1.6	7.4±2.6	9.9±2.9	9.0±4.8	4.5±2.2	5.8±1.9
$L-H_{dis}$ mm.yr ⁻¹	6.8±3.5	4.0±1.8	5.0±2.0	4.9±1.4	8.7±4.3	4.6±2.1	6.3±2.1	5.7±1.9	7.9±4.2	8.3±3.7	7.2±3.1	4.2±1.3	6.7±2.9
CALCN g.cm ⁻² .yr ⁻¹	1.57±0.36	1.10±0.40	1.46±0.41	1.43±0.35	2.28±0.50	1.22±0.35	1.46±0.32	1.42±0.23	2.09±0.51	2.42±0.33	1.78±0.64	1.34±0.39	1.51±0.32

Table B4: Portland Roads, 12.60°S, 143.42°E: Average annual coral growth characteristics ($\pm$ sd), 1977-1989 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B02	B03*	B05	B06
Height mm	390	360	310	400
Width mm	500	440	510	920
H/W ratio	0.78	0.82	0.61	0.43
Species	lob	lob	lob	lut
Year	1973	1974	1977	1957
Track 1				
TTL mm	5.77	5.52	5.70	5.12
ETTL yr	0.40	0.30	0.29	0.31
A_{den} g.cm⁻³.yr⁻¹	1.14 $\pm$ 0.04	1.05 $\pm$ 0.03	1.28 $\pm$ 0.05	1.28 $\pm$ 0.09
H_{den} g.cm⁻³.yr⁻¹	1.21 $\pm$ 0.05	1.11 $\pm$ 0.04	1.34 $\pm$ 0.06	1.34 $\pm$ 0.09
L_{den} g.cm⁻³.yr⁻¹	1.07 $\pm$ 0.05	0.98 $\pm$ 0.03	1.22 $\pm$ 0.05	1.21 $\pm$ 0.10
H-L_{den} g.cm⁻³.yr⁻¹	0.14 $\pm$ 0.05	0.13 $\pm$ 0.04	0.11 $\pm$ 0.06	0.12 $\pm$ 0.05
H-H_{dis} mm.yr⁻¹	14.3 $\pm$ 4.6	18.7 $\pm$ 2.4	19.8 $\pm$ 5.2	16.5 $\pm$ 4.5
H-L_{dis} mm.yr⁻¹	6.8 $\pm$ 2.4	10.6 $\pm$ 2.3	11.3 $\pm$ 5.1	8.9 $\pm$ 4.6
L-H_{dis} mm.yr⁻¹	7.5 $\pm$ 3.7	8.1 $\pm$ 2.5	8.5 $\pm$ 3.8	7.5 $\pm$ 4.2
CALCN g.cm⁻².yr⁻¹	1.63 $\pm$ 0.53	1.96 $\pm$ 0.28	2.52 $\pm$ 0.63	2.07 $\pm$ 0.45
Track 2				
TTL mm	5.75	5.38	6.12	5.38
ETTL yr	0.43	0.28	0.34	0.30
A_{den} g.cm⁻³.yr⁻¹	1.31 $\pm$ 0.07	1.02 $\pm$ 0.03	1.24 $\pm$ 0.04	1.22 $\pm$ 0.06
H_{den} g.cm⁻³.yr⁻¹	1.37 $\pm$ 0.08	1.07 $\pm$ 0.04	1.29 $\pm$ 0.04	1.29 $\pm$ 0.06
L_{den} g.cm⁻³.yr⁻¹	1.24 $\pm$ 0.08	0.96 $\pm$ 0.04	1.19 $\pm$ 0.04	1.15 $\pm$ 0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.13 $\pm$ 0.07	0.10 $\pm$ 0.03	0.10 $\pm$ 0.04	0.13 $\pm$ 0.05
H-H_{dis} mm.yr⁻¹	13.3 $\pm$ 5.1	19.1 $\pm$ 5.1	18.2 $\pm$ 3.9	17.9 $\pm$ 6.8
H-L_{dis} mm.yr⁻¹	6.7 $\pm$ 3.5	9.9 $\pm$ 3.7	10.3 $\pm$ 3.8	8.7 $\pm$ 5.0
L-H_{dis} mm.yr⁻¹	6.6 $\pm$ 3.6	9.2 $\pm$ 3.9	7.9 $\pm$ 4.7	9.2 $\pm$ 3.7
CALCN g.cm⁻².yr⁻¹	1.73 $\pm$ 0.66	1.94 $\pm$ 0.52	2.25 $\pm$ 0.45	2.18 $\pm$ 0.85
Track 3				
TTL mm	6.31	4.83	5.51	5.68
ETTL yr	0.46	0.25	0.35	0.36
A_{den} g.cm⁻³.yr⁻¹	1.27 $\pm$ 0.08	0.98 $\pm$ 0.05	1.20 $\pm$ 0.03	1.18 $\pm$ 0.08
H_{den} g.cm⁻³.yr⁻¹	1.35 $\pm$ 0.09	1.03 $\pm$ 0.05	1.26 $\pm$ 0.05	1.25 $\pm$ 0.06
L_{den} g.cm⁻³.yr⁻¹	1.20 $\pm$ 0.07	0.92 $\pm$ 0.05	1.15 $\pm$ 0.03	1.11 $\pm$ 0.11
H-L_{den} g.cm⁻³.yr⁻¹	0.15 $\pm$ 0.04	0.11 $\pm$ 0.05	0.11 $\pm$ 0.04	0.13 $\pm$ 0.08
H-H_{dis} mm.yr⁻¹	13.7 $\pm$ 4.4	19.6 $\pm$ 6.7	15.7 $\pm$ 3.9	15.9 $\pm$ 4.1
H-L_{dis} mm.yr⁻¹	6.0 $\pm$ 2.6	9.3 $\pm$ 4.9	9.1 $\pm$ 3.0	8.0 $\pm$ 2.8
L-H_{dis} mm.yr⁻¹	7.7 $\pm$ 3.2	10.3 $\pm$ 4.5	6.6 $\pm$ 3.2	7.8 $\pm$ 3.0
CALCN g.cm⁻².yr⁻¹	1.73 $\pm$ 0.51	1.90 $\pm$ 0.61	1.89 $\pm$ 0.46	1.87 $\pm$ 0.46

Table B5: Rocky Island, 12.60°S, 143.40°E: Average annual coral growth characteristics ($\pm$ sd), 1977-1989 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B03	B05*	B06*	B07*	B08
Height mm	280	280	280	340	320
Width mm	430	400	470	480	350
H/W ratio	0.65	0.70	0.60	0.71	0.91
Species	lob	lob	lob	lut	may
Year	1975	1983	1976	1975	1976
Track 1					
TTL mm	2.63	4.96	4.23	3.71	5.52
ETTL yr	0.17	0.33	0.26	0.27	0.35
A_{den} g.cm⁻³.yr⁻¹	1.24 $\pm$ 0.02	1.49 $\pm$ 0.04	1.23 $\pm$ 0.06	1.33 $\pm$ 0.10	1.32 $\pm$ 0.04
H_{den} g.cm⁻³.yr⁻¹	1.28 $\pm$ 0.03	1.57 $\pm$ 0.06	1.28 $\pm$ 0.07	1.38 $\pm$ 0.10	1.38 $\pm$ 0.05
L_{den} g.cm⁻³.yr⁻¹	1.20 $\pm$ 0.04	1.41 $\pm$ 0.04	1.18 $\pm$ 0.05	1.28 $\pm$ 0.11	1.27 $\pm$ 0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.08 $\pm$ 0.06	0.16 $\pm$ 0.05	0.09 $\pm$ 0.03	0.10 $\pm$ 0.05	0.10 $\pm$ 0.05
H-H_{dis} mm.yr⁻¹	15.2 $\pm$ 3.6	14.9 $\pm$ 1.8	16.0 $\pm$ 5.2	13.9 $\pm$ 4.1	15.7 $\pm$ 3.8
H-L_{dis} mm.yr⁻¹	8.1 $\pm$ 3.9	7.6 $\pm$ 3.4	8.7 $\pm$ 3.3	6.5 $\pm$ 3.4	8.9 $\pm$ 2.6
L-H_{dis} mm.yr⁻¹	7.1 $\pm$ 3.3	7.3 $\pm$ 2.7	7.3 $\pm$ 4.2	7.3 $\pm$ 2.5	6.8 $\pm$ 3.5
CALCN g.cm⁻².yr⁻¹	1.88 $\pm$ 0.45	2.23 $\pm$ 0.28	1.95 $\pm$ 0.59	1.83 $\pm$ 0.57	2.08 $\pm$ 0.51
Track 2					
TTL mm	5.04	5.87	4.44	4.29	7.13
ETTL yr	0.37	0.43	0.28	0.35	0.43
A_{den} g.cm⁻³.yr⁻¹	1.20 $\pm$ 0.05	1.41 $\pm$ 0.04	1.20 $\pm$ 0.07	1.35 $\pm$ 0.03	1.30 $\pm$ 0.11
H_{den} g.cm⁻³.yr⁻¹	1.24 $\pm$ 0.04	1.48 $\pm$ 0.05	1.25 $\pm$ 0.08	1.41 $\pm$ 0.03	1.36 $\pm$ 0.09
L_{den} g.cm⁻³.yr⁻¹	1.16 $\pm$ 0.06	1.34 $\pm$ 0.05	1.16 $\pm$ 0.06	1.29 $\pm$ 0.03	1.24 $\pm$ 0.13
H-L_{den} g.cm⁻³.yr⁻¹	0.09 $\pm$ 0.04	0.14 $\pm$ 0.06	0.09 $\pm$ 0.04	0.11 $\pm$ 0.04	0.12 $\pm$ 0.08
H-H_{dis} mm.yr⁻¹	13.8 $\pm$ 4.9	13.6 $\pm$ 2.2	15.8 $\pm$ 5.0	12.3 $\pm$ 2.1	16.4 $\pm$ 3.6
H-L_{dis} mm.yr⁻¹	7.2 $\pm$ 2.9	6.7 $\pm$ 2.3	8.8 $\pm$ 4.6	5.8 $\pm$ 2.0	7.9 $\pm$ 4.2
L-H_{dis} mm.yr⁻¹	6.6 $\pm$ 3.2	6.9 $\pm$ 1.8	7.1 $\pm$ 5.0	6.6 $\pm$ 2.0	8.5 $\pm$ 2.8
CALCN g.cm⁻².yr⁻¹	1.64 $\pm$ 0.58	1.92 $\pm$ 0.32	1.89 $\pm$ 0.57	1.66 $\pm$ 0.27	2.12 $\pm$ 0.45
Track 3					
TTL mm	3.67	5.42	4.71	4.60	6.32
ETTL yr	0.26	0.38	0.32	0.48	0.42
A_{den} g.cm⁻³.yr⁻¹	1.21 $\pm$ 0.04	1.32 $\pm$ 0.05	1.21 $\pm$ 0.07	1.31 $\pm$ 0.03	1.32 $\pm$ 0.05
H_{den} g.cm⁻³.yr⁻¹	1.25 $\pm$ 0.05	1.39 $\pm$ 0.06	1.26 $\pm$ 0.09	1.36 $\pm$ 0.03	1.36 $\pm$ 0.04
L_{den} g.cm⁻³.yr⁻¹	1.18 $\pm$ 0.04	1.24 $\pm$ 0.07	1.16 $\pm$ 0.06	1.26 $\pm$ 0.05	1.27 $\pm$ 0.07
H-L_{den} g.cm⁻³.yr⁻¹	0.07 $\pm$ 0.04	0.16 $\pm$ 0.06	0.10 $\pm$ 0.07	0.09 $\pm$ 0.05	0.10 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	14.0 $\pm$ 5.0	14.1 $\pm$ 2.9	14.6 $\pm$ 5.0	9.5 $\pm$ 1.8	15.1 $\pm$ 3.4
H-L_{dis} mm.yr⁻¹	7.1 $\pm$ 4.4	8.1 $\pm$ 3.5	8.5 $\pm$ 4.7	4.8 $\pm$ 1.0	7.6 $\pm$ 2.9
L-H_{dis} mm.yr⁻¹	7.0 $\pm$ 3.4	5.9 $\pm$ 3.0	6.1 $\pm$ 2.9	4.7 $\pm$ 1.8	7.4 $\pm$ 3.2
CALCN g.cm⁻².yr⁻¹	1.70 $\pm$ 0.59	1.85 $\pm$ 0.34	1.75 $\pm$ 0.56	1.24 $\pm$ 0.22	1.98 $\pm$ 0.43

Table B6: Night Island, 13.18°S, 143.57°E: Average annual coral growth characteristics ($\pm$ sd), 1977-1989 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02	B03	B04*	B05	B06*	B07	B09	B10*	B11*	B12*	B15
Height mm	280	210	290	280	270	350	450	400	310	380	230	300
Width mm	380	290	350	430	360	520	570	680	480	410	400	300
H/W ratio	0.74	0.72	0.83	0.65	0.75	0.67	0.79	0.59	0.65	0.93	0.58	1.00
Species	sol	lut	aus	lob	lob	lob	lob	lob	aus	lut	lut	lut
Year	1968	1979	1963	1970	1969	1976	1964	1965	1953	1972	1971	1972
Track 1												
TTL mm	3.93	3.87	4.53	4.86	4.37	3.69	3.38	5.46	5.36	5.69	6.09	3.86
ETTL yr	0.32	0.26	0.48	0.40	0.39	0.28	0.27	0.50	0.75	0.38	0.43	0.33
A_{den} g.cm ⁻³ .yr ⁻¹	1.46 $\pm$ 0.08	1.21 $\pm$ 0.06	1.27 $\pm$ 0.05	1.23 $\pm$ 0.04	1.30 $\pm$ 0.08	1.39 $\pm$ 0.03	1.36 $\pm$ 0.07	1.41 $\pm$ 0.07	1.46 $\pm$ 0.07	1.35 $\pm$ 0.11	1.21 $\pm$ 0.07	1.47 $\pm$ 0.06
H_{den} g.cm ⁻³ .yr ⁻¹	1.54 $\pm$ 0.10	1.30 $\pm$ 0.08	1.33 $\pm$ 0.05	1.31 $\pm$ 0.03	1.35 $\pm$ 0.09	1.46 $\pm$ 0.04	1.41 $\pm$ 0.06	1.45 $\pm$ 0.08	1.51 $\pm$ 0.07	1.42 $\pm$ 0.12	1.28 $\pm$ 0.06	1.51 $\pm$ 0.06
L_{den} g.cm ⁻³ .yr ⁻¹	1.38 $\pm$ 0.08	1.13 $\pm$ 0.08	1.22 $\pm$ 0.06	1.16 $\pm$ 0.06	1.25 $\pm$ 0.08	1.33 $\pm$ 0.04	1.30 $\pm$ 0.08	1.37 $\pm$ 0.08	1.42 $\pm$ 0.07	1.27 $\pm$ 0.11	1.13 $\pm$ 0.08	1.43 $\pm$ 0.06
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.16 $\pm$ 0.08	0.17 $\pm$ 0.10	0.11 $\pm$ 0.05	0.16 $\pm$ 0.05	0.11 $\pm$ 0.03	0.12 $\pm$ 0.06	0.11 $\pm$ 0.05	0.08 $\pm$ 0.05	0.08 $\pm$ 0.04	0.15 $\pm$ 0.07	0.14 $\pm$ 0.04	0.08 $\pm$ 0.04
$H-H_{dis}$ mm.yr ⁻¹	12.1 $\pm$ 4.8	14.7 $\pm$ 4.4	9.4 $\pm$ 2.9	12.3 $\pm$ 3.4	11.2 $\pm$ 3.3	13.4 $\pm$ 3.0	12.3 $\pm$ 3.4	11.0 $\pm$ 4.4	7.1 $\pm$ 1.5	15.1 $\pm$ 4.8	14.1 $\pm$ 3.2	11.8 $\pm$ 3.1
$H-L_{dis}$ mm.yr ⁻¹	6.0 $\pm$ 2.6	8.2 $\pm$ 3.9	4.6 $\pm$ 2.0	6.1 $\pm$ 2.4	6.2 $\pm$ 2.5	6.4 $\pm$ 2.6	6.7 $\pm$ 2.4	5.4 $\pm$ 3.7	3.5 $\pm$ 1.5	8.1 $\pm$ 3.7	7.2 $\pm$ 2.5	6.0 $\pm$ 2.8
$L-H_{dis}$ mm.yr ⁻¹	6.1 $\pm$ 3.4	6.5 $\pm$ 3.2	4.8 $\pm$ 1.5	6.2 $\pm$ 2.2	5.0 $\pm$ 2.2	7.1 $\pm$ 3.8	5.5 $\pm$ 2.5	5.7 $\pm$ 2.5	3.6 $\pm$ 1.0	6.9 $\pm$ 2.7	6.9 $\pm$ 2.2	5.8 $\pm$ 2.8
CALCN g.cm ⁻² .yr ⁻¹	1.75 $\pm$ 0.67	1.77 $\pm$ 0.52	1.19 $\pm$ 0.35	1.51 $\pm$ 0.39	1.46 $\pm$ 0.50	1.87 $\pm$ 0.43	1.66 $\pm$ 0.44	1.56 $\pm$ 0.64	1.04 $\pm$ 0.22	2.01 $\pm$ 0.62	1.69 $\pm$ 0.35	1.73 $\pm$ 4.9
Track 2												
TTL mm	4.86	4.93	3.97	5.34	4.03	2.88	3.16	5.70	5.23	5.55	6.02	3.78
ETTL yr	0.43	0.30	0.43	0.39	0.38	0.22	0.24	0.44	0.67	0.34	0.39	0.29
A_{den} g.cm ⁻³ .yr ⁻¹	1.47 $\pm$ 0.11	1.21 $\pm$ 0.12	1.34 $\pm$ 0.08	1.29 $\pm$ 0.04	1.28 $\pm$ 0.05	1.33 $\pm$ 0.05	1.35 $\pm$ 0.04	1.35 $\pm$ 0.09	1.43 $\pm$ 0.09	1.30 $\pm$ 0.08	1.23 $\pm$ 0.04	1.39 $\pm$ 0.06
H_{den} g.cm ⁻³ .yr ⁻¹	1.56 $\pm$ 0.10	1.31 $\pm$ 0.16	1.40 $\pm$ 0.07	1.35 $\pm$ 0.06	1.33 $\pm$ 0.06	1.41 $\pm$ 0.05	1.42 $\pm$ 0.05	1.41 $\pm$ 0.11	1.47 $\pm$ 0.09	1.37 $\pm$ 0.09	1.31 $\pm$ 0.04	1.44 $\pm$ 0.06
L_{den} g.cm ⁻³ .yr ⁻¹	1.39 $\pm$ 0.12	1.11 $\pm$ 0.10	1.29 $\pm$ 0.10	1.24 $\pm$ 0.04	1.24 $\pm$ 0.05	1.26 $\pm$ 0.06	1.29 $\pm$ 0.06	1.30 $\pm$ 0.08	1.38 $\pm$ 0.08	1.23 $\pm$ 0.08	1.14 $\pm$ 0.06	1.35 $\pm$ 0.05
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.17 $\pm$ 0.06	0.20 $\pm$ 0.10	0.11 $\pm$ 0.07	0.11 $\pm$ 0.06	0.08 $\pm$ 0.03	0.15 $\pm$ 0.05	0.13 $\pm$ 0.07	0.11 $\pm$ 0.07	0.09 $\pm$ 0.04	0.14 $\pm$ 0.05	0.17 $\pm$ 0.06	0.09 $\pm$ 0.04
$H-H_{dis}$ mm.yr ⁻¹	11.4 $\pm$ 3.9	16.4 $\pm$ 4.2	9.2 $\pm$ 2.3	13.8 $\pm$ 2.9	10.5 $\pm$ 3.4	13.0 $\pm$ 2.8	13.0 $\pm$ 2.4	13.1 $\pm$ 4.4	7.8 $\pm$ 1.9	16.2 $\pm$ 4.5	15.3 $\pm$ 3.5	13.2 $\pm$ 3.9
$H-L_{dis}$ mm.yr ⁻¹	6.0 $\pm$ 2.3	9.1 $\pm$ 3.8	5.3 $\pm$ 3.0	6.3 $\pm$ 2.3	4.3 $\pm$ 0.6	6.3 $\pm$ 2.7	7.0 $\pm$ 2.0	6.8 $\pm$ 3.2	4.2 $\pm$ 1.4	9.1 $\pm$ 3.2	6.9 $\pm$ 2.3	7.5 $\pm$ 4.3
$L-H_{dis}$ mm.yr ⁻¹	5.3 $\pm$ 2.3	7.3 $\pm$ 3.3	3.9 $\pm$ 1.3	7.4 $\pm$ 2.8	6.2 $\pm$ 3.4	6.7 $\pm$ 3.2	6.0 $\pm$ 2.5	6.3 $\pm$ 3.6	3.6 $\pm$ 1.1	7.1 $\pm$ 3.8	8.4 $\pm$ 3.3	5.7 $\pm$ 2.9
CALCN g.cm ⁻² .yr ⁻¹	1.68 $\pm$ 0.60	2.01 $\pm$ 0.60	1.23 $\pm$ 0.33	1.78 $\pm$ 0.36	1.35 $\pm$ 0.43	1.73 $\pm$ 0.34	1.76 $\pm$ 0.31	1.79 $\pm$ 0.65	1.11 $\pm$ 0.22	2.11 $\pm$ 0.60	1.88 $\pm$ 0.44	1.85 $\pm$ 0.56
Track 3												
TTL mm	3.00	3.54	4.20	4.83	4.02	3.52	2.75	5.22	6.44	5.09	5.94	3.23
ETTL yr	0.36	0.23	0.55	0.37	0.40	0.24	0.24	0.44	0.73	0.37	0.38	0.30
A_{den} g.cm ⁻³ .yr ⁻¹	1.55 $\pm$ 0.06	1.22 $\pm$ 0.10	1.26 $\pm$ 0.05	1.35 $\pm$ 0.06	1.22 $\pm$ 0.05	1.34 $\pm$ 0.05	1.25 $\pm$ 0.05	1.39 $\pm$ 0.05	1.42 $\pm$ 0.07	1.23 $\pm$ 0.05	1.29 $\pm$ 0.07	1.53 $\pm$ 0.05
H_{den} g.cm ⁻³ .yr ⁻¹	1.61 $\pm$ 0.06	1.31 $\pm$ 0.11	1.30 $\pm$ 0.05	1.42 $\pm$ 0.06	1.27 $\pm$ 0.06	1.41 $\pm$ 0.05	1.30 $\pm$ 0.04	1.46 $\pm$ 0.06	1.45 $\pm$ 0.07	1.31 $\pm$ 0.05	1.36 $\pm$ 0.08	1.56 $\pm$ 0.06
L_{den} g.cm ⁻³ .yr ⁻¹	1.49 $\pm$ 0.08	1.14 $\pm$ 0.10	1.21 $\pm$ 0.07	1.28 $\pm$ 0.07	1.17 $\pm$ 0.06	1.27 $\pm$ 0.06	1.21 $\pm$ 0.06	1.32 $\pm$ 0.05	1.39 $\pm$ 0.06	1.16 $\pm$ 0.06	1.21 $\pm$ 0.06	1.49 $\pm$ 0.05
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.13 $\pm$ 0.08	0.16 $\pm$ 0.09	0.09 $\pm$ 0.05	0.14 $\pm$ 0.05	0.10 $\pm$ 0.06	0.14 $\pm$ 0.06	0.09 $\pm$ 0.05	0.14 $\pm$ 0.07	0.06 $\pm$ 0.03	0.15 $\pm$ 0.06	0.15 $\pm$ 0.06	0.07 $\pm$ 0.04
$H-H_{dis}$ mm.yr ⁻¹	8.3 $\pm$ 2.6	15.4 $\pm$ 6.3	7.7 $\pm$ 1.5	12.9 $\pm$ 2.2	10.0 $\pm$ 2.9	14.7 $\pm$ 3.2	11.5 $\pm$ 3.3	11.9 $\pm$ 4.3	8.8 $\pm$ 2.4	13.7 $\pm$ 2.8	15.6 $\pm$ 4.6	10.7 $\pm$ 3.6
$H-L_{dis}$ mm.yr ⁻¹	3.8 $\pm$ 1.5	8.9 $\pm$ 5.2	3.9 $\pm$ 1.2	6.0 $\pm$ 1.7	4.9 $\pm$ 2.9	6.9 $\pm$ 3.0	6.0 $\pm$ 2.2	6.2 $\pm$ 3.0	5.0 $\pm$ 1.7	6.7 $\pm$ 2.2	7.7 $\pm$ 2.8	5.3 $\pm$ 3.4
$L-H_{dis}$ mm.yr ⁻¹	4.5 $\pm$ 2.7	6.5 $\pm$ 2.4	3.8 $\pm$ 1.4	6.9 $\pm$ 2.1	5.1 $\pm$ 1.3	7.8 $\pm$ 2.0	5.5 $\pm$ 2.4	5.7 $\pm$ 3.2	3.8 $\pm$ 1.9	7.0 $\pm$ 2.1	7.9 $\pm$ 3.9	5.4 $\pm$ 2.3
CALCN g.cm ⁻² .yr ⁻¹	1.29 $\pm$ 0.39	1.86 $\pm$ 0.72	0.97 $\pm$ 0.18	1.74 $\pm$ 0.26	1.22 $\pm$ 0.37	1.96 $\pm$ 0.45	1.45 $\pm$ 0.41	1.65 $\pm$ 0.59	1.25 $\pm$ 0.34	1.68 $\pm$ 0.33	2.02 $\pm$ 0.62	1.63 $\pm$ 0.52

Table B7: 13-055 Reef, 13.30°S, 143.77°E: Average annual coral growth characteristics ($\pm$ sd), 1977-1989 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02*	B04*	B05*	B06	B07*	B08*	B09*	B10*	B11*	B12*	B13	B14*	B15*
Height mm	320	320	390	350	260	320	330	350	430	330	320	420	490	510
Width mm	480	440	380	410	430	370	400	450	530	420	320	540	540	460
H/W ratio	0.67	0.73	1.03	0.85	0.60	0.86	0.83	0.78	0.81	0.79	1.00	0.78	0.91	1.11
Species	lut	sol	lob	may	lob	lob	lob	lob	lob	lut	lut	lob	lob	aus
Year	1972	1977	1979	1976	1976	1970	1973	1966	1965	1970	1980	1968	1949	1969
Track 1														
<i>TTL</i> mm	5.18	5.62	5.45	5.40	4.80	4.31	5.10	5.27	3.90	5.41	5.73	5.14	6.79	5.72
<i>ETTL</i> yr	0.39	0.39	0.37	0.32	0.40	0.31	0.44	0.49	0.38	0.42	0.27	0.40	0.59	0.40
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.32±0.07	1.30±0.11	1.17±0.08	1.38±0.05	1.42±0.06	1.21±0.05	1.51±0.06	1.16±0.03	1.27±0.04	1.31±0.06	1.32±0.05	1.26±0.08	1.36±0.03	1.24±0.05
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.38±0.08	1.35±0.11	1.25±0.08	1.45±0.06	1.46±0.07	1.27±0.06	1.57±0.06	1.21±0.03	1.32±0.04	1.35±0.06	1.37±0.05	1.29±0.08	1.39±0.03	1.28±0.05
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.26±0.08	1.25±0.10	1.08±0.07	1.31±0.06	1.39±0.06	1.16±0.05	1.45±0.06	1.12±0.04	1.22±0.05	1.26±0.06	1.27±0.05	1.22±0.08	1.33±0.03	1.20±0.05
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.12±0.05	0.10±0.03	0.16±0.03	0.14±0.08	0.07±0.05	0.11±0.05	0.12±0.04	0.09±0.03	0.10±0.04	0.09±0.05	0.10±0.03	0.08±0.03	0.06±0.03	0.08±0.03
<i>H-H_{dis}</i> mm.yr ⁻¹	13.3±5.5	14.5±4.2	14.6±3.1	17.1±3.4	12.0±3.5	13.7±2.6	11.5±1.4	10.7±2.0	10.4±2.8	13.0±4.0	21.3±7.2	12.8±4.1	11.6±3.7	14.3±3.2
<i>H-L_{dis}</i> mm.yr ⁻¹	7.6±3.5	8.4±3.8	8.0±2.3	9.6±2.6	5.0±2.4	8.0±2.6	5.3±1.0	5.1±1.3	5.3±1.6	7.1±3.4	11.6±5.0	5.2±2.6	5.6±3.4	8.4±2.7
<i>L-H_{dis}</i> mm.yr ⁻¹	5.6±4.3	6.1±4.0	6.6±1.6	7.5±3.4	7.0±3.3	5.7±2.2	6.2±1.1	5.6±1.9	5.1±2.2	6.0±2.0	9.8±5.4	7.6±4.4	6.0±2.4	5.8±3.5
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.73±0.67	1.89±0.60	1.71±0.43	2.35±0.43	1.71±0.52	1.65±0.27	1.73±0.18	1.24±0.22	1.31±0.34	1.69±0.50	2.81±0.89	1.61±0.52	1.58±0.50	1.75±0.35
Track 2														
<i>TTL</i> mm	5.55	5.60	5.84	5.52	4.63	4.26	5.17	5.32	3.21	5.19	5.88	4.93	5.10	5.59
<i>ETTL</i> yr	0.39	0.39	0.46	0.32	0.42	0.31	0.42	0.58	0.32	0.39	0.30	0.42	0.55	0.37
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.32±0.06	1.30±0.09	1.20±0.06	1.40±0.07	1.44±0.04	1.30±0.04	1.45±0.04	1.28±0.05	1.27±0.04	1.30±0.06	1.27±0.03	1.40±0.03	1.39±0.02	1.24±0.06
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.37±0.09	1.35±0.10	1.26±0.06	1.45±0.07	1.46±0.04	1.34±0.04	1.51±0.04	1.32±0.05	1.32±0.04	1.36±0.07	1.33±0.04	1.43±0.03	1.42±0.01	1.29±0.07
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.28±0.04	1.24±0.09	1.14±0.07	1.34±0.07	1.41±0.04	1.26±0.04	1.39±0.05	1.24±0.06	1.22±0.05	1.23±0.06	1.20±0.03	1.36±0.03	1.36±0.03	1.19±0.06
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.09±0.06	0.11±0.06	0.13±0.04	0.11±0.06	0.05±0.03	0.08±0.03	0.12±0.04	0.08±0.04	0.11±0.04	0.13±0.05	0.13±0.03	0.07±0.02	0.06±0.03	0.10±0.05
<i>H-H_{dis}</i> mm.yr ⁻¹	14.2±3.7	14.5±4.5	12.6±2.0	17.0±5.4	11.0±2.5	13.6±4.9	12.2±1.4	9.1±1.6	10.0±2.6	13.2±2.4	19.8±4.2	11.7±0.15	9.2±1.8	15.0±2.8
<i>H-L_{dis}</i> mm.yr ⁻¹	7.6±3.4	7.7±3.4	6.7±1.6	9.8±4.9	5.1±2.4	7.8±4.5	6.7±2.6	4.0±1.5	5.0±1.2	7.0±1.9	10.1±4.8	7.2±2.3	4.6±1.4	7.2±2.8
<i>L-H_{dis}</i> mm.yr ⁻¹	6.6±3.2	6.8±3.3	5.9±1.8	7.2±4.9	6.0±2.2	5.7±2.9	5.51±1.8	5.0±1.9	5.0±1.6	6.2±2.2	9.7±2.6	4.5±2.0	4.7±1.6	7.7±1.9
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.88±0.48	1.89±0.67	1.50±0.22	2.36±0.75	1.59±0.36	1.77±0.63	1.76±2.0	1.16±0.17	1.26±0.31	1.71±0.30	2.52±0.59	1.63±2.0	1.28±0.25	1.86±0.33
Track 3														
<i>TTL</i> mm	4.82	5.74	5.38	4.71	4.28	2.87	4.37	4.31	3.22	4.77	3.94	4.46	3.52	4.56
<i>ETTL</i> yr	0.42	0.47	0.44	0.33	0.53	0.25	0.52	0.55	0.39	0.44	0.33	0.29	0.38	0.46
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.37±0.11	1.26±0.05	1.22±0.07	1.31±0.06	1.45±0.03	1.16±0.04	1.40±0.05	1.27±0.03	1.22±0.03	1.35±0.04	1.26±0.04	1.31±0.04	1.40±0.02	1.26±0.05
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.45±0.13	1.30±0.05	1.27±0.06	1.36±0.06	1.47±0.04	1.20±0.04	1.44±0.05	1.30±0.03	1.27±0.03	1.39±0.04	1.32±0.07	1.36±0.04	1.43±0.02	1.31±0.05
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.30±0.11	1.22±0.05	1.16±0.10	1.26±0.07	1.42±0.03	1.12±0.06	1.35±0.05	1.23±0.03	1.18±0.03	1.30±0.04	1.20±0.05	1.26±0.05	1.37±0.03	1.21±0.05
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.15±0.07	0.08±0.04	0.11±0.09	0.11±0.06	0.05±0.02	0.08±0.05	0.10±0.02	0.07±0.02	0.09±0.03	0.09±0.03	0.13±0.09	0.10±0.06	0.05±0.03	0.10±0.03
<i>H-H_{dis}</i> mm.yr ⁻¹	11.5±3.9	12.1±2.7	12.1±3.9	14.3±4.1	8.1±2.1	11.4±4.3	8.4±3.6	7.9±1.9	8.2±1.4	11.4±2.2	12.1±3.7	15.0±3.9	9.3±2.9	10.0±2.0
<i>H-L_{dis}</i> mm.yr ⁻¹	6.1±3.0	6.2±2.3	5.1±1.0	7.5±2.4	3.9±1.2	6.0±3.6	4.6±3.0	3.6±1.1	4.2±0.9	6.2±2.1	5.5±2.7	6.5±3.7	4.9±2.6	5.1±1.6
<i>L-H_{dis}</i> mm.yr ⁻¹	5.4±3.6	5.9±2.2	7.0±4.0	6.8±4.0	4.1±2.0	5.4±2.2	3.9±1.6	4.3±1.9	4.1±1.5	5.2±2.3	6.5±2.4	8.5±3.0	4.3±1.7	4.9±1.5
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.56±0.52	1.53±0.35	1.45±0.43	1.87±0.52	1.17±0.32	1.32±0.51	1.18±0.48	1.00±0.23	1.01±0.15	1.53±0.29	1.52±0.47	1.96±0.51	1.30±0.40	1.26±0.25

Table B8: 13-050 Reef, 13.33°S, 143.95°E: Average annual coral growth characteristics ($\pm$ sd), 1977-1989 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B03	B04*	B05*	B06*	B07	B08	B09	B10*
Height mm	500	370	350	350	400	470	400	310	290
Width mm	570	460	500	430	570	560	580	440	440
H/W ratio	0.88	0.80	0.70	0.81	0.70	0.84	0.69	0.70	0.66
Species	lob	lut	lob	lob	lob	lob	lut	lut	lut
Year	1974	1974	1952	1977	1971	1964	1975	1964	1962
Track 1									
TTL mm	6.20	5.11	5.96	5.51	5.37	4.92	6.53	4.25	6.82
ETTL yr	0.36	0.29	0.56	0.41	0.40	0.38	0.41	0.32	0.42
A_{den} g.cm⁻³.yr⁻¹	1.47±0.08	1.38±0.05	1.37±0.08	1.47±0.07	1.45±0.05	1.31±0.04	1.31±0.06	1.21±0.04	1.21±0.03
H_{den} g.cm⁻³.yr⁻¹	1.58±0.09	1.44±0.06	1.41±0.09	1.54±0.08	1.50±0.06	1.35±0.04	1.37±0.07	1.28±0.05	1.28±0.03
L_{den} g.cm⁻³.yr⁻¹	1.36±0.11	1.32±0.06	1.32±0.09	1.41±0.07	1.40±0.06	1.27±0.05	1.25±0.05	1.13±0.06	1.15±0.03
H-L_{den} g.cm⁻³.yr⁻¹	0.22±0.11	0.12±0.05	0.10±0.08	0.14±0.08	0.10±0.06	0.08±0.03	0.12±0.04	0.15±0.06	0.13±0.04
H-H_{dis} mm.yr⁻¹	17.4±4.3	17.8±5.2	10.6±3.3	13.5±3.1	13.5±4.5	13.0±4.4	16.0±4.7	13.2±4.1	16.2±3.9
H-L_{dis} mm.yr⁻¹	8.5±4.2	10.8±3.6	5.1±2.5	6.9±2.0	7.1±4.0	5.3±1.8	7.9±3.7	6.6±2.4	7.3±3.3
L-H_{dis} mm.yr⁻¹	8.9±3.8	7.0±5.5	5.5±1.8	6.6±2.6	6.5±2.4	7.7±3.9	8.1±2.8	6.7±2.7	8.9±3.6
CALCN g.cm⁻².yr⁻¹	2.55±0.67	2.46±0.75	1.43±0.39	1.99±0.47	1.96±0.67	1.70±0.55	2.10±0.61	1.60±0.49	1.96±0.48
Track 2									
TTL mm	5.55	4.55	5.66	5.99	5.75	5.87	6.38	5.39	5.24
ETTL yr	0.33	0.24	0.58	0.51	0.40	0.49	0.38	0.41	0.32
A_{den} g.cm⁻³.yr⁻¹	1.38±0.05	1.34±0.06	1.34±0.04	1.58±0.06	1.50±0.05	1.34±0.07	1.31±0.06	1.21±0.07	1.31±0.06
H_{den} g.cm⁻³.yr⁻¹	1.47±0.05	1.40±0.06	1.38±0.06	1.64±0.07	1.56±0.05	1.38±0.07	1.37±0.07	1.27±0.07	1.37±0.05
L_{den} g.cm⁻³.yr⁻¹	1.29±0.07	1.28±0.07	1.30±0.04	1.52±0.07	1.45±0.05	1.30±0.07	1.24±0.05	1.16±0.08	1.25±0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.18±0.06	0.12±0.03	0.08±0.04	0.12±0.06	0.11±0.03	0.09±0.05	0.13±0.05	0.11±0.05	0.12±0.03
H-H_{dis} mm.yr⁻¹	16.9±5.0	19.0±7.0	9.7±2.1	11.7±3.5	14.2±3.6	12.1±3.7	17.0±4.3	13.3±3.7	16.4±1.7
H-L_{dis} mm.yr⁻¹	8.7±4.1	12.4±4.0	3.8±1.7	6.4±2.3	6.9±3.0	5.8±3.2	8.9±5.0	6.9±3.1	6.4±2.0
L-H_{dis} mm.yr⁻¹	8.2±3.7	6.6±5.7	5.9±2.2	5.3±2.2	7.3±3.3	6.3±3.9	8.0±2.5	6.4±3.0	9.9±1.6
CALCN g.cm⁻².yr⁻¹	2.32±0.68	2.52±0.89	1.29±0.27	1.84±0.54	2.13±0.51	1.61±0.47	2.22±0.56	1.61±0.43	2.14±0.17
Track 3									
TTL mm	5.11	3.89	5.62	4.30	3.49	5.76	4.22	5.67	5.33
ETTL yr	0.39	0.21	0.60	0.48	0.29	0.57	0.26	0.44	0.36
A_{den} g.cm⁻³.yr⁻¹	1.40±0.10	1.38±0.08	1.39±0.06	1.45±0.06	1.36±0.03	1.39±0.06	1.33±0.06	1.23±0.03	1.32±0.05
H_{den} g.cm⁻³.yr⁻¹	1.48±0.11	1.43±0.08	1.42±0.05	1.48±0.07	1.41±0.03	1.42±0.07	1.39±0.07	1.29±0.03	1.38±0.06
L_{den} g.cm⁻³.yr⁻¹	1.31±0.10	1.32±0.08	1.36±0.06	1.42±0.07	1.30±0.04	1.37±0.06	1.27±0.05	1.17±0.04	1.27±0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.17±0.08	0.11±0.04	0.06±0.03	0.06±0.06	0.11±0.04	0.05±0.04	0.12±0.04	0.12±0.04	0.11±0.07
H-H_{dis} mm.yr⁻¹	13.1±3.4	18.1±4.6	9.3±2.8	9.0±3.3	12.2±1.3	10.1±2.7	16.1±5.4	12.9±3.3	15.0±3.8
H-L_{dis} mm.yr⁻¹	6.0±2.3	10.8±4.6	4.6±1.9	4.2±2.8	7.6±2.4	4.8±3.6	8.9±4.2	6.0±1.8	7.2±3.7
L-H_{dis} mm.yr⁻¹	7.0±2.3	7.3±4.2	4.7±2.8	4.8±1.9	4.7±1.8	5.4±2.8	7.2±3.0	6.9±2.5	7.7±2.7
CALCN g.cm⁻².yr⁻¹	1.82±0.49	2.49±0.64	1.28±0.33	1.31±0.46	1.66±0.17	1.41±0.39	2.14±0.69	1.59±0.41	1.98±0.50

Table B9: Tydeman Reef, 14.00°S, 144.52°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02*	B03*	B05*	B07*	B08
Height mm	410	450	480	420	430	530
Width mm	500	480	500	350	440	500
H/W ratio	0.82	0.94	0.96	1.20	0.98	1.06
Species	lut	lob	aust	lut	may	lut
Year	1972	1959	1967	1965	1967	1971
Track 1						
TTL mm	4.19	4.43	6.64	4.33	5.33	5.56
ETTL yr	0.25	0.33	0.58	0.34	0.42	0.42
A_{den} g.cm⁻³.yr⁻¹	1.11 $\pm$ 0.02	1.14 $\pm$ 0.06	1.27 $\pm$ 0.07	1.27 $\pm$ 0.07	1.38 $\pm$ 0.07	1.29 $\pm$ 0.08
H_{den} g.cm⁻³.yr⁻¹	1.17 $\pm$ 0.02	1.24 $\pm$ 0.07	1.34 $\pm$ 0.07	1.35 $\pm$ 0.08	1.47 $\pm$ 0.07	1.38 $\pm$ 0.08
L_{den} g.cm⁻³.yr⁻¹	1.05 $\pm$ 0.03	1.03 $\pm$ 0.06	1.20 $\pm$ 0.08	1.19 $\pm$ 0.07	1.29 $\pm$ 0.08	1.21 $\pm$ 0.09
H-L_{den} g.cm⁻³.yr⁻¹	0.12 $\pm$ 0.02	0.21 $\pm$ 0.06	0.14 $\pm$ 0.06	0.16 $\pm$ 0.05	0.18 $\pm$ 0.06	0.17 $\pm$ 0.06
H-H_{dis} mm.yr⁻¹	16.8 $\pm$ 2.8	13.3 $\pm$ 2.5	11.5 $\pm$ 2.3	12.8 $\pm$ 3.0	12.6 $\pm$ 2.3	13.1 $\pm$ 2.1
H-L_{dis} mm.yr⁻¹	10.0 $\pm$ 2.6	6.4 $\pm$ 2.2	5.7 $\pm$ 1.8	6.4 $\pm$ 2.0	7.2 $\pm$ 2.0	7.9 $\pm$ 1.8
L-H_{dis} mm.yr⁻¹	6.8 $\pm$ 2.7	6.9 $\pm$ 2.4	5.9 $\pm$ 1.4	6.4 $\pm$ 2.5	5.3 $\pm$ 1.2	5.2 $\pm$ 2.3
CALCN g.cm⁻².yr⁻¹	1.86 $\pm$ 0.29	1.52 $\pm$ 0.31	1.45 $\pm$ 0.25	1.61 $\pm$ 0.34	1.73 $\pm$ 0.31	1.68 $\pm$ 0.23
Track 2						
TTL mm	4.61	4.68	6.91	5.58	5.46	6.46
ETTL yr	0.28	0.37	0.60	0.41	0.44	0.53
A_{den} g.cm⁻³.yr⁻¹	1.08 $\pm$ 0.03	1.16 $\pm$ 0.08	1.22 $\pm$ 0.08	1.31 $\pm$ 0.05	1.37 $\pm$ 0.03	1.33 $\pm$ 0.06
H_{den} g.cm⁻³.yr⁻¹	1.14 $\pm$ 0.03	1.26 $\pm$ 0.10	1.29 $\pm$ 0.07	1.39 $\pm$ 0.05	1.45 $\pm$ 0.03	1.39 $\pm$ 0.05
L_{den} g.cm⁻³.yr⁻¹	1.02 $\pm$ 0.04	1.07 $\pm$ 0.07	1.16 $\pm$ 0.10	1.23 $\pm$ 0.05	1.29 $\pm$ 0.05	1.27 $\pm$ 0.07
H-L_{den} g.cm⁻³.yr⁻¹	0.12 $\pm$ 0.03	0.19 $\pm$ 0.08	0.13 $\pm$ 0.06	0.15 $\pm$ 0.04	0.16 $\pm$ 0.04	0.12 $\pm$ 0.06
H-H_{dis} mm.yr⁻¹	16.3 $\pm$ 3.0	12.7 $\pm$ 3.0	11.6 $\pm$ 2.6	13.5 $\pm$ 2.9	12.4 $\pm$ 2.3	12.1 $\pm$ 2.7
H-L_{dis} mm.yr⁻¹	7.6 $\pm$ 2.7	6.4 $\pm$ 2.3	5.4 $\pm$ 1.7	7.3 $\pm$ 2.4	6.6 $\pm$ 1.5	6.7 $\pm$ 2.0
L-H_{dis} mm.yr⁻¹	8.7 $\pm$ 3.5	6.3 $\pm$ 2.3	6.3 $\pm$ 1.5	6.1 $\pm$ 1.8	5.7 $\pm$ 1.6	5.5 $\pm$ 2.1
CALCN g.cm⁻².yr⁻¹	1.76 $\pm$ 0.32	1.48 $\pm$ 0.36	1.41 $\pm$ 0.25	1.76 $\pm$ 0.36	1.69 $\pm$ 0.32	1.61 $\pm$ 0.36
Track 3						
TTL mm	2.92	3.26	5.25	3.23	4.92	5.81
ETTL yr	0.23	0.40	0.55	0.48	0.43	0.51
A_{den} g.cm⁻³.yr⁻¹	1.15 $\pm$ 0.03	1.22 $\pm$ 0.06	1.23 $\pm$ 0.08	1.31 $\pm$ 0.04	1.36 $\pm$ 0.09	1.28 $\pm$ 0.03
H_{den} g.cm⁻³.yr⁻¹	1.22 $\pm$ 0.03	1.30 $\pm$ 0.06	1.28 $\pm$ 0.07	1.36 $\pm$ 0.06	1.45 $\pm$ 0.08	1.36 $\pm$ 0.03
L_{den} g.cm⁻³.yr⁻¹	1.08 $\pm$ 0.03	1.14 $\pm$ 0.08	1.18 $\pm$ 0.09	1.25 $\pm$ 0.03	1.28 $\pm$ 0.11	1.20 $\pm$ 0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.14 $\pm$ 0.02	0.16 $\pm$ 0.08	0.11 $\pm$ 0.04	0.11 $\pm$ 0.05	0.17 $\pm$ 0.07	0.16 $\pm$ 0.05
H-H_{dis} mm.yr⁻¹	12.9 $\pm$ 2.3	8.2 $\pm$ 1.8	9.5 $\pm$ 3.1	6.7 $\pm$ 1.6	11.5 $\pm$ 1.9	11.3 $\pm$ 2.2
H-L_{dis} mm.yr⁻¹	6.6 $\pm$ 2.5	4.2 $\pm$ 1.2	4.8 $\pm$ 1.1	3.2 $\pm$ 0.5	6.2 $\pm$ 1.6	6.0 $\pm$ 1.7
L-H_{dis} mm.yr⁻¹	6.4 $\pm$ 1.9	4.0 $\pm$ 1.1	4.7 $\pm$ 2.2	3.5 $\pm$ 1.3	5.2 $\pm$ 1.6	5.3 $\pm$ 1.9
CALCN g.cm⁻².yr⁻¹	1.49 $\pm$ 0.25	0.99 $\pm$ 0.19	1.15 $\pm$ 0.34	0.87 $\pm$ 0.20	1.56 $\pm$ 0.22	1.44 $\pm$ 0.26

Table B10: Pipon Island, 14.12°S, 144.52°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02*	B03	B04	B05*	B06
Height mm	360	550	470	340	330	320
Width mm	410	730	530	450	470	440
H/W ratio	0.88	0.75	0.89	0.76	0.70	0.73
Species	lob	lob	lob	lob	lut	lob
Year	1971	1964	1970	1977	1978	1976
Track 1						
TTL mm	5.38	5.32	6.58	6.35	3.83	5.66
ETTL yr	0.38	0.32	0.45	0.40	0.23	0.35
A_{den} g.cm⁻³.yr⁻¹	1.26 $\pm$ 0.05	1.24 $\pm$ 0.06	1.32 $\pm$ 0.07	1.06 $\pm$ 0.09	1.23 $\pm$ 0.10	1.33 $\pm$ 0.04
H_{den} g.cm⁻³.yr⁻¹	1.33 $\pm$ 0.04	1.31 $\pm$ 0.06	1.37 $\pm$ 0.07	1.15 $\pm$ 0.11	1.32 $\pm$ 0.09	1.38 $\pm$ 0.03
L_{den} g.cm⁻³.yr⁻¹	1.19 $\pm$ 0.06	1.17 $\pm$ 0.06	1.27 $\pm$ 0.08	0.98 $\pm$ 0.08	1.13 $\pm$ 0.11	1.28 $\pm$ 0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.13 $\pm$ 0.05	0.14 $\pm$ 0.05	0.11 $\pm$ 0.05	0.17 $\pm$ 0.07	0.19 $\pm$ 0.05	0.10 $\pm$ 0.05
H-H_{dis} mm.yr⁻¹	14.0 $\pm$ 2.4	16.4 $\pm$ 2.2	14.6 $\pm$ 5.3	15.9 $\pm$ 6.0	16.4 $\pm$ 5.0	16.1 $\pm$ 6.0
H-L_{dis} mm.yr⁻¹	7.0 $\pm$ 1.6	7.5 $\pm$ 2.3	7.9 $\pm$ 3.8	7.7 $\pm$ 4.3	9.0 $\pm$ 3.9	8.2 $\pm$ 4.9
L-H_{dis} mm.yr⁻¹	7.0 $\pm$ 1.7	8.8 $\pm$ 3.6	6.7 $\pm$ 3.0	8.2 $\pm$ 4.2	7.4 $\pm$ 2.0	7.9 $\pm$ 3.7
CALCN g.cm⁻².yr⁻¹	1.76 $\pm$ 0.27	2.02 $\pm$ 0.28	1.93 $\pm$ 0.70	1.68 $\pm$ 0.62	1.98 $\pm$ 0.51	2.13 $\pm$ 0.79
Track 2						
TTL mm	5.28	4.68	5.18	6.49	5.34	6.05
ETTL yr	0.40	0.32	0.40	0.39	0.33	0.40
A_{den} g.cm⁻³.yr⁻¹	1.17 $\pm$ 0.06	1.27 $\pm$ 0.06	1.24 $\pm$ 0.08	1.07 $\pm$ 0.07	1.27 $\pm$ 0.07	1.37 $\pm$ 0.04
H_{den} g.cm⁻³.yr⁻¹	1.23 $\pm$ 0.06	1.33 $\pm$ 0.06	1.29 $\pm$ 0.08	1.17 $\pm$ 0.09	1.34 $\pm$ 0.07	1.43 $\pm$ 0.05
L_{den} g.cm⁻³.yr⁻¹	1.10 $\pm$ 0.07	1.21 $\pm$ 0.08	1.19 $\pm$ 0.10	0.98 $\pm$ 0.08	1.19 $\pm$ 0.08	1.31 $\pm$ 0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.14 $\pm$ 0.04	0.12 $\pm$ 0.06	0.10 $\pm$ 0.04	0.19 $\pm$ 0.09	0.15 $\pm$ 0.06	0.12 $\pm$ 0.06
H-H_{dis} mm.yr⁻¹	13.2 $\pm$ 2.0	14.5 $\pm$ 4.0	13.1 $\pm$ 4.9	16.7 $\pm$ 3.5	16.3 $\pm$ 4.8	15.0 $\pm$ 3.4
H-L_{dis} mm.yr⁻¹	6.7 $\pm$ 1.5	7.7 $\pm$ 2.8	5.7 $\pm$ 2.8	7.8 $\pm$ 3.2	8.8 $\pm$ 3.9	7.3 $\pm$ 2.8
L-H_{dis} mm.yr⁻¹	6.5 $\pm$ 1.5	6.8 $\pm$ 3.5	7.4 $\pm$ 3.7	8.9 $\pm$ 2.9	7.5 $\pm$ 2.6	7.7 $\pm$ 3.8
CALCN g.cm⁻².yr⁻¹	1.53 $\pm$ 0.20	1.83 $\pm$ 0.45	1.61 $\pm$ 0.58	1.78 $\pm$ 0.35	2.05 $\pm$ 0.54	2.05 $\pm$ 0.43
Track 3						
TTL mm	5.24	3.21	2.70	5.75	5.39	4.87
ETTL yr	0.42	0.30	0.30	0.44	0.38	0.43
A_{den} g.cm⁻³.yr⁻¹	1.18 $\pm$ 0.05	1.24 $\pm$ 0.06	1.23 $\pm$ 0.04	1.18 $\pm$ 0.11	1.27 $\pm$ 0.06	1.30 $\pm$ 0.08
H_{den} g.cm⁻³.yr⁻¹	1.22 $\pm$ 0.05	1.29 $\pm$ 0.06	1.27 $\pm$ 0.05	1.28 $\pm$ 0.12	1.33 $\pm$ 0.06	1.36 $\pm$ 0.09
L_{den} g.cm⁻³.yr⁻¹	1.13 $\pm$ 0.05	1.18 $\pm$ 0.06	1.20 $\pm$ 0.05	1.08 $\pm$ 0.11	1.22 $\pm$ 0.06	1.23 $\pm$ 0.09
H-L_{den} g.cm⁻³.yr⁻¹	0.09 $\pm$ 0.04	0.11 $\pm$ 0.04	0.07 $\pm$ 0.04	0.20 $\pm$ 0.06	0.12 $\pm$ 0.03	0.13 $\pm$ 0.06
H-H_{dis} mm.yr⁻¹	12.5 $\pm$ 2.4	10.8 $\pm$ 1.8	9.0 $\pm$ 4.3	13.0 $\pm$ 4.9	14.1 $\pm$ 3.7	11.4 $\pm$ 3.2
H-L_{dis} mm.yr⁻¹	5.9 $\pm$ 2.1	5.9 $\pm$ 2.2	4.9 $\pm$ 3.1	6.1 $\pm$ 2.6	7.2 $\pm$ 3.2	6.1 $\pm$ 3.3
L-H_{dis} mm.yr⁻¹	6.6 $\pm$ 1.9	4.9 $\pm$ 1.4	4.1 $\pm$ 2.3	6.8 $\pm$ 3.8	6.9 $\pm$ 2.0	5.3 $\pm$ 2.5
CALCN g.cm⁻².yr⁻¹	1.47 $\pm$ 0.27	1.35 $\pm$ 0.25	1.11 $\pm$ 0.52	1.50 $\pm$ 0.45	1.79 $\pm$ 0.45	1.47 $\pm$ 0.41

Table B11: Flinders Island, 14.15°S, 144.27°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02*	B03	B04	B05*	B06	B07*
Height mm	440	440	330	390	320	420	430
Width mm	440	550	450	590	510	480	540
H/W ratio	1.00	0.80	0.73	0.66	0.63	0.88	0.80
Species	aust	lut	lob	aust	lob	aust	lut
Year	1970	1972	1977	1962	1978	1978	1974
Track 1							
TTL mm	7.07	7.18	5.36	7.26	4.52	5.04	10.13
ETTL yr	0.57	0.53	0.68	0.71	0.29	0.31	0.79
A_{den} g.cm⁻³.yr⁻¹	1.16 $\pm$ 0.04	1.15 $\pm$ 0.04	1.21 $\pm$ 0.04	1.21 $\pm$ 0.05	1.34 $\pm$ 0.03	1.26 $\pm$ 0.09	1.01 $\pm$ 0.05
H_{den} g.cm⁻³.yr⁻¹	1.21 $\pm$ 0.04	1.22 $\pm$ 0.04	1.25 $\pm$ 0.05	1.25 $\pm$ 0.07	1.39 $\pm$ 0.04	1.31 $\pm$ 0.10	1.09 $\pm$ 0.05
L_{den} g.cm⁻³.yr⁻¹	1.11 $\pm$ 0.05	1.09 $\pm$ 0.05	1.17 $\pm$ 0.05	1.16 $\pm$ 0.06	1.29 $\pm$ 0.02	1.20 $\pm$ 0.09	0.93 $\pm$ 0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.10 $\pm$ 0.05	0.13 $\pm$ 0.04	0.09 $\pm$ 0.06	0.09 $\pm$ 0.07	0.10 $\pm$ 0.03	0.11 $\pm$ 0.04	0.16 $\pm$ 0.05
H-H_{dis} mm.yr⁻¹	12.3 $\pm$ 4.5	13.6 $\pm$ 3.5	7.9 $\pm$ 3.8	10.2 $\pm$ 3.1	15.4 $\pm$ 4.8	16.2 $\pm$ 2.1	12.9 $\pm$ 2.9
H-L_{dis} mm.yr⁻¹	6.8 $\pm$ 3.5	7.2 $\pm$ 3.3	3.9 $\pm$ 2.0	5.0 $\pm$ 2.4	9.0 $\pm$ 4.1	7.7 $\pm$ 3.0	4.9 $\pm$ 2.1
L-H_{dis} mm.yr⁻¹	5.5 $\pm$ 2.5	6.4 $\pm$ 2.7	4.0 $\pm$ 2.5	5.2 $\pm$ 2.4	6.5 $\pm$ 3.1	8.5 $\pm$ 3.2	8.1 $\pm$ 2.5
CALCN g.cm⁻².yr⁻¹	1.43 $\pm$ 0.54	1.56 $\pm$ 0.38	0.96 $\pm$ 0.47	1.23 $\pm$ 0.38	2.07 $\pm$ 0.66	2.03 $\pm$ 0.24	1.30 $\pm$ 0.27
Track 2							
TTL mm	5.66	7.09	4.67	7.37	3.72	5.24	8.01
ETTL yr	0.47	0.58	0.55	0.70	0.26	0.34	0.64
A_{den} g.cm⁻³.yr⁻¹	1.14 $\pm$ 0.05	1.20 $\pm$ 0.04	1.25 $\pm$ 0.05	1.20 $\pm$ 0.06	1.30 $\pm$ 0.06	1.22 $\pm$ 0.08	1.05 $\pm$ 0.05
H_{den} g.cm⁻³.yr⁻¹	1.18 $\pm$ 0.05	1.27 $\pm$ 0.05	1.29 $\pm$ 0.06	1.25 $\pm$ 0.08	1.36 $\pm$ 0.05	1.28 $\pm$ 0.09	1.12 $\pm$ 0.04
L_{den} g.cm⁻³.yr⁻¹	1.09 $\pm$ 0.05	1.14 $\pm$ 0.07	1.20 $\pm$ 0.05	1.15 $\pm$ 0.06	1.24 $\pm$ 0.08	1.15 $\pm$ 0.07	0.98 $\pm$ 0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.08 $\pm$ 0.04	0.13 $\pm$ 0.06	0.09 $\pm$ 0.04	0.09 $\pm$ 0.07	0.12 $\pm$ 0.07	0.13 $\pm$ 0.06	0.14 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	12.0 $\pm$ 4.1	12.3 $\pm$ 2.8	8.5 $\pm$ 2.7	10.6 $\pm$ 5.3	14.5 $\pm$ 4.0	15.5 $\pm$ 3.6	12.5 $\pm$ 3.3
H-L_{dis} mm.yr⁻¹	5.4 $\pm$ 3.2	7.1 $\pm$ 2.1	4.6 $\pm$ 2.1	5.1 $\pm$ 4.1	7.0 $\pm$ 2.7	6.7 $\pm$ 2.6	5.0 $\pm$ 2.6
L-H_{dis} mm.yr⁻¹	6.7 $\pm$ 3.2	5.2 $\pm$ 2.2	4.0 $\pm$ 1.6	5.5 $\pm$ 2.6	7.5 $\pm$ 3.3	8.7 $\pm$ 3.6	7.5 $\pm$ 2.4
CALCN g.cm⁻².yr⁻¹	1.36 $\pm$ 0.46	1.48 $\pm$ 0.32	1.06 $\pm$ 0.35	1.26 $\pm$ 0.61	1.88 $\pm$ 0.50	1.87 $\pm$ 0.37	1.31 $\pm$ 0.33
Track 3							
TTL mm	5.94	7.20	4.46	6.49	4.84	4.84	4.92
ETTL yr	0.64	0.77	0.62	0.79	0.49		0.59
A_{den} g.cm⁻³.yr⁻¹	1.04 $\pm$ 0.05	1.21 $\pm$ 0.04	1.24 $\pm$ 0.05	1.20 $\pm$ 0.09	1.32 $\pm$ 0.06	none	1.16 $\pm$ 0.05
H_{den} g.cm⁻³.yr⁻¹	1.09 $\pm$ 0.04	1.25 $\pm$ 0.05	1.28 $\pm$ 0.06	1.25 $\pm$ 0.09	1.37 $\pm$ 0.06		1.28 $\pm$ 0.07
L_{den} g.cm⁻³.yr⁻¹	1.00 $\pm$ 0.06	1.16 $\pm$ 0.04	1.20 $\pm$ 0.05	1.15 $\pm$ 0.11	1.28 $\pm$ 0.07		1.04 $\pm$ 0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.09 $\pm$ 0.04	0.09 $\pm$ 0.04	0.09 $\pm$ 0.07	0.10 $\pm$ 0.08	0.10 $\pm$ 0.05		0.24 $\pm$ 0.06
H-H_{dis} mm.yr⁻¹	9.3 $\pm$ 1.8	9.3 $\pm$ 2.4	7.2 $\pm$ 3.0	8.2 $\pm$ 3.7	9.9 $\pm$ 2.3		8.4 $\pm$ 2.0
H-L_{dis} mm.yr⁻¹	3.7 $\pm$ 1.4	3.7 $\pm$ 0.8	3.5 $\pm$ 2.3	3.9 $\pm$ 2.5	4.6 $\pm$ 1.6		3.9 $\pm$ 0.8
L-H_{dis} mm.yr⁻¹	5.7 $\pm$ 1.9	5.7 $\pm$ 2.4	3.7 $\pm$ 2.2	4.3 $\pm$ 2.1	5.3 $\pm$ 1.7		4.5 $\pm$ 1.5
CALCN g.cm⁻².yr⁻¹	0.97 $\pm$ 0.18	1.12 $\pm$ 0.28	0.91 $\pm$ 0.39	0.96 $\pm$ 0.39	1.31 $\pm$ 0.32		0.98 $\pm$ 0.23

Table B12: Watson Island, 14.47°S, 144.88°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02	B03	B04	B05*	B07*	B08	B09	B10*	B11*
Height mm	470	520	440	510	370	360	370	330	250	270
Width mm	510	530	490	490	550	370	480	500	340	310
H/W ratio	0.92	0.98	0.90	1.04	0.67	0.97	0.77	0.66	0.74	0.87
Species	lut	lob	lob	lob	lob	lob	lob	lob	may	lob
Year	1971	1964	1977	1974	1973	1971	1979	1974	1981	1978
Track 1										
TTL mm	4.50	3.59	4.39	5.06	3.91	4.28	5.59	4.01	3.89	3.30
ETTL yr	0.38	0.29	0.26	0.36	0.27	0.23	0.39	0.36	0.25	0.25
A_{den} g.cm⁻³.yr⁻¹	1.38±0.05	1.23±0.04	1.30±0.03	1.21±0.05	1.15±0.09	1.09±0.04	1.46±0.06	1.47±0.06	1.07±0.04	1.30±0.11
H_{den} g.cm⁻³.yr⁻¹	1.45±0.06	1.30±0.06	1.36±0.03	1.31±0.05	1.24±0.10	1.17±0.05	1.54±0.06	1.51±0.07	1.15±0.02	1.37±0.12
L_{den} g.cm⁻³.yr⁻¹	1.31±0.05	1.16±0.05	1.24±0.04	1.12±0.07	1.05±0.09	1.02±0.05	1.37±0.08	1.42±0.07	0.99±0.05	1.22±0.11
H-L_{den} g.cm⁻³.yr⁻¹	0.14±0.05	0.14±0.06	0.12±0.03	0.19±0.07	0.19±0.06	0.15±0.05	0.17±0.08	0.09±0.04	0.16±0.04	0.15±0.07
H-H_{dis} mm.yr⁻¹	11.9±2.8	12.3±3.9	17.2±3.6	14.0±2.9	14.5±2.9	18.4±5.4	14.5±2.7	11.1±3.6	15.3±3.5	1.32±3.2
H-L_{dis} mm.yr⁻¹	6.0±1.6	6.5±3.3	9.6±3.2	7.4±4.1	7.1±3.0	8.3±3.5	7.0±2.6	5.2±1.9	6.1±2.2	6.9±2.9
L-H_{dis} mm.yr⁻¹	5.9±2.0	5.8±2.5	7.6±2.5	6.6±3.1	7.4±3.6	10.1±5.1	7.5±3.3	5.9±2.9	9.3±2.7	6.3±2.5
CALCN g.cm⁻².yr⁻¹	1.64±0.38	1.51±0.49	2.23±0.46	1.69±0.32	1.66±0.29	2.01±0.58	2.10±0.35	1.62±0.51	1.63±0.35	1.71±0.45
Track 2										
TTL mm	5.17	3.75	4.24	4.79	4.28	3.81	4.77	3.68	3.57	3.54
ETTL yr	0.43	0.27	0.25	0.33	0.31	0.22	0.35	0.31	0.25	0.24
A_{den} g.cm⁻³.yr⁻¹	1.37±0.12	1.25±0.06	1.17±0.08	1.24±0.09	1.17±0.06	1.18±0.06	1.28±0.06	1.30±0.09	1.08±0.04	1.35±0.11
H_{den} g.cm⁻³.yr⁻¹	1.42±0.10	1.34±0.07	1.23±0.09	1.33±0.06	1.27±0.06	1.27±0.07	1.35±0.06	1.37±0.07	1.14±0.03	1.42±0.12
L_{den} g.cm⁻³.yr⁻¹	1.31±0.13	1.16±0.06	1.10±0.09	1.14±0.11	1.08±0.07	1.09±0.06	1.21±0.06	1.23±0.10	1.01±0.06	1.29±0.11
H-L_{den} g.cm⁻³.yr⁻¹	0.10±0.05	0.18±0.05	0.13±0.06	0.20±0.07	0.19±0.06	0.18±0.06	0.14±0.05	0.15±0.06	0.13±0.05	0.13±0.06
H-H_{dis} mm.yr⁻¹	12.1±4.1	13.7±4.7	17.1±2.6	14.6±4.0	13.6±2.5	17.0±2.9	13.7±2.7	12.0±3.4	14.5±4.2	15.0±5.3
H-L_{dis} mm.yr⁻¹	5.9±3.1	7.4±3.8	9.3±2.8	8.4±4.3	8.3±2.4	9.1±2.5	6.7±1.5	5.0±2.4	6.2±1.9	8.3±3.8
L-H_{dis} mm.yr⁻¹	6.2±2.2	6.2±2.2	7.8±2.6	6.2±2.6	5.3±1.7	7.9±2.8	7.0±1.8	7.0±2.9	8.3±3.4	6.7±4.9
CALCN g.cm⁻².yr⁻¹	1.64±0.53	1.70±0.58	1.99±0.28	1.80±0.51	1.60±0.26	2.00±0.35	1.74±0.32	1.56±0.41	1.55±0.42	2.01±0.62
Track 3										
TTL mm	3.14	4.94	3.18	3.96	4.34	none	3.27	3.24	3.57	3.16
ETTL yr	0.42	0.38	0.29	0.30	0.27	none	0.38	0.29	0.29	0.22
A_{den} g.cm⁻³.yr⁻¹	1.35±0.07	1.30±0.06	1.23±0.08	1.30±0.05	1.15±0.06	1.20±0.03	1.26±0.08	1.43±0.05	1.12±0.10	1.34±0.06
H_{den} g.cm⁻³.yr⁻¹	1.38±0.07	1.35±0.06	1.28±0.08	1.36±0.06	1.22±0.07	1.27±0.04	1.31±0.07	1.48±0.06	1.18±0.10	1.41±0.07
L_{den} g.cm⁻³.yr⁻¹	1.31±0.07	1.25±0.07	1.18±0.08	1.25±0.06	1.08±0.06	1.14±0.04	1.21±0.09	1.38±0.05	1.07±0.11	1.28±0.07
H-L_{den} g.cm⁻³.yr⁻¹	0.07±0.03	0.10±0.06	0.10±0.03	0.11±0.05	0.15±0.06	0.13±0.05	0.09±0.06	0.09±0.03	0.11±0.04	0.13±0.08
H-H_{dis} mm.yr⁻¹	7.5±2.5	13.0±4.7	11.1±4.4	13.0±3.6	16.3±3.5	12.2±2.6	8.7±2.8	11.1±2.2	12.3±4.2	14.1±5.7
H-L_{dis} mm.yr⁻¹	3.6±1.3	6.5±3.2	6.5±2.2	6.4±2.8	7.2±2.8	5.8±2.0	4.0±2.6	6.7±2.3	5.9±2.0	6.8±3.6
L-H_{dis} mm.yr⁻¹	3.8±1.6	6.5±3.3	4.6±3.2	6.6±2.7	9.2±4.2	6.4±2.1	4.7±1.9	4.4±2.1	6.4±3.3	7.3±3.2
CALCN g.cm⁻².yr⁻¹	1.00±0.34	1.68±0.58	1.38±0.59	1.69±0.46	1.87±0.37	1.47±0.32	1.09±0.35	1.58±0.30	1.38±0.48	1.88±0.72

Table B13: South Petherbridge Island, 14.73°S, 145.10°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02	B03	B04	B05*	B06*
Height mm	520	430	460	370	350	290
Width mm	540	600	480	440	570	380
H/W ratio	0.96	0.72	0.96	0.84	0.61	0.76
Species	lob	aust	may	aust	lut	aust
Year	1974	1966	1972	1972	1972	1975
Track 1						
TTL mm	3.23	9.29	5.74	4.52	4.42	8.50
ETTL yr	0.16	0.76	0.30	0.28	0.31	0.70
A_{den} g.cm⁻³.yr⁻¹	1.02±0.05	1.27±0.04	1.06±0.09	1.18±0.06	1.09±0.05	1.23±0.07
H_{den} g.cm⁻³.yr⁻¹	1.10±0.06	1.33±0.05	1.15±0.08	1.23±0.05	1.15±0.06	1.34±0.06
L_{den} g.cm⁻³.yr⁻¹	0.95±0.05	1.21±0.07	0.98±0.11	1.13±0.07	1.02±0.06	1.12±0.08
H-L_{den} g.cm⁻³.yr⁻¹	0.16±0.03	0.12±0.09	0.16±0.07	0.11±0.04	0.13±0.05	0.22±0.06
H-H_{dis} mm.yr⁻¹	20.3±5.6	12.2±4.4	19.1±3.1	16.2±3.8	14.1±2.3	12.1±1.9
H-L_{dis} mm.yr⁻¹	11.5±4.8	5.5±2.7	9.0±2.8	6.9±3.8	7.6±2.8	6.5±1.5
L-H_{dis} mm.yr⁻¹	8.7±3.7	6.7±3.2	10.1±4.0	9.3±3.8	6.5±2.0	5.6±1.0
CALCN g.cm⁻².yr⁻¹	2.06±0.55	1.54±0.53	2.04±0.39	1.91±0.44	1.53±0.21	1.49±0.20
Track 2						
TTL mm	2.77	8.16	6.98	6.06	5.11	9.00
ETTL yr	0.14	0.66	0.39	0.37	0.34	0.75
A_{den} g.cm⁻³.yr⁻¹	1.07±0.07	1.27±0.06	1.07±0.10	1.18±0.05	1.06±0.04	1.24±0.05
H_{den} g.cm⁻³.yr⁻¹	1.14±0.07	1.34±0.06	1.15±0.11	1.23±0.05	1.13±0.03	1.31±0.05
L_{den} g.cm⁻³.yr⁻¹	0.99±0.08	1.20±0.07	0.98±0.12	1.13±0.06	0.98±0.05	1.17±0.07
H-L_{den} g.cm⁻³.yr⁻¹	0.14±0.05	0.14±0.07	0.16±0.09	0.11±0.04	0.16±0.04	0.14±0.08
H-H_{dis} mm.yr⁻¹	19.4±6.9	12.3±3.5	18.1±6.4	16.2±5.5	14.9±3.4	12.0±2.8
H-L_{dis} mm.yr⁻¹	8.7±4.8	6.4±2.7	9.0±3.6	8.3±3.2	7.9±2.2	6.3±2.3
L-H_{dis} mm.yr⁻¹	10.7±4.9	5.9±2.7	9.1±4.7	8.0±3.8	6.9±1.9	5.7±1.2
CALCN g.cm⁻².yr⁻¹	2.04±0.69	1.56±0.44	1.95±0.78	1.91±0.63	1.57±0.36	1.48±0.32
Track 3						
TTL mm	3.36	5.06	6.45	3.39	5.24	7.07
ETTL yr	0.19	0.47	0.38	0.24	0.47	0.93
A_{den} g.cm⁻³.yr⁻¹	1.10±0.08	1.09±0.03	1.05±0.05	1.15±0.06	1.18±0.05	1.22±0.06
H_{den} g.cm⁻³.yr⁻¹	1.20±0.13	1.14±0.03	1.15±0.06	1.21±0.06	1.24±0.04	1.28±0.05
L_{den} g.cm⁻³.yr⁻¹	1.00±0.07	1.04±0.04	0.96±0.05	1.09±0.06	1.12±0.06	1.16±0.08
H-L_{den} g.cm⁻³.yr⁻¹	0.20±0.12	0.09±0.03	0.19±0.06	0.11±0.03	0.12±0.04	0.12±0.07
H-H_{dis} mm.yr⁻¹	17.9±4.3	10.8±3.0	16.8±4.7	14.0±4.3	11.2±1.6	7.6±1.7
H-L_{dis} mm.yr⁻¹	8.8±3.2	5.3±1.5	7.8±2.7	6.0±3.3	5.7±1.3	3.9±1.4
L-H_{dis} mm.yr⁻¹	9.1±3.8	5.5±2.5	9.0±3.6	8.0±4.3	5.5±2.1	3.7±1.2
CALCN g.cm⁻².yr⁻¹	1.96±0.44	1.17±0.32	1.76±0.48	1.61±0.49	1.31±0.17	0.92±0.18

Table B14: Two Isles, 15.03°S, 145.42°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02*	B03	B04	B05*	B06*	B07	B08	B09
Height mm	320	600	480	480	690	350	320	330	400
Width mm	540	580	510	510	510	360	400	330	500
H/W ratio	0.59	1.03	0.94	0.94	1.35	0.97	0.80	1.00	0.80
Species	lob	lob	lob	lob	aust	lob	lob	lob	lob
Year	1969	1960	1972	1972	1962	1974	1965	1981	1970
Track 1									
TTL mm	6.45	4.30	5.47	5.11	4.89	5.75	4.70	6.16	4.71
ETTL yr	0.49	0.40	0.56	0.35	0.32	0.47	0.57	0.44	0.37
A_{den} g.cm⁻³.yr⁻¹	1.31±0.06	1.28±0.06	1.28±0.06	1.16±0.06	1.11±0.04	1.16±0.03	1.42±0.06	1.29±0.12	1.19±0.08
H_{den} g.cm⁻³.yr⁻¹	1.37±0.07	1.36±0.08	1.33±0.06	1.22±0.07	1.19±0.05	1.22±0.04	1.46±0.06	1.33±0.12	1.26±0.08
L_{den} g.cm⁻³.yr⁻¹	1.24±0.08	1.21±0.07	1.23±0.07	1.11±0.07	1.03±0.05	1.09±0.04	1.37±0.06	1.25±0.13	1.13±0.08
H-L_{den} g.cm⁻³.yr⁻¹	0.13±0.08	0.14±0.06	0.10±0.06	0.11±0.06	0.16±0.05	0.14±0.05	0.08±0.04	0.08±0.04	0.13±0.05
H-H_{dis} mm.yr⁻¹	13.2±3.6	10.8±2.1	9.7±3.4	14.8±3.8	15.1±2.6	12.3±2.7	8.3±2.5	14.0±4.0	12.9±2.8
H-L_{dis} mm.yr⁻¹	6.6±3.5	5.9±1.8	4.5±2.4	7.7±4.7	7.4±2.8	6.6±2.2	5.1±2.4	6.9±4.3	7.1±2.2
L-H_{dis} mm.yr⁻¹	6.6±2.6	4.9±1.7	5.1±2.4	7.1±3.5	7.8±2.8	5.7±2.4	3.2±1.1	7.2±3.9	5.7±2.9
CALCN g.cm⁻².yr⁻¹	1.71±0.45	1.39±0.29	1.24±0.46	1.71±0.41	1.68±0.27	1.42±0.29	1.18±0.35	1.80±0.55	1.53±0.32
Track 2									
TTL mm	5.06	4.15	4.70	4.75	4.64	5.51	4.64	5.06	4.48
ETTL yr	0.37	0.37	0.40	0.31	0.31	0.45	0.59	0.38	0.34
A_{den} g.cm⁻³.yr⁻¹	1.33±0.03	1.32±0.03	1.36±0.03	1.12±0.06	1.17±0.04	1.17±0.04	1.46±0.03	1.27±0.05	1.17±0.11
H_{den} g.cm⁻³.yr⁻¹	1.39±0.04	1.38±0.05	1.41±0.07	1.19±0.10	1.25±0.05	1.22±0.06	1.50±0.03	1.30±0.05	1.24±0.10
L_{den} g.cm⁻³.yr⁻¹	1.28±0.05	1.26±0.03	1.32±0.06	1.04±0.05	1.09±0.05	1.11±0.04	1.42±0.04	1.23±0.05	1.10±0.12
H-L_{den} g.cm⁻³.yr⁻¹	0.10±0.06	0.11±0.04	0.09±0.03	0.15±0.10	0.16±0.05	0.11±0.06	0.08±0.04	0.07±0.03	0.14±0.07
H-H_{dis} mm.yr⁻¹	13.7±4.3	11.3±3.0	11.8±4.2	15.2±3.4	15.2±3.4	12.3±1.8	7.8±2.0	13.4±4.5	13.1±3.6
H-L_{dis} mm.yr⁻¹	5.9±3.7	6.7±2.5	5.9±3.1	6.2±2.4	7.4±3.4	6.8±1.4	3.9±1.3	7.2±3.7	7.3±3.5
L-H_{dis} mm.yr⁻¹	7.8±3.9	4.6±1.8	5.9±3.4	9.0±3.6	7.8±2.9	5.5±1.7	3.9±1.8	6.1±3.3	5.8±2.1
CALCN g.cm⁻².yr⁻¹	1.83±0.57	1.49±0.40	1.59±0.53	1.70±0.43	1.77±0.38	1.44±0.20	1.13±0.27	1.70±0.59	1.52±0.38
Track 3									
TTL mm	3.61	3.11	4.90	4.69	2.10	4.50	3.73	4.68	2.27
ETTL yr	0.38	0.30	0.51	0.44	0.26	0.51	0.51	0.41	0.24
A_{den} g.cm⁻³.yr⁻¹	1.20±0.06	1.36±0.04	1.29±0.05	1.22±0.09	1.22±0.05	1.19±0.03	1.38±0.04	1.20±0.07	1.23±0.04
H_{den} g.cm⁻³.yr⁻¹	1.25±0.07	1.41±0.03	1.33±0.06	1.29±0.10	1.25±0.05	1.25±0.05	1.42±0.03	1.25±0.07	1.27±0.04
L_{den} g.cm⁻³.yr⁻¹	1.15±0.06	1.30±0.05	1.25±0.05	1.14±0.08	1.19±0.05	1.12±0.03	1.35±0.05	1.14±0.08	1.20±0.04
H-L_{den} g.cm⁻³.yr⁻¹	0.10±0.05	0.11±0.05	0.08±0.04	0.15±0.04	0.06±0.03	0.13±0.06	0.07±0.04	0.11±0.05	0.08±0.03
H-H_{dis} mm.yr⁻¹	9.5±3.7	10.3±2.0	9.6±2.8	10.6±2.8	8.1±1.7	8.9±1.6	7.3±2.2	11.4±2.7	9.4±2.1
H-L_{dis} mm.yr⁻¹	5.0±3.2	4.9±1.8	4.8±1.3	6.0±1.8	4.1±1.8	4.9±1.2	3.6±1.4	4.8±1.8	4.3±1.1
L-H_{dis} mm.yr⁻¹	4.5±2.4	5.5±1.9	4.8±2.6	4.6±1.6	4.0±2.3	3.9±1.3	3.6±1.8	6.6±1.9	5.1±1.8
CALCN g.cm⁻².yr⁻¹	1.14±0.44	1.40±0.26	1.24±0.37	1.28±0.28	0.98±0.18	1.05±0.19	1.00±0.29	1.37±0.33	1.16±0.24

Table B15: Boulder Reef, 15.42°S, 145.42°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02*	B03*	B04	B05	B06
Height mm	440	400	410	370	400	350
Width mm	460	450	490	460	470	430
H/W ratio	0.96	0.89	0.84	0.80	0.85	0.81
Species	lob	lut	lob	lob	lob	lut
Year	1965	1970	1967	1968	1980	1971
Track 1						
TTL mm	5.10	4.25	5.58	4.85	6.82	6.39
ETTL yr	0.52	0.29	0.50	0.37	0.40	0.44
A_{den} g.cm⁻³.yr⁻¹	1.35 $\pm$ 0.05	1.14 $\pm$ 0.04	1.26 $\pm$ 0.04	1.11 $\pm$ 0.05	1.17 $\pm$ 0.05	1.25 $\pm$ 0.03
H_{den} g.cm⁻³.yr⁻¹	1.40 $\pm$ 0.06	1.19 $\pm$ 0.04	1.31 $\pm$ 0.05	1.16 $\pm$ 0.06	1.23 $\pm$ 0.05	1.31 $\pm$ 0.04
L_{den} g.cm⁻³.yr⁻¹	1.29 $\pm$ 0.05	1.09 $\pm$ 0.04	1.20 $\pm$ 0.04	1.06 $\pm$ 0.04	1.12 $\pm$ 0.06	1.20 $\pm$ 0.04
H-L_{den} g.cm⁻³.yr⁻¹	0.11 $\pm$ 0.03	0.11 $\pm$ 0.02	0.11 $\pm$ 0.03	0.10 $\pm$ 0.05	0.11 $\pm$ 0.04	0.12 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	9.8 $\pm$ 1.7	14.9 $\pm$ 3.8	11.1 $\pm$ 2.8	13.2 $\pm$ 4.1	16.9 $\pm$ 5.6	14.4 $\pm$ 2.3
H-L_{dis} mm.yr⁻¹	5.3 $\pm$ 1.7	7.9 $\pm$ 2.8	6.1 $\pm$ 2.4	6.7 $\pm$ 3.8	9.4 $\pm$ 3.0	7.2 $\pm$ 2.7
L-H_{dis} mm.yr⁻¹	4.5 $\pm$ 1.5	7.0 $\pm$ 2.9	5.0 $\pm$ 1.9	6.5 $\pm$ 3.4	7.6 $\pm$ 4.4	7.2 $\pm$ 2.6
CALCN g.cm⁻².yr⁻¹	1.32 $\pm$ 0.24	1.69 $\pm$ 0.42	1.40 $\pm$ 0.36	1.46 $\pm$ 0.43	1.99 $\pm$ 0.67	1.81 $\pm$ 0.30
Track 2						
TTL mm	5.65	4.88	5.32	5.50	6.60	5.51
ETTL yr	0.58	0.34	0.51	0.40	0.45	0.41
A_{den} g.cm⁻³.yr⁻¹	1.36 $\pm$ 0.03	1.23 $\pm$ 0.04	1.23 $\pm$ 0.08	1.14 $\pm$ 0.05	1.15 $\pm$ 0.06	1.27 $\pm$ 0.03
H_{den} g.cm⁻³.yr⁻¹	1.41 $\pm$ 0.04	1.28 $\pm$ 0.04	1.28 $\pm$ 0.08	1.20 $\pm$ 0.06	1.22 $\pm$ 0.07	1.34 $\pm$ 0.03
L_{den} g.cm⁻³.yr⁻¹	1.31 $\pm$ 0.03	1.17 $\pm$ 0.05	1.18 $\pm$ 0.08	1.08 $\pm$ 0.04	1.09 $\pm$ 0.06	1.20 $\pm$ 0.03
H-L_{den} g.cm⁻³.yr⁻¹	0.09 $\pm$ 0.04	0.11 $\pm$ 0.04	0.10 $\pm$ 0.05	0.12 $\pm$ 0.05	0.12 $\pm$ 0.05	0.14 $\pm$ 0.03
H-H_{dis} mm.yr⁻¹	9.7 $\pm$ 2.8	14.2 $\pm$ 3.1	10.5 $\pm$ 4.2	13.9 $\pm$ 3.2	14.8 $\pm$ 6.3	13.4 $\pm$ 3.0
H-L_{dis} mm.yr⁻¹	4.4 $\pm$ 1.7	8.3 $\pm$ 2.2	5.3 $\pm$ 2.2	6.4 $\pm$ 2.9	7.9 $\pm$ 4.1	6.2 $\pm$ 2.1
L-H_{dis} mm.yr⁻¹	5.3 $\pm$ 2.0	5.9 $\pm$ 1.9	5.1 $\pm$ 2.9	7.5 $\pm$ 3.3	7.0 $\pm$ 5.9	7.2 $\pm$ 2.8
CALCN g.cm⁻².yr⁻¹	1.31 $\pm$ 0.37	1.74 $\pm$ 0.37	1.27 $\pm$ 0.45	1.57 $\pm$ 0.34	1.71 $\pm$ 0.77	1.69 $\pm$ 0.37
Track 3						
TTL mm	3.94	3.63	3.77	4.06	3.86	4.73
ETTL yr	0.59	0.35	0.42	0.44	0.36	0.40
A_{den} g.cm⁻³.yr⁻¹	1.38 $\pm$ 0.03	1.24 $\pm$ 0.07	1.25 $\pm$ 0.06	1.23 $\pm$ 0.06	1.17 $\pm$ 0.05	1.28 $\pm$ 0.05
H_{den} g.cm⁻³.yr⁻¹	1.41 $\pm$ 0.03	1.30 $\pm$ 0.07	1.30 $\pm$ 0.07	1.30 $\pm$ 0.07	1.20 $\pm$ 0.05	1.33 $\pm$ 0.06
L_{den} g.cm⁻³.yr⁻¹	1.34 $\pm$ 0.03	1.19 $\pm$ 0.08	1.20 $\pm$ 0.06	1.16 $\pm$ 0.06	1.13 $\pm$ 0.06	1.22 $\pm$ 0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.06 $\pm$ 0.02	0.11 $\pm$ 0.04	0.10 $\pm$ 0.06	0.14 $\pm$ 0.07	0.07 $\pm$ 0.05	0.12 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	6.7 $\pm$ 1.1	10.5 $\pm$ 2.6	8.9 $\pm$ 1.7	9.3 $\pm$ 2.4	10.7 $\pm$ 2.5	11.9 $\pm$ 2.2
H-L_{dis} mm.yr⁻¹	3.2 $\pm$ 1.4	5.1 $\pm$ 1.5	4.1 $\pm$ 1.5	4.9 $\pm$ 2.4	4.7 $\pm$ 3.2	6.1 $\pm$ 2.3
L-H_{dis} mm.yr⁻¹	3.4 $\pm$ 1.4	5.4 $\pm$ 2.2	4.9 $\pm$ 1.3	4.4 $\pm$ 1.4	6.0 $\pm$ 2.7	5.7 $\pm$ 2.2
CALCN g.cm⁻².yr⁻¹	0.92 $\pm$ 0.15	1.31 $\pm$ 0.33	1.11 $\pm$ 0.19	1.14 $\pm$ 0.30	1.25 $\pm$ 0.28	1.51 $\pm$ 0.24

Table B16: East Hope Island, 15.73°S, 145.45°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02*	B03*	B04	B05	B06*	B07	B08*	B09*
Height mm	450	390	460	510	660	350	400	430	500
Width mm	520	460	490	450	480	380	400	420	400
H/W ratio	0.87	0.85	0.94	1.13	1.38	0.92	1.00	1.02	1.25
Species	lob	lob	lob	lob	lob	lob	lob	lob	lob
Year	1972	1972	1973	1972	1973	1975	1969	1973	1972
Track 1									
TTL mm	4.25	4.34	6.74	5.82	6.88	5.91	7.57	6.37	5.63
ETTL yr	0.27	0.27	0.43	0.38	0.50	0.38	0.49	0.39	0.37
A_{den} g.cm⁻³.yr⁻¹	1.01±0.06	1.26±0.09	1.31±0.05	1.21±0.05	1.22±0.05	1.13±0.09	1.30±0.06	1.20±0.04	1.00±0.05
H_{den} g.cm⁻³.yr⁻¹	1.10±0.07	1.33±0.09	1.37±0.05	1.28±0.06	1.28±0.07	1.19±0.09	1.37±0.04	1.29±0.07	1.09±0.04
L_{den} g.cm⁻³.yr⁻¹	0.92±0.06	1.19±0.09	1.25±0.04	1.15±0.04	1.15±0.05	1.08±0.09	1.23±0.08	1.11±0.05	0.91±0.08
H-L_{den} g.cm⁻³.yr⁻¹	0.18±0.04	0.14±0.04	0.11±0.03	0.13±0.04	0.13±0.05	0.11±0.05	0.14±0.06	0.18±0.08	0.18±0.07
H-H_{dis} mm.yr⁻¹	15.5±3.7	15.9±4.3	15.8±4.3	15.3±5.7	13.9±5.3	15.4±3.9	15.4±4.5	16.3±3.8	15.3±2.9
H-L_{dis} mm.yr⁻¹	6.1±2.7	7.7±3.4	9.1±3.9	7.7±3.9	7.9±4.2	7.3±3.0	7.7±5.1	6.8±3.3	8.1±2.2
L-H_{dis} mm.yr⁻¹	9.4±2.5	8.2±2.8	6.8±3.6	7.6±4.8	6.1±3.5	8.0±3.6	7.8±3.0	9.6±4.0	7.2±3.8
CALCN g.cm⁻².yr⁻¹	1.56±0.36	1.98±0.45	2.07±0.59	1.85±0.68	1.69±0.61	1.74±0.44	2.00±0.56	1.97±0.46	1.53±0.31
Track 2									
TTL mm	5.07	5.62	6.56	none	6.66	6.36	7.26	4.98	5.28
ETTL yr	0.34	0.32	0.40	none	0.43	0.39	0.48	0.34	0.34
A_{den} g.cm⁻³.yr⁻¹	1.03±0.06	1.18±0.05	1.31±0.05	1.23±0.05	1.17±0.07	1.10±0.04	1.23±0.03	1.17±0.06	1.04±0.06
H_{den} g.cm⁻³.yr⁻¹	1.13±0.07	1.25±0.06	1.38±0.05	1.28±0.06	1.23±0.08	1.17±0.03	1.30±0.04	1.25±0.07	1.12±0.05
L_{den} g.cm⁻³.yr⁻¹	0.94±0.06	1.12±0.06	1.24±0.06	1.17±0.06	1.12±0.07	1.04±0.05	1.17±0.04	1.08±0.07	0.95±0.08
H-L_{den} g.cm⁻³.yr⁻¹	0.19±0.04	0.13±0.04	0.14±0.05	0.11±0.06	0.11±0.05	0.13±0.04	0.13±0.06	0.18±0.05	0.16±0.06
H-H_{dis} mm.yr⁻¹	14.9±3.7	17.8±4.7	16.6±4.6	14.1±4.7	15.6±4.8	16.4±4.7	15.1±5.2	14.5±2.3	15.5±2.5
H-L_{dis} mm.yr⁻¹	6.2±1.9	8.4±2.9	7.9±4.5	6.5±3.5	8.0±4.1	7.0±2.3	6.0±2.8	5.5±1.9	8.7±2.6
L-H_{dis} mm.yr⁻¹	8.6±2.8	9.3±3.5	8.7±3.1	7.6±3.8	7.6±3.2	9.5±4.5	9.1±4.6	8.9±3.1	6.9±3.7
CALCN g.cm⁻².yr⁻¹	1.52±0.34	2.10±0.57	2.18±0.60	1.72±0.55	1.83±0.59	1.81±0.52	1.86±0.63	1.68±0.25	1.60±0.27
Track 3									
TTL mm	3.95	5.27	4.28	none	5.22	5.70	4.55	4.93	4.11
ETTL yr	0.34	0.35	0.45	none	0.42	0.46	0.34	0.43	0.38
A_{den} g.cm⁻³.yr⁻¹	1.08±0.03	1.24±0.06	1.33±0.04	1.24±0.06	1.17±0.06	1.13±0.07	1.31±0.04	1.32±0.06	1.00±0.04
H_{den} g.cm⁻³.yr⁻¹	1.15±0.05	1.30±0.06	1.38±0.05	1.27±0.06	1.22±0.06	1.19±0.06	1.36±0.04	1.39±0.06	1.07±0.06
L_{den} g.cm⁻³.yr⁻¹	1.01±0.04	1.17±0.07	1.27±0.05	1.20±0.05	1.13±0.06	1.07±0.08	1.25±0.05	1.24±0.06	0.92±0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.14±0.05	0.13±0.04	0.10±0.05	0.07±0.03	0.09±0.03	0.12±0.05	0.11±0.04	0.15±0.06	0.15±0.06
H-H_{dis} mm.yr⁻¹	11.5±1.9	15.2±2.7	9.5±2.5	7.7±2.0	12.4±2.2	12.5±4.6	13.5±5.8	11.6±4.5	10.8±2.2
H-L_{dis} mm.yr⁻¹	5.1±1.0	6.9±1.8	3.9±1.5	3.6±2.0	6.0±2.5	5.5±2.9	7.3±4.1	6.4±2.8	5.7±1.7
L-H_{dis} mm.yr⁻¹	6.4±1.8	8.3±2.1	5.6±2.5	4.0±1.8	6.4±2.3	7.0±3.2	6.3±3.0	5.2±2.2	5.2±1.0
CALCN g.cm⁻².yr⁻¹	1.25±0.21	1.87±0.32	1.26±0.32	0.95±0.26	1.45±0.30	1.41±0.50	1.75±0.71	1.51±0.55	1.08±0.23

Table B17: Undine Reef, 16.12°S, 145.63°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02	B03*	B05*	B06*
Height mm	700	450	370	470	290
Width mm	600	570	500	560	340
H/W ratio	1.17	0.79	0.74	0.84	0.85
Species	lob	lob	aust	lut	lob
Year	1964	1974	1969	1970	1973
Track 1					
TTL mm	5.45	5.79	5.70	7.45	5.97
ETTL yr	0.54	0.47	0.52	0.61	0.44
A_{den} g.cm⁻³.yr⁻¹	1.35 $\pm$ 0.05	1.41 $\pm$ 0.09	1.27 $\pm$ 0.04	1.14 $\pm$ 0.05	1.28 $\pm$ 0.05
H_{den} g.cm⁻³.yr⁻¹	1.40 $\pm$ 0.06	1.47 $\pm$ 0.11	1.33 $\pm$ 0.03	1.19 $\pm$ 0.04	1.35 $\pm$ 0.05
L_{den} g.cm⁻³.yr⁻¹	1.30 $\pm$ 0.06	1.35 $\pm$ 0.08	1.22 $\pm$ 0.05	1.10 $\pm$ 0.05	1.22 $\pm$ 0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.10 $\pm$ 0.04	0.12 $\pm$ 0.06	0.11 $\pm$ 0.04	0.09 $\pm$ 0.03	0.13 $\pm$ 0.03
H-H_{dis} mm.yr⁻¹	10.1 $\pm$ 2.5	12.2 $\pm$ 3.4	11.0 $\pm$ 2.0	12.2 $\pm$ 2.2	13.6 $\pm$ 2.2
H-L_{dis} mm.yr⁻¹	4.7 $\pm$ 1.7	6.5 $\pm$ 2.7	5.7 $\pm$ 1.9	5.7 $\pm$ 1.7	6.9 $\pm$ 1.7
L-H_{dis} mm.yr⁻¹	5.4 $\pm$ 2.9	5.7 $\pm$ 2.5	5.2 $\pm$ 2.0	6.5 $\pm$ 1.6	6.8 $\pm$ 2.3
CALCN g.cm⁻².yr⁻¹	1.36 $\pm$ 0.34	1.70 $\pm$ 0.43	1.39 $\pm$ 0.25	1.39 $\pm$ 0.23	1.75 $\pm$ 0.27
Track 2					
TTL mm	5.43	6.91	6.81	8.18	6.24
ETTL yr	0.54	0.64	0.57	0.68	0.45
A_{den} g.cm⁻³.yr⁻¹	1.26 $\pm$ 0.05	1.35 $\pm$ 0.06	1.21 $\pm$ 0.06	1.08 $\pm$ 0.02	1.30 $\pm$ 0.07
H_{den} g.cm⁻³.yr⁻¹	1.31 $\pm$ 0.05	1.39 $\pm$ 0.07	1.27 $\pm$ 0.06	1.13 $\pm$ 0.03	1.39 $\pm$ 0.08
L_{den} g.cm⁻³.yr⁻¹	1.21 $\pm$ 0.05	1.31 $\pm$ 0.06	1.16 $\pm$ 0.06	1.03 $\pm$ 0.03	1.20 $\pm$ 0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.10 $\pm$ 0.04	0.08 $\pm$ 0.04	0.11 $\pm$ 0.04	0.10 $\pm$ 0.03	0.20 $\pm$ 0.06
H-H_{dis} mm.yr⁻¹	10.1 $\pm$ 2.0	10.8 $\pm$ 3.3	12.0 $\pm$ 2.6	12.1 $\pm$ 1.9	14.0 $\pm$ 1.4
H-L_{dis} mm.yr⁻¹	5.6 $\pm$ 2.2	4.7 $\pm$ 1.6	6.4 $\pm$ 1.9	6.0 $\pm$ 1.9	5.9 $\pm$ 1.8
L-H_{dis} mm.yr⁻¹	4.5 $\pm$ 2.0	6.1 $\pm$ 3.6	5.6 $\pm$ 1.0	6.1 $\pm$ 1.9	8.1 $\pm$ 2.2
CALCN g.cm⁻².yr⁻¹	1.27 $\pm$ 0.24	1.44 $\pm$ 0.40	1.46 $\pm$ 0.32	1.31 $\pm$ 0.19	1.81 $\pm$ 0.18
Track 3					
TTL mm	4.63	5.51	5.59	6.96	4.62
ETTL yr	0.59	0.53	0.49	0.71	0.50
A_{den} g.cm⁻³.yr⁻¹	1.33 $\pm$ 0.07	1.28 $\pm$ 0.05	1.24 $\pm$ 0.06	1.17 $\pm$ 0.07	1.24 $\pm$ 0.03
H_{den} g.cm⁻³.yr⁻¹	1.37 $\pm$ 0.06	1.32 $\pm$ 0.07	1.29 $\pm$ 0.07	1.20 $\pm$ 0.07	1.31 $\pm$ 0.04
L_{den} g.cm⁻³.yr⁻¹	1.29 $\pm$ 0.07	1.24 $\pm$ 0.04	1.19 $\pm$ 0.07	1.14 $\pm$ 0.07	1.17 $\pm$ 0.03
H-L_{den} g.cm⁻³.yr⁻¹	0.08 $\pm$ 0.04	0.08 $\pm$ 0.04	0.09 $\pm$ 0.05	0.06 $\pm$ 0.03	0.14 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	7.9 $\pm$ 1.6	10.4 $\pm$ 3.3	11.3 $\pm$ 2.2	9.8 $\pm$ 2.0	9.3 $\pm$ 1.5
H-L_{dis} mm.yr⁻¹	3.9 $\pm$ 1.3	5.1 $\pm$ 2.3	5.3 $\pm$ 1.6	4.5 $\pm$ 2.0	4.6 $\pm$ 0.9
L-H_{dis} mm.yr⁻¹	4.0 $\pm$ 1.7	5.3 $\pm$ 2.9	6.0 $\pm$ 2.8	5.3 $\pm$ 2.3	4.6 $\pm$ 1.3
CALCN g.cm⁻².yr⁻¹	1.05 $\pm$ 0.20	1.33 $\pm$ 0.42	1.39 $\pm$ 0.25	1.14 $\pm$ 0.24	1.15 $\pm$ 0.20

Table B18: Snapper Island, 16.29°S, 145.46°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02*	B03	B05*	B06	B07	B08	B09
Height mm	570	450	450	410	310	320	410	350
Width mm	630	360	370	390	400	420	450	350
H/W ratio	0.90	1.25	1.22	1.05	0.78	0.76	0.91	1.00
Species	lob	lob	lob	lob	lob	may	lob	lob
Year	1975	1976	1980	1979	1981	1977	1979	1974
Track 1								
TTL mm	7.10	4.25	3.30	5.15	4.96	4.93	7.08	5.44
ETTL yr	0.37	0.23	0.20	0.31	0.44	0.32	0.37	0.39
A_{den} g.cm⁻³.yr⁻¹	1.24±0.06	1.07±0.06	1.14±0.05	1.08±0.06	1.09±0.07	1.05±0.06	0.97±0.09	1.15±0.04
H_{den} g.cm⁻³.yr⁻¹	1.33±0.06	1.14±0.07	1.21±0.05	1.15±0.07	1.15±0.09	1.10±0.06	1.06±0.10	1.21±0.05
L_{den} g.cm⁻³.yr⁻¹	1.16±0.08	0.99±0.06	1.07±0.05	1.00±0.06	1.04±0.07	0.99±0.07	0.88±0.10	1.10±0.04
H-L_{den} g.cm⁻³.yr⁻¹	0.18±0.06	0.16±0.05	0.14±0.04	0.15±0.06	0.11±0.07	0.12±0.05	0.18±0.07	0.12±0.04
H-H_{dis} mm.yr⁻¹	19.1±2.9	18.6±3.9	16.2±4.9	16.6±2.5	11.4±3.7	15.5±4.5	19.2±6.4	13.9±2.8
H-L_{dis} mm.yr⁻¹	10.6±4.3	9.4±2.6	8.2±3.6	7.2±3.2	5.8±3.5	8.1±3.5	10.6±4.4	6.8±3.0
L-H_{dis} mm.yr⁻¹	8.6±3.3	9.2±3.7	7.9±2.9	9.4±3.7	5.7±2.9	7.3±4.2	8.7±4.6	7.1±2.4
CALCN g.cm⁻².yr⁻¹	2.38±0.34	1.98±0.39	1.84±0.56	1.79±0.29	1.26±0.43	1.60±0.43	1.85±0.61	1.61±0.33
Track 2								
TTL mm	6.38	3.20	3.69	4.85	4.23	5.05	7.60	3.65
ETTL yr	0.32	0.18	0.21	0.30	0.37	0.33	0.38	0.30
A_{den} g.cm⁻³.yr⁻¹	1.30±0.06	1.12±0.07	1.16±0.08	1.08±0.07	1.00±0.03	1.05±0.03	0.98±0.10	1.13±0.05
H_{den} g.cm⁻³.yr⁻¹	1.38±0.07	1.19±0.06	1.21±0.08	1.15±0.07	1.05±0.04	1.11±0.04	1.08±0.11	1.17±0.06
L_{den} g.cm⁻³.yr⁻¹	1.23±0.06	1.05±0.08	1.11±0.08	1.01±0.08	0.95±0.03	0.99±0.03	0.88±0.11	1.10±0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.16±0.04	0.15±0.04	0.10±0.03	0.15±0.03	0.10±0.03	0.12±0.04	0.20±0.08	0.07±0.04
H-H_{dis} mm.yr⁻¹	19.7±3.4	18.1±2.9	17.6±5.2	16.4±1.8	11.3±3.2	15.5±4.9	19.8±5.0	12.3±3.9
H-L_{dis} mm.yr⁻¹	9.1±2.9	7.6±2.3	10.6±5.7	7.0±3.3	4.9±1.6	8.2±2.8	9.7±4.0	6.3±2.6
L-H_{dis} mm.yr⁻¹	10.6±3.6	10.5±3.1	7.0±3.2	9.3±4.0	6.4±2.7	7.3±3.4	10.0±4.8	6.0±3.1
CALCN g.cm⁻².yr⁻¹	2.56±0.42	2.02±0.34	2.02±0.50	1.76±0.16	1.13±0.32	1.63±0.52	1.92±0.46	1.40±0.46
Track 3								
TTL mm	5.26	4.02	3.92	3.49	3.57	6.02	5.43	2.50
ETTL yr	0.34	0.22	0.23	0.34	0.48	0.41	0.31	0.22
A_{den} g.cm⁻³.yr⁻¹	1.30±0.04	1.15±0.07	1.15±0.02	1.14±0.03	1.00±0.02	1.13±0.03	1.02±0.08	1.14±0.03
H_{den} g.cm⁻³.yr⁻¹	1.36±0.04	1.26±0.08	1.20±0.02	1.20±0.04	1.04±0.04	1.18±0.04	1.34±0.11	1.21±0.03
L_{den} g.cm⁻³.yr⁻¹	1.24±0.04	1.05±0.06	1.10±0.03	1.08±0.05	0.96±0.02	1.08±0.04	0.93±0.08	1.08±0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.12±0.04	0.20±0.04	0.10±0.03	0.12±0.05	0.08±0.03	0.09±0.04	0.19±0.09	0.13±0.05
H-H_{dis} mm.yr⁻¹	15.6±3.1	18.0±2.4	17.2±7.2	10.2±2.5	7.5±2.3	14.8±4.1	17.8±4.9	11.3±1.7
H-L_{dis} mm.yr⁻¹	8.0±3.5	7.9±2.4	7.0±3.4	5.2±1.1	4.3±2.1	6.7±3.9	10.2±3.3	6.2±1.7
L-H_{dis} mm.yr⁻¹	7.5±2.3	10.2±2.8	10.2±6.2	5.0±2.5	3.2±0.05	8.1±3.1	7.6±2.8	5.1±1.1
CALCN g.cm⁻².yr⁻¹	2.02±0.39	2.08±0.28	1.96±0.80	1.16±0.27	0.75±0.24	1.67±0.46	1.81±0.50	1.30±0.18

Table B19: Batt Reef, 16.38°S, 145.70°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B02*	B03	B05	B06*	B07*	B08*	B09*	B10	B11*	B12*
Height mm	530	540	660	570	410	240	290	320	270	260
Width mm	500	520	700	480	500	290	390	260	260	320
H/W ratio	1.06	1.04	0.94	1.19	0.82	0.83	0.74	1.23	1.04	0.81
Species	lob	lob	lob	lob	lut	lob	lob	lob	lob	lob
Year	1951	1963	1952	1961	1973	1980	1972	1975	1977	1980
Track 1										
TTL mm	7.03	5.83	6.00	3.06	5.68	3.74	5.23	4.66	3.88	4.75
ETTL yr	0.67	0.36	0.56	0.23	0.35	0.26	0.42	0.41	0.25	0.44
A_{den} g.cm⁻³.yr⁻¹	1.32±0.02	1.10±0.06	1.24±0.06	1.27±0.09	1.20±0.05	1.28±0.06	1.36±0.07	1.38±0.03	1.21±0.10	1.46±0.06
H_{den} g.cm⁻³.yr⁻¹	1.36±0.02	1.17±0.06	1.28±0.06	1.34±0.10	1.26±0.05	1.34±0.07	1.43±0.08	1.42±0.04	1.28±0.11	1.52±0.04
L_{den} g.cm⁻³.yr⁻¹	1.28±0.03	1.04±0.06	1.19±0.07	1.20±0.09	1.13±0.06	1.22±0.06	1.28±0.06	1.35±0.03	1.13±0.10	1.41±0.08
H-L_{den} g.cm⁻³.yr⁻¹	0.07±0.03	0.14±0.04	0.09±0.04	0.14±0.06	0.13±0.04	0.13±0.05	0.14±0.06	0.08±0.03	0.15±0.07	0.10±0.05
H-H_{dis} mm.yr⁻¹	10.5±2.6	16.4±3.5	10.8±5.1	13.3±5.4	16.1±2.5	14.5±3.6	12.4±2.2	11.3±2.0	15.8±3.2	10.9±2.0
H-L_{dis} mm.yr⁻¹	4.5±2.2	7.6±2.0	5.7±3.3	5.3±2.8	7.7±3.7	7.0±2.3	6.3±2.5	5.5±2.0	7.3±3.9	6.2±2.4
L-H_{dis} mm.yr⁻¹	6.0±2.4	8.8±3.1	5.1±2.9	8.0±4.1	8.4±3.4	7.5±2.7	6.1±2.0	5.8±1.9	8.5±3.9	4.7±1.9
CALCN g.cm⁻².yr⁻¹	1.38±0.34	1.81±0.38	1.34±0.65	1.66±0.61	1.93±0.30	1.85±0.42	1.68±0.29	1.57±0.29	1.89±0.34	1.60±0.26
Track 2										
TTL mm	6.52	5.81	6.38	3.98	4.93	3.94	5.42	5.07	3.61	6.19
ETTL yr	0.62	0.48	0.55	0.30	0.29	0.27	0.42	0.47	0.24	0.61
A_{den} g.cm⁻³.yr⁻¹	1.30±0.02	1.18±0.08	1.28±0.07	1.26±0.06	1.14±0.05	1.29±0.07	1.32±0.05	1.38±0.03	1.25±0.10	1.44±0.06
H_{den} g.cm⁻³.yr⁻¹	1.33±0.03	1.24±0.08	1.34±0.08	1.34±0.06	1.20±0.05	1.38±0.06	1.38±0.05	1.43±0.03	1.33±0.11	1.50±0.07
L_{den} g.cm⁻³.yr⁻¹	1.26±0.02	1.12±0.10	1.22±0.06	1.18±0.07	1.07±0.05	1.20±0.08	1.25±0.05	1.34±0.04	1.16±0.11	1.39±0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.07±0.03	0.12±0.06	0.12±0.03	0.16±0.04	0.13±0.04	0.18±0.04	0.13±0.04	0.09±0.04	0.17±0.07	0.11±0.04
H-H_{dis} mm.yr⁻¹	10.6±3.1	12.1±5.0	11.6±4.0	13.2±3.1	17.2±3.2	14.5±3.7	13.0±3.1	10.7±2.6	15.3±3.4	10.2±1.9
H-L_{dis} mm.yr⁻¹	5.4±2.9	6.1±3.3	6.2±3.2	5.6±1.8	8.2±3.5	6.6±2.5	6.9±2.3	5.3±1.8	6.5±2.2	4.8±1.4
L-H_{dis} mm.yr⁻¹	5.2±2.8	6.0±2.9	5.4±2.3	7.6±2.4	9.0±3.5	7.9±2.7	6.0±3.5	5.4±1.5	8.8±3.2	5.4±1.8
CALCN g.cm⁻².yr⁻¹	1.38±0.41	1.41±0.54	1.50±0.57	1.66±0.38	1.95±0.33	1.85±0.42	1.70±0.39	1.49±0.36	1.88±0.34	1.46±0.24
Track 3										
TTL mm	4.54	4.95	3.95	3.37	4.51	3.36	3.78	4.28	3.32	4.57
ETTL yr	0.86	0.44	0.51	0.35	0.31	0.28	0.35	0.43	0.29	0.47
A_{den} g.cm⁻³.yr⁻¹	1.38±0.04	1.10±0.09	1.34±0.03	1.30±0.05	1.04±0.09	1.35±0.08	1.30±0.07	1.29±0.09	1.15±0.06	1.49±0.07
H_{den} g.cm⁻³.yr⁻¹	1.41±0.04	1.16±0.10	1.39±0.03	1.38±0.07	1.10±0.10	1.42±0.08	1.39±0.06	1.33±0.09	1.21±0.06	1.54±0.07
L_{den} g.cm⁻³.yr⁻¹	1.36±0.05	1.03±0.09	1.29±0.04	1.21±0.05	0.98±0.09	1.27±0.09	1.22±0.09	1.25±0.08	1.09±0.06	1.44±0.08
H-L_{den} g.cm⁻³.yr⁻¹	0.05±0.02	0.14±0.07	0.11±0.03	0.17±0.07	0.12±0.06	0.15±0.04	0.17±0.04	0.09±0.03	0.13±0.05	0.10±0.08
H-H_{dis} mm.yr⁻¹	5.3±1.8	11.3±2.8	7.7±2.0	9.6±2.5	14.4±3.4	11.8±2.7	10.8±1.7	9.9±1.9	11.5±2.6	9.7±2.7
H-L_{dis} mm.yr⁻¹	3.3±1.7	5.7±2.2	4.2±1.8	4.2±1.3	7.2±3.0	5.8±1.6	6.2±1.2	4.6±2.4	5.5±2.5	5.1±2.4
L-H_{dis} mm.yr⁻¹	2.0±0.9	5.6±2.3	3.5±0.8	5.4±1.7	7.2±4.2	6.0±2.0	4.6±1.0	5.3±2.1	6.0±2.4	4.6±1.6
CALCN g.cm⁻².yr⁻¹	0.73±0.25	1.23±0.28	1.02±0.25	1.23±0.29	1.48±0.25	1.58±0.35	1.40±0.21	1.27±0.24	1.32±0.26	1.44±0.37

Table B20: Double Island, 16.73°S, 145.68°E: Average annual growth characteristics ($\pm$ sd), 1977-1991 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02	B03	B04*	B05	B06	B07	B08*
Height mm	430	400	270	400	370	380	280	400
Width mm	600	530	460	520	550	460	320	350
H/W ratio	0.72	0.75	0.59	0.77	0.67	0.83	0.88	1.14
Species	lob	lut	lob	lob	lob	lob	lut	lob
Year	1975	1972	1986	1974	1980	1979	1982	1983
Track 1								
TTL mm	5.76	7.02	7.62	5.32	7.21	6.36	5.04	5.05
ETTL yr	0.36	0.47	0.40	0.31	0.35	0.38	0.42	0.26
A_{den} g.cm⁻³.yr⁻¹	1.03±0.08	1.15±0.04	1.13±0.03	1.09±0.08	1.01±0.06	1.08±0.03	1.31±0.04	1.02±0.05
H_{den} g.cm⁻³.yr⁻¹	1.13±0.09	1.20±0.05	1.22±0.04	1.17±0.08	1.07±0.08	1.13±0.04	1.37±0.06	1.13±0.05
L_{den} g.cm⁻³.yr⁻¹	0.93±0.10	1.10±0.06	1.04±0.04	1.02±0.09	0.94±0.06	1.03±0.04	1.25±0.04	0.90±0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.20±0.08	0.09±0.05	0.17±0.06	0.15±0.05	0.12±0.06	0.10±0.03	0.12±0.06	0.22±0.04
H-H_{dis} mm.yr⁻¹	15.8±5.4	15.0±4.7	19.1±5.0	17.4±4.3	20.6±5.3	16.7±4.9	12.0±4.0	19.5±4.3
H-L_{dis} mm.yr⁻¹	7.8±3.9	6.4±2.6	9.0±1.7	8.9±4.3	11.7±7.1	8.7±3.7	6.1±3.2	9.7±3.0
L-H_{dis} mm.yr⁻¹	8.0±4.2	8.6±3.8	10.1±4.0	8.4±2.9	8.9±4.6	8.0±4.3	5.9±3.3	9.8±3.9
CALCN g.cm⁻².yr⁻¹	1.61±0.53	1.71±0.51	2.15±0.55	1.88±0.40	2.07±0.52	1.80±0.49	1.57±0.54	1.99±0.49
Track 2								
TTL mm	6.68	5.98	6.21	6.10	7.94	7.95	5.37	4.89
ETTL yr	0.44	0.41	0.37	0.36	0.41	0.49	0.35	0.24
A_{den} g.cm⁻³.yr⁻¹	0.99±0.08	1.09±0.03	1.05±0.06	1.00±0.06	1.00±0.11	1.09±0.03	1.26±0.05	1.05±0.10
H_{den} g.cm⁻³.yr⁻¹	1.08±0.09	1.15±0.03	1.10±0.07	1.09±0.06	1.07±0.12	1.13±0.03	1.36±0.06	1.15±0.10
L_{den} g.cm⁻³.yr⁻¹	0.89±0.09	1.03±0.04	0.99±0.07	0.92±0.08	0.94±0.11	1.04±0.03	1.17±0.06	0.94±0.12
H-L_{den} g.cm⁻³.yr⁻¹	0.18±0.08	0.12±0.04	0.12±0.06	0.17±0.05	0.13±0.07	0.10±0.02	0.19±0.07	0.21±0.07
H-H_{dis} mm.yr⁻¹	15.2±3.2	14.5±2.9	16.7±4.4	16.9±4.8	19.6±5.8	16.1±4.0	15.2±3.6	20.0±3.8
H-L_{dis} mm.yr⁻¹	6.6±2.4	7.5±3.1	9.2±4.0	8.5±3.3	8.8±3.7	9.0±3.4	6.9±3.0	11.2±2.4
L-H_{dis} mm.yr⁻¹	8.6±3.4	7.0±3.3	7.5±3.9	8.4±3.6	10.8±5.7	7.1±3.9	8.3±2.7	8.8±3.2
CALCN g.cm⁻².yr⁻¹	1.49±0.30	1.58±0.29	1.74±0.43	1.69±0.47	1.94±0.54	1.75±0.42	1.93±0.47	2.10±0.48
Track 3								
TTL mm	5.69	3.82	6.49	5.83	3.37	2.77	4.13	3.12
ETTL yr	0.42	0.31	0.47	0.39	0.26	0.19	0.39	0.20
A_{den} g.cm⁻³.yr⁻¹	1.05±0.08	1.12±0.04	1.12±0.01	0.99±0.07	1.01±0.10	1.04±0.07	1.31±0.10	1.04±0.10
H_{den} g.cm⁻³.yr⁻¹	1.13±0.08	1.18±0.04	1.16±0.03	1.05±0.06	1.07±0.10	1.10±0.07	1.39±0.10	1.13±0.10
L_{den} g.cm⁻³.yr⁻¹	0.97±0.11	1.06±0.05	1.08±0.01	0.93±0.09	0.96±0.11	0.98±0.08	1.23±0.11	0.95±0.10
H-L_{den} g.cm⁻³.yr⁻¹	0.15±0.11	0.12±0.06	0.09±0.03	0.12±0.04	0.10±0.04	0.11±0.05	0.16±0.06	0.18±0.03
H-H_{dis} mm.yr⁻¹	13.5±5.4	12.4±1.6	13.7±6.8	15.0±5.8	13.2±5.7	14.8±4.8	10.7±2.4	15.8±3.4
H-L_{dis} mm.yr⁻¹	6.2±3.7	6.6±1.7	6.5±3.6	6.6±2.5	7.8±4.8	8.0±3.9	4.6±1.2	8.6±3.7
L-H_{dis} mm.yr⁻¹	7.2±2.8	5.9±1.4	7.2±3.3	8.4±4.5	5.4±4.1	6.8±3.8	6.0±2.1	7.2±3.3
CALCN g.cm⁻².yr⁻¹	1.41±0.56	1.40±0.19	1.54±0.76	1.47±0.52	1.36±0.67	1.55±0.53	1.41±0.38	1.64±0.41

Table B21: Stephens Island, 17.73°S, 146.15°E: Average annual growth characteristics ($\pm$ sd), 1978-1987 (B01 & B03), 1979-1988 (B04-B14) base periods.
* indicates category 1 dating; Year is earliest dated year for track 1 on density traces, though extracted data is only for base period.

Bommie	B01	B03*	B04*	B05	B06	B07	B09	B10	B11*	B12	B13	B14
Height mm	270	300	300	280	290	260	270	460	240	250	200	190
Width mm	330	460	380	350	390	290	370	300	310	260	240	260
H/W ratio	0.82	0.65	0.79	0.80	0.74	0.90	0.73	1.53	0.77	0.96	0.83	0.73
Species	lob	aus	lut	lob	lob	lob	lut	lut	may	lob	lut	lut
Year	1975	1968	1977	1977	1974	1976	1972	1977	1978	1979	1976	1975
Track 1												
TTL mm	5.55	7.75	5.54	5.24	3.52	5.13	5.49	4.49	3.77	3.96	3.26	4.73
ETTL yr	0.51	0.73	0.37	0.47	0.22	0.33	0.50	0.47	0.31	0.20	0.25	0.42
A_{den} g.cm ⁻³ .yr ⁻¹	1.09±0.05	1.36±0.05	1.06±0.07	1.38±0.06	1.07±0.09	1.03±0.07	1.25±0.04	1.39±0.06	1.07±0.06	1.09±0.07	1.16±0.07	1.13±0.03
H_{den} g.cm ⁻³ .yr ⁻¹	1.14±0.05	1.43±0.06	1.16±0.10	1.44±0.09	1.15±0.09	1.13±0.07	1.31±0.06	1.44±0.07	1.14±0.07	1.18±0.08	1.27±0.08	1.19±0.05
L_{den} g.cm ⁻³ .yr ⁻¹	1.05±0.08	1.29±0.05	0.97±0.06	1.31±0.05	0.99±0.09	0.94±0.08	1.20±0.03	1.35±0.07	1.00±0.07	1.00±0.09	1.06±0.08	1.06±0.05
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.09±0.07	0.15±0.06	0.19±0.07	0.13±0.08	0.16±0.07	0.19±0.05	0.11±0.05	0.09±0.06	0.14±0.07	0.18±0.09	0.22±0.07	0.13±0.08
$H-H_{dis}$ mm.yr ⁻¹	10.8±4.9	10.6±3.3	15.1±3.3	11.1±3.2	16.2±3.8	15.5±4.1	11.0±1.4	9.6±4.1	12.1±3.8	16.3±3.7	12.8±3.6	11.3±2.3
$H-L_{dis}$ mm.yr ⁻¹	5.4±2.2	5.4±2.4	7.3±3.1	5.2±2.4	6.6±4.1	7.3±2.2	4.7±1.6	4.7±3.2	6.1±2.7	8.5±3.9	6.8±2.5	5.3±3.4
$L-H_{dis}$ mm.yr ⁻¹	5.4±4.3	5.3±1.7	7.7±2.5	5.9±3.2	9.6±4.3	8.2±3.1	6.4±1.9	4.9±1.8	6.0±2.7	7.8±3.2	6.0±2.7	6.0±1.9
CALCN g.cm ⁻² .yr ⁻¹	1.16±0.48	1.45±0.44	1.59±0.31	1.53±0.43	1.71±0.41	1.60±0.38	1.38±0.17	1.32±0.55	1.30±0.44	1.77±0.42	1.48±0.40	1.27±0.25
Track 2												
TTL mm	4.35	6.25	7.09	4.87	4.58	5.18	3.90	4.21	3.82	4.03	5.03	4.71
ETTL yr	0.38	0.73	0.45	0.42	0.28	0.32	0.43	0.50	0.28	0.32	0.42	0.46
A_{den} g.cm ⁻³ .yr ⁻¹	1.07±0.04	1.37±0.03	1.14±0.06	1.24±0.07	1.11±0.06	0.99±0.04	1.21±0.06	1.35±0.09	1.02±0.05	1.14±0.07	1.20±0.05	1.07±0.07
H_{den} g.cm ⁻³ .yr ⁻¹	1.11±0.05	1.42±0.04	1.22±0.07	1.29±0.08	1.20±0.06	1.08±0.06	1.27±0.07	1.40±0.09	1.11±0.06	1.21±0.09	1.30±0.07	1.14±0.08
L_{den} g.cm ⁻³ .yr ⁻¹	1.03±0.05	1.32±0.04	1.06±0.06	1.18±0.08	1.02±0.08	0.90±0.04	1.15±0.07	1.31±0.10	0.93±0.05	1.07±0.08	1.10±0.08	1.00±0.08
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.09±0.04	0.10±0.04	0.16±0.04	0.11±0.09	0.18±0.07	0.18±0.07	0.12±0.06	0.09±0.04	0.19±0.04	0.14±0.09	0.20±0.11	0.14±0.09
$H-H_{dis}$ mm.yr ⁻¹	11.5±2.6	8.6±1.5	15.8±4.0	11.6±5.5	16.1±3.1	16.2±1.7	9.0±3.3	8.5±2.7	13.7±5.0	12.6±4.6	12.1±3.6	10.2±3.6
$H-L_{dis}$ mm.yr ⁻¹	5.9±2.6	4.4±1.5	8.4±3.4	6.3±4.1	7.3±3.0	6.7±3.3	5.5±3.0	4.2±2.0	6.6±4.2	7.8±4.2	7.0±3.2	5.8±3.6
$L-H_{dis}$ mm.yr ⁻¹	5.6±1.7	4.2±1.1	7.4±2.2	5.3±2.4	8.7±2.9	9.5±3.4	3.5±1.0	4.2±2.1	7.1±3.0	4.7±1.8	5.1±1.9	4.5±3.0
CALCN g.cm ⁻² .yr ⁻¹	1.23±0.29	1.18±0.21	1.79±0.40	1.43±0.67	1.80±0.40	1.61±0.17	1.09±0.40	1.14±0.35	1.39±0.48	1.44±0.55	1.45±0.44	1.10±0.40
Track 3												
TTL mm	3.02	5.13	6.28	4.51	4.61	5.95	4.38	4.07	5.69	2.81	3.99	4.20
ETTL yr		0.56	0.40		0.35	0.41	0.47	0.45	0.40	0.30	0.35	0.45
A_{den} g.cm ⁻³ .yr ⁻¹	none	1.17±0.13	1.09±0.04	none	1.07±0.09	1.06±0.07	0.96±0.10	1.34±0.09	1.00±0.04	1.20±0.07	1.14±0.04	1.14±0.05
H_{den} g.cm ⁻³ .yr ⁻¹		1.22±0.13	1.14±0.04		1.13±0.10	1.15±0.07	1.01±0.11	1.39±0.08	1.07±0.06	1.27±0.04	1.23±0.06	1.19±0.06
L_{den} g.cm ⁻³ .yr ⁻¹		1.12±0.14	1.05±0.05		1.01±0.09	0.98±0.09	0.91±0.11	1.28±0.10	0.92±0.04	1.12±0.11	1.04±0.07	1.08±0.05
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹		0.10±0.05	0.09±0.06		0.12±0.07	0.17±0.08	0.10±0.10	0.11±0.05	0.15±0.06	0.15±0.10	0.18±0.10	0.12±0.05
$H-H_{dis}$ mm.yr ⁻¹		9.2±2.9	15.6±4.6		13.3±3.7	14.4±2.9	9.3±3.2	9.0±4.2	14.4±4.0	9.5±3.7	11.3±2.2	9.3±3.3
$H-L_{dis}$ mm.yr ⁻¹		4.6±1.7	9.1±4.8		6.5±4.1	6.6±2.3	4.4±2.7	5.6±2.8	6.6±1.8	4.7±1.9	5.4±1.2	4.4±2.3
$L-H_{dis}$ mm.yr ⁻¹		4.6±2.7	6.5±2.7		6.9±4.0	7.8±2.0	5.0±2.7	3.4±1.8	7.8±3.8	4.8±2.8	5.9±1.8	5.0±2.9
CALCN g.cm ⁻² .yr ⁻¹		1.05±0.29	1.70±0.52		1.42±0.39	1.52±0.30	0.88±0.28	1.19±0.57	1.43±0.38	1.12±0.37	1.28±0.25	1.06±0.36

Table B22: Bedarra Island, 18.00°S, 146.13°E: Average annual growth characteristics ($\pm$ sd), 1978-1987 (B01 & B02), 1979-1988 (B05-B12) base periods. * indicates category 1 dating; Year is earliest dated year for track 1 on density traces, though extracted data is only for base period.

Bommie	B01	B02*	B05	B06	B07	B09	B10	B11*	B12*
Height mm	250	290	250	330	270	290	240	520	330
Width mm	360	400	220	290	290	340	240	480	430
H/W ratio	0.69	0.73	1.14	1.14	0.93	0.85	1.00	1.08	0.77
Species	lob	lob	lob	lut	lob	lob	lob	lob	lob
Year	1974	1975	1975	1971	1974	1977	1973	1973	1972
Track 1									
TTL mm	3.32	3.97	3.57	6.16	4.03	4.22	4.97	5.49	2.39
ETTL yr	0.47	0.29	0.24	0.41	0.26	0.20	0.47	0.45	0.18
A_{den} g.cm ⁻³ .yr ⁻¹	1.26 $\pm$ 0.08	1.23 $\pm$ 0.06	1.02 $\pm$ 0.07	1.17 $\pm$ 0.05	1.17 $\pm$ 0.10	0.92 $\pm$ 0.04	1.14 $\pm$ 0.07	1.30 $\pm$ 0.05	1.19 $\pm$ 0.04
H_{den} g.cm ⁻³ .yr ⁻¹	1.31 $\pm$ 0.09	1.31 $\pm$ 0.09	1.08 $\pm$ 0.07	1.23 $\pm$ 0.04	1.24 $\pm$ 0.09	1.04 $\pm$ 0.06	1.19 $\pm$ 0.07	1.38 $\pm$ 0.04	1.30 $\pm$ 0.05
L_{den} g.cm ⁻³ .yr ⁻¹	1.21 $\pm$ 0.09	1.15 $\pm$ 0.05	0.97 $\pm$ 0.09	1.11 $\pm$ 0.08	1.11 $\pm$ 0.11	0.81 $\pm$ 0.05	1.09 $\pm$ 0.09	1.23 $\pm$ 0.07	1.08 $\pm$ 0.05
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.10 $\pm$ 0.04	0.15 $\pm$ 0.08	0.11 $\pm$ 0.05	0.12 $\pm$ 0.06	0.13 $\pm$ 0.05	0.22 $\pm$ 0.07	0.11 $\pm$ 0.07	0.15 $\pm$ 0.06	0.22 $\pm$ 0.08
$H-H_{dis}$ mm.yr ⁻¹	7.0 $\pm$ 2.4	13.7 $\pm$ 3.2	15.0 $\pm$ 5.0	14.9 $\pm$ 4.6	15.6 $\pm$ 5.4	21.0 $\pm$ 6.8	10.6 $\pm$ 5.5	12.3 $\pm$ 3.6	13.5 $\pm$ 4.3
$H-L_{dis}$ mm.yr ⁻¹	3.5 $\pm$ 1.1	7.0 $\pm$ 3.1	7.1 $\pm$ 3.0	6.9 $\pm$ 3.6	7.7 $\pm$ 3.5	11.1 $\pm$ 4.3	6.1 $\pm$ 4.1	6.6 $\pm$ 1.6	7.5 $\pm$ 3.4
$L-H_{dis}$ mm.yr ⁻¹	3.6 $\pm$ 2.0	6.8 $\pm$ 2.8	7.9 $\pm$ 3.7	8.0 $\pm$ 2.9	7.8 $\pm$ 3.8	9.9 $\pm$ 4.9	4.5 $\pm$ 2.1	5.7 $\pm$ 2.6	6.1 $\pm$ 2.3
CALCN g.cm ⁻² .yr ⁻¹	0.87 $\pm$ 0.25	1.68 $\pm$ 0.38	1.51 $\pm$ 0.44	1.74 $\pm$ 0.52	1.82 $\pm$ 0.62	1.93 $\pm$ 0.61	1.19 $\pm$ 0.57	1.59 $\pm$ 0.44	1.61 $\pm$ 0.52
Track 2									
TTL mm	4.39	4.13	3.90	4.32	4.30	4.30	4.82	5.20	2.50
ETTL yr	0.59	0.33	0.29	0.27	0.41	0.26	0.49	0.40	0.17
A_{den} g.cm ⁻³ .yr ⁻¹	1.18 $\pm$ 0.07	1.20 $\pm$ 0.02	1.10 $\pm$ 0.07	1.16 $\pm$ 0.08	1.08 $\pm$ 0.06	1.00 $\pm$ 0.06	1.14 $\pm$ 0.08	1.35 $\pm$ 0.02	1.25 $\pm$ 0.06
H_{den} g.cm ⁻³ .yr ⁻¹	1.24 $\pm$ 0.06	1.26 $\pm$ 0.04	1.15 $\pm$ 0.07	1.24 $\pm$ 0.06	1.14 $\pm$ 0.07	1.09 $\pm$ 0.07	1.20 $\pm$ 0.09	1.41 $\pm$ 0.03	1.35 $\pm$ 0.05
L_{den} g.cm ⁻³ .yr ⁻¹	1.13 $\pm$ 0.08	1.15 $\pm$ 0.03	1.05 $\pm$ 0.08	1.08 $\pm$ 0.12	1.03 $\pm$ 0.06	0.91 $\pm$ 0.07	1.09 $\pm$ 0.08	1.30 $\pm$ 0.05	1.15 $\pm$ 0.09
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.11 $\pm$ 0.04	0.11 $\pm$ 0.06	0.10 $\pm$ 0.05	0.16 $\pm$ 0.10	0.10 $\pm$ 0.05	0.18 $\pm$ 0.06	0.11 $\pm$ 0.03	0.12 $\pm$ 0.06	0.20 $\pm$ 0.09
$H-H_{dis}$ mm.yr ⁻¹	7.5 $\pm$ 2.3	12.5 $\pm$ 1.9	13.3 $\pm$ 5.3	15.9 $\pm$ 4.8	10.6 $\pm$ 4.2	16.6 $\pm$ 4.8	9.9 $\pm$ 2.9	13.1 $\pm$ 2.0	14.6 $\pm$ 4.3
$H-L_{dis}$ mm.yr ⁻¹	3.7 $\pm$ 1.3	6.7 $\pm$ 2.3	7.4 $\pm$ 4.0	7.7 $\pm$ 3.9	5.8 $\pm$ 3.6	7.5 $\pm$ 3.6	5.5 $\pm$ 2.6	6.0 $\pm$ 1.6	8.0 $\pm$ 3.5
$L-H_{dis}$ mm.yr ⁻¹	3.7 $\pm$ 2.0	5.8 $\pm$ 2.1	5.9 $\pm$ 2.5	8.2 $\pm$ 3.7	4.8 $\pm$ 2.5	9.0 $\pm$ 4.1	4.3 $\pm$ 1.5	7.1 $\pm$ 1.7	6.6 $\pm$ 2.2
CALCN g.cm ⁻² .yr ⁻¹	0.87 $\pm$ 0.23	1.50 $\pm$ 0.22	1.45 $\pm$ 0.57	1.82 $\pm$ 0.51	1.15 $\pm$ 0.47	1.66 $\pm$ 0.48	1.11 $\pm$ 0.26	1.78 $\pm$ 0.29	1.81 $\pm$ 0.51
Track 3									
TTL mm	3.37	3.78	3.00	6.29	2.53	5.08	5.52	3.36	4.12
ETTL yr	0.51	0.37		0.51		0.31	0.46	0.31	0.35
A_{den} g.cm ⁻³ .yr ⁻¹	1.09 $\pm$ 0.06	1.19 $\pm$ 0.07	none	1.07 $\pm$ 0.09	none	1.04 $\pm$ 0.09	1.04 $\pm$ 0.06	1.10 $\pm$ 0.09	1.23 $\pm$ 0.03
H_{den} g.cm ⁻³ .yr ⁻¹	1.14 $\pm$ 0.07	1.26 $\pm$ 0.09		1.13 $\pm$ 0.09		1.12 $\pm$ 0.08	1.10 $\pm$ 0.07	1.17 $\pm$ 0.13	1.32 $\pm$ 0.05
L_{den} g.cm ⁻³ .yr ⁻¹	1.04 $\pm$ 0.08	1.12 $\pm$ 0.07		1.00 $\pm$ 0.08		0.96 $\pm$ 0.11	0.99 $\pm$ 0.07	1.03 $\pm$ 0.09	1.13 $\pm$ 0.05
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.10 $\pm$ 0.09	0.14 $\pm$ 0.07		0.13 $\pm$ 0.05		0.16 $\pm$ 0.05	0.11 $\pm$ 0.08	0.14 $\pm$ 0.13	0.19 $\pm$ 0.07
$H-H_{dis}$ mm.yr ⁻¹	6.6 $\pm$ 2.2	10.3 $\pm$ 3.2		12.3 $\pm$ 3.2		16.6 $\pm$ 4.8	12.0 $\pm$ 3.6	10.7 $\pm$ 4.3	11.7 $\pm$ 3.2
$H-L_{dis}$ mm.yr ⁻¹	3.0 $\pm$ 1.6	5.0 $\pm$ 2.0		6.7 $\pm$ 3.4		9.3 $\pm$ 4.4	6.1 $\pm$ 3.2	4.9 $\pm$ 2.5	4.9 $\pm$ 1.2
$L-H_{dis}$ mm.yr ⁻¹	3.6 $\pm$ 1.6	5.4 $\pm$ 1.9		5.6 $\pm$ 1.8		7.3 $\pm$ 2.1	5.8 $\pm$ 3.1	5.8 $\pm$ 3.2	6.8 $\pm$ 2.6
CALCN g.cm ⁻² .yr ⁻¹	0.71 $\pm$ 0.22	1.22 $\pm$ 0.35		1.32 $\pm$ 0.40		1.74 $\pm$ 0.58	1.24 $\pm$ 0.38	1.17 $\pm$ 0.45	1.44 $\pm$ 0.38

Table B23: Myrmidon Reef, 18.27°S, 147.38°E: Average annual growth characteristics ($\pm$ sd), 1974-1986 base period. * indicates category 1 dating; Extracted data all start in 1974, though records maybe longer.

Bommie	B04	B07	B09	B12	B15	B16	B20	B30	B32
Height mm	380	320	380	570	380	290	260	270	360
Width mm	480	500	520	560	530	290	380	400	490
H/W ratio	0.79	0.64	0.73	1.02	0.72	1.00	0.68	0.68	0.73
Species	sol	lob	lut	lut	sol	lut	lob	lob	sol
Year	<1974	<1974	<1974	<1974	<1974	<1974	<1974	<1974	<1974
Track 1									
TTL mm	5.05	4.52	6.75	8.49	5.04	5.70	4.56	4.56	3.36
ETTL yr	0.53	0.60	0.78	1.10	0.59	0.61	0.58	0.43	0.47
A_{den} g.cm⁻³.yr⁻¹	1.54±0.03	1.52±0.07	1.45±0.03	1.54±0.05	1.89±0.15	1.52±0.06	1.39±0.06	1.27±0.04	1.81±0.06
H_{den} g.cm⁻³.yr⁻¹	1.57±0.03	1.57±0.05	1.49±0.03	1.60±0.07	1.94±0.15	1.58±0.06	1.48±0.05	1.33±0.05	1.85±0.05
L_{den} g.cm⁻³.yr⁻¹	1.51±0.03	1.46±0.09	1.42±0.03	1.47±0.05	1.84±0.15	1.46±0.06	1.29±0.07	1.21±0.04	1.77±0.07
H-L_{den} g.cm⁻³.yr⁻¹	0.06±0.03	0.11±0.06	0.07±0.02	0.13±0.05	0.10±0.03	0.12±0.04	0.19±0.06	0.12±0.06	0.08±0.04
H-H_{dis} mm.yr⁻¹	9.5±1.9	7.5±1.7	8.63±3.4	7.7±1.8	8.6±1.5	9.4±2.1	7.9±2.6	10.5±2.5	7.2±2.9
H-L_{dis} mm.yr⁻¹	4.7±1.7	4.0±1.8	4.0±1.8	4.3±1.8	4.1±1.2	4.4±1.7	4.3±2.1	4.7±1.6	3.7±2.1
L-H_{dis} mm.yr⁻¹	4.8±1.6	3.5±1.5	4.6±2.6	3.4±1.0	4.4±1.5	5.1±1.4	3.6±1.1	5.8±1.7	3.5±1.5
CALCN g.cm⁻².yr⁻¹	1.45±0.28	1.13±0.24	1.24±0.48	1.19±0.28	1.61±0.27	1.44±0.35	1.08±0.34	1.34±0.32	1.30±0.53
Track 2									
TTL mm	4.87	5.17	6.69	7.44	4.33	5.99	5.59	4.74	4.67
ETTL yr	0.57	0.74	0.74	0.95	0.54	0.73	0.77	0.44	0.66
A_{den} g.cm⁻³.yr⁻¹	1.55±0.05	1.64±0.06	1.43±0.06	1.56±0.04	1.80±0.04	1.59±0.08	1.49±0.14	1.42±0.07	1.87±0.05
H_{den} g.cm⁻³.yr⁻¹	1.60±0.04	1.69±0.06	1.47±0.07	1.61±0.03	1.85±0.04	1.66±0.08	1.55±0.13	1.49±0.07	1.91±0.06
L_{den} g.cm⁻³.yr⁻¹	1.50±0.06	1.59±0.07	1.39±0.05	1.52±0.06	1.75±0.04	1.52±0.10	1.43±0.16	1.35±0.07	1.82±0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.09±0.05	0.10±0.05	0.08±0.04	0.10±0.05	0.11±0.03	0.14±0.06	0.12±0.09	0.14±0.04	0.09±0.04
H-H_{dis} mm.yr⁻¹	8.6±2.6	7.0±2.5	9.1±3.1	7.8±2.0	8.0±1.5	8.2±1.8	7.3±3.7	10.7±3.2	7.1±1.8
H-L_{dis} mm.yr⁻¹	4.3±2.1	3.7±1.7	4.6±2.3	3.8±2.1	3.9±1.3	4.1±1.0	4.1±2.3	5.9±2.6	3.6±1.4
L-H_{dis} mm.yr⁻¹	4.3±2.2	3.3±1.6	4.5±2.5	4.0±1.4	4.1±1.1	4.1±1.4	3.2±2.3	4.7±2.7	3.5±1.0
CALCN g.cm⁻².yr⁻¹	1.33±0.41	1.14±0.38	1.30±0.45	1.21±0.30	1.44±0.25	1.30±0.24	1.05±0.47	1.51±0.43	1.32±0.32
Track 3									
TTL mm	4.02	5.46	5.77	7.66	4.15	4.21	4.59	5.02	3.63
ETTL yr	0.45	0.67	0.70	1.30	0.55	0.58	0.55	0.51	0.48
A_{den} g.cm⁻³.yr⁻¹	1.38±0.06	1.59±0.04	1.42±0.04	1.67±0.07	1.92±0.06	1.56±0.05	1.62±0.08	1.41±0.07	1.63±0.14
H_{den} g.cm⁻³.yr⁻¹	1.44±0.05	1.63±0.04	1.46±0.08	1.73±0.08	1.97±0.06	1.62±0.04	1.69±0.05	1.48±0.08	1.70±0.13
L_{den} g.cm⁻³.yr⁻¹	1.32±0.08	1.56±0.04	1.37±0.02	1.61±0.07	1.86±0.07	1.51±0.07	1.55±0.11	1.35±0.07	1.56±0.16
H-L_{den} g.cm⁻³.yr⁻¹	0.12±0.06	0.07±0.03	0.09±0.08	0.12±0.05	0.11±0.03	0.12±0.05	0.14±0.07	0.13±0.07	0.15±0.08
H-H_{dis} mm.yr⁻¹	8.9±2.4	8.1±2.5	8.3±2.7	5.9±1.6	7.5±2.2	7.2±2.5	8.3±1.4	9.9±3.1	7.5±2.5
H-L_{dis} mm.yr⁻¹	3.9±1.8	3.8±2.1	4.0±1.9	3.3±1.8	3.5±1.2	3.3±1.0	3.6±1.2	5.6±2.4	4.2±2.3
L-H_{dis} mm.yr⁻¹	5.0±2.7	4.2±1.9	4.3±1.8	2.6±0.6	4.0±1.5	3.9±2.0	4.7±1.4	4.4±2.0	3.3±0.8
CALCN g.cm⁻².yr⁻¹	1.23±0.34	1.28±0.38	1.18±0.41	0.97±0.26	1.43±0.40	1.11±0.35	1.34±0.21	1.40±0.44	1.21±0.42

Table B24: Rib Reef, 18.48°S, 146.88°E: Average annual growth characteristics ($\pm$ sd), 1974-1986 base period. * indicates category 1 dating; Extracted data all start in 1974, though records maybe longer.

Bommie	B02*	B14*	B16	B20	B25	B27	B28*	B33*	B35*
Height mm	350	340	390	360	330	280	460	350	390
Width mm	510	430	560	500	450	330	460	380	520
H/W ratio	0.69	0.79	0.70	0.72	0.73	0.85	1.00	0.92	0.75
Species	sol	lut	lob	sol	lob	lut	lob	lut	lob
Year	<1974	<1974	<1974	<1974	<1974	<1974	<1974	<1974	<1974
Track 1									
TTL mm	7.70	7.60	5.59	6.17	7.41	7.02	8.13	5.87	9.76
ETTL yr	0.67	0.63	0.31	0.57	0.76	0.47	0.75	0.44	0.90
A_{den} g.cm ⁻³ .yr ⁻¹	1.36 $\pm$ 0.04	1.56 $\pm$ 0.03	1.10 $\pm$ 0.06	1.39 $\pm$ 0.10	1.52 $\pm$ 0.03	1.30 $\pm$ 0.03	1.36 $\pm$ 0.03	1.80 $\pm$ 0.05	1.42 $\pm$ 0.02
H_{den} g.cm ⁻³ .yr ⁻¹	1.43 $\pm$ 0.04	1.62 $\pm$ 0.03	1.18 $\pm$ 0.05	1.52 $\pm$ 0.12	1.57 $\pm$ 0.04	1.35 $\pm$ 0.03	1.41 $\pm$ 0.03	1.89 $\pm$ 0.05	1.46 $\pm$ 0.03
L_{den} g.cm ⁻³ .yr ⁻¹	1.28 $\pm$ 0.05	1.50 $\pm$ 0.04	1.02 $\pm$ 0.08	1.26 $\pm$ 0.11	1.47 $\pm$ 0.04	1.24 $\pm$ 0.03	1.30 $\pm$ 0.04	1.71 $\pm$ 0.05	1.37 $\pm$ 0.02
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.15 $\pm$ 0.05	0.11 $\pm$ 0.05	0.16 $\pm$ 0.07	0.26 $\pm$ 0.12	0.10 $\pm$ 0.05	0.11 $\pm$ 0.05	0.11 $\pm$ 0.03	0.18 $\pm$ 0.04	0.09 $\pm$ 0.02
$H-H_{dis}$ mm.yr ⁻¹	11.5 $\pm$ 1.8	12.1 $\pm$ 3.4	18.0 $\pm$ 4.7	10.8 $\pm$ 2.9	9.7 $\pm$ 2.3	15.0 $\pm$ 5.9	10.9 $\pm$ 2.6	13.4 $\pm$ 2.9	10.8 $\pm$ 1.6
$H-L_{dis}$ mm.yr ⁻¹	6.4 $\pm$ 1.4	5.7 $\pm$ 2.6	9.6 $\pm$ 3.4	5.3 $\pm$ 2.1	5.8 $\pm$ 2.2	7.7 $\pm$ 4.7	4.8 $\pm$ 1.8	5.7 $\pm$ 2.9	6.0 $\pm$ 2.1
$L-H_{dis}$ mm.yr ⁻¹	5.1 $\pm$ 1.8	6.4 $\pm$ 3.0	8.4 $\pm$ 4.2	5.5 $\pm$ 2.7	3.8 $\pm$ 2.1	7.3 $\pm$ 3.0	6.1 $\pm$ 2.2	7.6 $\pm$ 2.7	4.8 $\pm$ 1.8
CALCN g.cm ⁻² .yr ⁻¹	1.56 $\pm$ 0.22	1.88 $\pm$ 0.51	1.98 $\pm$ 0.48	1.50 $\pm$ 0.41	1.46 $\pm$ 0.35	1.94 $\pm$ 0.74	1.48 $\pm$ 0.33	2.41 $\pm$ 0.52	1.54 $\pm$ 0.21
Track 2									
TTL mm	8.16	7.40	5.68	6.82	5.52	6.69	10.36	5.57	8.24
ETTL yr	0.70	0.66	0.31	0.64	0.63	0.49	0.88	0.43	0.70
A_{den} g.cm ⁻³ .yr ⁻¹	1.34 $\pm$ 0.09	1.47 $\pm$ 0.04	1.19 $\pm$ 0.03	1.35 $\pm$ 0.12	1.50 $\pm$ 0.04	1.29 $\pm$ 0.04	1.43 $\pm$ 0.03	1.58 $\pm$ 0.03	1.37 $\pm$ 0.03
H_{den} g.cm ⁻³ .yr ⁻¹	1.42 $\pm$ 0.07	1.52 $\pm$ 0.04	1.29 $\pm$ 0.04	1.48 $\pm$ 0.13	1.55 $\pm$ 0.04	1.35 $\pm$ 0.04	1.49 $\pm$ 0.05	1.67 $\pm$ 0.04	1.41 $\pm$ 0.03
L_{den} g.cm ⁻³ .yr ⁻¹	1.26 $\pm$ 0.11	1.42 $\pm$ 0.04	1.09 $\pm$ 0.05	1.22 $\pm$ 0.14	1.45 $\pm$ 0.04	1.23 $\pm$ 0.04	1.37 $\pm$ 0.03	1.49 $\pm$ 0.05	1.33 $\pm$ 0.04
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.16 $\pm$ 0.05	0.10 $\pm$ 0.04	0.20 $\pm$ 0.08	0.26 $\pm$ 0.12	0.09 $\pm$ 0.03	0.12 $\pm$ 0.04	0.12 $\pm$ 0.05	0.18 $\pm$ 0.07	0.08 $\pm$ 0.02
$H-H_{dis}$ mm.yr ⁻¹	11.7 $\pm$ 2.0	11.2 $\pm$ 2.5	18.5 $\pm$ 4.0	10.6 $\pm$ 2.1	8.7 $\pm$ 2.3	13.7 $\pm$ 3.8	11.8 $\pm$ 3.6	13.1 $\pm$ 3.8	11.7 $\pm$ 2.6
$H-L_{dis}$ mm.yr ⁻¹	6.3 $\pm$ 1.8	5.8 $\pm$ 2.0	9.2 $\pm$ 3.2	6.7 $\pm$ 4.4	4.4 $\pm$ 1.8	7.2 $\pm$ 3.1	6.7 $\pm$ 4.9	5.0 $\pm$ 1.7	6.3 $\pm$ 2.4
$L-H_{dis}$ mm.yr ⁻¹	5.4 $\pm$ 2.1	5.4 $\pm$ 2.0	9.3 $\pm$ 4.3	5.8 $\pm$ 3.7	4.3 $\pm$ 1.9	6.5 $\pm$ 2.1	6.0 $\pm$ 2.5	8.2 $\pm$ 2.7	5.4 $\pm$ 2.5
CALCN g.cm ⁻² .yr ⁻¹	1.56 $\pm$ 0.23	1.63 $\pm$ 0.35	2.19 $\pm$ 0.45	1.44 $\pm$ 0.30	1.30 $\pm$ 0.33	1.76 $\pm$ 0.47	1.69 $\pm$ 0.52	2.08 $\pm$ 0.61	1.61 $\pm$ 0.34
Track 3									
TTL mm	7.06	6.15	5.66	4.33	6.87	6.66	8.73	5.33	7.52
ETTL yr	0.59	0.63	0.38	0.41	0.80	0.46	0.67	0.41	0.74
A_{den} g.cm ⁻³ .yr ⁻¹	1.44 $\pm$ 0.02	1.50 $\pm$ 0.03	1.22 $\pm$ 0.09	1.48 $\pm$ 0.08	1.44 $\pm$ 0.03	1.33 $\pm$ 0.07	1.46 $\pm$ 0.04	1.49 $\pm$ 0.05	1.38 $\pm$ 0.04
H_{den} g.cm ⁻³ .yr ⁻¹	1.52 $\pm$ 0.04	1.56 $\pm$ 0.03	1.30 $\pm$ 0.11	1.62 $\pm$ 0.11	1.49 $\pm$ 0.04	1.39 $\pm$ 0.06	1.52 $\pm$ 0.05	1.56 $\pm$ 0.04	1.43 $\pm$ 0.06
L_{den} g.cm ⁻³ .yr ⁻¹	1.36 $\pm$ 0.03	1.45 $\pm$ 0.03	1.13 $\pm$ 0.07	1.34 $\pm$ 0.08	1.38 $\pm$ 0.05	1.26 $\pm$ 0.08	1.40 $\pm$ 0.04	1.42 $\pm$ 0.07	1.33 $\pm$ 0.04
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.17 $\pm$ 0.06	0.12 $\pm$ 0.03	0.18 $\pm$ 0.07	0.28 $\pm$ 0.10	0.11 $\pm$ 0.06	0.13 $\pm$ 0.04	0.11 $\pm$ 0.04	0.14 $\pm$ 0.06	0.10 $\pm$ 0.06
$H-H_{dis}$ mm.yr ⁻¹	11.9 $\pm$ 2.5	9.8 $\pm$ 2.5	14.9 $\pm$ 2.5	10.6 $\pm$ 1.7	8.6 $\pm$ 4.3	14.4 $\pm$ 5.1	12.9 $\pm$ 4.6	13.0 $\pm$ 4.1	10.1 $\pm$ 4.0
$H-L_{dis}$ mm.yr ⁻¹	5.0 $\pm$ 1.3	4.2 $\pm$ 2.4	7.6 $\pm$ 4.1	5.4 $\pm$ 1.0	4.3 $\pm$ 2.0	8.5 $\pm$ 3.2	6.6 $\pm$ 2.7	5.8 $\pm$ 2.1	4.8 $\pm$ 3.2
$L-H_{dis}$ mm.yr ⁻¹	6.9 $\pm$ 2.2	5.6 $\pm$ 1.5	7.3 $\pm$ 2.6	5.2 $\pm$ 1.7	4.2 $\pm$ 2.7	5.9 $\pm$ 3.0	6.3 $\pm$ 2.9	7.2 $\pm$ 3.1	5.3 $\pm$ 2.2
CALCN g.cm ⁻² .yr ⁻¹	1.71 $\pm$ 0.36	1.47 $\pm$ 0.35	1.82 $\pm$ 0.36	1.55 $\pm$ 0.20	1.23 $\pm$ 0.63	1.90 $\pm$ 0.64	1.87 $\pm$ 0.63	1.92 $\pm$ 0.59	1.40 $\pm$ 0.56

Table B25: Pandora Reef, 18.80°S, 146.43°E: Average annual growth characteristics ($\pm$ sd), 1974-1986 base period. * indicates category 1 dating; Extracted data all start in 1974, though records maybe longer.

Bommie	B16	B17	B19	B21	B28	B30	B31
Height mm	300	260	300	200	260	330	400
Width mm	350	420	420	400	420	450	530
H/W ratio	0.86	0.62	0.71	0.50	0.62	0.73	0.75
Species	lob	lut	lut	lut	lob	may	may
Year	<1974	<1974	<1974	<1974	<1974	<1974	<1974
Track 1							
TTL mm	6.62	7.31	6.68	5.26	6.32	4.59	5.44
ETTL yr	0.54	0.50	0.42	0.52	0.59	0.26	0.28
A_{den} g.cm⁻³.yr⁻¹	1.51±0.04	1.32±0.09	1.10±0.05	1.59±0.11	1.51±0.06	1.23±0.05	1.13±0.09
H_{den} g.cm⁻³.yr⁻¹	1.56±0.05	1.41±0.10	1.16±0.06	1.66±0.09	1.59±0.06	1.32±0.07	1.20±0.10
L_{den} g.cm⁻³.yr⁻¹	1.45±0.05	1.22±0.10	1.04±0.05	1.52±0.13	1.43±0.08	1.14±0.04	1.07±0.09
H-L_{den} g.cm⁻³.yr⁻¹	0.11±0.06	0.19±0.09	0.12±0.05	0.14±0.09	0.17±0.07	0.18±0.07	0.13±0.08
H-H_{dis} mm.yr⁻¹	12.2±4.6	14.5±4.5	15.8±5.4	10.2±4.7	10.7±3.9	17.7±7.4	19.4±8.6
H-L_{dis} mm.yr⁻¹	5.7±2.6	7.2±4.6	8.5±4.9	5.5±4.4	5.6±2.3	10.4±7.1	9.2±7.2
L-H_{dis} mm.yr⁻¹	6.4±3.3	7.3±2.7	7.3±3.2	4.7±2.5	5.0±2.6	7.3±3.2	10.2±5.2
CALCN g.cm⁻².yr⁻¹	1.83±0.70	1.90±0.55	1.74±0.64	1.60±0.72	1.60±0.55	2.19±0.92	2.17±0.91
Track 2							
TTL mm	6.62	7.31	8.33	6.23	5.91	5.62	5.77
ETTL yr	0.66	0.58	0.62	0.64	0.51	0.32	0.31
A_{den} g.cm⁻³.yr⁻¹	1.45±0.04	1.38±0.04	1.12±0.04	1.61±0.05	1.50±0.05	1.19±0.06	1.11±0.10
H_{den} g.cm⁻³.yr⁻¹	1.52±0.06	1.43±0.06	1.18±0.05	1.65±0.06	1.58±0.06	1.30±0.10	1.20±0.12
L_{den} g.cm⁻³.yr⁻¹	1.38±0.05	1.33±0.05	1.06±0.04	1.57±0.05	1.43±0.06	1.08±0.05	1.01±0.11
H-L_{den} g.cm⁻³.yr⁻¹	0.15±0.09	0.11±0.06	0.12±0.04	0.08±0.05	0.15±0.06	0.22±0.09	0.18±0.10
H-H_{dis} mm.yr⁻¹	10.1±2.7	12.7±6.4	13.4±3.7	9.8±4.2	11.6±2.5	17.5±4.5	18.8±5.4
H-L_{dis} mm.yr⁻¹	4.9±2.5	5.6±3.1	6.9±3.4	5.3±3.0	5.2±2.8	9.7±3.9	9.0±2.2
L-H_{dis} mm.yr⁻¹	5.2±1.8	7.1±4.9	6.5±2.7	4.6±3.3	6.4±1.7	7.8±3.4	9.8±5.1
CALCN g.cm⁻².yr⁻¹	1.47±0.38	1.74±0.85	1.50±0.41	1.58±0.67	1.74±0.36	2.06±0.48	2.06±0.54
Track 3							
TTL mm	3.76	5.39	5.17	5.05	5.56	6.10	5.99
ETTL yr	0.33	0.39	0.39	0.62	0.60	0.40	0.37
A_{den} g.cm⁻³.yr⁻¹	1.44±0.05	1.37±0.07	1.02±0.03	1.75±0.03	1.45±0.11	1.27±0.08	1.21±0.09
H_{den} g.cm⁻³.yr⁻¹	1.50±0.04	1.43±0.08	1.08±0.03	1.79±0.04	1.52±0.11	1.37±0.10	1.28±0.09
L_{den} g.cm⁻³.yr⁻¹	1.38±0.07	1.30±0.08	0.95±0.04	1.71±0.03	1.38±0.11	1.17±0.08	1.14±0.12
H-L_{den} g.cm⁻³.yr⁻¹	0.11±0.07	0.13±0.07	0.13±0.05	0.08±0.03	0.14±0.07	0.20±0.08	0.14±0.09
H-H_{dis} mm.yr⁻¹	11.3±4.2	13.8±5.7	13.3±5.4	8.1±3.6	9.3±3.4	15.3±5.7	16.4±6.7
H-L_{dis} mm.yr⁻¹	5.4±2.9	7.0±3.3	5.9±3.8	4.1±2.1	4.6±2.5	6.9±3.9	8.5±4.4
L-H_{dis} mm.yr⁻¹	5.9±2.7	6.8±3.3	7.3±4.9	4.0±2.8	4.8±2.2	8.4±3.9	7.9±5.4
CALCN g.cm⁻².yr⁻¹	1.62±0.59	1.86±0.72	1.35±0.54	1.41±0.63	1.35±0.48	1.98±0.82	1.95±0.71

Table B26: Shaw Island, 20.45°S, 149.07°E: Average annual growth characteristics ($\pm$ sd), 1972-1988 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B04	B05	B06	B10	B12
Height mm	330	420	340	280	210
Width mm	460	480	540	360	410
H/W ratio	0.72	0.88	0.63	0.78	0.51
Species	lob	lob	may	may	aus
Year	1973	1958	1966	1949	1958
Track 1					
TTL mm	4.84	5.06	5.18	5.71	5.20
ETTL yr	0.32	0.58	0.73	0.77	0.66
A_{den} g.cm⁻³.yr⁻¹	1.16 $\pm$ 0.05	1.29 $\pm$ 0.09	1.29 $\pm$ 0.05	1.43 $\pm$ 0.06	1.34 $\pm$ 0.07
H_{den} g.cm⁻³.yr⁻¹	1.22 $\pm$ 0.06	1.34 $\pm$ 0.08	1.32 $\pm$ 0.06	1.48 $\pm$ 0.05	1.38 $\pm$ 0.07
L_{den} g.cm⁻³.yr⁻¹	1.11 $\pm$ 0.06	1.24 $\pm$ 0.10	1.25 $\pm$ 0.06	1.38 $\pm$ 0.06	1.31 $\pm$ 0.07
H-L_{den} g.cm⁻³.yr⁻¹	0.11 $\pm$ 0.07	0.10 $\pm$ 0.04	0.07 $\pm$ 0.04	0.10 $\pm$ 0.03	0.07 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	14.9 $\pm$ 4.0	8.8 $\pm$ 2.3	7.1 $\pm$ 1.5	7.4 $\pm$ 1.4	7.9 $\pm$ 2.5
H-L_{dis} mm.yr⁻¹	8.3 $\pm$ 4.5	4.2 $\pm$ 1.2	3.8 $\pm$ 1.6	3.4 $\pm$ 0.8	3.7 $\pm$ 1.3
L-H_{dis} mm.yr⁻¹	6.6 $\pm$ 3.2	4.6 $\pm$ 2.4	3.3 $\pm$ 1.8	4.0 $\pm$ 1.2	4.2 $\pm$ 2.2
CALCN g.cm⁻².yr⁻¹	1.73 $\pm$ 0.46	1.13 $\pm$ 0.29	0.91 $\pm$ 0.19	1.06 $\pm$ 0.21	1.05 $\pm$ 0.32
Track 2					
TTL mm	6.06	6.25	5.55	4.66	5.43
ETTL yr	0.48	0.63	0.90	0.65	0.81
A_{den} g.cm⁻³.yr⁻¹	1.15 $\pm$ 0.07	1.29 $\pm$ 0.08	1.32 $\pm$ 0.06	1.48 $\pm$ 0.05	1.37 $\pm$ 0.07
H_{den} g.cm⁻³.yr⁻¹	1.23 $\pm$ 0.09	1.33 $\pm$ 0.08	1.35 $\pm$ 0.06	1.53 $\pm$ 0.07	1.39 $\pm$ 0.08
L_{den} g.cm⁻³.yr⁻¹	1.08 $\pm$ 0.07	1.24 $\pm$ 0.09	1.28 $\pm$ 0.06	1.44 $\pm$ 0.05	1.34 $\pm$ 0.08
H-L_{den} g.cm⁻³.yr⁻¹	0.15 $\pm$ 0.05	0.09 $\pm$ 0.06	0.06 $\pm$ 0.04	0.09 $\pm$ 0.05	0.05 $\pm$ 0.03
H-H_{dis} mm.yr⁻¹	12.5 $\pm$ 3.2	9.9 $\pm$ 3.2	6.2 $\pm$ 1.8	7.2 $\pm$ 2.0	6.7 $\pm$ 2.4
H-L_{dis} mm.yr⁻¹	7.3 $\pm$ 2.2	5.1 $\pm$ 3.2	2.9 $\pm$ 1.2	3.5 $\pm$ 1.5	2.9 $\pm$ 1.6
L-H_{dis} mm.yr⁻¹	5.2 $\pm$ 2.0	4.8 $\pm$ 2.1	3.3 $\pm$ 2.1	3.5 $\pm$ 1.5	3.8 $\pm$ 1.5
CALCN g.cm⁻².yr⁻¹	1.43 $\pm$ 0.36	1.28 $\pm$ 0.46	0.82 $\pm$ 0.24	1.03 $\pm$ 0.29	0.91 $\pm$ 0.31
Track 3					
TTL mm	6.24	4.79	5.07	3.98	3.64
ETTL yr	0.50	1.06	1.15	0.60	0.83
A_{den} g.cm⁻³.yr⁻¹	1.05 $\pm$ 0.07	1.30	1.34	1.44 $\pm$ 0.03	1.35 $\pm$ 0.03
H_{den} g.cm⁻³.yr⁻¹	1.11 $\pm$ 0.08			1.48 $\pm$ 0.02	1.37 $\pm$ 0.03
L_{den} g.cm⁻³.yr⁻¹	0.99 $\pm$ 0.07			1.39 $\pm$ 0.05	1.32 $\pm$ 0.03
H-L_{den} g.cm⁻³.yr⁻¹	0.12 $\pm$ 0.06			0.09 $\pm$ 0.05	0.05 $\pm$ 0.03
H-H_{dis} mm.yr⁻¹	12.5 $\pm$ 3.0	4.5	4.4	6.6 $\pm$ 1.5	4.4 $\pm$ 0.8
H-L_{dis} mm.yr⁻¹	5.8 $\pm$ 1.9			3.4 $\pm$ 0.7	2.2 $\pm$ 0.6
L-H_{dis} mm.yr⁻¹	6.6 $\pm$ 3.0			3.2 $\pm$ 1.1	2.2 $\pm$ 0.7
CALCN g.cm⁻².yr⁻¹	1.20 $\pm$ 0.29	0.59	0.59	0.95 $\pm$ 0.21	0.59 $\pm$ 0.10

Table B27: 20-200 Reef, 20.50°S, 150.55°E: Average annual growth characteristics ($\pm$ sd), 1972-1988 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02	B05*	B06	B07	B08	B09*	B10	B12*
Height mm	430	320	420	310	290	290	240	570	300
Width mm	590	360	410	380	370	500	470	660	410
H/W ratio	0.73	0.89	1.02	0.82	0.78	0.58	0.51	0.86	0.73
Species	lob	lob	lob	aus	lob	lob	lob	lob	sol
Year	1961	1955	1971	1972	1972	1955	1941	1936	1963
Track 1									
TTL mm	3.97	7.33	4.95	5.13	7.31	3.08	4.32	4.89	4.81
ETTL yr	0.27	0.74	0.37	0.42	0.60	0.39	0.58	0.56	0.71
A_{den} g.cm ⁻³ .yr ⁻¹	1.09 $\pm$ 0.06	1.35 $\pm$ 0.08	1.28 $\pm$ 0.06	1.36 $\pm$ 0.07	1.18 $\pm$ 0.04	1.28 $\pm$ 0.06	1.49 $\pm$ 0.02	1.57 $\pm$ 0.12	1.43 $\pm$ 0.04
H_{den} g.cm ⁻³ .yr ⁻¹	1.14 $\pm$ 0.07	1.40 $\pm$ 0.08	1.36 $\pm$ 0.05	1.42 $\pm$ 0.07	1.22 $\pm$ 0.05	1.32 $\pm$ 0.06	1.53 $\pm$ 0.03	1.61 $\pm$ 0.12	1.45 $\pm$ 0.05
L_{den} g.cm ⁻³ .yr ⁻¹	1.03 $\pm$ 0.06	1.29 $\pm$ 0.10	1.20 $\pm$ 0.09	1.30 $\pm$ 0.09	1.14 $\pm$ 0.05	1.23 $\pm$ 0.06	1.45 $\pm$ 0.02	1.52 $\pm$ 0.13	1.41 $\pm$ 0.05
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.11 $\pm$ 0.05	0.11 $\pm$ 0.06	0.16 $\pm$ 0.07	0.12 $\pm$ 0.07	0.08 $\pm$ 0.03	0.09 $\pm$ 0.04	0.08 $\pm$ 0.03	0.09 $\pm$ 0.05	0.04 $\pm$ 0.03
$H-H_{dis}$ mm.yr ⁻¹	14.7 $\pm$ 3.5	9.9 $\pm$ 3.2	13.3 $\pm$ 3.1	12.3 $\pm$ 4.0	12.2 $\pm$ 2.1	8.0 $\pm$ 2.6	7.4 $\pm$ 0.8	8.7 $\pm$ 2.6	6.8 $\pm$ 2.6
$H-L_{dis}$ mm.yr ⁻¹	8.1 $\pm$ 3.6	5.5 $\pm$ 2.3	7.1 $\pm$ 2.2	6.5 $\pm$ 3.2	6.8 $\pm$ 2.5	3.8 $\pm$ 1.7	4.0 $\pm$ 1.0	4.8 $\pm$ 2.6	3.1 $\pm$ 1.6
$L-H_{dis}$ mm.yr ⁻¹	6.6 $\pm$ 2.8	4.4 $\pm$ 3.0	6.2 $\pm$ 2.9	5.8 $\pm$ 3.2	5.5 $\pm$ 2.4	4.2 $\pm$ 1.6	3.5 $\pm$ 0.7	3.9 $\pm$ 2.0	3.7 $\pm$ 2.1
CALCN g.cm ⁻² .yr ⁻¹	1.60 $\pm$ 0.37	1.32 $\pm$ 0.38	1.70 $\pm$ 0.39	1.66 $\pm$ 0.55	1.44 $\pm$ 0.26	1.02 $\pm$ 0.32	1.11 $\pm$ 0.12	1.35 $\pm$ 0.39	0.97 $\pm$ 0.38
Track 2									
TTL mm	3.03	4.92	4.22	4.80	6.81	3.78	4.19	5.01	3.60
ETTL yr	0.26	0.54	0.32	0.41	0.59	0.44	0.70	0.60	0.56
A_{den} g.cm ⁻³ .yr ⁻¹	1.16 $\pm$ 0.05	1.40 $\pm$ 0.08	1.26 $\pm$ 0.07	1.39 $\pm$ 0.10	1.23 $\pm$ 0.04	1.28 $\pm$ 0.05	1.49 $\pm$ 0.03	1.41 $\pm$ 0.09	1.38 $\pm$ 0.05
H_{den} g.cm ⁻³ .yr ⁻¹	1.21 $\pm$ 0.06	1.44 $\pm$ 0.07	1.33 $\pm$ 0.05	1.46 $\pm$ 0.10	1.27 $\pm$ 0.04	1.32 $\pm$ 0.06	1.53 $\pm$ 0.03	1.46 $\pm$ 0.09	1.41 $\pm$ 0.05
L_{den} g.cm ⁻³ .yr ⁻¹	1.12 $\pm$ 0.06	1.35 $\pm$ 0.09	1.18 $\pm$ 0.10	1.32 $\pm$ 0.11	1.18 $\pm$ 0.04	1.24 $\pm$ 0.07	1.45 $\pm$ 0.03	1.37 $\pm$ 0.10	1.36 $\pm$ 0.06
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.09 $\pm$ 0.03	0.09 $\pm$ 0.05	0.15 $\pm$ 0.08	0.13 $\pm$ 0.08	0.09 $\pm$ 0.03	0.07 $\pm$ 0.06	0.08 $\pm$ 0.03	0.09 $\pm$ 0.06	0.05 $\pm$ 0.03
$H-H_{dis}$ mm.yr ⁻¹	11.6 $\pm$ 4.6	9.1 $\pm$ 2.5	13.3 $\pm$ 3.3	11.7 $\pm$ 3.2	11.5 $\pm$ 3.1	8.5 $\pm$ 1.8	6.0 $\pm$ 0.9	8.3 $\pm$ 2.2	6.4 $\pm$ 1.0
$H-L_{dis}$ mm.yr ⁻¹	5.9 $\pm$ 3.6	4.8 $\pm$ 1.8	6.7 $\pm$ 2.5	5.7 $\pm$ 2.3	5.3 $\pm$ 1.9	4.5 $\pm$ 2.1	3.0 $\pm$ 0.7	4.1 $\pm$ 2.2	3.1 $\pm$ 1.2
$L-H_{dis}$ mm.yr ⁻¹	5.7 $\pm$ 3.1	4.3 $\pm$ 1.7	6.6 $\pm$ 2.9	6.0 $\pm$ 2.5	6.2 $\pm$ 2.7	4.0 $\pm$ 1.7	3.0 $\pm$ 0.8	4.2 $\pm$ 2.1	3.3 $\pm$ 1.1
CALCN g.cm ⁻² .yr ⁻¹	1.34 $\pm$ 0.50	1.26 $\pm$ 0.34	1.66 $\pm$ 0.42	1.61 $\pm$ 0.43	1.41 $\pm$ 0.40	1.09 $\pm$ 0.24	0.89 $\pm$ 0.13	1.16 $\pm$ 0.31	0.89 $\pm$ 0.13
Track 3									
TTL mm	3.83	3.82	3.36	3.09	6.35	4.14	3.87	4.18	3.12
ETTL yr	0.33	0.44	0.29	0.34	0.56	0.54	0.68	0.54	0.69
A_{den} g.cm ⁻³ .yr ⁻¹	1.24 $\pm$ 0.04	1.47 $\pm$ 0.06	1.30 $\pm$ 0.11	1.35 $\pm$ 0.11	1.24 $\pm$ 0.05	1.28 $\pm$ 0.05	1.51 $\pm$ 0.04	1.58 $\pm$ 0.11	1.42 $\pm$ 0.06
H_{den} g.cm ⁻³ .yr ⁻¹	1.29 $\pm$ 0.04	1.51 $\pm$ 0.08	1.36 $\pm$ 0.12	1.40 $\pm$ 0.11	1.27 $\pm$ 0.05	1.31 $\pm$ 0.05	1.54 $\pm$ 0.05	1.63 $\pm$ 0.11	1.44 $\pm$ 0.06
L_{den} g.cm ⁻³ .yr ⁻¹	1.20 $\pm$ 0.05	1.42 $\pm$ 0.05	1.24 $\pm$ 0.10	1.30 $\pm$ 0.11	1.20 $\pm$ 0.04	1.24 $\pm$ 0.07	1.47 $\pm$ 0.04	1.53 $\pm$ 0.11	1.40 $\pm$ 0.07
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.09 $\pm$ 0.05	0.09 $\pm$ 0.07	0.11 $\pm$ 0.04	0.10 $\pm$ 0.05	0.08 $\pm$ 0.03	0.07 $\pm$ 0.06	0.07 $\pm$ 0.05	0.10 $\pm$ 0.05	0.04 $\pm$ 0.05
$H-H_{dis}$ mm.yr ⁻¹	11.7 $\pm$ 3.5	8.7 $\pm$ 2.4	11.4 $\pm$ 1.8	9.0 $\pm$ 3.0	11.4 $\pm$ 3.9	7.7 $\pm$ 2.0	5.7 $\pm$ 1.0	7.8 $\pm$ 1.1	4.5 $\pm$ 2.6
$H-L_{dis}$ mm.yr ⁻¹	5.9 $\pm$ 2.8	4.6 $\pm$ 2.6	6.2 $\pm$ 1.5	4.5 $\pm$ 2.3	6.2 $\pm$ 3.1	4.1 $\pm$ 2.0	2.9 $\pm$ 0.8	4.2 $\pm$ 1.3	2.1 $\pm$ 1.7
$L-H_{dis}$ mm.yr ⁻¹	5.8 $\pm$ 2.8	4.1 $\pm$ 1.8	5.1 $\pm$ 1.8	4.4 $\pm$ 2.0	5.2 $\pm$ 2.9	3.6 $\pm$ 1.5	2.8 $\pm$ 0.7	3.6 $\pm$ 1.0	2.4 $\pm$ 2.3
CALCN g.cm ⁻² .yr ⁻¹	1.45 $\pm$ 0.41	1.29 $\pm$ 0.39	1.48 $\pm$ 0.26	1.21 $\pm$ 0.42	1.41 $\pm$ 0.47	0.98 $\pm$ 0.26	0.86 $\pm$ 0.15	1.22 $\pm$ 0.13	0.64 $\pm$ 0.36

Table B28: Credlin Reef, 20.53°S, 149.95°E: Average annual growth characteristics ($\pm$ sd), 1972-1988 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02	B03*	B04*	B05*	B07*	B08*	B09	B10*	B11*	B12
Height mm	360	230	280	250	250	330	200	410	410	450	290
Width mm	420	330	390	330	380	420	290	550	520	600	300
H/W ratio	0.86	0.70	0.72	0.76	0.66	0.79	0.69	0.75	0.79	0.75	0.97
Species	lob	lut	lob	lob	lob	lob	lob	aus	may	may	lut
Year	1965	1969	1961	1966	1960	1963	1968	1951	1960	1967	1937
Track 1											
<i>TTL</i> mm	4.10	3.82	5.90	5.22	3.75	2.41	3.99	2.96	4.69	4.74	4.78
<i>ETTL</i> yr	0.56	0.56	0.47	0.61	0.44	0.28	0.49	0.28	0.44	0.35	0.78
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.36±0.04	1.35±0.08	1.27±0.07	1.35±0.07	1.12±0.05	1.31±0.04	1.37±0.04	1.27±0.06	1.14±0.04	1.05±0.04	1.47±0.06
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.38±0.04	1.39±0.09	1.32±0.07	1.39±0.08	1.16±0.05	1.36±0.03	1.41±0.04	1.33±0.07	1.20±0.05	1.12±0.05	1.51±0.05
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.34±0.05	1.31±0.09	1.23±0.07	1.30±0.06	1.09±0.06	1.26±0.05	1.33±0.04	1.21±0.07	1.08±0.05	0.98±0.05	1.44±0.07
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.05±0.03	0.08±0.07	0.09±0.04	0.08±0.04	0.08±0.04	0.10±0.03	0.07±0.04	0.12±0.07	0.12±0.06	0.14±0.04	0.07±0.04
<i>H-H_{dis}</i> mm.yr ⁻¹	7.3±2.2	6.8±2.0	11.0±2.3	8.5±2.3	8.5±2.0	8.7±1.3	8.2±2.8	10.7±2.7	10.6±2.2	13.4±1.4	6.1±1.6
<i>H-L_{dis}</i> mm.yr ⁻¹	3.6±1.8	3.5±1.8	5.8±2.5	4.8±2.1	4.7±2.0	4.6±1.4	3.6±0.9	6.5±2.9	5.3±2.4	8.7±1.4	3.4±1.5
<i>L-H_{dis}</i> mm.yr ⁻¹	3.7±1.2	3.3±1.2	5.1±1.9	3.7±1.4	3.8±0.9	4.1±1.9	4.6±2.6	4.3±1.2	5.3±2.2	4.8±0.9	2.7±1.0
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	0.99±0.31	0.91±0.27	1.39±0.29	1.14±0.29	0.95±0.22	1.14±0.18	1.12±0.38	1.36±0.34	1.21±0.24	1.40±0.13	0.90±0.22
Track 2											
<i>TTL</i> mm	4.26	3.64	6.21	4.18	4.95	3.64	4.31	3.92	4.77	4.70	4.41
<i>ETTL</i> yr	0.61	0.49	0.56	0.49	0.69	0.45	0.62	0.35	0.46	0.34	0.68
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.34±0.06	1.38±0.08	1.29±0.11	1.40±0.04	1.22±0.04	1.30±0.08	1.36±0.04	1.30±0.05	1.17±0.06	1.09±0.04	1.50±0.05
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.38±0.07	1.42±0.09	1.36±0.12	1.44±0.05	1.25±0.04	1.35±0.07	1.40±0.05	1.35±0.06	1.21±0.06	1.13±0.03	1.54±0.05
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.31±0.05	1.34±0.09	1.22±0.11	1.35±0.04	1.18±0.05	1.25±0.09	1.33±0.05	1.25±0.06	1.12±0.06	1.05±0.05	1.45±0.06
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.07±0.05	0.07±0.05	0.14±0.08	0.08±0.05	0.07±0.04	0.10±0.04	0.08±0.04	0.11±0.06	0.09±0.04	0.08±0.04	0.09±0.04
<i>H-H_{dis}</i> mm.yr ⁻¹	7.0±2.2	7.4±2.9	11.0±1.9	8.6±2.7	7.2±1.8	8.1±1.2	7.0±1.0	11.1±4.8	10.7±2.7	13.8±5.4	6.5±1.6
<i>H-L_{dis}</i> mm.yr ⁻¹	3.6±1.5	4.3±2.9	6.3±1.9	4.5±2.1	3.2±0.8	4.3±1.1	3.6±0.9	5.9±2.6	5.9±2.8	6.7±3.9	3.2±0.9
<i>L-H_{dis}</i> mm.yr ⁻¹	3.4±1.8	3.0±1.4	4.7±2.1	4.1±2.1	4.0±1.8	3.8±1.6	3.4±0.9	5.2±3.7	4.8±2.0	7.2±2.8	3.2±1.3
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	0.94±0.30	1.02±0.40	1.40±0.20	1.20±0.36	0.87±0.20	1.06±0.19	0.95±0.13	1.43±0.61	1.24±0.33	1.52±0.62	0.96±0.23
Track 3											
<i>TTL</i> mm	none	4.71	5.79	none	4.99	3.25	3.90	2.91	4.30	4.75	4.51
<i>ETTL</i> yr		0.66	0.56		0.60	0.42	0.61	0.38	0.49	0.35	0.70
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹		1.44±0.03	1.25±0.09		1.18±0.04	1.31±0.04	1.33±0.05	1.33±0.05	1.24±0.07	1.13±0.06	1.47±0.09
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹		1.46±0.04	1.31±0.09		1.21±0.04	1.37±0.04	1.37±0.05	1.37±0.06	1.27±0.07	1.18±0.06	1.52±0.08
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹		1.41±0.03	1.18±0.09		1.14±0.05	1.26±0.04	1.30±0.06	1.30±0.06	1.21±0.08	1.08±0.08	1.43±0.10
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹		0.05±0.04	0.13±0.03		0.08±0.04	0.11±0.04	0.07±0.03	0.07±0.05	0.07±0.03	0.10±0.05	0.09±0.04
<i>H-H_{dis}</i> mm.yr ⁻¹		7.1±2.8	10.4±2.2		8.3±2.6	7.7±1.1	6.4±1.1	7.6±1.7	8.8±2.4	13.7±2.3	6.4±2.4
<i>H-L_{dis}</i> mm.yr ⁻¹		3.3±2.1	5.8±1.7		4.3±2.0	4.0±0.7	3.0±1.0	3.9±1.6	4.3±2.3	8.0±2.6	3.0±0.9
<i>L-H_{dis}</i> mm.yr ⁻¹		3.7±1.4	4.6±1.2		3.9±2.2	3.7±0.8	3.3±1.1	3.7±1.2	4.5±1.8	5.8±2.4	3.4±2.0
<i>CALCN</i> g.cm ⁻² .yr ⁻¹		1.02±0.41	1.29±0.25		0.97±0.30	1.01±0.12	0.85±0.12	1.01±0.21	1.09±0.32	1.55±0.28	0.93±0.31

Table B29: 21-141 Reef, 21.52°S, 151.22°E: Average annual growth characteristics ($\pm$ sd), 1972-1988 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02	B03*	B04*	B05*	B06*	B07	B08*	B09	B10	B11*	B12*	B13*	B14*
Height mm	500	330	220	450	400	330	300	400	390	290	230	220	170	300
Width mm	700	440	310	600	530	390	420	540	500	450	330	300	280	460
H/W ratio	0.71	0.75	0.71	0.75	0.75	0.85	0.71	0.74	0.78	0.64	0.70	0.73	0.61	0.65
Species	aus	lob	lut	lut	sol	may	lob	aus	lut	may	lut	lut	lut	lut
Year	1956	1958	1972	1953	1959	1960	1967	1959	1968	1949	1949	1948	1964	1947
Track 1														
TTL mm	3.38	3.58	4.43	4.80	3.79	5.82	4.24	4.70	4.31	3.93	5.90	3.66	3.57	3.93
ETTL yr	0.39	0.49	0.47	0.52	0.41	0.72	0.42	0.38	0.31	0.45	0.75	0.37	0.42	0.39
A_{den} g.cm ⁻³ .yr ⁻¹	1.17 $\pm$ 0.05	1.41 $\pm$ 0.04	1.38 $\pm$ 0.07	1.36 $\pm$ 0.02	1.34 $\pm$ 0.05	1.17 $\pm$ 0.05	1.24 $\pm$ 0.07	1.37 $\pm$ 0.06	1.13 $\pm$ 0.09	1.35 $\pm$ 0.03	1.54 $\pm$ 0.05	1.27 $\pm$ 0.03	1.19 $\pm$ 0.04	1.29 $\pm$ 0.03
H_{den} g.cm ⁻³ .yr ⁻¹	1.24 $\pm$ 0.05	1.44 $\pm$ 0.04	1.44 $\pm$ 0.08	1.39 $\pm$ 0.03	1.38 $\pm$ 0.05	1.22 $\pm$ 0.04	1.28 $\pm$ 0.07	1.43 $\pm$ 0.07	1.19 $\pm$ 0.10	1.38 $\pm$ 0.03	1.57 $\pm$ 0.06	1.33 $\pm$ 0.03	1.23 $\pm$ 0.06	1.37 $\pm$ 0.04
L_{den} g.cm ⁻³ .yr ⁻¹	1.10 $\pm$ 0.06	1.38 $\pm$ 0.05	1.32 $\pm$ 0.07	1.32 $\pm$ 0.02	1.29 $\pm$ 0.05	1.13 $\pm$ 0.06	1.21 $\pm$ 0.08	1.30 $\pm$ 0.08	1.06 $\pm$ 0.09	1.31 $\pm$ 0.03	1.50 $\pm$ 0.06	1.22 $\pm$ 0.04	1.15 $\pm$ 0.04	1.21 $\pm$ 0.04
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.13 $\pm$ 0.08	0.06 $\pm$ 0.04	0.12 $\pm$ 0.05	0.08 $\pm$ 0.03	0.09 $\pm$ 0.03	0.09 $\pm$ 0.04	0.06 $\pm$ 0.04	0.13 $\pm$ 0.08	0.13 $\pm$ 0.09	0.07 $\pm$ 0.03	0.07 $\pm$ 0.05	0.11 $\pm$ 0.04	0.07 $\pm$ 0.04	0.16 $\pm$ 0.05
$H-H_{dis}$ mm.yr ⁻¹	8.7 $\pm$ 2.5	7.3 $\pm$ 2.6	9.4 $\pm$ 2.6	9.2 $\pm$ 1.8	9.2 $\pm$ 1.8	8.1 $\pm$ 1.1	10.0 $\pm$ 3.1	12.5 $\pm$ 5.0	13.8 $\pm$ 3.9	8.7 $\pm$ 1.9	7.9 $\pm$ 2.7	9.8 $\pm$ 1.8	8.5 $\pm$ 2.5	10.0 $\pm$ 2.5
$H-L_{dis}$ mm.yr ⁻¹	4.0 $\pm$ 1.7	3.0 $\pm$ 1.6	4.7 $\pm$ 2.4	5.2 $\pm$ 1.7	4.8 $\pm$ 1.3	4.0 $\pm$ 1.3	4.9 $\pm$ 2.2	7.0 $\pm$ 3.9	6.3 $\pm$ 3.0	4.8 $\pm$ 2.0	3.9 $\pm$ 1.8	5.7 $\pm$ 1.8	4.6 $\pm$ 1.8	5.6 $\pm$ 1.7
$L-H_{dis}$ mm.yr ⁻¹	4.7 $\pm$ 1.7	4.3 $\pm$ 2.0	4.7 $\pm$ 1.8	3.9 $\pm$ 1.5	4.4 $\pm$ 1.8	4.0 $\pm$ 1.1	5.1 $\pm$ 2.3	5.5 $\pm$ 3.4	7.5 $\pm$ 2.8	4.0 $\pm$ 1.8	4.0 $\pm$ 2.0	4.0 $\pm$ 1.7	3.9 $\pm$ 2.1	4.3 $\pm$ 1.8
CALCN g.cm ⁻² .yr ⁻¹	1.02 $\pm$ 0.28	1.03 $\pm$ 0.36	1.29 $\pm$ 0.33	1.24 $\pm$ 0.24	1.24 $\pm$ 0.24	0.94 $\pm$ 0.12	1.23 $\pm$ 0.35	1.70 $\pm$ 0.65	1.55 $\pm$ 0.42	1.17 $\pm$ 0.25	1.21 $\pm$ 0.42	1.24 $\pm$ 0.22	1.01 $\pm$ 0.29	1.28 $\pm$ 0.29
Track 2														
TTL mm	3.50	3.27	4.29	5.30	3.13	5.78	5.65	4.48	3.86	4.27	5.37	3.32	3.43	3.71
ETTL yr	0.34	0.41	0.47	0.54	0.36	0.74	0.54	0.40	0.29	0.56	0.80	0.35	0.38	0.41
A_{den} g.cm ⁻³ .yr ⁻¹	1.29 $\pm$ 0.09	1.48 $\pm$ 0.07	1.37 $\pm$ 0.09	1.33 $\pm$ 0.04	1.36 $\pm$ 0.06	1.13 $\pm$ 0.05	1.15 $\pm$ 0.06	1.40 $\pm$ 0.06	1.14 $\pm$ 0.10	1.34 $\pm$ 0.07	1.43 $\pm$ 0.05	1.32 $\pm$ 0.02	1.20 $\pm$ 0.06	1.34 $\pm$ 0.03
H_{den} g.cm ⁻³ .yr ⁻¹	1.35 $\pm$ 0.08	1.51 $\pm$ 0.07	1.42 $\pm$ 0.09	1.37 $\pm$ 0.03	1.40 $\pm$ 0.06	1.18 $\pm$ 0.05	1.18 $\pm$ 0.06	1.46 $\pm$ 0.06	1.20 $\pm$ 0.12	1.37 $\pm$ 0.06	1.46 $\pm$ 0.05	1.36 $\pm$ 0.02	1.25 $\pm$ 0.06	1.39 $\pm$ 0.03
L_{den} g.cm ⁻³ .yr ⁻¹	1.24 $\pm$ 0.11	1.45 $\pm$ 0.07	1.32 $\pm$ 0.10	1.28 $\pm$ 0.05	1.32 $\pm$ 0.06	1.09 $\pm$ 0.05	1.11 $\pm$ 0.07	1.35 $\pm$ 0.09	1.08 $\pm$ 0.11	1.31 $\pm$ 0.09	1.40 $\pm$ 0.05	1.27 $\pm$ 0.03	1.16 $\pm$ 0.07	1.28 $\pm$ 0.04
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.11 $\pm$ 0.08	0.06 $\pm$ 0.04	0.10 $\pm$ 0.05	0.09 $\pm$ 0.03	0.08 $\pm$ 0.03	0.09 $\pm$ 0.04	0.07 $\pm$ 0.04	0.11 $\pm$ 0.10	0.12 $\pm$ 0.09	0.07 $\pm$ 0.05	0.06 $\pm$ 0.03	0.10 $\pm$ 0.03	0.08 $\pm$ 0.04	0.11 $\pm$ 0.04
$H-H_{dis}$ mm.yr ⁻¹	10.4 $\pm$ 3.4	8.0 $\pm$ 2.0	9.2 $\pm$ 2.2	9.8 $\pm$ 2.7	8.8 $\pm$ 1.8	7.8 $\pm$ 1.4	10.4 $\pm$ 3.9	11.1 $\pm$ 4.2	13.5 $\pm$ 5.7	7.6 $\pm$ 2.3	6.7 $\pm$ 1.1	9.6 $\pm$ 2.2	9.0 $\pm$ 2.1	9.1 $\pm$ 2.5
$H-L_{dis}$ mm.yr ⁻¹	5.5 $\pm$ 2.9	4.1 $\pm$ 1.8	4.6 $\pm$ 2.2	5.5 $\pm$ 2.0	4.3 $\pm$ 1.1	3.8 $\pm$ 0.8	4.9 $\pm$ 2.9	5.0 $\pm$ 2.5	6.5 $\pm$ 3.4	3.9 $\pm$ 2.3	3.2 $\pm$ 1.6	5.9 $\pm$ 2.0	4.1 $\pm$ 1.5	4.5 $\pm$ 1.6
$L-H_{dis}$ mm.yr ⁻¹	4.84 $\pm$ 2.2	4.0 $\pm$ 2.2	4.6 $\pm$ 2.4	4.3 $\pm$ 1.5	4.4 $\pm$ 1.6	4.0 $\pm$ 1.0	5.5 $\pm$ 3.2	6.1 $\pm$ 2.8	7.0 $\pm$ 3.9	3.7 $\pm$ 1.3	3.5 $\pm$ 1.2	3.7 $\pm$ 1.2	4.9 $\pm$ 1.8	4.6 $\pm$ 1.9
CALCN g.cm ⁻² .yr ⁻¹	1.34 $\pm$ 0.44	1.19 $\pm$ 0.32	1.24 $\pm$ 0.24	1.30 $\pm$ 0.34	1.19 $\pm$ 0.24	0.88 $\pm$ 0.15	1.20 $\pm$ 0.47	1.55 $\pm$ 0.55	1.53 $\pm$ 0.62	1.03 $\pm$ 0.34	0.96 $\pm$ 0.17	1.27 $\pm$ 0.28	1.08 $\pm$ 0.21	1.22 $\pm$ 0.32
Track 3														
TTL mm	2.39	3.41	3.62	none	3.58	5.21	4.21	3.63	2.88	none	3.35	none	2.68	none
ETTL yr	0.27	0.57	0.49	none	0.39	0.85	0.36	0.37	0.26		0.66	none	0.33	none
A_{den} g.cm ⁻³ .yr ⁻¹	1.37 $\pm$ 0.07	1.42 $\pm$ 0.06	1.49 $\pm$ 0.03	1.32 $\pm$ 0.05	1.37 $\pm$ 0.04	1.17 $\pm$ 0.04	1.22 $\pm$ 0.03	1.32 $\pm$ 0.05	1.26 $\pm$ 0.26		1.60 $\pm$ 0.02	1.33 $\pm$ 0.03	1.19 $\pm$ 0.10	1.36 $\pm$ 0.09
H_{den} g.cm ⁻³ .yr ⁻¹	1.41 $\pm$ 0.07	1.47 $\pm$ 0.06	1.52 $\pm$ 0.03	1.34 $\pm$ 0.05	1.41 $\pm$ 0.05	1.20 $\pm$ 0.05	1.25 $\pm$ 0.02	1.38 $\pm$ 0.05	1.31 $\pm$ 0.04		1.62 $\pm$ 0.03	1.38 $\pm$ 0.03	1.24 $\pm$ 0.10	1.40 $\pm$ 0.08
L_{den} g.cm ⁻³ .yr ⁻¹	1.34 $\pm$ 0.08	1.38 $\pm$ 0.08	1.46 $\pm$ 0.04	1.30 $\pm$ 0.06	1.33 $\pm$ 0.04	1.14 $\pm$ 0.04	1.18 $\pm$ 0.03	1.26 $\pm$ 0.07	1.21 $\pm$ 0.05		1.59 $\pm$ 0.02	1.27 $\pm$ 0.03	1.14 $\pm$ 0.12	1.32 $\pm$ 0.11
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.06 $\pm$ 0.05	0.09 $\pm$ 0.06	0.06 $\pm$ 0.04	0.04 $\pm$ 0.04	0.08 $\pm$ 0.03	0.06 $\pm$ 0.03	0.07 $\pm$ 0.02	0.12 $\pm$ 0.06	0.10 $\pm$ 0.05		0.03 $\pm$ 0.02	0.11 $\pm$ 0.03	0.10 $\pm$ 0.07	0.03 $\pm$ 0.04
$H-H_{dis}$ mm.yr ⁻¹	8.8 $\pm$ 3.1	6.0 $\pm$ 1.9	7.4 $\pm$ 2.1	5.9 $\pm$ 2.4	9.1 $\pm$ 1.8	6.1 $\pm$ 1.3	11.7 $\pm$ 2.4	9.8 $\pm$ 2.9	11.1 $\pm$ 0.06		5.1 $\pm$ 1.2	6.5 $\pm$ 1.1	8.1 $\pm$ 3.3	6.1 $\pm$ 1.5
$H-L_{dis}$ mm.yr ⁻¹	3.4 $\pm$ 1.8	3.1 $\pm$ 1.3	3.8 $\pm$ 1.9	2.6 $\pm$ 1.5	4.9 $\pm$ 1.6	3.1 $\pm$ 0.9	5.2 $\pm$ 1.9	4.9 $\pm$ 2.6	5.8 $\pm$ 4.1		2.5 $\pm$ 1.1	3.3 $\pm$ 0.7	4.6 $\pm$ 2.5	3.3 $\pm$ 0.9
$L-H_{dis}$ mm.yr ⁻¹	5.4 $\pm$ 2.9	2.9 $\pm$ 1.3	3.6 $\pm$ 1.6	3.3 $\pm$ 1.9	4.2 $\pm$ 1.4	3.0 $\pm$ 1.0	6.5 $\pm$ 3.3	4.9 $\pm$ 2.3	5.3 $\pm$ 3.0		2.6 $\pm$ 1.8	3.2 $\pm$ 0.7	3.5 $\pm$ 1.7	2.9 $\pm$ 1.1
CALCN g.cm ⁻² .yr ⁻¹	1.20 $\pm$ 0.41	0.86 $\pm$ 0.23	1.10 $\pm$ 0.31	0.76 $\pm$ 0.28	1.24 $\pm$ 0.24	0.70 $\pm$ 0.15	1.43 $\pm$ 0.29	1.29 $\pm$ 0.36	1.40 $\pm$ 2.3		0.81 $\pm$ 0.19	0.86 $\pm$ 0.15	0.95 $\pm$ 0.39	0.82 $\pm$ 0.16

Table B30: Middle Percy Island, 21.65°S, 150.25°E: Average annual growth characteristics ($\pm$ sd), 1972-1988 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02*	B03*	B04	B05	B10*
Height mm	290	330	300	270	280	270
Width mm	540	690	490	340	600	360
H/W ratio	0.54	0.48	0.61	0.79	0.47	0.75
Species	lob	lut	lob	aus	lut	lut
Year	1980 (t3)	1976	1971	1969	1972	1967
Track 1						
TTL mm	4.19	6.49	6.71	6.35	3.46	4.00
ETTL yr	0.79	0.73	0.75	1.01	0.23	0.39
A_{den} g.cm⁻³.yr⁻¹	1.23	1.38 $\pm$ 0.12	1.33 $\pm$ 0.04	0.98 $\pm$ 0.06	1.24 $\pm$ 0.13	1.29 $\pm$ 0.05
H_{den} g.cm⁻³.yr⁻¹		1.43 $\pm$ 0.11	1.38 $\pm$ 0.06	1.02 $\pm$ 0.07	1.30 $\pm$ 0.13	1.35 $\pm$ 0.06
L_{den} g.cm⁻³.yr⁻¹		1.34 $\pm$ 0.13	1.27 $\pm$ 0.03	0.94 $\pm$ 0.07	1.18 $\pm$ 0.15	1.22 $\pm$ 0.05
H-L_{den} g.cm⁻³.yr⁻¹		0.09 $\pm$ 0.04	0.10 $\pm$ 0.05	0.08 $\pm$ 0.06	0.12 $\pm$ 0.08	0.13 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	5.3	8.9 $\pm$ 3.5	9.0 $\pm$ 1.9	6.3 $\pm$ 2.7	15.2 $\pm$ 5.2	10.2 $\pm$ 1.0
H-L_{dis} mm.yr⁻¹		4.5 $\pm$ 2.0	4.2 $\pm$ 1.3	3.6 $\pm$ 1.4	6.7 $\pm$ 3.3	5.4 $\pm$ 1.5
L-H_{dis} mm.yr⁻¹		4.4 $\pm$ 2.0	4.8 $\pm$ 1.5	2.8 $\pm$ 2.0	8.4 $\pm$ 5.0	4.7 $\pm$ 1.2
CALCN g.cm⁻².yr⁻¹	0.57	1.20 $\pm$ 0.43	1.19 $\pm$ 0.26	0.61 $\pm$ 0.23	1.87 $\pm$ 0.65	1.31 $\pm$ 0.10
Track 2						
TTL mm	4.04	6.06	5.11	4.52	4.14	5.10
ETTL yr	0.84	0.59	0.56	0.71	0.74	0.61
A_{den} g.cm⁻³.yr⁻¹	1.19	1.28 $\pm$ 0.10	1.40 $\pm$ 0.06	1.05 $\pm$ 0.06	1.35	1.34 $\pm$ 0.04
H_{den} g.cm⁻³.yr⁻¹		1.35 $\pm$ 0.10	1.46 $\pm$ 0.08	1.09 $\pm$ 0.06		1.41 $\pm$ 0.05
L_{den} g.cm⁻³.yr⁻¹		1.21 $\pm$ 0.10	1.34 $\pm$ 0.07	1.02 $\pm$ 0.07		1.27 $\pm$ 0.05
H-L_{den} g.cm⁻³.yr⁻¹		0.13 $\pm$ 0.06	0.12 $\pm$ 0.08	0.06 $\pm$ 0.05		0.13 $\pm$ 0.06
H-H_{dis} mm.yr⁻¹	4.8	10.3 $\pm$ 2.8	9.1 $\pm$ 2.0	6.4 $\pm$ 2.4	5.6	8.4 $\pm$ 2.2
H-L_{dis} mm.yr⁻¹		5.0 $\pm$ 2.1	4.4 $\pm$ 1.3	2.8 $\pm$ 1.2		4.2 $\pm$ 1.2
L-H_{dis} mm.yr⁻¹		5.4 $\pm$ 2.0	4.6 $\pm$ 1.3	3.6 $\pm$ 1.8		4.2 $\pm$ 1.5
CALCN g.cm⁻².yr⁻¹	0.57	1.31 $\pm$ 0.33	1.27 $\pm$ 0.28	0.67 $\pm$ 0.25	0.76	1.12 $\pm$ 0.28
Track 3						
TTL mm	4.73	6.24	3.97	5.62	3.66	4.66
ETTL yr	0.72	0.69	0.59	0.95	0.49	0.73
A_{den} g.cm⁻³.yr⁻¹	1.16 $\pm$ 0.04	1.24 $\pm$ 0.07	1.06 $\pm$ 0.05	1.24	1.27 $\pm$ 0.07	1.38 $\pm$ 0.08
H_{den} g.cm⁻³.yr⁻¹	1.22 $\pm$ 0.05	1.29 $\pm$ 0.07	1.09 $\pm$ 0.05		1.31 $\pm$ 0.08	1.43 $\pm$ 0.08
L_{den} g.cm⁻³.yr⁻¹	1.10 $\pm$ 0.05	1.20 $\pm$ 0.09	1.03 $\pm$ 0.05		1.23 $\pm$ 0.07	1.33 $\pm$ 0.10
H-L_{den} g.cm⁻³.yr⁻¹	0.11 $\pm$ 0.05	0.08 $\pm$ 0.06	0.05 $\pm$ 0.03		0.08 $\pm$ 0.04	0.09 $\pm$ 0.05
H-H_{dis} mm.yr⁻¹	6.6 $\pm$ 1.5	9.0 $\pm$ 4.3	6.7 $\pm$ 1.6	5.9	7.4 $\pm$ 1.7	6.4 $\pm$ 1.4
H-L_{dis} mm.yr⁻¹	3.5 $\pm$ 1.3	4.1 $\pm$ 2.2	3.5 $\pm$ 1.6		3.6 $\pm$ 1.1	3.3 $\pm$ 1.1
L-H_{dis} mm.yr⁻¹	3.2 $\pm$ 1.1	4.9 $\pm$ 2.3	3.2 $\pm$ 1.6		3.8 $\pm$ 1.4	3.2 $\pm$ 1.0
CALCN g.cm⁻².yr⁻¹	0.77 $\pm$ 0.17	1.10 $\pm$ 0.49	0.71 $\pm$ 0.14	0.73	0.93 $\pm$ 0.19	0.88 $\pm$ 0.17

Table B31: One Tree Island, 23.50°S, 152.08°E: Average annual growth characteristics ($\pm$ sd), 1985-1995 (1984-1994 for 7-2 and 8-2) base periods. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	4-4-S1	5-1-S1*	5-1-S3*	6-1-S2	6-5-S2*	7-2-S3	8-2-S5	11-4-S4	11-6-S2	12-4-S2	12-6-S1
Height mm	135	112	112	149	91	136	161	134	138	114	154
Width mm	230	156	156	160	180	170	210	164	165	220	156
H/W ratio	0.59	0.72	0.72	0.93	0.51	0.80	0.77	0.82	0.84	0.52	0.99
Species	lob	lob	lob	lob	lob	lob	lob	lob	lob	lob	lob
Year	1985	1985	1986	1982	1990	1983	1977	1980	1980	1985	1983
Track 1											
TTL mm	5.3	4.4	4.4	4.5	4.3	5.6	4.6	4.9	5.3	5.4	4.2
ETTL yr	0.93	1.29	1.16	0.98	0.75	1.47	1.07	0.83	1.23	1.50	0.68
A_{den} g.cm ⁻³ .yr ⁻¹	1.48±0.05	1.44±0.06	1.64±0.10	1.69±0.09	1.50±0.07	1.35±0.05	1.35±0.09	1.93±0.07	1.89±0.04	1.58±0.10	1.65±0.18
H_{den} g.cm ⁻³ .yr ⁻¹	1.56±0.08	1.49±0.06	1.70±0.09	1.77±0.09	1.58±0.09	1.41±0.09	1.41±0.12	1.98±0.07	1.95±0.07	1.64±0.08	1.74±0.20
L_{den} g.cm ⁻³ .yr ⁻¹	1.41±0.05	1.39±0.06	1.58±0.11	1.60±0.11	1.41±0.07	1.29±0.06	1.28±0.08	1.89±0.07	1.83±0.05	1.53±0.12	1.57±0.18
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.15±0.07	0.10±0.03	0.11±0.05	0.17±0.08	0.17±0.09	0.12±0.12	0.13±0.08	0.09±0.03	0.11±0.08	0.11±0.06	0.17±0.12
$H-H_{dis}$ mm.yr ⁻¹	5.7±0.6	3.4±1.0	3.8±1.2	4.6±1.7	5.7±1.1	3.8±1.0	4.3±0.9	5.9±1.6	4.3±1.2	3.6±1.2	6.2±1.9
$H-L_{dis}$ mm.yr ⁻¹	3.6±0.7	1.8±0.5	1.8±0.7	2.4±1.2	2.7±0.5	2.1±1.5	2.1±0.9	2.6±0.8	2.1±1.1	2.0±0.9	3.4±1.4
$L-H_{dis}$ mm.yr ⁻¹	2.1±0.8	1.6±0.9	2.0±0.7	2.2±1.0	3.0±0.8	1.6±0.9	2.2±0.7	3.3±1.4	2.1±0.6	1.7±0.5	2.8±1.5
$CALCN$ g.cm ⁻² .yr ⁻¹	0.85±0.10	0.49±0.14	0.62±0.18	0.78±0.29	0.85±0.13	0.51±0.14	0.58±0.14	1.13±0.28	0.81±0.23	0.57±0.19	1.04±0.36
Track 2											
TTL mm	none	none	4.4	4.5	none	none	4.6	4.9	none	5.4	4.2
ETTL yr			1.07	0.94			0.96	1.02		1.54	0.74
A_{den} g.cm ⁻³ .yr ⁻¹			1.30±0.06	1.24±0.06			1.19±0.07	1.55±0.05		1.59±0.06	1.20±0.09
H_{den} g.cm ⁻³ .yr ⁻¹			1.35±0.06	1.32±0.07			1.26±0.07	1.62±0.07		1.63±0.07	1.27±0.10
L_{den} g.cm ⁻³ .yr ⁻¹			1.26±0.07	1.16±0.07			1.11±0.10	1.47±0.06		1.55±0.06	1.12±0.10
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹			0.09±0.05	0.16±0.07			0.14±0.08	0.15±0.08		0.08±0.05	0.15±0.10
$H-H_{dis}$ mm.yr ⁻¹			4.1±1.7	4.8±1.2			4.8±1.7	4.8±1.1		3.5±1.2	5.7±1.6
$H-L_{dis}$ mm.yr ⁻¹			2.2±1.6	2.6±0.8			2.7±1.0	2.2±0.8		1.7±0.7	2.6±1.5
$L-H_{dis}$ mm.yr ⁻¹			1.9±1.0	2.2±0.9			2.1±0.9	2.5±1.0		1.8±1.1	3.0±1.2
$CALCN$ g.cm ⁻² .yr ⁻¹			0.53±0.23	0.59±0.15			0.56±0.20	0.74±0.16		0.56±0.18	0.68±0.21

Table B32: Misima Island Transect T01 (control zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02	B03	B04	B05	B06	B07*	B08*	B09	B10*
Height mm	220	230	260	190	280	240	280	360	340	220
Width mm	260	230	290	240	230	240	280	270	250	210
H/W ratio	0.85	1.00	0.90	0.79	1.22	1.00	1.00	1.33	1.36	1.05
Species	lob	lut	lut	aus	lut	aus	lut	lut	may	aus
Year	1985	1979	1982	1982	1983	1982	1980	1981	1981	1980
Track 1										
TTL mm	4.99	6.17	4.62	3.27	2.66	4.38	4.89	3.10	3.60	5.00
ETTL yr	0.41	0.52	0.42	0.39	0.21	0.42	0.44	0.19	0.30	0.43
A_{den} g.cm⁻³.yr⁻¹	1.23±0.09	1.04±0.08	1.15±0.06	1.29±0.05	1.26±0.04	1.17±0.08	1.58±0.08	1.14±0.05	1.31±0.04	1.35±0.05
H_{den} g.cm⁻³.yr⁻¹	1.30±0.13	1.08±0.09	1.19±0.07	1.34±0.05	1.30±0.04	1.21±0.09	1.68±0.06	1.21±0.06	1.34±0.04	1.40±0.06
L_{den} g.cm⁻³.yr⁻¹	1.16±0.06	1.00±0.08	1.11±0.06	1.24±0.06	1.22±0.05	1.13±0.07	1.48±0.12	1.07±0.06	1.27±0.05	1.30±0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.14±0.10	0.08±0.04	0.08±0.04	0.10±0.04	0.08±0.05	0.08±0.04	0.19±0.09	0.14±0.08	0.06±0.04	0.10±0.05
H-H_{dis} mm.yr⁻¹	12.2±6.0	11.8±5.7	11.0±2.6	8.4±2.4	12.9±4.4	10.4±2.7	11.2±2.3	16.2±5.3	12.0±3.3	11.7±3.5
H-L_{dis} mm.yr⁻¹	Not calculated									
L-H_{dis} mm.yr⁻¹	Not calculated									
CALCN g.cm⁻².yr⁻¹	1.52±0.82	1.23±0.63	1.26±0.29	1.08±0.32	1.61±0.52	1.23±0.38	1.75±0.34	1.85±0.59	1.56±0.43	1.56±0.45
Track 2										
TTL mm	4.88	5.85	4.95	3.68	3.55	4.68	4.01	3.50	4.26	4.50
ETTL yr	0.40	0.51	0.43	0.45	0.30	0.44	0.37	0.22	0.34	0.39
A_{den} g.cm⁻³.yr⁻¹	1.27±0.07	1.08±0.04	1.13±0.08	1.35±0.05	1.25±0.03	1.21±0.08	1.57±0.09	1.16±0.09	1.31±0.06	1.29±0.06
H_{den} g.cm⁻³.yr⁻¹	1.33±0.09	1.12±0.06	1.17±0.08	1.40±0.05	1.29±0.02	1.24±0.08	1.65±0.06	1.22±0.10	1.34±0.06	1.34±0.07
L_{den} g.cm⁻³.yr⁻¹	1.21±0.09	1.04±0.04	1.10±0.08	1.30±0.07	1.21±0.04	1.18±0.08	1.49±0.13	1.09±0.11	1.29±0.06	1.23±0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.12±0.12	0.08±0.05	0.07±0.04	0.10±0.06	0.08±0.04	0.07±0.04	0.16±0.08	0.14±0.12	0.05±0.02	0.11±0.06
H-H_{dis} mm.yr⁻¹	12.2±5.0	11.4±4.8	11.5±4.5	8.2±3.3	11.7±3.0	10.6±4.6	10.9±1.4	16.0±6.2	12.4±3.0	11.5±3.6
H-L_{dis} mm.yr⁻¹	Not calculated									
L-H_{dis} mm.yr⁻¹	Not calculated									
CALCN g.cm⁻².yr⁻¹	1.53±0.61	1.23±0.55	1.29±0.48	1.11±0.45	1.45±0.37	1.28±0.57	1.71±0.18	1.82±0.67	1.62±0.39	1.48±0.43

Table B33: Misima Island Transect T02 (minor impact zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B03	B04	B05	B06	B07	B08*	B09*	B10*
Height mm	250	180	290	200	270	260	220	200	270
Width mm	270	230	300	240	270	260	220	250	260
H/W ratio	0.93	0.78	0.97	0.83	1.00	1.00	1.00	0.80	1.04
Species	lut	may	may	lut	lut	lut	aus	may	aus
Year	1979	1984	1984	1985	1984	1983	1983	1985	1983
Track 1									
<i>TTL</i> mm	3.25	3.56	4.71	3.56	4.24	3.81	2.96	3.33	2.84
<i>ETTL</i> yr	0.28	0.27	0.30	0.28	0.23	0.23	0.21	0.25	0.17
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.18 $\pm$ 0.07	1.17 $\pm$ 0.05	1.31 $\pm$ 0.03	1.16 $\pm$ 0.06	1.18 $\pm$ 0.13	1.31 $\pm$ 0.05	1.22 $\pm$ 0.04	1.27 $\pm$ 0.05	1.29 $\pm$ 0.16
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.23 $\pm$ 0.07	1.23 $\pm$ 0.05	1.36 $\pm$ 0.03	1.21 $\pm$ 0.06	1.24 $\pm$ 0.12	1.37 $\pm$ 0.07	1.28 $\pm$ 0.05	1.31 $\pm$ 0.05	1.36 $\pm$ 0.16
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.14 $\pm$ 0.07	1.11 $\pm$ 0.06	1.26 $\pm$ 0.04	1.10 $\pm$ 0.07	1.12 $\pm$ 0.13	1.26 $\pm$ 0.04	1.15 $\pm$ 0.05	1.22 $\pm$ 0.06	1.22 $\pm$ 0.15
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.09 $\pm$ 0.05	0.12 $\pm$ 0.06	0.10 $\pm$ 0.03	0.10 $\pm$ 0.06	0.12 $\pm$ 0.04	0.11 $\pm$ 0.05	0.14 $\pm$ 0.06	0.09 $\pm$ 0.06	0.14 $\pm$ 0.03
<i>H-H_{dis}</i> mm.yr ⁻¹	11.5 $\pm$ 4.8	13.2 $\pm$ 2.9	15.9 $\pm$ 2.3	12.5 $\pm$ 4.1	18.3 $\pm$ 4.1	16.5 $\pm$ 4.4	13.8 $\pm$ 3.3	13.2 $\pm$ 5.1	17.0 $\pm$ 3.7
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.34 $\pm$ 0.51	1.54 $\pm$ 0.33	2.08 $\pm$ 0.27	1.44 $\pm$ 0.44	2.16 $\pm$ 0.59	2.16 $\pm$ 0.57	1.68 $\pm$ 0.38	1.67 $\pm$ 0.63	2.19 $\pm$ 0.54
Track 2									
<i>TTL</i> mm	2.53	3.81	3.42	3.46	3.74	4.14	3.36	3.81	2.84
<i>ETTL</i> yr	0.20	0.28	0.22	0.28	0.22	0.27	0.23	0.29	0.18
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.22 $\pm$ 0.04	1.17 $\pm$ 0.07	1.36 $\pm$ 0.03	1.16 $\pm$ 0.10	1.22 $\pm$ 0.12	1.32 $\pm$ 0.05	1.19 $\pm$ 0.06	1.27 $\pm$ 0.06	1.35 $\pm$ 0.11
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.25 $\pm$ 0.04	1.23 $\pm$ 0.08	1.40 $\pm$ 0.03	1.21 $\pm$ 0.11	1.28 $\pm$ 0.12	1.35 $\pm$ 0.05	1.26 $\pm$ 0.08	1.33 $\pm$ 0.06	1.41 $\pm$ 0.12
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.18 $\pm$ 0.04	1.11 $\pm$ 0.08	1.32 $\pm$ 0.03	1.10 $\pm$ 0.11	1.17 $\pm$ 0.13	1.29 $\pm$ 0.06	1.12 $\pm$ 0.06	1.22 $\pm$ 0.07	1.30 $\pm$ 0.11
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.06 $\pm$ 0.03	0.12 $\pm$ 0.07	0.08 $\pm$ 0.03	0.11 $\pm$ 0.06	0.11 $\pm$ 0.06	0.07 $\pm$ 0.03	0.14 $\pm$ 0.06	0.10 $\pm$ 0.06	0.11 $\pm$ 0.04
<i>H-H_{dis}</i> mm.yr ⁻¹	12.5 $\pm$ 6.5	13.6 $\pm$ 6.7	15.3 $\pm$ 4.5	12.2 $\pm$ 4.0	17.0 $\pm$ 7.8	15.3 $\pm$ 5.6	14.4 $\pm$ 1.7	13.2 $\pm$ 3.1	15.5 $\pm$ 5.2
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.52 $\pm$ 0.78	1.58 $\pm$ 0.75	2.07 $\pm$ 0.60	1.38 $\pm$ 0.40	2.07 $\pm$ 1.01	2.01 $\pm$ 0.74	1.72 $\pm$ 0.20	1.67 $\pm$ 0.38	2.10 $\pm$ 0.71

Table B34: Misima Island Transect T03 (transitional impact zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period.
* indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02*	B03*	B04*	B05*	B06*	B07*	B08	B09*	B10*
Height mm	260	250	360	370	340	260	250	400	410	320
Width mm	280	260	310	300	260	320	250	310	300	360
H/W ratio	0.93	0.96	1.16	1.23	1.31	0.81	1.00	1.29	1.37	0.89
Species	lob	lut	lob	lob	lut	aus	lut	lut	aus	lut
Year	1977	1985	1974	1980	1982	1983	1981	1983	1973	1972
Track 1										
<i>TTL</i> mm	5.24	none	4.41	4.71	3.12	3.82	3.01	none	4.85	4.02
<i>ETTL</i> yr	0.46	none	0.39	0.32	0.28	0.28	0.22	none	0.35	0.44
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.26 $\pm$ 0.04	1.27 $\pm$ 0.11	1.44 $\pm$ 0.06	1.29 $\pm$ 0.04	1.41 $\pm$ 0.03	1.33 $\pm$ 0.03	1.27 $\pm$ 0.06	1.25 $\pm$ 0.05	1.30 $\pm$ 0.03	1.33 $\pm$ 0.04
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.30 $\pm$ 0.04	1.36 $\pm$ 0.09	1.50 $\pm$ 0.05	1.36 $\pm$ 0.05	1.47 $\pm$ 0.05	1.40 $\pm$ 0.03	1.32 $\pm$ 0.05	1.30 $\pm$ 0.07	1.35 $\pm$ 0.03	1.38 $\pm$ 0.03
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.21 $\pm$ 0.06	1.18 $\pm$ 0.16	1.38 $\pm$ 0.07	1.22 $\pm$ 0.03	1.36 $\pm$ 0.03	1.26 $\pm$ 0.06	1.22 $\pm$ 0.08	1.20 $\pm$ 0.04	1.25 $\pm$ 0.04	1.29 $\pm$ 0.05
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.09 $\pm$ 0.04	0.17 $\pm$ 0.14	0.11 $\pm$ 0.04	0.14 $\pm$ 0.04	0.10 $\pm$ 0.05	0.15 $\pm$ 0.06	0.10 $\pm$ 0.05	0.10 $\pm$ 0.05	0.10 $\pm$ 0.04	0.09 $\pm$ 0.04
<i>H-H_{dis}</i> mm.yr ⁻¹	11.3 $\pm$ 4.0	15.7 $\pm$ 4.7	11.2 $\pm$ 3.4	14.5 $\pm$ 3.7	11.3 $\pm$ 3.8	13.7 $\pm$ 4.6	13.8 $\pm$ 5.1	14.4 $\pm$ 4.7	13.7 $\pm$ 1.7	9.2 $\pm$ 3.2
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated									
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated									
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.41 $\pm$ 0.48	1.98 $\pm$ 0.56	1.60 $\pm$ 0.47	1.85 $\pm$ 0.45	1.60 $\pm$ 0.55	1.83 $\pm$ 0.64	1.74 $\pm$ 0.64	1.79 $\pm$ 0.55	1.78 $\pm$ 0.20	1.22 $\pm$ 0.42
Track 2										
<i>TTL</i> mm	4.73	3.75	4.35	4.59	3.43	4.12	3.60	3.34	4.36	3.46
<i>ETTL</i> yr	0.43	0.27	0.36	0.34	0.34	0.30	0.27	0.24	0.34	0.39
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.26 $\pm$ 0.05	1.30 $\pm$ 0.07	1.45 $\pm$ 0.05	1.30 $\pm$ 0.03	1.50 $\pm$ 0.07	1.31 $\pm$ 0.03	1.21 $\pm$ 0.06	1.30 $\pm$ 0.11	1.34 $\pm$ 0.02	1.37 $\pm$ 0.04
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.32 $\pm$ 0.05	1.38 $\pm$ 0.06	1.50 $\pm$ 0.06	1.35 $\pm$ 0.04	1.54 $\pm$ 0.07	1.36 $\pm$ 0.02	1.27 $\pm$ 0.03	1.37 $\pm$ 0.12	1.39 $\pm$ 0.03	1.42 $\pm$ 0.04
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.21 $\pm$ 0.06	1.22 $\pm$ 0.10	1.39 $\pm$ 0.06	1.24 $\pm$ 0.06	1.45 $\pm$ 0.09	1.26 $\pm$ 0.06	1.16 $\pm$ 0.05	1.24 $\pm$ 0.10	1.28 $\pm$ 0.02	1.33 $\pm$ 0.04
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.11 $\pm$ 0.04	0.16 $\pm$ 0.06	0.11 $\pm$ 0.02	0.11 $\pm$ 0.07	0.10 $\pm$ 0.05	0.10 $\pm$ 0.05	0.12 $\pm$ 0.03	0.13 $\pm$ 0.08	0.10 $\pm$ 0.03	0.09 $\pm$ 0.03
<i>H-H_{dis}</i> mm.yr ⁻¹	11.0 $\pm$ 2.6	14.0 $\pm$ 2.6	12.1 $\pm$ 1.3	13.4 $\pm$ 2.5	10.2 $\pm$ 4.0	13.8 $\pm$ 5.7	13.5 $\pm$ 4.7	14.0 $\pm$ 3.6	12.8 $\pm$ 2.8	8.9 $\pm$ 2.7
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated									
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated									
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.39 $\pm$ 0.32	1.81 $\pm$ 0.33	1.76 $\pm$ 0.49	1.74 $\pm$ 0.31	1.50 $\pm$ 0.53	1.81 $\pm$ 0.76	1.64 $\pm$ 0.57	1.83 $\pm$ 0.51	1.71 $\pm$ 0.37	1.22 $\pm$ 0.35

Table B35: Misima Island Transect T03D (transitional impact zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B02	B03	B05	B06*	B08*	B09	B10*
Height mm	220	300	220	250	260	280	260	390
Width mm	280	220	210	220	200	170	210	180
H/W ratio	0.79	1.36	1.05	1.14	1.30	1.65	1.24	2.17
Species	lob	lob	lob	lob	lob	lob	may	lob
Year	1983	1973	1979	1984	1981	1977	1982	1975
Track 1								
TTL mm	2.45	3.00	2.79	3.34	2.51	3.09	3.07	2.89
ETTL yr	0.32	0.38	0.27	0.30	0.20	0.26	0.22	0.27
A_{den} g.cm⁻³.yr⁻¹	1.33 $\pm$ 0.08	1.40 $\pm$ 0.02	1.23 $\pm$ 0.05	1.21 $\pm$ 0.06	1.34 $\pm$ 0.05	1.27 $\pm$ 0.04	1.22 $\pm$ 0.04	1.54 $\pm$ 0.05
H_{den} g.cm⁻³.yr⁻¹	1.38 $\pm$ 0.08	1.44 $\pm$ 0.03	1.29 $\pm$ 0.04	1.25 $\pm$ 0.06	1.40 $\pm$ 0.07	1.33 $\pm$ 0.07	1.26 $\pm$ 0.03	1.59 $\pm$ 0.06
L_{den} g.cm⁻³.yr⁻¹	1.29 $\pm$ 0.08	1.37 $\pm$ 0.03	1.16 $\pm$ 0.07	1.17 $\pm$ 0.06	1.27 $\pm$ 0.04	1.20 $\pm$ 0.03	1.17 $\pm$ 0.06	1.50 $\pm$ 0.06
H-L_{den} g.cm⁻³.yr⁻¹	0.08 $\pm$ 0.05	0.06 $\pm$ 0.03	0.13 $\pm$ 0.06	0.08 $\pm$ 0.04	0.12 $\pm$ 0.04	0.14 $\pm$ 0.06	0.09 $\pm$ 0.04	0.10 $\pm$ 0.06
H-H_{dis} mm.yr⁻¹	7.6 $\pm$ 2.0	7.8 $\pm$ 1.9	10.4 $\pm$ 2.8	11.2 $\pm$ 4.0	12.5 $\pm$ 3.5	11.9 $\pm$ 3.2	13.7 $\pm$ 5.0	10.9 $\pm$ 4.1
H-L_{dis} mm.yr⁻¹	Not calculated							
L-H_{dis} mm.yr⁻¹	Not calculated							
CALCN g.cm⁻².yr⁻¹	1.02 $\pm$ 0.26	1.09 $\pm$ 0.28	1.28 $\pm$ 0.34	1.36 $\pm$ 0.51	1.67 $\pm$ 0.45	1.51 $\pm$ 0.39	1.64 $\pm$ 0.57	1.68 $\pm$ 0.62
Track 2								
TTL mm	3.01	3.27	2.47	3.63	2.90	2.86	2.70	3.55
ETTL yr	0.35	0.56	0.27	0.32	0.23	0.26	0.21	0.29
A_{den} g.cm⁻³.yr⁻¹	1.35 $\pm$ 0.11	1.31 $\pm$ 0.04	1.32 $\pm$ 0.05	1.22 $\pm$ 0.05	1.34 $\pm$ 0.08	1.24 $\pm$ 0.07	1.23 $\pm$ 0.03	1.51 $\pm$ 0.04
H_{den} g.cm⁻³.yr⁻¹	1.39 $\pm$ 0.11	1.34 $\pm$ 0.03	1.37 $\pm$ 0.06	1.26 $\pm$ 0.06	1.41 $\pm$ 0.08	1.32 $\pm$ 0.09	1.27 $\pm$ 0.04	1.56 $\pm$ 0.04
L_{den} g.cm⁻³.yr⁻¹	1.31 $\pm$ 0.11	1.29 $\pm$ 0.05	1.28 $\pm$ 0.06	1.19 $\pm$ 0.05	1.27 $\pm$ 0.08	1.16 $\pm$ 0.07	1.19 $\pm$ 0.04	1.45 $\pm$ 0.04
H-L_{den} g.cm⁻³.yr⁻¹	0.08 $\pm$ 0.04	0.05 $\pm$ 0.03	0.09 $\pm$ 0.06	0.07 $\pm$ 0.04	0.15 $\pm$ 0.05	0.16 $\pm$ 0.08	0.08 $\pm$ 0.05	0.11 $\pm$ 0.05
H-H_{dis} mm.yr⁻¹	8.7 $\pm$ 3.5	5.8 $\pm$ 2.6	9.3 $\pm$ 3.4	11.3 $\pm$ 3.2	12.6 $\pm$ 2.8	11.2 $\pm$ 2.8	12.8 $\pm$ 5.3	12.3 $\pm$ 3.0
H-L_{dis} mm.yr⁻¹	Not calculated							
L-H_{dis} mm.yr⁻¹	Not calculated							
CALCN g.cm⁻².yr⁻¹	1.15 $\pm$ 0.40	0.76 $\pm$ 0.31	1.23 $\pm$ 0.44	1.38 $\pm$ 0.38	1.69 $\pm$ 0.36	1.38 $\pm$ 0.31	1.57 $\pm$ 0.65	1.86 $\pm$ 0.48

Table B36: Misima Island Transect T04 (severe impact zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), as colonies were dead when collected base period is most recent 10 years. * indicates category 1 dating; Year is number of years for track 1.

Bommie	B01*	B04*	B06	B07	B08	B09	B10
Height mm	330	300	340	300	180	200	320
Width mm	240	380	440	380	220	280	260
H/W ratio	1.38	0.79	0.77	0.79	0.82	0.71	1.23
Species	encr	lob	lut	lut	lut	encr	lob
Year	20	20	25	17	15	13	16
Track 1							
<i>TTL</i> mm	4.17	2.75	3.67	3.83	4.73	2.50	3.18
<i>ETTL</i> yr	0.36	0.28	0.43	0.46	0.41	0.23	0.22
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.39±0.07	1.62±0.06	1.47±0.06	1.48±0.04	1.24±0.07	1.24±0.05	1.27±0.03
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.46±0.05	1.69±0.05	1.50±0.07	1.51±0.02	1.29±0.08	1.30±0.08	1.31±0.05
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.31±0.10	1.54±0.07	1.43±0.05	1.45±0.05	1.20±0.07	1.19±0.04	1.22±0.04
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.14±0.07	0.14±0.04	0.07±0.03	0.06±0.04	0.10±0.04	0.11±0.06	0.10±0.05
<i>H-H_{dis}</i> mm.yr ⁻¹	11.6±4.1	10.0±1.3	8.5±4.4	8.4±3.0	11.6±2.8	11.1±3.7	14.5±4.3
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated						
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated						
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.60±0.55	1.62±0.23	1.25±0.63	1.23±0.42	1.44±0.34	1.39±0.50	1.83±0.57
Track 2							
<i>TTL</i> mm	4.07	3.67	4.17	3.17	4.73	2.75	3.85
<i>ETTL</i> yr	0.36	0.38	0.43	0.36	0.49	0.28	0.37
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.32±0.06	1.61±0.05	1.38±0.06	1.40±0.04	1.27±0.04	1.32±0.07	1.23±0.03
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.39±0.06	1.69±0.05	1.43±0.06	1.43±0.05	1.32±0.05	1.36±0.08	1.27±0.03
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.26±0.07	1.52±0.07	1.33±0.08	1.36±0.05	1.22±0.04	1.28±0.08	1.18±0.05
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.13±0.06	0.16±0.05	0.10±0.06	0.07±0.05	0.10±0.05	0.08±0.06	0.09±0.04
<i>H-H_{dis}</i> mm.yr ⁻¹	11.2±3.6	9.7±2.3	9.7±4.5	8.7±2.9	9.6±2.4	9.9±3.1	10.4±3.4
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated						
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated						
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.47±0.46	1.56±0.37	1.33±0.57	1.22±0.40	1.23±0.31	1.30±0.41	1.27±0.40

Table B37: Misima Island Transect T05 (severe impact zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B03*	B04	B05	B06	B07	B08*	B09*	B10*
Height mm	230	320	190	230	260	330	185	210	370
Width mm	310	230	220	210	250	230	205	270	240
H/W ratio	0.74	1.39	0.86	1.10	1.04	1.43	0.90	0.78	1.54
Species	lut	lob	lob	lob	lut	lut	lob	lob	aus
Year	1981	1980	1984	1980	1985	1980	1981	1986	1981
Track 1									
<i>TTL</i> mm	3.55	3.21	3.85	3.02	2.78	none	2.88	3.96	3.38
<i>ETTL</i> yr	0.28	0.22	0.37	0.30	0.20	none	0.33	0.29	0.20
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.26 $\pm$ 0.07	1.31 $\pm$ 0.06	1.22 $\pm$ 0.14	1.40 $\pm$ 0.06	1.40 $\pm$ 0.08	1.19 $\pm$ 0.06	1.23 $\pm$ 0.08	1.32 $\pm$ 0.07	1.27 $\pm$ 0.06
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.34 $\pm$ 0.08	1.38 $\pm$ 0.07	1.27 $\pm$ 0.16	1.44 $\pm$ 0.06	1.46 $\pm$ 0.09	1.27 $\pm$ 0.08	1.30 $\pm$ 0.10	1.38 $\pm$ 0.08	1.33 $\pm$ 0.05
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.17 $\pm$ 0.08	1.23 $\pm$ 0.06	1.17 $\pm$ 0.13	1.35 $\pm$ 0.07	1.33 $\pm$ 0.08	1.12 $\pm$ 0.06	1.17 $\pm$ 0.08	1.25 $\pm$ 0.09	1.21 $\pm$ 0.06
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.17 $\pm$ 0.09	0.15 $\pm$ 0.05	0.10 $\pm$ 0.05	0.09 $\pm$ 0.04	0.12 $\pm$ 0.07	0.15 $\pm$ 0.06	0.13 $\pm$ 0.06	0.13 $\pm$ 0.08	0.12 $\pm$ 0.02
<i>H-H_{dis}</i> mm.yr ⁻¹	12.9 $\pm$ 2.9	14.6 $\pm$ 1.4	10.4 $\pm$ 4.6	10.2 $\pm$ 3.1	13.9 $\pm$ 6.0	15.5 $\pm$ 4.2	8.9 $\pm$ 2.2	13.5 $\pm$ 3.2	16.6 $\pm$ 3.5
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.62 $\pm$ 0.35	1.90 $\pm$ 0.24	1.24 $\pm$ 0.51	1.43 $\pm$ 0.42	1.93 $\pm$ 0.80	1.85 $\pm$ 0.50	1.08 $\pm$ 0.25	1.76 $\pm$ 0.37	2.11 $\pm$ 0.49
Track 2									
<i>TTL</i> mm	3.46	2.75	3.70	3.31	2.88	5.26	2.67	3.26	2.90
<i>ETTL</i> yr	0.29	0.20	0.38	0.36	0.21	0.32	0.22	0.23	0.21
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.31 $\pm$ 0.09	1.42 $\pm$ 0.05	1.22 $\pm$ 0.10	1.48 $\pm$ 0.04	1.35 $\pm$ 0.07	1.25 $\pm$ 0.12	1.22 $\pm$ 0.10	1.21 $\pm$ 0.12	1.32 $\pm$ 0.06
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.40 $\pm$ 0.12	1.48 $\pm$ 0.07	1.30 $\pm$ 0.13	1.52 $\pm$ 0.05	1.41 $\pm$ 0.08	1.33 $\pm$ 0.16	1.29 $\pm$ 0.10	1.28 $\pm$ 0.12	1.36 $\pm$ 0.06
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.22 $\pm$ 0.10	1.35 $\pm$ 0.06	1.15 $\pm$ 0.08	1.43 $\pm$ 0.04	1.29 $\pm$ 0.07	1.18 $\pm$ 0.08	1.15 $\pm$ 0.11	1.14 $\pm$ 0.12	1.27 $\pm$ 0.06
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.19 $\pm$ 0.13	0.13 $\pm$ 0.09	0.15 $\pm$ 0.07	0.09 $\pm$ 0.04	0.12 $\pm$ 0.08	0.16 $\pm$ 0.09	0.14 $\pm$ 0.09	0.13 $\pm$ 0.06	0.09 $\pm$ 0.05
<i>H-H_{dis}</i> mm.yr ⁻¹	12.1 $\pm$ 4.2	13.5 $\pm$ 4.9	9.7 $\pm$ 2.9	9.1 $\pm$ 3.1	13.9 $\pm$ 4.6	16.7 $\pm$ 6.3	11.9 $\pm$ 4.8	14.1 $\pm$ 4.7	14.0 $\pm$ 3.7
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.57 $\pm$ 0.54	1.92 $\pm$ 0.70	1.18 $\pm$ 0.36	1.34 $\pm$ 0.44	1.87 $\pm$ 0.64	2.09 $\pm$ 0.81	1.43 $\pm$ 0.54	1.68 $\pm$ 0.45	1.83 $\pm$ 0.48

Table B38: Misima Island Transect T06 (transitional impact zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period.
* indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01	B03	B04	B05	B06	B09	B10
Height mm	310	360	260	300	260	250	290
Width mm	200	230	210	215	240	250	230
H/W ratio	1.55	1.57	1.24	1.40	1.08	1.00	1.26
Species	lob	lob	lob	lob	aus	lut	lob
Year	1983	1981	1982	1975	1979	1981	1983
Track 1							
TTL mm	2.99	3.70	2.67	3.49	3.83	3.05	3.88
ETTL yr	0.17	0.22	0.21	0.28	0.31	0.35	0.30
A_{den} g.cm⁻³.yr⁻¹	1.25 $\pm$ 0.09	1.36 $\pm$ 0.03	1.22 $\pm$ 0.06	1.37 $\pm$ 0.02	1.48 $\pm$ 0.06	1.45 $\pm$ 0.03	1.46 $\pm$ 0.05
H_{den} g.cm⁻³.yr⁻¹	1.31 $\pm$ 0.08	1.40 $\pm$ 0.04	1.27 $\pm$ 0.06	1.42 $\pm$ 0.02	1.53 $\pm$ 0.06	1.47 $\pm$ 0.03	1.50 $\pm$ 0.06
L_{den} g.cm⁻³.yr⁻¹	1.20 $\pm$ 0.11	1.32 $\pm$ 0.04	1.18 $\pm$ 0.06	1.32 $\pm$ 0.02	1.42 $\pm$ 0.07	1.42 $\pm$ 0.04	1.42 $\pm$ 0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.11 $\pm$ 0.05	0.09 $\pm$ 0.04	0.08 $\pm$ 0.05	0.10 $\pm$ 0.03	0.12 $\pm$ 0.06	0.05 $\pm$ 0.03	0.09 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	17.9 $\pm$ 6.2	17.0 $\pm$ 5.1	12.8 $\pm$ 4.6	12.6 $\pm$ 2.9	12.4 $\pm$ 3.7	8.8 $\pm$ 3.2	13.0 $\pm$ 3.9
H-L_{dis} mm.yr⁻¹	Not calculated						
L-H_{dis} mm.yr⁻¹	Not calculated						
CALCN g.cm⁻².yr⁻¹	2.20 $\pm$ 0.72	2.32 $\pm$ 0.71	1.56 $\pm$ 0.54	1.73 $\pm$ 0.39	1.82 $\pm$ 0.52	1.27 $\pm$ 0.47	1.89 $\pm$ 0.54
Track 2							
TTL mm	2.17	3.29	2.76	3.34	3.56	3.36	4.06
ETTL yr	0.13	0.22	0.23	0.28	0.35	0.40	0.41
A_{den} g.cm⁻³.yr⁻¹	1.25 $\pm$ 0.09	1.43 $\pm$ 0.09	1.27 $\pm$ 0.05	1.39 $\pm$ 0.01	1.51 $\pm$ 0.04	1.35 $\pm$ 0.04	1.46 $\pm$ 0.02
H_{den} g.cm⁻³.yr⁻¹	1.31 $\pm$ 0.07	1.48 $\pm$ 0.09	1.32 $\pm$ 0.04	1.45 $\pm$ 0.02	1.58 $\pm$ 0.07	1.38 $\pm$ 0.04	1.50 $\pm$ 0.03
L_{den} g.cm⁻³.yr⁻¹	1.19 $\pm$ 0.11	1.38 $\pm$ 0.10	1.23 $\pm$ 0.07	1.34 $\pm$ 0.03	1.44 $\pm$ 0.04	1.32 $\pm$ 0.03	1.42 $\pm$ 0.03
H-L_{den} g.cm⁻³.yr⁻¹	0.12 $\pm$ 0.05	0.10 $\pm$ 0.06	0.08 $\pm$ 0.06	0.11 $\pm$ 0.04	0.13 $\pm$ 0.08	0.06 $\pm$ 0.03	0.08 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	17.3 $\pm$ 6.8	15.1 $\pm$ 1.8	12.2 $\pm$ 3.5	12.1 $\pm$ 3.3	10.2 $\pm$ 3.8	8.4 $\pm$ 1.2	9.9 $\pm$ 2.4
H-L_{dis} mm.yr⁻¹	Not calculated						
L-H_{dis} mm.yr⁻¹	Not calculated						
CALCN g.cm⁻².yr⁻¹	2.12 $\pm$ 0.77	2.15 $\pm$ 0.26	1.54 $\pm$ 0.41	1.69 $\pm$ 0.46	1.53 $\pm$ 0.57	1.14 $\pm$ 0.17	1.45 $\pm$ 0.35

Table B39: Misima Island Transect T07 (transitional impact zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period.
* indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02	B03	B04	B05	B06*	B07	B08	B09
Height mm	180	170	240	190	300	350	200	170	290
Width mm	230	210	270	240	200	290	270	190	250
H/W ratio	0.78	0.81	0.89	0.79	1.50	1.21	0.74	0.89	1.16
Species	lut	lut	lob	aus	aus	lut	lob	lob	lob
Year	1986	1984	1982	1982	1974	1981	1979	1983	1977
Track 1									
TTL mm	4.62	4.59	4.63	2.83	3.83	3.60	4.58	3.84	3.57
ETTL yr	0.33	0.44	0.31	0.26	0.38	0.20	0.47	0.36	0.40
A_{den} g.cm⁻³.yr⁻¹	1.34±0.07	1.31±0.07	1.27±0.08	1.27±0.06	1.38±0.07	1.24±0.04	1.38±0.07	1.35±0.03	1.42±0.05
H_{den} g.cm⁻³.yr⁻¹	1.42±0.08	1.35±0.06	1.34±0.09	1.30±0.06	1.42±0.08	1.31±0.05	1.42±0.08	1.39±0.04	1.45±0.06
L_{den} g.cm⁻³.yr⁻¹	1.26±0.07	1.28±0.07	1.20±0.08	1.23±0.05	1.33±0.07	1.16±0.04	1.34±0.06	1.32±0.04	1.39±0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.15±0.06	0.07±0.03	0.14±0.07	0.08±0.04	0.09±0.04	0.15±0.04	0.09±0.04	0.08±0.05	0.06±0.04
H-H_{dis} mm.yr⁻¹	13.9±2.9	10.4±3.1	15.1±5.0	10.7±3.0	10.0±3.8	17.7±3.6	9.7±2.8	10.8±2.3	9.0±2.6
H-L_{dis} mm.yr⁻¹	Not calculated								
L-H_{dis} mm.yr⁻¹	Not calculated								
CALCN g.cm⁻².yr⁻¹	1.88±0.48	1.35±0.38	1.91±0.64	1.35±0.37	1.38±0.54	2.17±0.38	1.34±0.45	1.47±0.30	1.29±0.37
Track 2									
TTL mm	4.48	4.88	4.79	3.64	3.10	4.17	4.83	3.48	3.22
ETTL yr	0.34	0.50	0.32	0.29	0.41	0.25	0.53	0.32	0.34
A_{den} g.cm⁻³.yr⁻¹	1.28±0.07	1.25±0.07	1.25±0.07	1.19±0.06	1.21±0.03	1.28±0.05	1.45±0.07	1.31±0.06	1.40±0.03
H_{den} g.cm⁻³.yr⁻¹	1.34±0.08	1.29±0.07	1.30±0.08	1.24±0.07	1.25±0.04	1.35±0.08	1.49±0.08	1.35±0.07	1.43±0.03
L_{den} g.cm⁻³.yr⁻¹	1.21±0.06	1.22±0.08	1.20±0.06	1.15±0.05	1.17±0.04	1.21±0.05	1.40±0.08	1.26±0.07	1.37±0.03
H-L_{den} g.cm⁻³.yr⁻¹	0.13±0.06	0.07±0.04	0.10±0.04	0.09±0.04	0.08±0.03	0.14±0.09	0.09±0.08	0.09±0.06	0.07±0.03
H-H_{dis} mm.yr⁻¹	13.2±4.7	9.8±3.8	14.9±7.5	12.7±4.4	7.6±1.6	16.6±5.7	9.1±3.5	11.0±3.7	9.4±3.7
H-L_{dis} mm.yr⁻¹	Not calculated								
L-H_{dis} mm.yr⁻¹	Not calculated								
CALCN g.cm⁻².yr⁻¹	1.68±0.59	1.22±0.45	1.86±0.94	1.52±0.54	0.92±0.18	2.11±0.71	1.32±0.53	1.45±4.9	1.31±0.51

Table B40: Misima Island Transect T08 (minor impact zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B02	B03*	B04	B05*	B06	B07*	B08	B09	B10*
Height mm	340	250	270	220	230	200	230	220	210
Width mm	220	230	290	250	240	200	370	180	170
H/W ratio	1.55	1.09	0.93	0.88	0.96	1.00	0.62	1.22	1.24
Species	lut	lut	lob	lob	lut	lut	lut	lut	lut
Year	1975	1981	1979	1981	1983	1975	1982	1981	1985
Track 1									
<i>TTL</i> mm	5.18	4.26	4.98	3.28	5.59	3.84	4.31	3.37	4.85
<i>ETTL</i> yr	0.44	0.34	0.42	0.28	0.46	0.38	0.47	0.33	0.28
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.35 $\pm$ 0.11	1.27 $\pm$ 0.06	1.25 $\pm$ 0.06	1.38 $\pm$ 0.04	1.32 $\pm$ 0.18	1.27 $\pm$ 0.06	1.36 $\pm$ 0.02	1.38 $\pm$ 0.11	1.26 $\pm$ 0.14
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.44 $\pm$ 0.14	1.33 $\pm$ 0.06	1.29 $\pm$ 0.05	1.42 $\pm$ 0.03	1.38 $\pm$ 0.19	1.33 $\pm$ 0.07	1.41 $\pm$ 0.03	1.43 $\pm$ 0.11	1.35 $\pm$ 0.15
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.26 $\pm$ 0.09	1.22 $\pm$ 0.06	1.21 $\pm$ 0.07	1.33 $\pm$ 0.05	1.25 $\pm$ 0.18	1.21 $\pm$ 0.07	1.31 $\pm$ 0.03	1.32 $\pm$ 0.12	1.18 $\pm$ 0.15
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.17 $\pm$ 0.09	0.11 $\pm$ 0.06	0.08 $\pm$ 0.05	0.08 $\pm$ 0.03	0.13 $\pm$ 0.05	0.12 $\pm$ 0.06	0.10 $\pm$ 0.04	0.12 $\pm$ 0.06	0.17 $\pm$ 0.12
<i>H-H_{dis}</i> mm.yr ⁻¹	11.9 $\pm$ 3.1	12.6 $\pm$ 3.4	12.0 $\pm$ 3.4	11.9 $\pm$ 3.0	12.1 $\pm$ 2.5	10.0 $\pm$ 2.9	9.1 $\pm$ 2.7	10.2 $\pm$ 3.7	17.6 $\pm$ 3.8
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.61 $\pm$ 0.42	1.59 $\pm$ 0.42	1.50 $\pm$ 0.43	1.63 $\pm$ 0.41	1.60 $\pm$ 0.43	1.27 $\pm$ 0.36	1.24 $\pm$ 0.37	1.39 $\pm$ 0.49	2.24 $\pm$ 0.61
Track 2									
<i>TTL</i> mm	4.93	3.51	4.99	2.82	5.86	4.69	3.68	2.83	4.35
<i>ETTL</i> yr	0.39	0.26	0.31	0.23	0.59	0.45	0.39	0.28	0.26
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.30 $\pm$ 0.07	1.39 $\pm$ 0.09	1.23 $\pm$ 0.04	1.36 $\pm$ 0.04	1.32 $\pm$ 0.09	1.29 $\pm$ 0.04	1.40 $\pm$ 0.04	1.38 $\pm$ 0.12	1.29 $\pm$ 0.14
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.38 $\pm$ 0.10	1.45 $\pm$ 0.10	1.28 $\pm$ 0.03	1.42 $\pm$ 0.06	1.39 $\pm$ 0.09	1.36 $\pm$ 0.05	1.44 $\pm$ 0.05	1.43 $\pm$ 0.12	1.37 $\pm$ 0.16
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.22 $\pm$ 0.05	1.34 $\pm$ 0.09	1.18 $\pm$ 0.04	1.30 $\pm$ 0.04	1.26 $\pm$ 0.09	1.21 $\pm$ 0.04	1.36 $\pm$ 0.05	1.32 $\pm$ 0.12	1.22 $\pm$ 0.14
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.17 $\pm$ 0.07	0.11 $\pm$ 0.05	0.10 $\pm$ 0.03	0.12 $\pm$ 0.04	0.12 $\pm$ 0.05	0.15 $\pm$ 0.05	0.08 $\pm$ 0.04	0.11 $\pm$ 0.06	0.15 $\pm$ 0.08
<i>H-H_{dis}</i> mm.yr ⁻¹	12.6 $\pm$ 4.0	13.4 $\pm$ 3.8	16.1 $\pm$ 4.7	12.3 $\pm$ 4.8	9.9 $\pm$ 3.1	10.5 $\pm$ 2.4	9.5 $\pm$ 2.9	10.2 $\pm$ 3.6	16.9 $\pm$ 6.5
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated								
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.64 $\pm$ 0.52	1.86 $\pm$ 0.52	1.98 $\pm$ 0.58	1.67 $\pm$ 0.63	1.29 $\pm$ 0.38	1.35 $\pm$ 0.31	1.32 $\pm$ 0.41	1.39 $\pm$ 0.48	2.21 $\pm$ 0.99

Table B41: Misima Island Transect T09 (control zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B01*	B02	B03	B04	B05*	B06*	B07	B08	B09	B10
Height mm	250	180	340	300	210	210	270	160	160	300
Width mm	320	240	290	240	210	320	300	200	210	290
H/W ratio	0.78	0.75	1.17	1.25	1.00	0.66	0.90	0.80	0.76	1.03
Species	lob	lob	lob	lut	lob	lut	may	may	lut	lut
Year	1981	1984	1978	1981	1981	1983	1984	1987	1983	1986
Track 1										
<i>TTL</i> mm	4.46	4.17	5.55	4.88	3.37	4.86	4.91	4.17	5.04	4.20
<i>ETTL</i> yr	0.45	0.34	0.48	0.41	0.30	0.27	0.46	0.29	0.49	0.23
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.56 $\pm$ 0.06	1.32 $\pm$ 0.05	1.26 $\pm$ 0.05	1.32 $\pm$ 0.10	1.31 $\pm$ 0.05	1.35 $\pm$ 0.10	1.50 $\pm$ 0.07	1.19 $\pm$ 0.02	1.55 $\pm$ 0.04	1.23 $\pm$ 0.07
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.60 $\pm$ 0.06	1.36 $\pm$ 0.06	1.31 $\pm$ 0.05	1.37 $\pm$ 0.10	1.36 $\pm$ 0.05	1.43 $\pm$ 0.10	1.54 $\pm$ 0.07	1.25 $\pm$ 0.02	1.60 $\pm$ 0.05	1.31 $\pm$ 0.07
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.51 $\pm$ 0.06	1.28 $\pm$ 0.04	1.21 $\pm$ 0.06	1.27 $\pm$ 0.10	1.27 $\pm$ 0.05	1.27 $\pm$ 0.10	1.46 $\pm$ 0.08	1.14 $\pm$ 0.03	1.50 $\pm$ 0.04	1.16 $\pm$ 0.08
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.09 $\pm$ 0.04	0.07 $\pm$ 0.04	0.10 $\pm$ 0.04	0.10 $\pm$ 0.04	0.09 $\pm$ 0.03	0.16 $\pm$ 0.06	0.08 $\pm$ 0.05	0.12 $\pm$ 0.03	0.10 $\pm$ 0.04	0.15 $\pm$ 0.05
<i>H-H_{dis}</i> mm.yr ⁻¹	9.9 $\pm$ 2.2	12.4 $\pm$ 2.9	11.5 $\pm$ 4.7	11.8 $\pm$ 5.9	11.3 $\pm$ 3.0	17.7 $\pm$ 3.9	10.6 $\pm$ 3.2	14.5 $\pm$ 4.3	10.3 $\pm$ 2.8	17.9 $\pm$ 4.1
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated									
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated									
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.53 $\pm$ 0.31	1.65 $\pm$ 0.39	1.42 $\pm$ 0.54	1.54 $\pm$ 0.74	1.48 $\pm$ 0.38	2.37 $\pm$ 0.49	1.59 $\pm$ 0.49	1.74 $\pm$ 0.53	1.59 $\pm$ 0.45	2.19 $\pm$ 0.46
Track 2										
<i>TTL</i> mm	4.59	4.05	6.19	4.97	3.19	4.59	4.26	4.73	4.83	4.77
<i>ETTL</i> yr	0.48	0.34	0.56	0.44	0.29	0.27	0.40	0.41	0.51	0.27
<i>A_{den}</i> g.cm ⁻³ .yr ⁻¹	1.52 $\pm$ 0.11	1.32 $\pm$ 0.05	1.30 $\pm$ 0.06	1.34 $\pm$ 0.10	1.33 $\pm$ 0.05	1.44 $\pm$ 0.10	1.55 $\pm$ 0.03	1.52 $\pm$ 0.05	1.53 $\pm$ 0.04	1.20 $\pm$ 0.09
<i>H_{den}</i> g.cm ⁻³ .yr ⁻¹	1.57 $\pm$ 0.10	1.37 $\pm$ 0.07	1.33 $\pm$ 0.05	1.39 $\pm$ 0.10	1.37 $\pm$ 0.06	1.52 $\pm$ 0.11	1.59 $\pm$ 0.03	1.57 $\pm$ 0.05	1.57 $\pm$ 0.05	1.28 $\pm$ 0.08
<i>L_{den}</i> g.cm ⁻³ .yr ⁻¹	1.48 $\pm$ 0.12	1.27 $\pm$ 0.04	1.27 $\pm$ 0.07	1.30 $\pm$ 0.11	1.29 $\pm$ 0.05	1.37 $\pm$ 0.10	1.52 $\pm$ 0.04	1.48 $\pm$ 0.04	1.49 $\pm$ 0.04	1.12 $\pm$ 0.10
<i>H-L_{den}</i> g.cm ⁻³ .yr ⁻¹	0.09 $\pm$ 0.02	0.09 $\pm$ 0.05	0.07 $\pm$ 0.04	0.10 $\pm$ 0.07	0.08 $\pm$ 0.04	0.15 $\pm$ 0.06	0.06 $\pm$ 0.03	0.09 $\pm$ 0.03	0.07 $\pm$ 0.03	0.16 $\pm$ 0.05
<i>H-H_{dis}</i> mm.yr ⁻¹	9.5 $\pm$ 1.7	11.9 $\pm$ 3.8	11.0 $\pm$ 5.1	11.3 $\pm$ 4.9	11.1 $\pm$ 3.1	17.1 $\pm$ 5.3	10.6 $\pm$ 4.6	11.5 $\pm$ 4.2	9.5 $\pm$ 3.5	18.0 $\pm$ 4.3
<i>H-L_{dis}</i> mm.yr ⁻¹	Not calculated									
<i>L-H_{dis}</i> mm.yr ⁻¹	Not calculated									
<i>CALCN</i> g.cm ⁻² .yr ⁻¹	1.44 $\pm$ 0.19	1.57 $\pm$ 0.51	1.42 $\pm$ 0.64	1.48 $\pm$ 0.60	1.48 $\pm$ 0.40	2.45 $\pm$ 0.72	1.64 $\pm$ 0.69	1.75 $\pm$ 0.63	1.45 $\pm$ 0.54	2.16 $\pm$ 0.47

Table B42: Misima Island Transect T10 (control zone), 10.60°S, 152.80°E: Average annual growth characteristics ($\pm$ sd), 1984-1993 base period. * indicates category 1 dating; Year is earliest dated year for track 1.

Bommie	B04*	B05	B07	B08	B09*
Height mm	230	200	190	290	300
Width mm	180	220	200	270	250
H/W ratio	1.28	0.91	0.95	1.07	1.20
Species	lut	lut	lut	lut	lut
Year	1986	1983	1984	1981	1984
Track 1					
TTL mm	4.83	3.88	4.45	2.92	4.11
ETTL yr	0.30	0.38	0.33	0.17	0.26
A_{den} g.cm⁻³.yr⁻¹	1.47 $\pm$ 0.10	1.30 $\pm$ 0.09	1.54 $\pm$ 0.20	1.16 $\pm$ 0.03	1.33 $\pm$ 0.06
H_{den} g.cm⁻³.yr⁻¹	1.56 $\pm$ 0.09	1.36 $\pm$ 0.10	1.60 $\pm$ 0.20	1.21 $\pm$ 0.04	1.42 $\pm$ 0.06
L_{den} g.cm⁻³.yr⁻¹	1.39 $\pm$ 0.12	1.24 $\pm$ 0.10	1.48 $\pm$ 0.21	1.10 $\pm$ 0.04	1.24 $\pm$ 0.07
H-L_{den} g.cm⁻³.yr⁻¹	0.17 $\pm$ 0.07	0.12 $\pm$ 0.06	0.12 $\pm$ 0.07	0.11 $\pm$ 0.05	0.18 $\pm$ 0.04
H-H_{dis} mm.yr⁻¹	16.0 $\pm$ 4.8	10.2 $\pm$ 3.2	13.4 $\pm$ 4.4	17.7 $\pm$ 6.8	16.1 $\pm$ 2.8
H-L_{dis} mm.yr⁻¹	Not calculated				
L-H_{dis} mm.yr⁻¹	Not calculated				
CALCN g.cm⁻².yr⁻¹	2.34 $\pm$ 0.67	1.33 $\pm$ 0.42	2.07 $\pm$ 0.70	2.04 $\pm$ 0.77	2.13 $\pm$ 0.30
Track 2					
TTL mm	4.51	4.33	4.69	4.37	2.93
ETTL yr	0.29	0.45	0.37	0.27	0.19
A_{den} g.cm⁻³.yr⁻¹	1.46 $\pm$ 0.10	1.30 $\pm$ 0.09	1.52 $\pm$ 0.11	1.22 $\pm$ 0.07	1.38 $\pm$ 0.04
H_{den} g.cm⁻³.yr⁻¹	1.53 $\pm$ 0.10	1.35 $\pm$ 0.09	1.57 $\pm$ 0.12	1.27 $\pm$ 0.07	1.46 $\pm$ 0.04
L_{den} g.cm⁻³.yr⁻¹	1.39 $\pm$ 0.12	1.25 $\pm$ 0.09	1.46 $\pm$ 0.10	1.16 $\pm$ 0.07	1.31 $\pm$ 0.05
H-L_{den} g.cm⁻³.yr⁻¹	0.14 $\pm$ 0.06	0.09 $\pm$ 0.05	0.10 $\pm$ 0.03	0.11 $\pm$ 0.03	0.15 $\pm$ 0.03
H-H_{dis} mm.yr⁻¹	15.5 $\pm$ 4.0	9.7 $\pm$ 4.1	12.8 $\pm$ 5.7	16.2 $\pm$ 4.2	15.4 $\pm$ 4.5
H-L_{dis} mm.yr⁻¹	Not calculated				
L-H_{dis} mm.yr⁻¹	Not calculated				
CALCN g.cm⁻².yr⁻¹	2.25 $\pm$ 0.56	1.25 $\pm$ 0.53	1.95 $\pm$ 0.94	1.97 $\pm$ 0.53	2.12 $\pm$ 0.58

Table B43: Huon Peninsula ~6.00°S, ~147.00°E: Average annual growth characteristics ($\pm$ sd), last 10 years of record base period. * indicates category 1 dating; Year is earliest dated year for track for 2 living corals (PNG B01 and PNG B02) and number of years for dead corals.

Bommie	H942	H996	H1023*	H1024*	H1025	H1026	PNG B01	PNG B02
Height mm	260	180	250	480	340	230	280	210
Width mm	230	290	330	330	280	310	150	210
H/W ratio	1.13	0.62	0.76	1.45	1.21	0.74	1.87	1.00
Species	porites	porites	porites	porites	porites	porites	aus	aus
Year	8	8	13	21	6	12	1980	1986
Track 1								
TTL mm	3.21	none	none	none	3.13	unclear	3.78	4.90
ETTL yr	0.35				0.18		0.32	0.46
A_{den} g.cm ⁻³ .yr ⁻¹	1.25 $\pm$ 0.04	1.19 $\pm$ 0.06	1.41 $\pm$ 0.07	1.15 $\pm$ 0.05	1.32 $\pm$ 0.06	none	1.14 $\pm$ 0.14	1.25 $\pm$ 0.04
H_{den} g.cm ⁻³ .yr ⁻¹	1.30 $\pm$ 0.05	1.23 $\pm$ 0.06	1.46 $\pm$ 0.05	1.24 $\pm$ 0.05	1.39 $\pm$ 0.08		1.19 $\pm$ 0.15	1.29 $\pm$ 0.04
L_{den} g.cm ⁻³ .yr ⁻¹	1.20 $\pm$ 0.05	1.15 $\pm$ 0.07	1.35 $\pm$ 0.09	1.06 $\pm$ 0.07	1.25 $\pm$ 0.05		1.09 $\pm$ 0.14	1.20 $\pm$ 0.06
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.10 $\pm$ 0.05	0.09 $\pm$ 0.05	0.10 $\pm$ 0.05	0.18 $\pm$ 0.07	0.14 $\pm$ 0.05		0.10 $\pm$ 0.05	0.09 $\pm$ 0.05
$H-H_{dis}$ mm.yr ⁻¹	9.3 $\pm$ 2.2	11.0 $\pm$ 4.0	13.1 $\pm$ 3.5	16.2 $\pm$ 2.7	17.7 $\pm$ 5.5		11.7 $\pm$ 4.2	10.6 $\pm$ 3.9
$H-L_{dis}$ mm.yr ⁻¹	4.8 $\pm$ 2.3	5.1 $\pm$ 2.6	6.2 $\pm$ 2.8	9.8 $\pm$ 3.3	8.5 $\pm$ 3.4		5.7 $\pm$ 2.5	4.8 $\pm$ 2.1
$L-H_{dis}$ mm.yr ⁻¹	4.5 $\pm$ 2.2	5.9 $\pm$ 2.1	6.9 $\pm$ 2.6	6.4 $\pm$ 3.2	9.2 $\pm$ 2.4		6.0 $\pm$ 3.1	5.8 $\pm$ 2.5
CALCN g.cm ⁻² .yr ⁻¹	1.16 $\pm$ 0.28	1.30 $\pm$ 0.43	1.82 $\pm$ 0.42	1.85 $\pm$ 0.26	2.32 $\pm$ 0.65		1.35 $\pm$ 0.56	1.31 $\pm$ 0.46
Track 2								
TTL mm	1.57	none	none	none	3.37	unclear	3.56	4.87
ETTL yr	0.19				0.19		0.28	
A_{den} g.cm ⁻³ .yr ⁻¹	1.22 $\pm$ 0.06	1.24 $\pm$ 0.08	1.46 $\pm$ 0.06	1.14 $\pm$ 0.07	1.34 $\pm$ 0.05	1.34 $\pm$ 0.03	1.12 $\pm$ 0.11	none
H_{den} g.cm ⁻³ .yr ⁻¹	1.26 $\pm$ 0.04	1.27 $\pm$ 0.08	1.50 $\pm$ 0.07	1.24 $\pm$ 0.09	1.45 $\pm$ 0.06	1.38 $\pm$ 0.04	1.18 $\pm$ 0.12	
L_{den} g.cm ⁻³ .yr ⁻¹	1.17 $\pm$ 0.07	1.21 $\pm$ 0.07	1.42 $\pm$ 0.06	1.04 $\pm$ 0.08	1.23 $\pm$ 0.07	1.31 $\pm$ 0.03	1.06 $\pm$ 0.10	
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.09 $\pm$ 0.04	0.06 $\pm$ 0.03	0.08 $\pm$ 0.05	0.21 $\pm$ 0.10	0.22 $\pm$ 0.07	0.08 $\pm$ 0.05	0.12 $\pm$ 0.05	
$H-H_{dis}$ mm.yr ⁻¹	8.2 $\pm$ 2.7	9.5 $\pm$ 2.7	9.4 $\pm$ 1.7	16.3 $\pm$ 4.4	17.3 $\pm$ 4.8	7.9 $\pm$ 2.2	12.8 $\pm$ 6.4	
$H-L_{dis}$ mm.yr ⁻¹	4.8 $\pm$ 1.8	4.3 $\pm$ 1.7	5.7 $\pm$ 1.7	9.2 $\pm$ 3.5	10.0 $\pm$ 3.7	4.2 $\pm$ 2.5	5.5 $\pm$ 3.3	
$L-H_{dis}$ mm.yr ⁻¹	3.4 $\pm$ 1.4	5.2 $\pm$ 2.0	3.7 $\pm$ 1.5	7.0 $\pm$ 3.4	7.4 $\pm$ 2.5	3.7 $\pm$ 1.2	7.4 $\pm$ 4.4	
CALCN g.cm ⁻² .yr ⁻¹	0.99 $\pm$ 0.31	1.17 $\pm$ 0.30	1.37 $\pm$ 0.26	1.84 $\pm$ 0.44	2.31 $\pm$ 0.63	1.07 $\pm$ 0.30	1.47 $\pm$ 0.78	
Track 3								
TTL mm	3.47	none	none	none	unclear	unclear	4.00	4.80
ETTL yr	0.40						0.35	0.71
A_{den} g.cm ⁻³ .yr ⁻¹	1.22 $\pm$ 0.04	1.19 $\pm$ 0.04	1.42 $\pm$ 0.05	1.19 $\pm$ 0.07	1.27 $\pm$ 0.06	1.40 $\pm$ 0.05	1.10 $\pm$ 0.14	1.30 $\pm$ 0.02
H_{den} g.cm ⁻³ .yr ⁻¹	1.27 $\pm$ 0.05	1.22 $\pm$ 0.03	1.46 $\pm$ 0.05	1.29 $\pm$ 0.12	1.36 $\pm$ 0.07	1.46 $\pm$ 0.06	1.15 $\pm$ 0.14	1.35 $\pm$ 0.03
L_{den} g.cm ⁻³ .yr ⁻¹	1.18 $\pm$ 0.04	1.15 $\pm$ 0.05	1.38 $\pm$ 0.06	1.09 $\pm$ 0.08	1.17 $\pm$ 0.07	1.35 $\pm$ 0.05	1.06 $\pm$ 0.14	1.25 $\pm$ 0.03
$H-L_{den}$ g.cm ⁻³ .yr ⁻¹	0.09 $\pm$ 0.03	0.07 $\pm$ 0.03	0.08 $\pm$ 0.03	0.20 $\pm$ 0.14	0.19 $\pm$ 0.06	0.11 $\pm$ 0.06	0.09 $\pm$ 0.05	0.09 $\pm$ 0.05
$H-H_{dis}$ mm.yr ⁻¹	8.6 $\pm$ 3.4	9.9 $\pm$ 3.3	11.0 $\pm$ 3.3	15.5 $\pm$ 3.8	17.0 $\pm$ 4.9	8.3 $\pm$ 2.2	11.3 $\pm$ 4.4	6.8 $\pm$ 1.4
$H-L_{dis}$ mm.yr ⁻¹	4.5 $\pm$ 2.1	4.8 $\pm$ 2.1	5.6 $\pm$ 2.7	7.7 $\pm$ 4.2	8.6 $\pm$ 4.3	4.0 $\pm$ 1.7	5.0 $\pm$ 2.8	3.8 $\pm$ 2.1
$L-H_{dis}$ mm.yr ⁻¹	4.2 $\pm$ 2.1	5.1 $\pm$ 1.3	5.4 $\pm$ 2.4	7.8 $\pm$ 3.0	8.4 $\pm$ 2.4	4.2 $\pm$ 2.6	6.3 $\pm$ 4.4	3.0 $\pm$ 0.9
CALCN g.cm ⁻² .yr ⁻¹	1.05 $\pm$ 0.40	1.16 $\pm$ 0.36	1.55 $\pm$ 0.43	1.83 $\pm$ 0.42	2.15 $\pm$ 0.58	1.16 $\pm$ 0.30	1.23 $\pm$ 0.46	0.88 $\pm$ 0.17