SOI CRUISE
FK200126
Final Report 2021

ROV EXPLORATION OF DEEP-WATER CORAL HABITATS OF SOUTHWEST AUSTRALIAN SUBMARINE CANYONS

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SCHMIDT OCEAN INSTITUTE CRUISE FK200126

ROV exploration of deep-water coral habitats of southwest Australian submarine canyons

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1. Summary

This report summarises the main outcomes from an oceanographic cruise aboard the R/V *Falkor* between 26th January 2020 to 26th February 2020, that explored deep-sea habitats located in the Southern Ocean and southeast Indian Ocean offshore southwest Australia. This cruise represents the first ROV exploration of the Bremer canyon systems, ~175 km east of Albany, and Mount Gabi, a seamount at the interface of the Southern and Indian oceans ~90 km south of Augusta, as well as the adjacent continental margins around these key study sites. We also revisited the Perth Canyon, ~60 km east of Perth, mostly exploring new sites to expand on our first expedition to this system in 2015. This cruise therefore collected the first comprehensive video footage of these unknown habitats together with important environmental reference data and samples. Both the Perth and Bremer canyon systems are designated Commonwealth Marine Parks.

The primary focus of the expedition was to document and strategically collect mainly calcareous deep-water corals and characterise their habitats, both the nature of the substrate and ambient seawater conditions. Our longer-term objective is to understand the relationship of faunas to the specific physical-chemical conditions of their deep-sea environment in time and space. This is underpinned by an ongoing analytical programme post-cruise, which aims to reconstruct long-term records of environmental change from fossil and modern coral skeletons using a suite of geochemical proxy techniques.

During the cruise, we successfully completed 17 ROV dives, 10 around the Bremer canyon systems (~3300-180 m), 2 at Mount Gabi and environs (~970-430 m), and 5 at the Perth Canyon (~3000-390 m). We collected a range of faunal, sediment, and geological samples by ROV and recorded 160 hours of high-definition video footage of these previously unexplored environments. CTD measurements of seawater were conducted at 16 sites around the Bremer canyon systems (from 5 and 4810 m), and 2 around the Perth Canyon (from 5 to 3830 m), which identified all key water masses including Antarctic Bottom Water. Seawater samples (101) were collected at both the Bremer (82) and Perth (19) canyon systems to characterise their carbonate chemistry, nutrients, and isotopic compositions, however poor weather and instrument damage prevented deployment of the CTD-Rosette around Mount Gabi. Plankton was also sampled directly from *Falkor's* water intake and Manta net tows were undertaken to collect surface plastics, however this proved unsuccessful due to the presence of high levels of gelatinous Medusozoa. Approximately ~11,000 km^2 of substrate were mapped during the expedition by *Falkor's* multibeam sonars, from which we have generated high resolution bathymetry and contour maps around our three study areas.

Our most significant observations that specifically relate to our key target taxa, include solitary scleractinians inhabiting aragonite undersaturated waters to depths of 2240 m, sediment-dwelling species common within the shallow mode waters above the canyon rims at all three study sites, and spectacular biodiversity hotspots within intermediate water depths centred around colonial scleractinians and large antipatharian colonies especially. Other apparent faunal associations occurred at various depth zones, including antipatharian-urchin populations, Alcyonacean coral gardens, and a colourful sponge-bryozoan reef. Notable finds also included whale falls that harboured large communities of chemosymbiotic bivalves, as well as fossil bivalve and coral deposits with the latter especially prolific around Mount Gabi and the previously discovered Perth Canyon graveyards. Preliminary dating of fossil corals from all three study areas revealed their widespread occurrence during the last glacial period and deglaciation (30-15 ky), with sporadic representation of older intervals up to 160 ky, as well as recent Holocene ages ($\leq$ 5 ky).

Post-cruise work in general has been significantly hampered by the Covid-19 global pandemic, which began to impact from March 2020 and is now in its second year. In particular, strict, long-term lockdowns in

Australia and Italy have often restricted access to samples and laboratories, with the subsequent knock-on effects causing sample backlogs hence delays in analyses. Border closures and consequent flight disruptions have also prevented the freight of sensitive samples, such as frozen and chilled seawaters destined for radiocarbon and nitrogen isotope analysis, which require strict cold-chain transport (pending).

2. Participants

2.1 Science Crew

The following scientific personnel from Australian and Italian institutions participated in this research cruise either for a single leg or the full period between the 26th of January and 26th of February 2020.

1. Dr Julie Trotter (Chief Scientist, University of Western Australia)
2. Dr Paolo Montagna (co-Chief Scientist, Istituto di Scienze Polari, CNR, Italy)
3. Professor Malcolm McCulloch (University of Western Australia)
4. Dr Marco Taviani (Istituto di Scienze Marine, CNR, Italy)
5. Dr Aleksey Sadekov (University of Western Australia)
6. Dr Grzegorz Skrzypek (University of Western Australia)
7. Dr Federica Foglini (Istituto di Scienze Marine, CNR, Italy)
8. Dr Alessandro Remia (Istituto di Scienze Marine, CNR, Italy)
9. Professor Claudio Mazzoli (Università di Padova)
10. Professor Charitha Pattiaratchi (University of Western Australia)
11. Mr Andrew Hosie (Western Australian Museum)
12. Ms Ana Hara (Western Australian Museum)
13. Ms Taylor Simpkins (University of Western Australia)
14. Ms Paula Cartwright (University of Western Australia)
15. Ms Sara Hajbane (University of Western Australia)
16. Mr Carlin Bowyer (University of Western Australia)
17. Mr Netramani Sagar (University of Western Australia)
18. Mr Todd Bond (University of Western Australia)
19. Ms Kaycee Handley (Macquarie University)

2.2 SOI crew and additional participants

SOI engaged Captain Peter Reynolds and *Falkor* crew, ROV *SuBastian* pilots Russell Coffield, Kris Ingram, Cody Peyres, Jason Rodriguez, and Adam Wetmore, as well as Thom Hoffman (media consultant) and Angela Rossen (artist-at-sea).

3. Exploration of the Southwest Australian Canyons

Cruise FK200126 targeted three main study areas offshore southwest Australia for a period of ~1 month, particularly focusing on previously unexplored submarine canyons located near the continental margin within the Southern Ocean and SE Indian Ocean. R/V *Falkor* departed port Albany on 26 January 2020, returned to port Albany mid-cruise on 14 February to exchange some crew and supplies, and docked at Port Fremantle at the end of the mission on 26 February. The 3 key study areas explored encompassed (Figure 1):

(1) The Bremer canyon systems, located in the Southern Ocean ~175 km E of Albany, which comprises a network of several previously unexplored canyons. Designated a Commonwealth Marine Park, known as the Bremer Marine Park, it was accessed and sampled under permit number PA2019-00080-1(2) issued by the Director of National Parks, Australia.

(2) Mount Gabi and nearby continental slope-shelf margin. The seamount is located ~90 km south of Augusta, in the Southern Ocean near the interface with the SE Indian Ocean. This mission was also the first ROV exploration of this area.

Exploration of the nearby Leeuwin Canyon was originally planned, however, poor weather prevented further deployments beyond the 2 locations (above) within this region.

(3) The Perth Canyon, located in the SE Indian Ocean ~60 km offshore Perth. Also a Commonwealth Marine Park, the Perth Canyon Marine Park, it was accessed and sampled using the same permit as above.

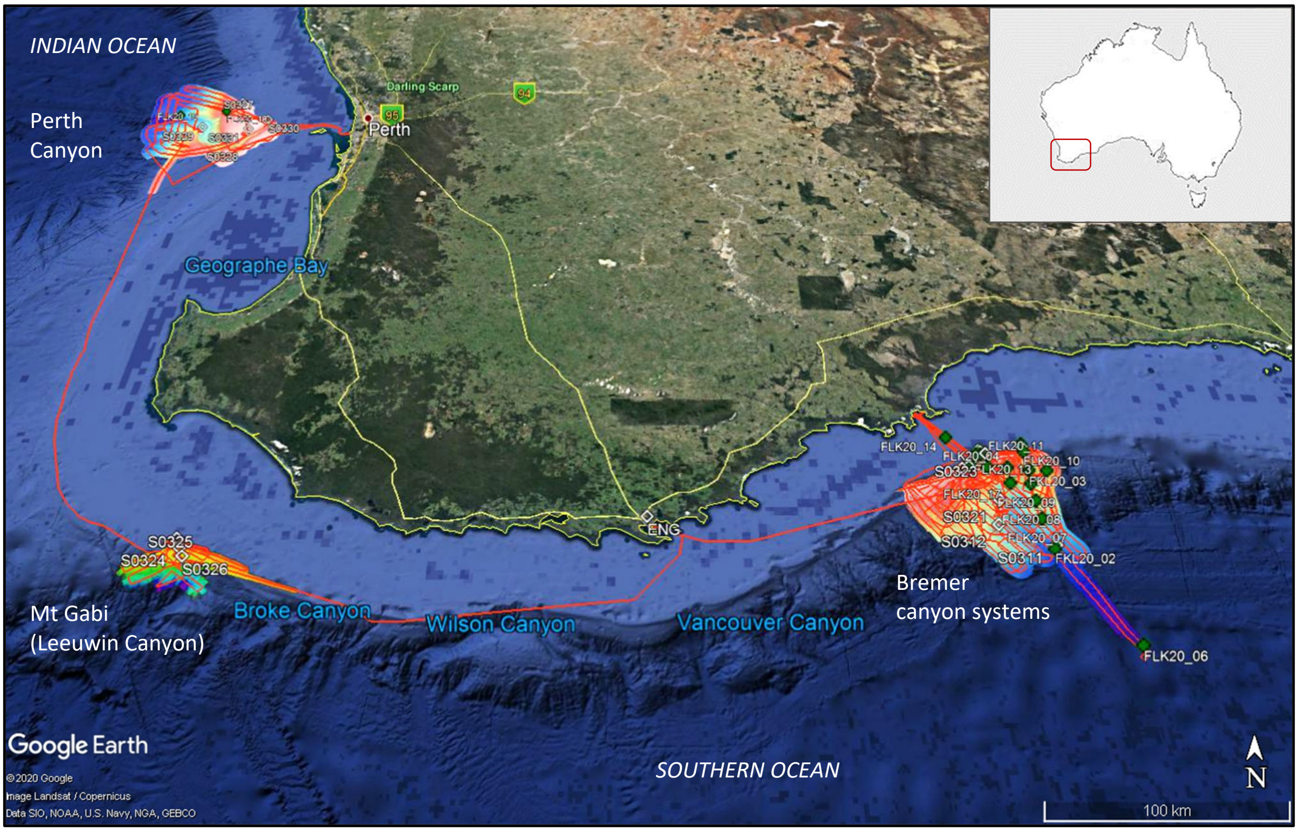


FIGURE 1. Location of the three main exploration areas of the Bremer canyon systems, Mount Gabi and adjacent continental margin, and Perth Canyon.

The first half of the mission was undertaken in the primary study area of the Bremer canyon systems (section 3.1). A total of 10 dives were undertaken, 8 being highly successful. Occasional poor weather conditions and/or technical problems either delayed deployment, inhibited sample collection during survey, or resulted in aborted dives. Rough weather caused winch problems precluding deployment of the CTD-Rosette towards the end of the first leg. The second leg of the cruise explored the area around the Leeuwin Canyon (section 3.2). Following the first 2 dives at Mount Gabi and along the nearby slope-shelf margin, deteriorating weather conditions ceased operations in this region, forcing us to steam north to our last study area of the Perth Canyon. At the Perth Canyon, weather conditions stabilised for 5 days allowing 5 dives to be successfully completed, with temporary winch repairs enabling the CTD-Rosette to be deployed twice (section 3.3). All ROV dives traversed the substrate from deep to shallow depths of the deployment site looking for morphological features likely to accommodate corals. The samples collected are tabulated in the Appendices (section 9).

Multi-beam sonar was engaged during the evenings to map the bathymetry of the canyons and surrounding slope-shelf at all study areas, which totalled an area of ~11,000 km^2. The data were processed in 'real-time' to generate bathymetric maps which were central to our strategy for determining the most prospective coral sites for ROV deployment. The resulting bathymetric and contour maps together with ROV imaging and sampling, reveal generally similar geomorphological features and lithologies across these study areas. An interesting aspect of these canyons is that they are located along a passive continental margin and are partly influenced by a mostly oligotrophic eastern ocean boundary current system, which contrasts to many other submarine canyons. All canyon systems are blind, with the Perth Canyon partly incising the continental shelf. Basement crystalline rocks (igneous, metamorphics) form steep cliffs in the Bremer canyon systems, with overlying well-consolidated siliclastics (Mesozoic sandstones) also common along the steep canyon walls (Bremer, Perth) and/or continental slope margins. Overlying Mesozoic-Cenozoic carbonates are common throughout all study areas, typically forming gentle slopes and terraces, the more weakly consolidated chalky units being more common in the upper reaches of the Perth Canyon and surrounding plateau. The latter being less amenable for colonisation might explain the comparative paucity of corals in this canyon. Fine muddy sediment predominates the canyon floors as well as along the shallow shelf margin above the canyons.

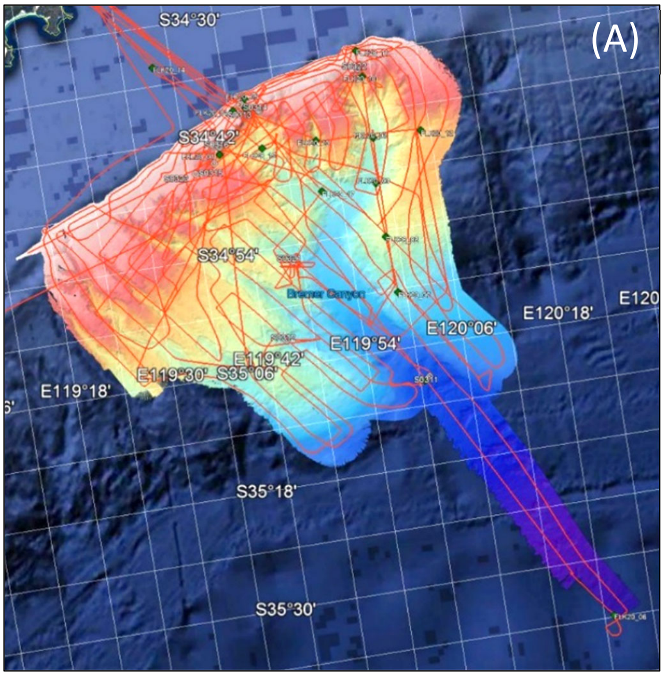
3.1 Bremer Canyon Systems

3.1.1 Overview

The Bremer canyon systems comprise a complex of blind canyons located approximately 80 km east of Albany, oriented roughly perpendicular to the continental margin and directly facing the Southern Ocean. We mapped an area of ~4964 km^2 using *Falkor's* multibeam sonar systems. We explored and sampled fauna and rocks (section 9.2) during 10 ROV dives from the easternmost Bremer Canyon, the adjcant Hood Canyon, and deeper transects near the mouth of the Henry and Knob canyons (Figure 2).

ROV surveys explored the muddy canyon floor, along rocky canyon walls, and traversed the sediment flats above the canyon rims, with most dives focused in and around the Hood Canyon (section 3.1.3). These canyon systems have cliffs tens of metres high where basement crystalline (granitoids, quartzite, and micaschist) rocks predominate, together with overlying well-bedded Mesozoic siliclastics and Mesozoic-Cenozoic carbonates. These consolidated sedimentary rocks provide a secure substrate for often large coral colonies that inhabit the canyon walls within intermediate and mode waters that have higher nutrient and oxygen concentrations. Large spectacular coral colonies typically hosted many other species thereby forming 'hotspots' of biodiverse communities, while small sediment-dwelling solitary corals were common on the shallower muddy flats. Carbonate ooze with re-suspended sediments from Cenozoic chalky bedrock, is also especially obvious in these canyon systems.

The CTD-Rosette was deployed at 16 sites around this canyon system, with seawater sampled at 5 of these sites ranging from surface to shallow depths of 394 m on the shelf to deep waters offshore reaching 4810 m (Figure 2; section 9.1). Collectively, these casts captured all water masses in this region, from the deepest bottom waters emanating from high latitudes offshore Antarctica up to the shallowest waters from the south central Indian Ocean (see section 3.1.2).



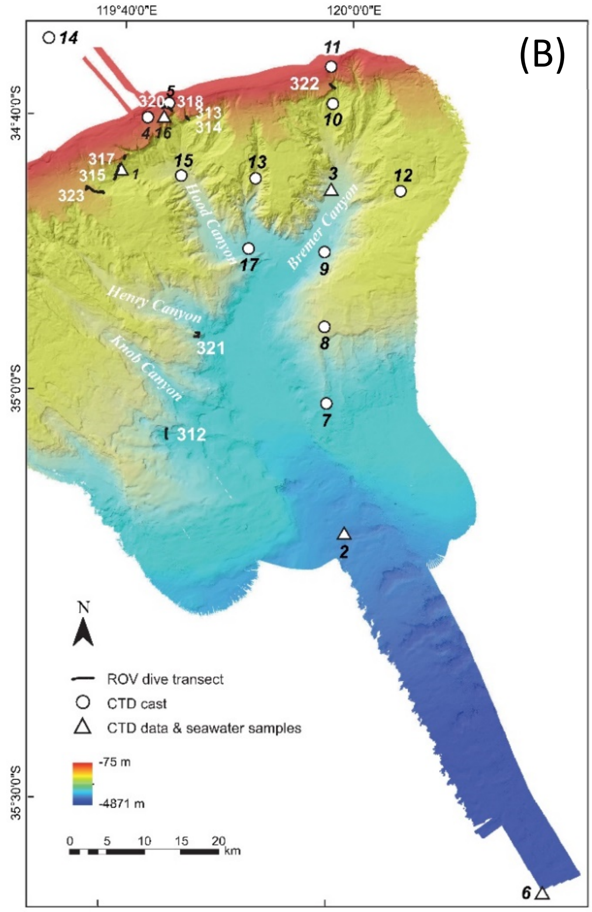


FIGURE 2. Bathymetry map showing *Falkor* multi-beam sonar tracks (A), and location of ROV transects and CTD-Rosette cast deployments (A, B) around the Bremer canyon systems. Note that CTD#17 was aborted due to cable damage.

3.1.2 Physical and chemical oceanography

A total of 16 CTD-profiles were determined and 82 water samples were collected from the shelf break (cast 16C) to the open ocean (cast 06C), between 5 and 4810 m water depth. The key physico-chemical parameters of temperature (T), salinity (S), and dissolved oxygen (DO) concentration identified all major water masses (Table 1, Figure 3) that flow along the SW Australian margin.

Table 1. Parameters of key water masses identified in the Bremer canyon systems. SICW: South Indian Central Water; SAMW: Subantarctic Mode Water; AAIW: Antarctic Intermediate Water; UCDW: Upper Circumpolar Deep Water; LCDW: Lower Circumpolar Deep Water; AABW: Antarctic Bottom Water.

Water Mass	Depth (m)	T (°C)	Salinity	DO (µmol/L)
SICW	~ 0 – 300	~ 21 – 11	35.9 – 34.9	~ 210 – 250
SAMW	~ 300 to ~ 600 – 800	~ 11 – 7.5	34.9 – 34.6	> 220
AAIW	~ 600 – 800 to ~ 1200 – 1400	~ 7.5 – 3	< 34.5	210 – 170
UCDW	~ 1200 – 1400 to ~ 2600	~ 3 – 2	34.4 – 34.7	< 170
LCDW	~ 2600 – 3800	~ 2 – 1.2	~ 34.7	170 – 190
AABW	~ 4100 – 4800	~ 1	~ 34.7	> 200

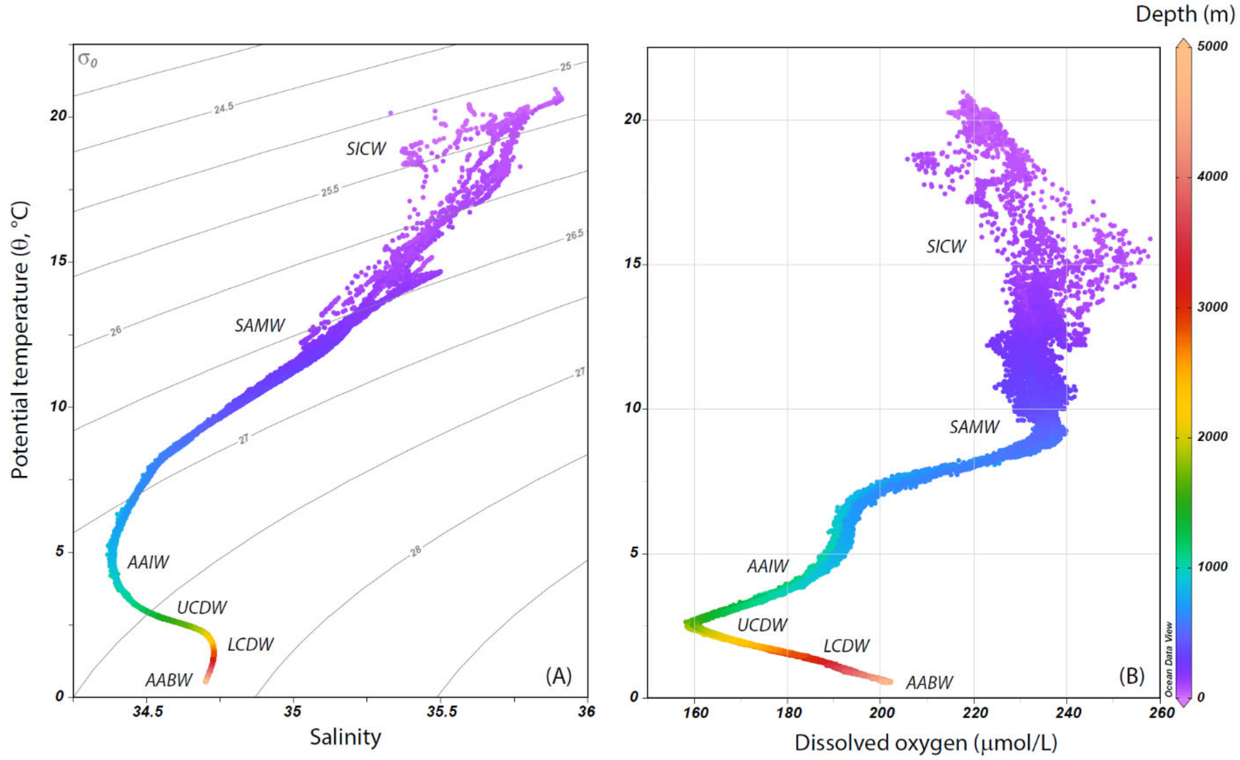


FIGURE 3. (A) Salinity versus potential temperature (°C), and (B) dissolved oxygen concentration (μmol/L) versus potential temperature from CTD casts deployed at the shelf break (16C) to the open ocean (06C) in the Bremer canyon systems. See Table 1 for water mass names.

Phosphate (P-PO_4) and nitrate-nitrite (N-NO_3) concentrations steadily increased within the upper ~1000 m (SICW, SAMW and AAIW), to values of ~ 2.3 μmol/kg and ~ 35-40 μmol/kg, respectively (Figure 4A, B), resulting in a strong and significant N-P positive correlation (R^2 = 0.98, p<0.001). At deeper depths (~1000 to 4810 m), P-PO_4 and N-NO_3 concentrations were relatively constant at ~ 2.5 μmol/kg and ~ 41 μmol/kg, respectively. Silicate (Si-SiO_3) displayed low values (< 2.6 μmol/kg) for the top 300 m, which reflects good mixing in the SICW, and steadily increased with depth to 138 μmol/kg from ~300 to ~3800 m (Figure 4C). Low variation in silicate concentration in AABW suggests a relatively high vertical homogeneity of this water mass.

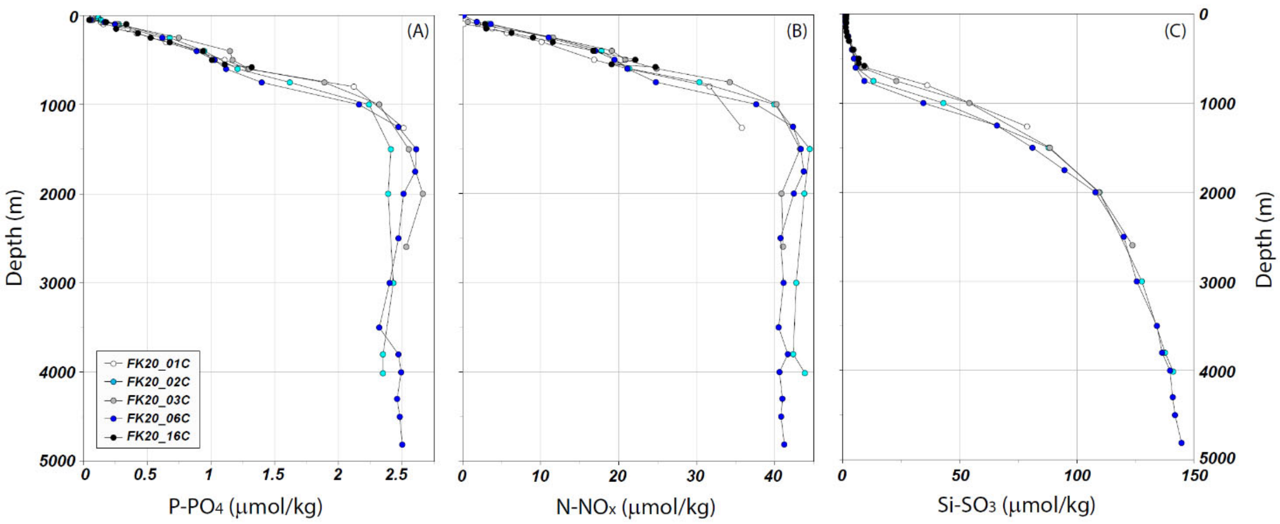


FIGURE 4. Depth profiles of phosphate (P-PO_4), nitrate (N-NO_x) and silicate (Si-SiO_3) concentrations from the shelf break (16C) to the open ocean (06C) in the Bremer canyon systems.

Total Alkalinity (TA) decreased within the first 600 m from ~ 2350 μmol/kg at the surface to ~ 2290 μmol/kg and then increased with depth to values of 2380-2400 μmol/kg (Figure 5A). TA was positively correlated with salinity and showed different TA/S ratios between the shallower depths (0 – 700 m) (TA/S = 52) and intermediate-deep layers (TA/S = 246), consistent with increased dissolution of $CaCO_3$ relative to organic carbon remineralisation at the depth where $\Omega_{aragonite}$ approaches undersaturation (~ 1000 m). DIC steadily increased from the surface (~ 2075 μmol/kg) to ~ 1500 m (2265 μmol/kg) then stabilised at ~2260 and ~2280 μmol/kg for depths deeper than 1500 m (Figure 5B). Calculated pH decreased from ~8.05 at the surface to ~7.8-7.9 at deeper depths (Figure 5C). The saturation states for aragonite and calcite decreased from 3.15 to 0.49 and 4.83 to 0.74, respectively, between 25 m and 4800 m (Figure 5D, E), with aragonite undersaturation reached at ~1000-1500 m and calcite undersaturation at 3000-3800 m, the ranges reflecting the northwards shoaling of the water masses.

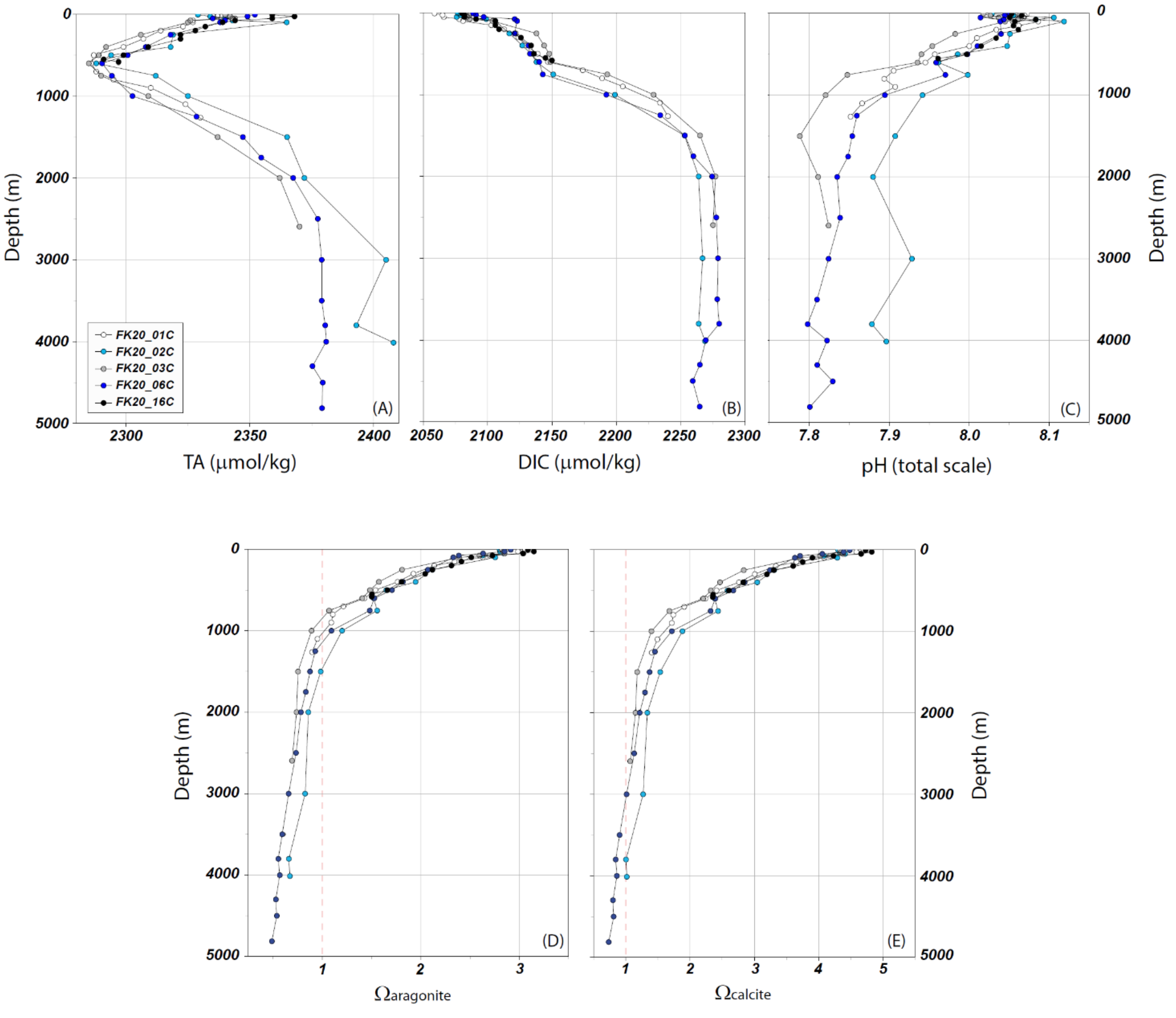


FIGURE 5. Depth profiles of Total Alkalinity (TA), Dissolved Inorganic Carbon (DIC), pH, aragonite and calcite saturation states from the shelf break (16C) to the open ocean (06C) in the Bremer canyon systems. Dashed red lines identify saturation horizons.

The stable oxygen and hydrogen isotope composition of seawater ranged between -0.34 and 1.42 ‰ for $\delta^{18}O_{H2O}$ and -2.7 and 4.5 ‰ for $\delta^{2}H_{H2O}$ (Figure 6A, C). Both $\delta^{18}O_{H2O}$ and $\delta^{2}H_{H2O}$ decreased from the surface to ~ 1000 m and then stabilised at ~ 0 ‰ and ~ -2 ‰ at deeper depths. Variability was greater for $\delta^{18}O_{H2O}$ compared to $\delta^{2}H_{H2O}$, and both were higher near shore in shallower waters (cast 01C). The carbon isotopes

($\delta^{13}C_{DIC}$) varied significantly in the upper ~ 600 m, with values ranging between 0.63 and 1.64 ‰. The values decreased from ~ 1.1 to 0.55 ‰ between 1000 and 2000 m and then stabilised at ~ 0.6-0.8 ‰ at deeper depths (Figure 6B).

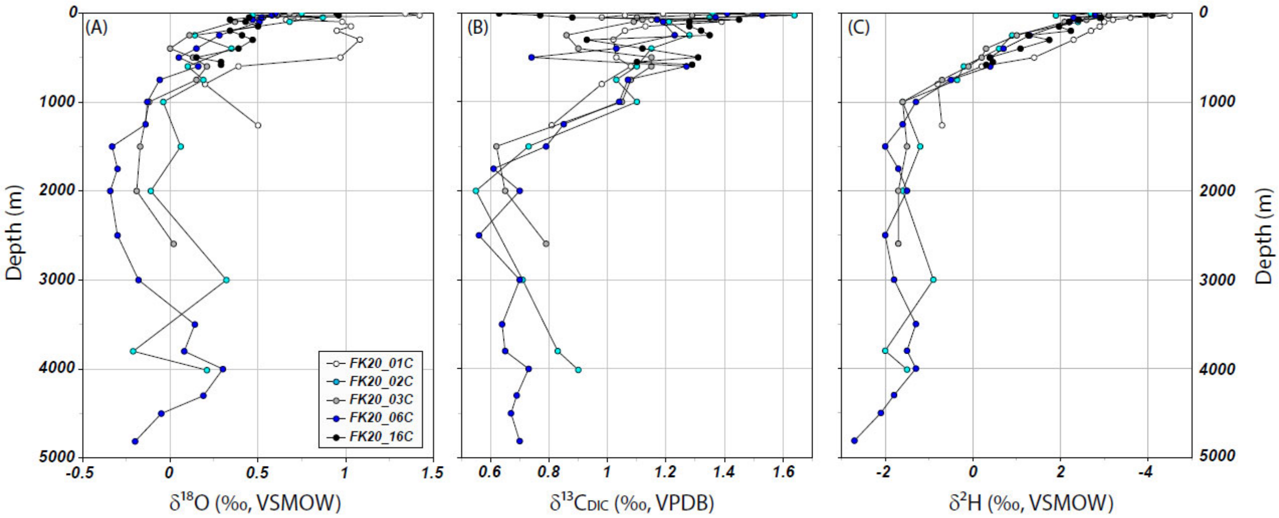


FIGURE 6. Depth profiles of $\delta^{18}O_{H2O}$, $\delta^{13}C_{DIC}$ and $\delta^{2}H_{H2O}$ from the shelf break (16C) to the open ocean (06C) in the Bremer canyon systems.

3.1.3 ROV dives

Overall, the Bremer canyon systems revealed diverse and abundant fauna (Figure 7), which highlights the need for future surveys. The deepest ROV dives explored around the mouth of the Henry and Knob canyons (dives 321, 312) traversing the muddy seafloor to rocky canyon flanks, which are bathed by circumpolar deep waters (2500-3300 m). Seastars, worms, hermit crabs, holothurians, and tripod fish inhabited the muddy seafloor, with corals represented by the occasional bamboo hosting crinoids or stalked sponges protruding from the substrate. Some antipatharians, bamboo corals, anemones and sponges colonised rock debris or adjacent rocky walls, with large crinoid communities populating softer carbonate mounds. Pelagic species noted were cephalopods, jellyfish, whipnose angler fish, and siphonophores. Fauna inhabiting these depths are more sparse which contrasts to the spectacular benthic communities found within the canyons colonising the rocky walls.

Within the Hood Canyon (dive 315), the greater depths harboured antipatharians, octocorals, and soft corals, which become more abundant and diverse together with both colonial and solitary scleractinians along the canyon walls in the overlying intermediate (AAIW) and mode (SAMW) waters. Of note, some small, robust, scleractinian cup corals (*Vaughanella*) colonised the canyon walls in UCDW, ~500 m below the aragonite saturation horizon. Within the AAIW and SAMW of the Hood and Bremer canyons (dives 313-318, 320 & 322), large colonies of antipatharians (e.g *Leiopathes, Tetrapathes*?*, Trissopathes*?*, Bathypathes*) host numerous other taxa (e.g. echinoderms, crustaceans, anemonies), with large *Acesta* bivalves, brachiopods, and cup corals typically associated with colonial scleractinians inhabiting rocky surfaces. Bamboo and some Coralliidae octocorals were common in most dives with the former especially ranging from deep to mode water depths. A noticeable change in fauna occurred from about 700 m in the Hood Canyon (dive 314) where various antipatharians and cactus urchins (*Dermichinus*) were dominant, which transitioned into a flat expanse of corals gardens, predominantly primnoids (*Calyptophora*), at ~660 m. The fine muddy substrate of the shelf-edge above the canyon rims (Hood and Bremer, dives 318, 320 and 322) was inhabited by numerous and diverse sediment-dwelling solitary scleractinian corals together with rays and sharks especially, the latter exhibiting defensive behaviours towards the ROV when collecting samples. In the shallowest interval surveyed, a colourful bryozoan-sponge reef with plentiful fish and crustaceans adorned the shelf at the top of the twilight zone in the Hood Canyon (≤ 300 m, dive 320).

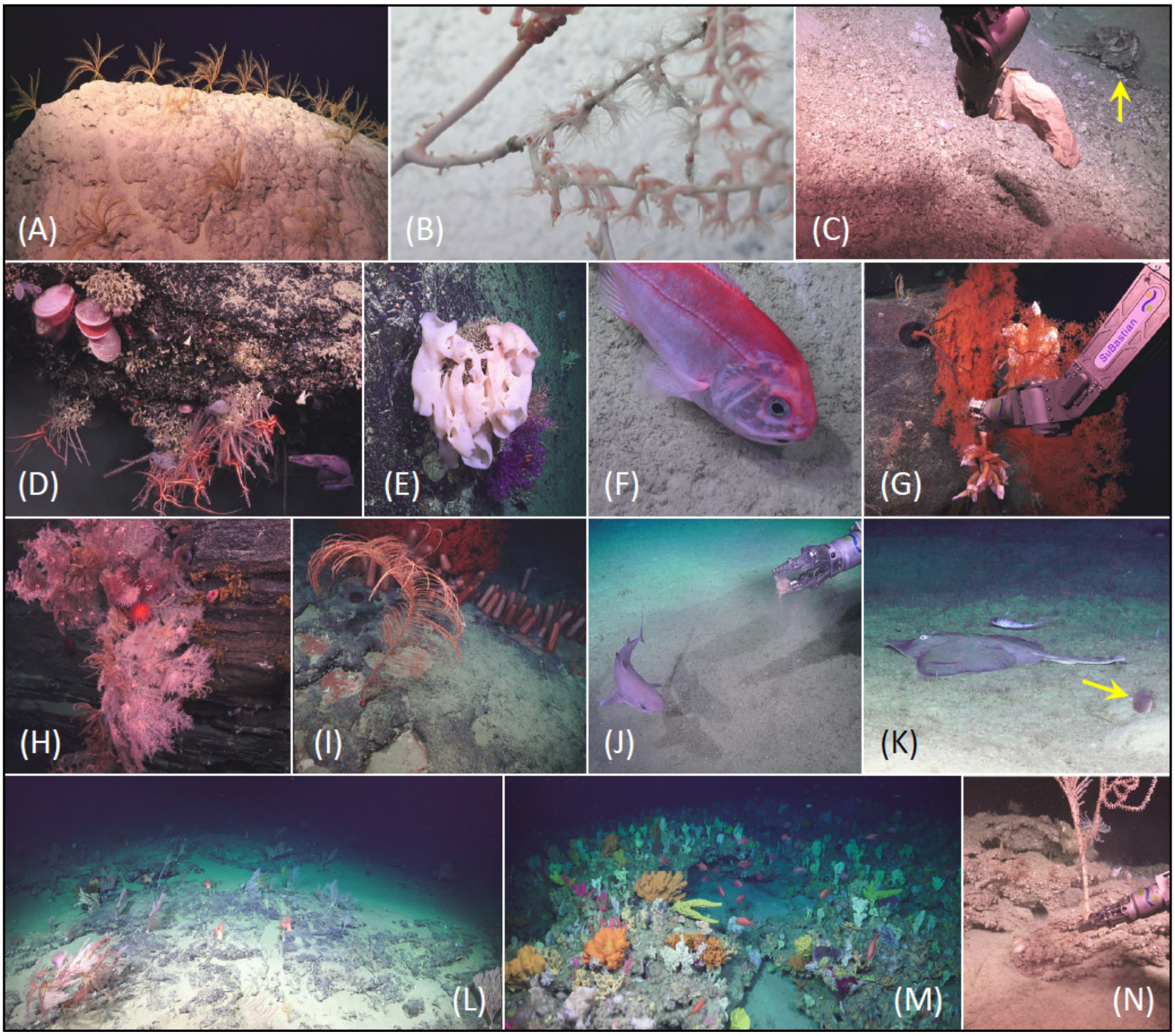


FIGURE 7. Some fauna observed during ROV dives in the Bremer canyon systems. (A) crinoid mound, dive 312; (B) bamboo coral, dive 321; (C), shell hash with fossil sclercatinian corals and whale skull (arrow), dive 315; (D) community of live and dead scleractinians, bivalves, brittlestars, sponges, octocorals, eel, dive 314; (E) sponge on dead colonial coral, dive 314; (F) orange roughy, dive 317; (G) black coral hosting barnacles, dive 314; (H) black coral hosting anemones, cactus urchins, crinoids, brittlestars, squat lobsters, dive 322; (I) black coral and cactus urchin associations, dive 314; (J-K) sediment flats dominated by sharks, rays, and sediment-dwelling cup corals (arrow), dive 320; (L) patch of primonoid-dominated coral garden, dive 314; (M) sponge-bryozoan reef, dive 320; (N) bamboo coral, dive 320.

Other pelagic and demersal species observed throughout the dives included jellyfish, sea spiders, eels, fishes (e.g. orange roughy, grenadiers, toadfish, tripod fish), holothurians (including the pelagic "headless chicken monster"), squid, and octopus. A large aggregation of hundreds of swimming polychaetes of the genus *Swima* were observed at the beginning of dive 315 in Hood Canyon, but nowhere else. Preliminary genetic results indicate that these a newly discovered species. An unusual predatory species of soft sediment-dwelling ascidian was also commonly observed inside Hood Canyon (Dive 320), but not in other parts of the Bremer canyon systems. Additional notable observations include whale fall (dives 315, 323) with associated chemosynthetic fauna (e.g. bivalves, polychaete worms), fossil shell and coral deposits (dive 314, 315, 317, 322), and macro-litter (dives 315, 318, 320, 321) which included metals (corroding drum, foil bag, pipe), ropes, and plastics (traps, ball, cups, rope). Overall, the dives highlight the productivity and diversity within the canyons at depths below the mesophotic zone. While previous biological sampling in these depths in these canyons is virtually non-existent, research in the eastern section of the Great Australian Bight and further west (McEnnulty, 2011; MacIntosh, 2018), show that there will be numerous species yet to be discovered and named in the region.

3.2. Mount Gabi and continental margin

3.2.1 Overview

Mount Gabi is a prominent seamount located north of the Leeuwin Canyon and approximately 90 km south of Augusta. The seamount rises ~300m from the seafloor, spanning depths from ~1000 m to ~700 m. Over 2 ROV dives, we explored and collected fauna and rocks along the northeast face of the seamount (section 9.2), as well as the continental slope-shelf margin to the northeast (Figure 8). Inclement weather forced us to abandon our plans to explore further along the continental margin and nearby Leeuwin Canyon system. Poor weather and prior damage to the CTD-Rosette precluded measurements and sampling of seawater at these sites, which was unfortunate given their position near the interface of the SE Indian and Southern oceans. In this region, we mapped an area of ~1176 km^2 using *Falkor's* multibeam sonar systems.

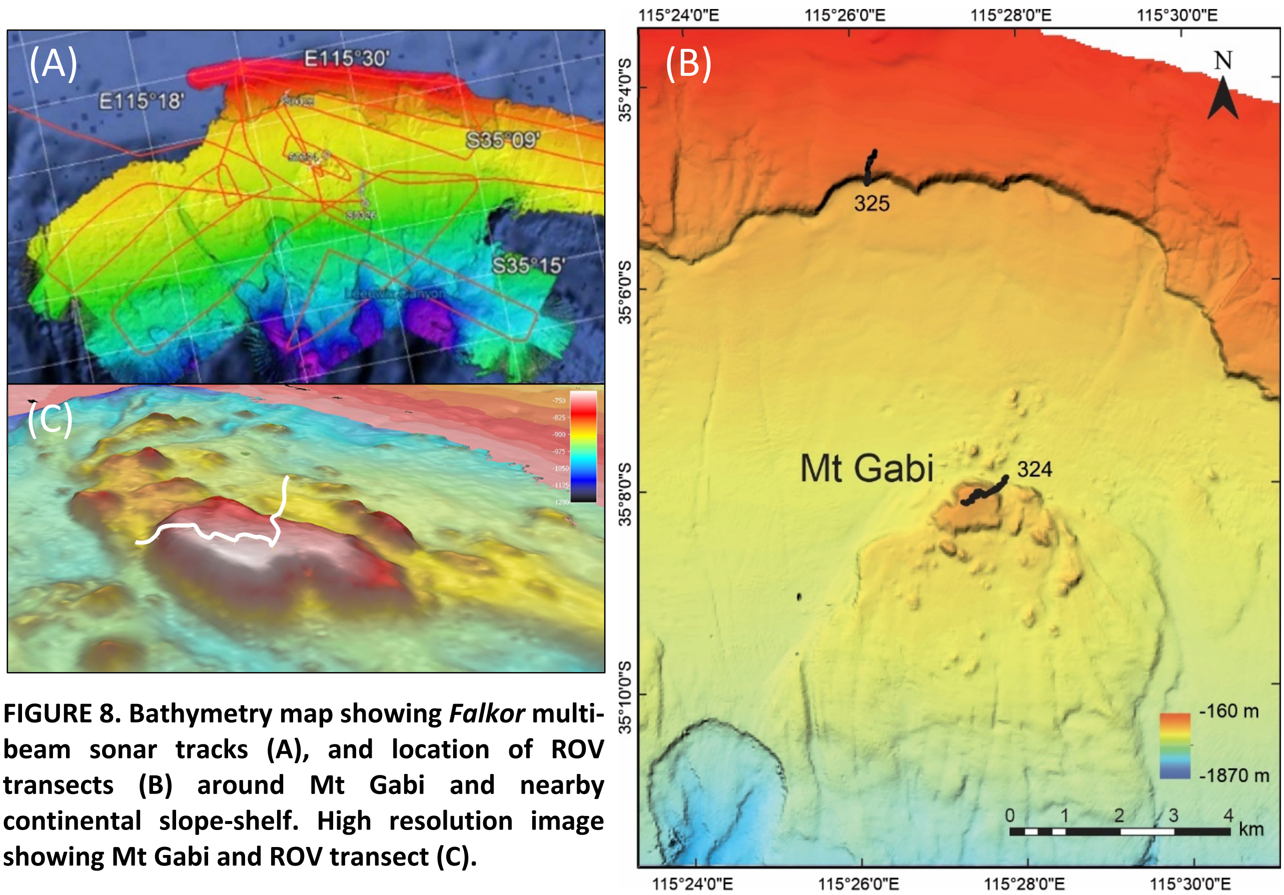


FIGURE 8. Bathymetry map showing *Falkor* multi-beam sonar tracks (A), and location of ROV transects (B) around Mt Gabi and nearby continental slope-shelf. High resolution image showing Mt Gabi and ROV transect (C).

The most notable and unexpected feature observed was the extensive deposits of fossil coral debris covering Mount Gabi. However, further north along the continental slope-shelf, large (live) coral colonies often hosted other species as seen in the Bremer canyon system, with Mesozoic sandstones especially providing suitable substrates for coral-based habitats. As in the Bremer and Hood canyons, sediment-dwelling solitary corals were also common within the shelf-edge sediment flats.

3.2.2 ROV dives

The first dive (324) in this study area traversed the northeast flank of Mount Gabi. From around the base (~970 m), along the walls, and to the summit (~720 m), fossil coral deposits were prolific and dominated the dive whereas live benthos were very sparse (Figure 9). These deposits formed an extensive, virtually continuous, graveyard of mostly colonial and cup corals spanning a ~300 m interval within the Antarctic Intermediate Water (AAIW). Fossil samples comprising *Solenosmilia* (colonial), *Desmophyllum* and other solitary scleractinians were collected throughout the dive, as was the occasional live specimen (see section 9.1). On the summit of the seamount, fossil deposits were conspicuously aligned in a subparallel linear arrangement presumably caused by strong currents at some time post-mortem. Throughout the dive, small, sporadic, and isolated occurrences of live corals (antipatharians, octocorals, pennatulaceans and stylasterids) were occasionally seen, with live scleractinians rarely seen under ledges, colonising fossil coral debris, or at the base of another colony.

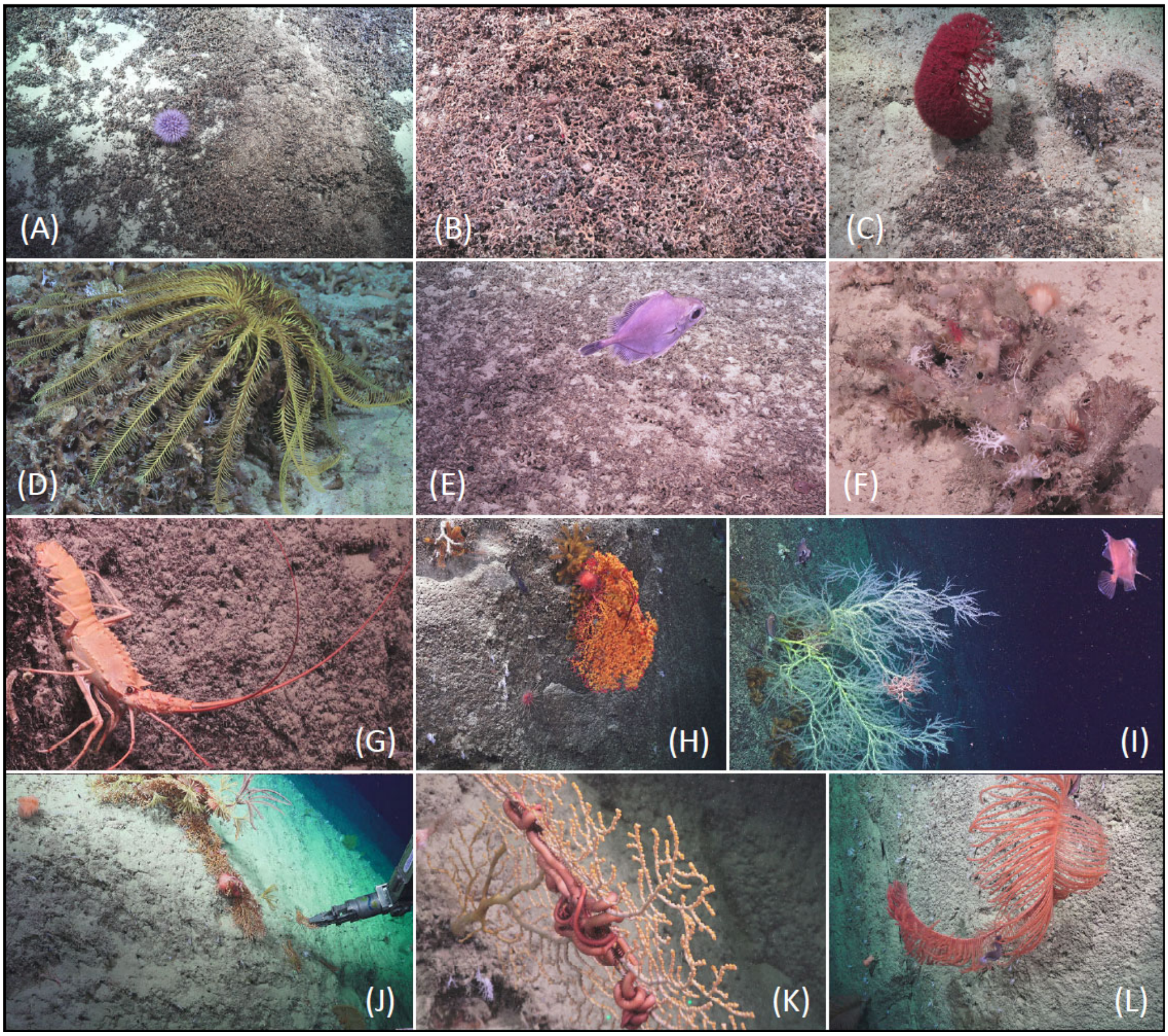


FIGURE 9. Some fauna and fossil coral deposits observed during ROV dives on Mount Gabi and nearby slope-shelf margin. Extensive fossil scleractinian coral deposits (A-E) with soft coral pennatulacean (C), crinoid (D), dory (E), live cup coral (F); dive 324. Slope-shelf wall inhabited by rock lobster (G), octocoral with cactus urchins, brittlestars, and crinoids (H), bamboo coral, basket stars, crinoids, and dory (I), colonial scleractinian hosting cactus urchins, crinoids, and squat lobsters (J), serpent star on soft coral (K), black coral (L); dive 325.

The following dive (325) explored the continental slope-shelf margin ~10 km north of Mount Gabi between depths of ~770 m and ~430 m. Within this interval, transitioning between intermediate (AAIW) and mode (SAMW) waters, large live coral colonies of antipatharians and octocorals (mostly bamboo) were observed occasionally hosting barnacles, anemones, and cup corals, the latter on their branches or basal stem. A small patch of tiny, slender, cup corals (*Javania*) extended from the substrate near the top of the slope, with other solitary corals again observed and collected from the shallow muddy flats of the shelf-edge. Strong currents were noticeable on occasion near the wall which sometimes precluded sampling by the ROV.

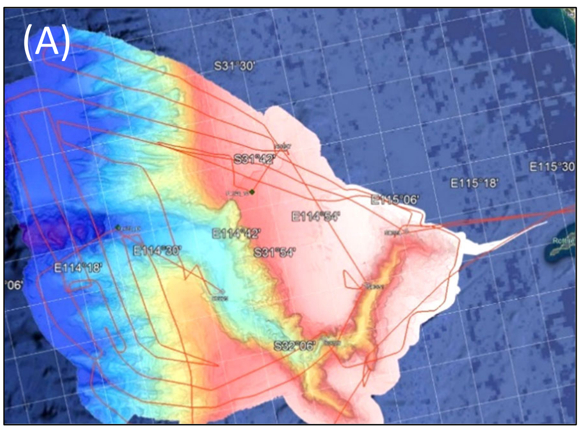
Echinoderms (crinoid, starfish, brittlestar, urchin), crustaceans (squat lobster, hermit crab), anemones, squid, octopus, and fishes were also occasionally observed, with echinoderms and crustacea often associated with larger coral colonies, including colonial Scleractinia (*Enallopsammia*).

3.3. Perth Canyon

3.3.1 Overview

The Perth Canyon is the second largest submarine canyon in Australian waters and partly incises the shelf from approximately 60 km offshore of Perth. The only prior ROV expedition to this canyon was over a 10-day period in 2015 (cruise SOI FK150301). We planned to explore new areas around the canyon, including deeper intervals enabled by ROV *SuBastian*, to collect additional live corals and seawater samples. Five ROV dives were undertaken and 2 CTD-Rosette casts were deployed (Figure 10) with the deeper cast beyond the canyon mouth where circumpolar deep waters were collected (see section 3.3.2). Poor weather again limited the ROV dive programme. Here we mapped an area of ~4942 km^2 using *Falkor's* multibeam sonar systems.

Live scleractinians were sparse, with occasional cup corals attached to consolidated rocks and most notably a solitary coral found deep on the canyon's muddy substrate (~2220 m), as well as sediment-dwelling solitary corals within the shallow muddy flats similar to those found in similar environment to our other 2 study areas. Within this canyon Mesozoic? sandstones outcropped from a depth of ~3000 m, with overlying Mesozoic-Cenozoic carbonate rocks mainly constituted by friable chalk which offers a much less secure substrate for large coral benthos. We also resampled the extensive fossil coral graveyards discovered in 2015 that had yielded last glacial ages (McCulloch et al., 2017; Trotter et al., 2018, 2019), hoping to expand that time window especially within the subsequent deglaciation.



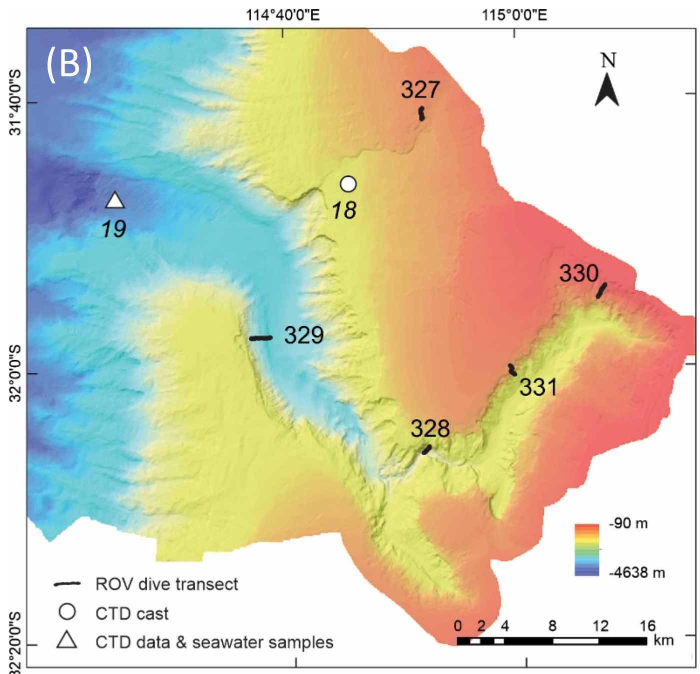


FIGURE 10. Bathymetry map showing *Falkor* multi-beam sonar tracks (A), and location of ROV transects and CTD-Rosette casts (A, B) around the Perth Canyon.

3.3.2 Physical and chemical oceanography

In the Perth canyon, 2 CTD profiles were determined and 19 water samples were collected at depths between 5 and 3830 m. The key physico-chemical parameters of temperature (T), salinity (S), and dissolved oxygen (DO) concentration measured identified six key water masses (Table 2, Figure 11) in the SE Indian Ocean off SW Australia.

Table 2. Parameters of key water masses identified in the Perth Canyon. TSW: Tropical Surface Waters; SICW: South Indian Central Water; SAMW: Subantarctic Mode Water; AAIW: Antarctic Intermediate Water; UCDW: Upper Circumpolar Deep Water; LCDW: Lower Circumpolar Deep Water.

Water mass	Depth (m)	Temp. (°C)	Salinity	DO (μmol/L)
TSW	~ 0 – 100	> 21.5	~ 35.6	~ 200 – 220
SICW	~ 100 – 300	~ 21 – 13	35.8 – 35.1	~ 220 – 237
SAMW	~ 300 – 650	~ 13 – 8.5	34.9 – 34.5	> 220
AAIW	~ 650 – 1100	~ 8.5 – 4	< 34.5	210 – 150
UCDW	~ 1100 – 2000	~ 4 – 2.3	34.5 – 34.7	< 150
LCDW	~ 2000 – 3600	~ 2.3 – 1.4	~ 34.7	160 – 180

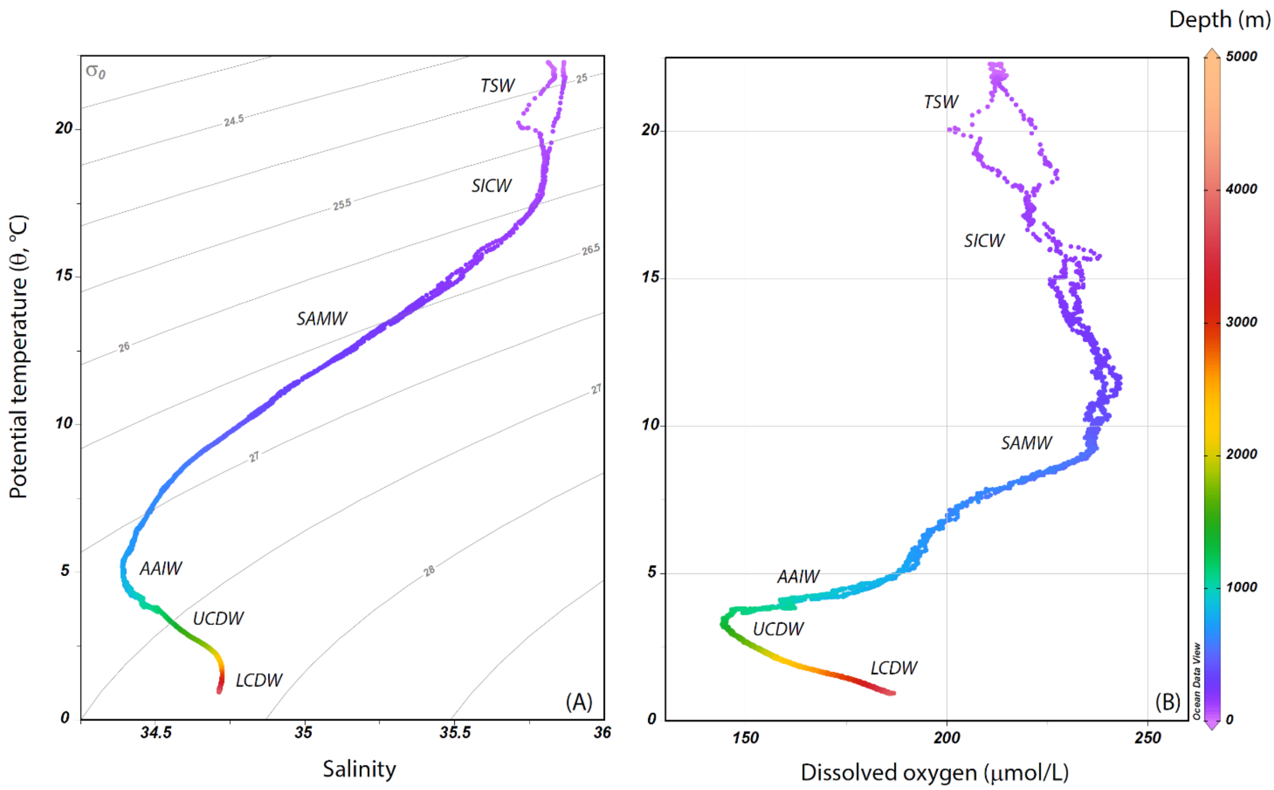


Figure 11. (A) Salinity versus potential temperature (°C), and (B) dissolved oxygen concentration (μmol/L) versus potential temperature from CTD casts deployed in the Perth Canyon. TSW: Tropical Surface Waters; SICW: South Indian Central Water; SAMW: Subantarctic Mode Water; AAIW: Antarctic Intermediate Water; UCDW: Upper Circumpolar Deep Water; LCDW: Lower Circumpolar Deep Water.

Phosphate (P-PO_4) and nitrate-nitrite (N-NO_3) concentrations steadily increased within the upper ~1000 m (TSW, SICW, SAMW and AAIW), to values of ~ 2.5 μmol/kg and ~ 44 μmol/kg, respectively (Figure 12A, B), resulting in a strong and significant N-P positive correlation (R^2 = 0.99, p<0.001). At deeper depths (~1000 to 3830 m), P-PO_4 and N-NO_3 concentrations were relatively constant at ~ 2.5 μmol/kg and ~ 42-44 μmol/kg, respectively. Silicate (Si-SiO_3) displayed low values (< 3.6 μmol/kg) for the top 300 m, and steadily increased with depth to 146 µmol/kg from ~300 to 3830 m (Figure 12C).

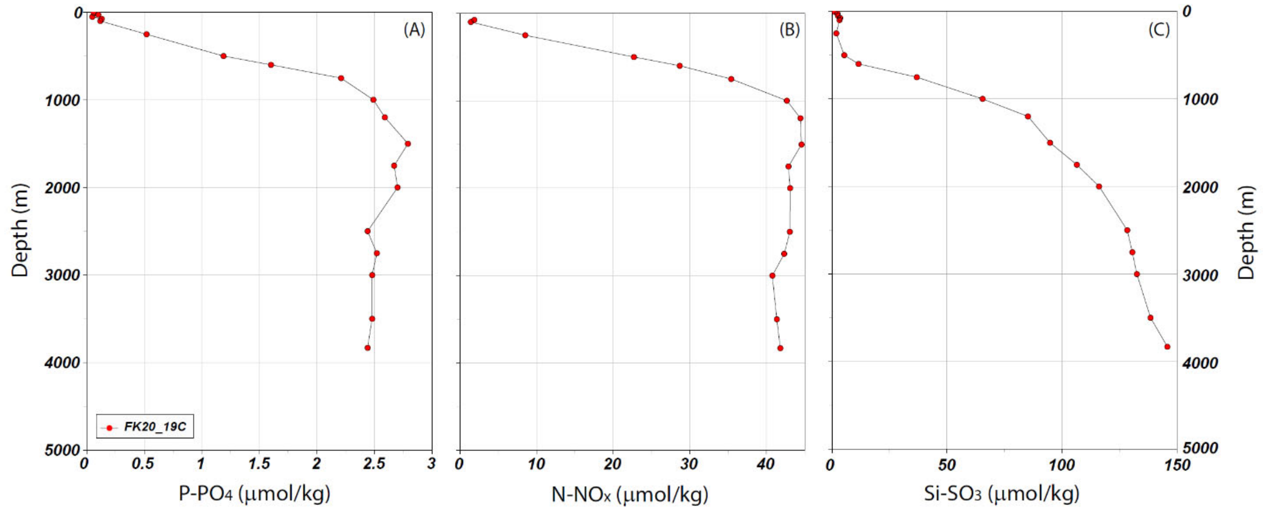


Figure 12. Depth profile of phosphate (P-PO$_4$), nitrate (N-NO$_x$) and silicate (Si-SiO$_3$) concentrations in the Perth canyon.

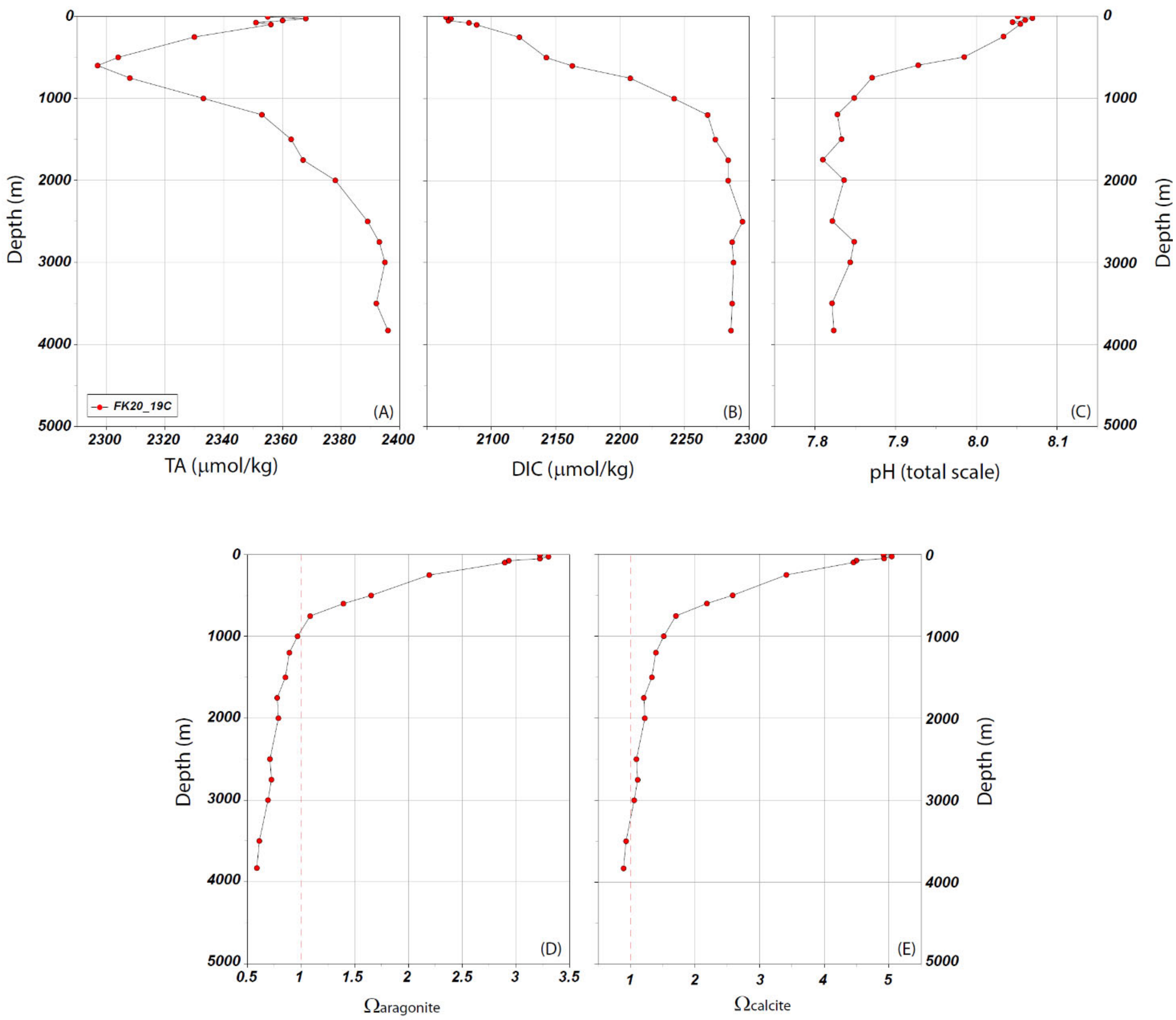


Figure 13. Depth profile of Total Alkalinity (TA), Dissolved Inorganic Carbon (DIC), pH, aragonite and calcite saturation states in the Perth canyon. Dashed red lines identify saturation horizons.

Total Alkalinity (TA) decreased from ~ 2370 μmol/kg at the surface to ~ 2300 μmol/kg at 600 m and then increased with depth to values of 2396 μmol/kg (Figure 13A). DIC steadily increased from the surface (~ 2065 μmol/kg) to ~ 1200 m (2268 μmol/kg) then stabilised at ~2260 and ~2290 μmol/kg for depths deeper than 1200 m (Figure 13B). Calculated pH decreased from ~8.07 at the surface to ~7.8-7.85 at deeper depths (Figure 13C). The saturation states for aragonite and calcite decreased from 3.3 to 0.59 and 5.05 to 0.89, respectively, between the surface and 3830 m (Figure 13D, E), with aragonite undersaturation reached at ~1000 m and calcite undersaturation at ~3000 m.

The stable oxygen and hydrogen isotope composition of seawater ranged between -0.14 and 0.92 ‰ for $\delta^{18}O_{H2O}$ and -1.33 and 4.13 ‰ for $\delta^{2}H_{H2O}$ (Figure 14A, C). $\delta^{18}O_{H2O}$ decreased from the surface to ~ 600 m (-0.14 ‰), then increased to 0.43 ‰ at 1000-2500 m and decreased again at ~ 0.1 ‰ at deeper depths. The carbon isotopes increased in the upper ~ 600 m, with values ranging between 0.61 and 1.30 ‰. The values steadily decreased from ~ 1.30 to 0.56 ‰ between 600 and 2500 m and then slightly increased at ~ 0.7 ‰ at deeper depths (Figure 14B).

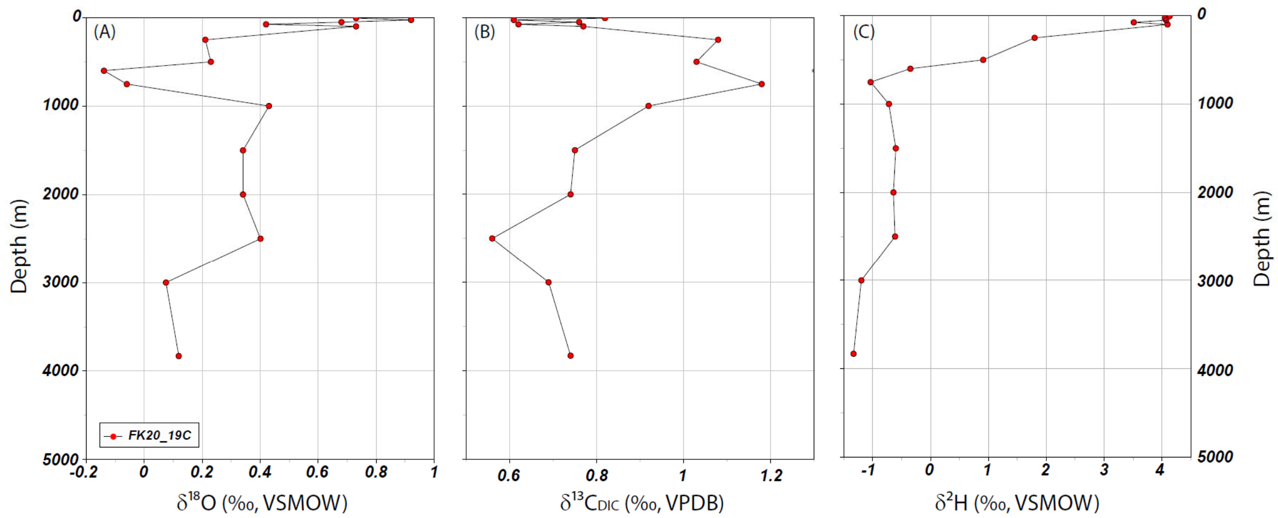


Figure 14. Depth profile of $\delta^{18}O_{H2O}$, $\delta^{13}C_{DIC}$ and $\delta^{2}H_{H2O}$ in the Perth canyon.

3.3.3 ROV dives

We explored 3 new sites (dives 329, 330, 331) and revisited 2 sites (dives 327, 328) where fossil coral deposits were previously found during cruise FK150301. Overall, the fauna and scleractinian corals (Figure 15) especially were relatively sparse as we had observed in 2015 (FK150301), more-so when compared to the other 2 study areas located further south within the Southern Ocean.

Sessile benthos such as various soft and octocorals were present in small groups on rocks in the deeper reaches of the canyon within LCDW (dive 329). Occasional clumps of soft corals, octocorals, antipatharians, barnacles and urchins inhabited the UCDW (dive 328) and AAIW (dive 331). A spectacular, large siphonophore was observed in the water column at ~990 m (dive 331). Acorn worms and pelagic holothurians (aka "headless chicken monster") were observed consuming and extruding copious amounts of sediment from the muddy canyon floor (dive 329). A large urchin aggregation was observed at 2225 m (dive 328) on the muddy canyon floor. Live scleractinians were sparse, but one delicate solitary (micrabaciid) species was found inhabiting the muddy floor at ~2220 m (UCDW), hence well below the aragonite saturation horizon (see section 3.3.2), with some delicate flabellid cup corals colonising rocky surfaces. Surprisingly, there was considerable diversity and numbers of solitary sediment-dwelling cup corals (some tiny) inhabiting the muddy flats above the canyon rim within SAMW (dive 330), including large *Flabellum* that were found in equivalent environments at both study areas in the Southern Ocean.

Along the plateau above the canyon rim (dive 327), slightly north of the fossil coral graveyards discovered in 2015, we again found extensive deposits of fossil scleractinian corals (dominantly *Solenosmilia* and *Desmophyllum*) along the scarp and terraces. Here, live cup corals (*Polymces*) were also found, colonising small rocks and boulders as well as the occasional large colony of antipatharians (*Trissopathes*?, *Leiopathes, Bathypathes*) and octocorals (Coralliidae*, Paragorgia*) extending from the larger scarp walls.

Various crustaceans (including anemone-carrying hermit crabs, scarlet prawns), various squid and octopus, eels, fishes (e.g. tripod fish, toadfish, batfish) were also observed throughout the dives. Another swimming polychaete belonging to a group known as squidworms was collected and is believed to be a new species.

In contrast to the 2015 mission, we encountered macro-litter during most dives (327, 328, 329, 331), from the deeper parts of the canyon to the shallower plateau. The debris included metals (drum and lid, drink cans, military ordnance), plastics (bags, ribbon), glass (bottle), and fabric.

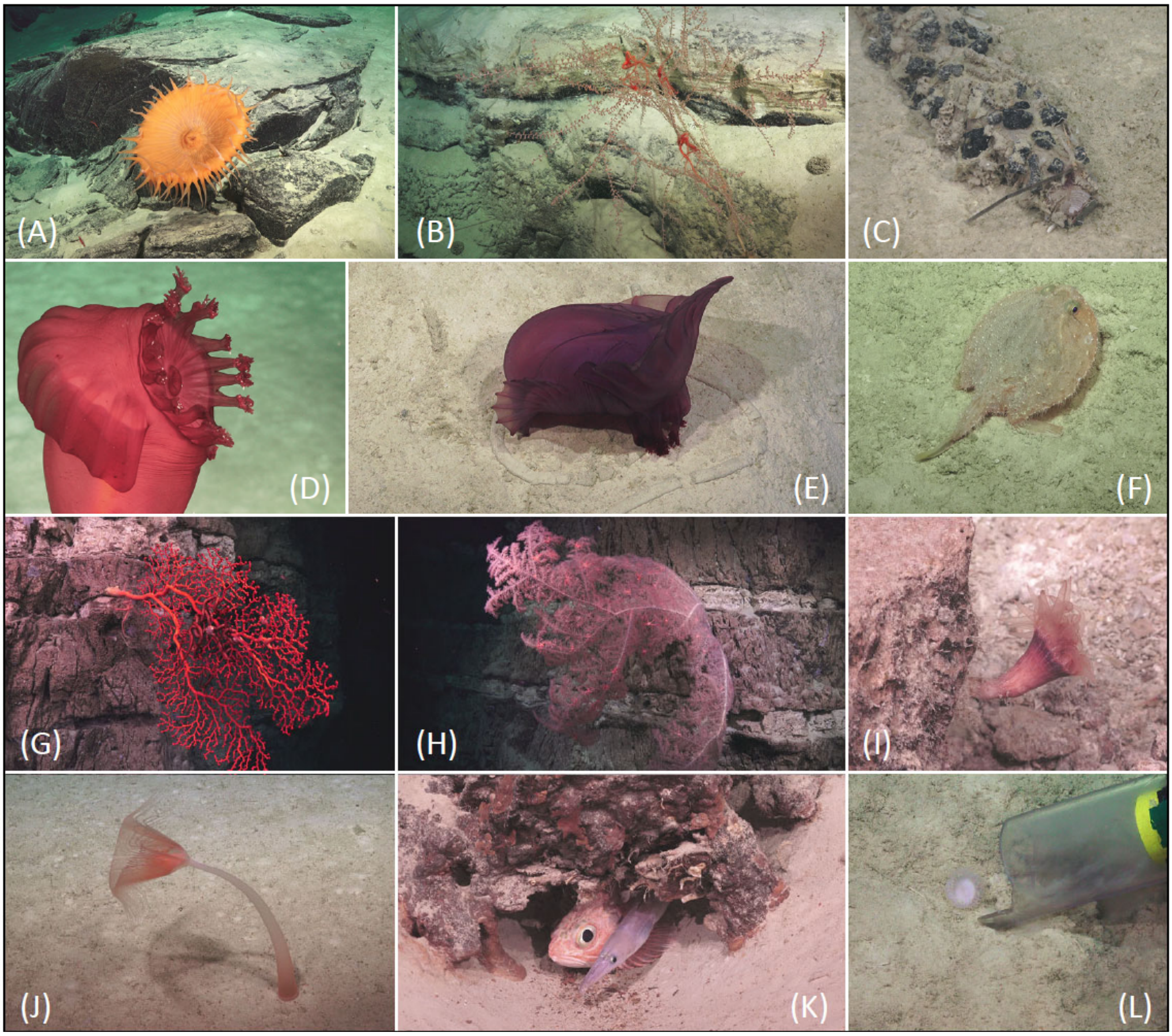


Figure 15. Some fauna observed during ROV dives around the Perth Canyon. (A) large anemone, dive 329; (B) bamboo coral, dive 329; (C) benthic holothurian, dive 329; (D-E) pelagic holouthrian, *Enypniastes*, dive 329; (F) batfish, dive 331; (G) soft coral, *Paragorgia*, dive 327; (H) black coral hosting brittlestars, dive 327; (I) cup coral, dive 327; (J) giant hydrozoan, dive 327; (K) consolidated coral? rubble with territorial ocean perch and pike eel, dive 330; (L) sediment-dwelling cup coral, dive 330.

3.4 Preliminary geochemical analyses

Uranium-series (U-Th) dating has been applied to a suite of 115 fossil scleractinian corals collected during this cruise, which is an important first step to constrain their ages and identify important periods of environmental change. These represent preliminary ages, determined by a novel and relatively rapid age screening technique using laser ablation multi-collector inductively coupled plasma mass spectrometry (see section 4). These data (Figure 16) are the basis from which specimens will be selected for further analysis, such as conventional U-Th wet chemistry to determine more accurate absolute ages coupled with radiocarbon dating, as well as a suite of geochemical environmental proxies.

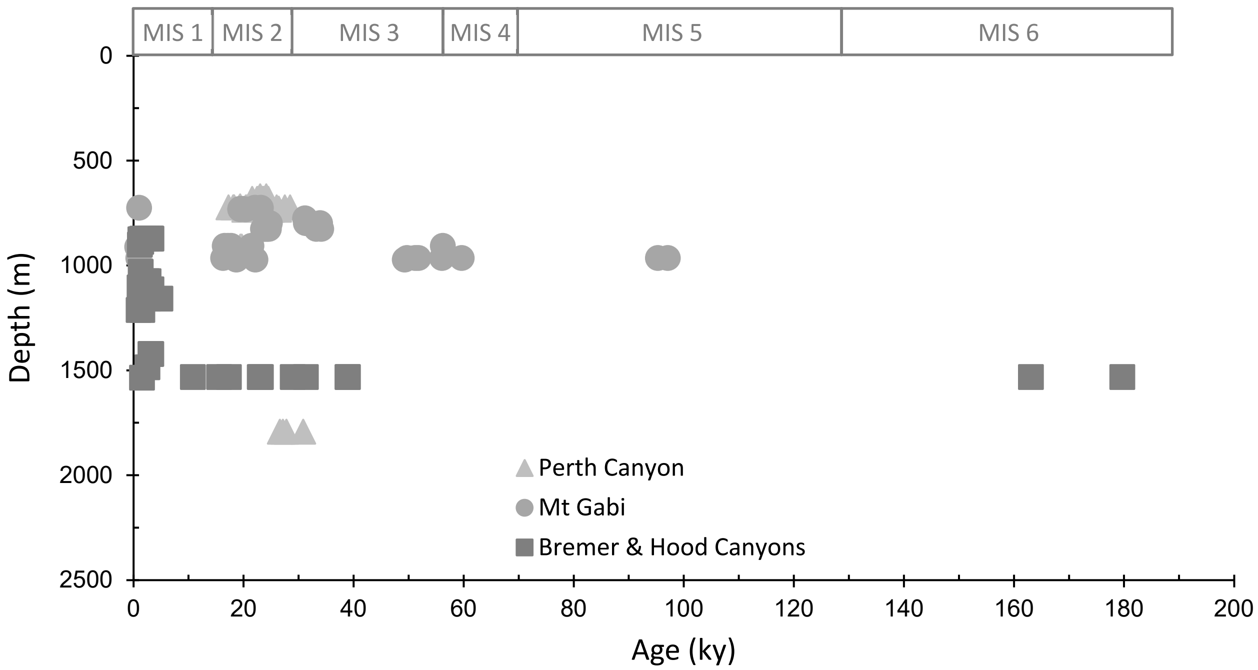


FIGURE 16. Depth versus U-Th age of fossil corals collected from the Bremer and Hood Canyons, Mount Gabi, and the Perth Canyon.

Fossil colonial (*Solenosmilia*) and cup corals (mostly *Desmophyllum*) were selected for analysis from all 3 key study areas, from the Bremer canyon systems (deposits from Hood Canyon and Bremer Canyon) and the particularly extensive deposits around Mount Gabi and the Perth Canyon. Notably, corals from the Hood and Perth canyons and Mount Gabi yielded ages through the last glacial to deglacial period (~35-11 ky), which indicates that deep-water corals were widespread and flourished in SW Australian waters during this period. The oldest ages are sporadically represented from ~50-60 and 100 ky at Mount Gabi, and ~40 and ~160 ky in the Hood Canyon. Corals from the Bremer Canyon (dive 322), however, are significantly younger (≤ 3ky). The ages of these new samples from the Perth Canyon are therefore within the same time period as those collected from the previous expedition to that canyon system (McCulloch et al., 2017; Trotter et al., 2018, 2019).

The coral ages therefore span time windows through five Marine Isotope Stages (MIS), representing intervals from early MIS 1 (~11 ky), most of MIS 2 (~15-29 ky), MIS 3 to early MIS 4 (~30-60 ky), MIS 5.3 (~95 ky) and mid-MIS 6 (~160 ky). These stages represent important periods characterised by different climate regimes at peak glacials, peak interglacials, and transitional intervals.

3.5 Sediment cores and pore-waters

Sediment samples were collected using push corer onboard the ROV *SuBastian*. Cores were taken to study pore-water geochemistry and the distribution of rare earth elements in marine sediments. In total, 33 push cores were obtained from around Bremer canyon systems and Perth Canyon (Appendix 9.4). From each push core, the top 10-15 cm of sediment was subsampled at 1 cm intervals and stored in plastic containers. A total of 101 pore water samples were extracted from 9 push cores and sent to the University of Oregon for REE analysis (Appendix 9.5). The remaining sediment core samples were wet sieved on 130µm mesh to analyse the foraminiferal assemblages. See Appendix 9.4 for sediment sample inventory.

3.6 Plankton

Twenty-four plankton samples were collected from 26/01/2021 to 10/02/2021 using an onboard water pump and a 150 µm plankton net (Appendix 9.6). Typically, each sample represents one day of continuous collection and contains ~30 ml of sample. Preliminary on-board observations revealed that plankton assemblages vary significantly across the samples. In general, >90% of total dry mass of the sample is related to different species of Copepoda and Scyphozoa. Other microorganism groups, such as Pteropoda, Radiolaria, Foraminifera, Acantaria are also present but in much smaller quantities. Foraminiferal assemblages, the primary target taxa, are dominated by cold-water and temperate species, such as *Globigerina bulloides* and *Globorotalia inflata*. Plankton samples are currently stored in a cold room at UWA for further investigations.

4. Operations & Methods

Falkor's multibeam sonar systems (Kongsberg EM 302 and 710) were engaged each night with data processed in 'real-time' to generate bathymetric maps that determined all ROV dive site selections. The multibeam echo-sounder data was processed onboard using Qimera software. Following data correction and cleaning, a digital terrain model (DTM) was generated at 30 m resolution for each canyon. The DTMs were exported in ASCII ESRI format and analysed with ArcGIS 10.5.

The ROV *SuBastian* was deployed for dive surveys and sampling collection across all 3 study areas, mostly targeting coral benthos using the manipulators and onboard specialist tools. Occasionally seawater was sampled using *SuBastian's* Niskin bottles, and sediment cores were sampled from the substrate using onboard push-corers. The ROV also captured high-resolution video imagery during each dive using both HD and 4K cameras approximating 160 hours of footage and recorded ~510 GB of stills (Squiddle Framegrabs).

The major water masses were characterised from in-situ measurements of seawater T, S, DO using *Falkor's* Seabird SBE 911plus CTD and SBE 43 oxygen sensor affixed to the Rosette system. The Rosette Niskin bottles collected seawater throughout the water column and predetermined depths in order to measure carbonate chemistry (DIC, TA) and calculate the remaining parameters (pH, pCO_2, Ω), inorganic nutrients (N-NH_4^+, N-NOx^-, P-PO_4^{2-}, and Si-SiO_3^{2-}) and stable isotopes ($\delta^{13}C$ of DIC, δ^2H and $\delta^{18}O$ of H_2O), which were mostly analysed post-cruise. Unfortunately, ongoing border restrictions (hence unreliable flight schedules) caused by the global Covid-19 pandemic have prohibited the interstate transport of temperature-sensitive chilled seawater samples for radiocarbon (^{14}C) analysis, or frozen samples for nitrogen isotope ($\delta^{15}N$) analysis overseas.

Seawater DIC was measured onboard *Falkor* using an Apollo SciTech Dissolved Inorganic Carbon analyser following the SOP2 of Dickson et al. (2007). Seawater TA was measured on board and post-cruise at The University of Western Australia, using a Mettler-Toledo T50 with Rondolino autosampler following the open-cell titration approach described in SOP3b from Dickson et al. (2007), and 'Seacarb' R-code for TA calculations (Comeau et al., 2017). For both DIC and TA measurements CRM reference (Batch-187) material prepared at the Scripps Institution of Oceanography of the University of California, San Diego, were used (Dickson et al., 2003). Internal error for DIC and TA based on CRM measurements were 0.2 % and 0.08 % (1σ RSD) respectively. The external error for TA measurements were calculated by repetitive analyses (every 8th sample) of seawater samples collected at the beginning of the cruise (surface water), which measured 2381±1.7 (0.07 %, 1σ RSD). The external error for TA samples from cast 02C were higher (0.52 %, 1σ RSD) due to issues with the titrator.

Seawater pH (total scale), pCO_2, calcite saturation state ($\Omega_{calcite}$), and aragonite saturation state ($\Omega_{aragonite}$) were calculated post-cruise using version 1.1 of CO2SYS for MATLAB (van Heuven et al., 2011), based on the ambient T, S, depth, dissociation constants for carbonic acid from Lueker et al. (2000), sulfate from Dickson (1990), and borate from Lee et al. (2010).

Dissolved inorganic nutrients concentrations of ammonium (N-NH_4^+), nitrate + nitrite (N-NOx^-), phosphate (P-PO_4^{2-}), and silicate (Si-SiO_3^{2-}) were analysed at The University of Western Australia on a Lachat autoanalyser (QuickChem QC8500) and a fluorescence detector (Waters 747) for NH_4^+.

Seawater $\delta^{13}C_{DIC}$ compositions were analysed at the West Australian Biogeochemistry Centre at The University of Western Australia using a Thermo-Fisher GasBench II coupled with Delta XL Isotope Ratio Mass Spectrometer. DIC was reacted with 0.1 mL of 100 % H_3PO_4 at 25 °C for 24 hours (Paul and Skrzypek, 2006). All results were expressed using the standard delta-notation ($\delta^{13}C$) and were reported in permille (‰) after normalization to Vienna Pee Dee Belemnite isotope scale [VPDB]. Normalization was based on two international standards NBS18, NBS19, and verified using L-SVEC and laboratory standards (Skrzypek, 2013). The analytical uncertainty was ≤ ±0.1 ‰ (1σ SD). Stable hydrogen and oxygen isotope compositions of seawater samples were analysed using a Picarro 2130 Isotopic Liquid Water Analyser in the West Australian Biogeochemistry Centre at The University of Western Australia (Skrzypek and Ford, 2014). The δ^2H and $\delta^{18}O$ raw values were normalized to the VSMOW (Vienna Standard Mean Ocean Water) scale following the principles of the three-point normalization (Skrzypek, 2013). Three laboratory standards were calibrated against international reference materials that determine the VSMOW-SLAP scale (Coplen, 1996), provided by the International Atomic Energy Agency (for VSMOW2 δ^2H and $\delta^{18}O$ = 0 ‰, and for SLAP2 δ^2H = -428.0 ‰ and $\delta^{18}O$ = -55.5 ‰). The long-term analytical uncertainty was determined as < 1.0 ‰ for δ^2H and < 0.1 ‰ for $\delta^{18}O$ (1σ SD).

All seawater plots have been prepared using Ocean Data View version 5.3.0 (Schlitzer, 2020).

The ages of fossil scleractinian corals were determined by the uranium-thorium (U-Th) series decay technique, using a modified method of in-situ laser ablation multi-collector inductively coupled plasma mass spectrometry (Scott et al., 2021) similar to approaches previously published (Eggins et al, 2005; Potter et al., 2005; Spooner et al., 2016). This method has provided reconnaissance age determinations, albeit at lower precision and accuracy than traditional wet chemical isotope dilution protocols requiring U and Th separation by ion exchange chromatography. Small skeletal portions were mechanically cleaned and sliced using a diamond-encrusted blade attached to hand-held dental drill, ultrasonicated in purified (Milli-Q) water, dried then adhered to glass slides. Samples were analysed using a Teledyne Photon Machines Analyte G2 Laser Ablation System coupled to a Thermo Scientific Neptune Plus MC-ICPMS instrument, housed at The University of Western Australia. Analyses of the coral unknowns were bracketed by a suite of in-house carbonate standards spanning a range of ages and U concentrations determined previously by U-Th isotope dilution methods.

5. Data & Sample Storage

5.1 Hydrographic and bathymetric data

ACDP, environmental sensor, and processed multi-beam sonar data have been uploaded onto repositories, and live ROV footage is also available. All of these data can be accessed via the cruise webpage link: https://schmidtocean.org/cruise/coralandcanyonadventure/#data

5.2 Physical and chemical composition of the water column

All data on water column temperature, salinity, dissolved oxygen concentrations, carbonate chemistry, nutrient concentrations, as well as the isotopic composition of hydrogen, carbon, and oxygen can be found at the following URL sponsored by the Australia Ocean Data Network:

https://catalogue.aodn.org.au/geonetwork/srv/en/metadata.show?uuid=e8769cd6-8693-4252-8a5e-1ab2a25d4e4e

5.3 ROV sample archives

Faunas, rocks, and sediments collected during the cruise are archived at the University of Western Australia and the Western Australian Museum (WAM). Samples collected specifically for geochemical analysis reside with the cruise Chief Scientist, Dr Julie Trotter, at UWA (julie.trotter@uwa.eu.au). See Appendix 2 (section 9.2) for an inventory of samples collected by ROV at each dive site and location of collection.

6. Outputs

6.1 Publications and ongoing projects

Most of the research from the cruise encompasses several long-term large projects which require taxonomic identifications by various specialists, methodical geochemical characterisation of the skeletons of calcifiers (especially corals), as well as other sample (rocks, plankton etc) and environmental assessments (seawater, bathymetry, habitats, anthropogenic impacts). Unfortunately, the Covid-19 global pandemic has impeded post-cruise work due to strict lockdowns in Italy and Australia, as well as both international and Australian State border closures for extended periods. Lockdowns inhibited direct access to samples, and border closures have prevented the shipment of seawater samples that require cold-chain transport (e.g. radiocarbon and nitrogen isotope analyses). Chilled seawater samples for radiocarbon (^{14}C) analysis are expected to be hand-carried interstate later this year, however, frozen samples destined for nitrogen isotope ($\delta^{15}N$) analysis will not occur within the foreseeable future.

Projects currently underway and/or planned over the next ~3 years:

- Changes in nutrient supply and productivity in time and space: determined by proxies (Ba/Ca, $\delta^{15}N$) applied to modern and fossil deep-water scleractinian corals.
- The proliferation of deep-water corals and changes in hydrodynamics during glacial and interglacial periods in SW Australian waters: using absolute and radiocarbon dating (U-Th, ^{14}C) coupled with seawater provenance proxies (ε_{Nd}) applied to scleractinian corals.
- Tracing changes in seawater conditions over modern and geological timescales: using pH, carbonate ion, and temperature proxies (trace elements and $\delta^{11}B$).
- Habitat mapping of benthic communities in SW Australian submarine canyons.
- New geological data from the SW Australian submarine canyons.
- Anthropogenic impacts in the SW Australian submarine canyons.
- Chemosymbiotic communities in the Hood submarine canyon, SW Australia.
- Spectacular deep-water coral ecosystems discovered in the SW Australian submarine canyons.
- ROV-based fish habitat mapping in SW Australian canyons.
- Biodiversity and taxonomic accounts of the marine invertebrates from SW Australian submarine canyons.

Publications that are at different stages of preparation, with one under review:

- Trotter, J.A., Taviani, M., Foglini, F., Sadekov, A., Skrzypek, G., Mazzoli, C., Remia, A., Santodomingo, N., McCulloch, M., Pattiaratchi, C., Montagna, P. (*under review*). First insights into Southern Ocean-facing submarine canyons off southwest Australia. Deep-Sea Research, Pt. I.
- Scott, P.M., Sadekov, A.Y., Breitenbach, S., Trotter, J. de la Fuente, M.M., Horstwood, M., Condon, D., Bickle, M., McCulloch, M.T. (2021). Pushing the limits for in-situ U-series (U-Th) geochronology in carbonates. Goldschmidt 2021, Abstract. (paper in preparation).
- Mazzoli, C. et al. Geological framework of Australian southwest continental margin reviewed with ROV dives along the Perth and Bremer canyons (in preparation).
- Taviani, M. et al. Whale fall community from the submarine Bremer Canyon, SW Australia (preliminary).
- Foglini, F. et al. A new bathymetric map of the SW Australian canyons (preliminary).
- Trotter et al. Changes in hydrodynamics and nutrient supply in deep waters off southwest Australia during the last glacial cycle (preliminary).

6.2 Media and outreach

Media and outreach events encompass conventional press articles and interviews for radio, print, and television, SOI's onboard Ship-to-Shore programme, postings and views on the cruise website, social media fora, institutional web-links, and presentations to the public and at symposia. Directly following the cruise, media attention was focused of the Covid-19 pandemic and Covid-related restrictions prevented public gatherings until late 2020.

A summary of media outreach is given below. Some of the news articles can also be found on the SOI FK200216 website via the following link: https://schmidtocean.org/cruise/coralandcanyonadventure/#news

6.2.1 On-board outreach

1. Ship-to-Shore programme - linked ~500 participants through 11 schools and universities in Australia, United States, Poland, and Italy also that attracted exposure on regional news, national public radio, and TV (TGR Marche, TGR Emilia-Romagna).
2. Website postings & views - during the cruise 13 blogs and 5 video blogs were posted, attracting >23K users from 161 countries over 34K sessions with >73K page views.
3. Social media statistics - Facebook reached ~346K people, 17 live ROV dives streamed, ~105K video views; Twitter ~634K; YouTube views >144K; Instagram viewers >37K.

6.2.2 Institutional links

1. UWA Oceans Institute, 31/03/2020: https://www.uwa.edu.au/projects/falkor-story; Also profiled on UWA Newsroom and e-Bulletin sites, eg. 02/04/2020, https://www.news.uwa.edu.au/archive/2020040211953/falkor/ground-breaking-32-day-journey-explores-never-seen-depths-bremer-bay-canyon/
2. Istituto di Scienze Polari, CNR, Italy: https://www.isp.cnr.it/index.php/it/lista-archivio-notizie/item/33-l-isp-nella-spedizione-oceanografica-sulla-piattaforma-continentale-dell-australia-sudoccidentale
3. Istituto di Scienze Marine, CNR, Italy: http://www.ismar.cnr.it/eventi-e-notizie/notizie/missione-oceanografica-nelle-acque-profonde-dell2019australia-sud-occidentale-1
4. CNR, Italy: https://www.cnr.it/it/nota-stampa/n-9188
5. Università di Padova, Italy: https://www.geoscienze.unipd.it/crociera-rv-falkor

6.2.3 Presentations

1. pre-cruise public lecture, Great Southern Marine Research Facility, Albany (Trotter, 23/01/2020)
2. UWA SBS Seminar (Skrzypek, 22/05/2020)
3. ISP seminar (Montagna, 17/06/2020)

4. National Science Week 2020, Great Southern Great Science Symposium (McCulloch, 14/08/2020)
5. University of the 3rd Age public lecture, Melville, Perth (Trotter, 20/11/2020)
6. Italian Embassy and Consulate *giornata della Ricerca Italiana*, WA Maritime Museum, Perth (Trotter, 11/05/2021)
7. Università di Catania seminar (Montagna, 06/05/2021)
8. Royal Society of Western Australia Symposium (Trotter, 15/05/2021)
9. Istituto di Geologia Ambientale e Geoingegneria seminar (Montagna, 18/05/2021)
10. Classroom seminars and other initiatives related to the FK200126 cruise were organized for middle and high schools within the CNR project "Il Linguaggio della Ricerca"

6.2.4 Press outputs and interviews

#	Date (D/M/Y)	Source	Title	Type	Weblink
1	August 2020		Interviews (Trotter and McCulloch)	Documentary film	
2	26/03/2020	Scientific American		News article	https://blogs.scientificamerican.com/artful-amoeba/feast-your-eyes-on-creatures-from-australias-newly-explored-depths-video/
3	20/03/2020	The West Australian	Explorers find new species in Bremer Canyon expedition	News article	https://thewest.com.au/news/albany-advertiser/explorers-find-new-species-in-bremer-canyon-expedition-ng-b881492742z
4	20/03/2020	Albany Advertiser	Explorers find new species in Bremer Canyon expedition	News article	https://www.albanyadvertiser.com.au/news/albany-advertiser/explorers-find-new-species-in-bremer-canyon-expedition-ng-b881492742z
5	14/03/2020	Gizmodo	A Newly Discovered Deep-Sea Coral Garden Could Unlock the Ocean's Secrets	News article	https://earther.gizmodo.com/a-newly-discovered-deep-sea-coral-garden-could-unlock-t-1842319867
6	07/03/2020	Subiaco Post	Colourful gardens thrive in canyon's deeps	News article	https://schmidtocean.org/wp-content/uploads/2020.30.07_Subiaco-Post-FALKOR.pdf
7	4/03/2020	Eco Voice	Deep-Sea Coral Gardens and Graveyards Discovered in the Submarines Canyons	Web article	http://www.ecovoice.com.au/deep-sea-coral-gardens-and-graveyards-dis covered-in-the-submarine-canyons-o ff-south-western-australia/

			Off South Western Australia		
8	2/03/2020	Sci-News.com	Marine Biologists Find Coral Gardens in Deep-Sea Canyons Off Australia	News article	http://www.sci-news.com/biology/c oral-gardens-deep-sea-canyons-australia-08182.html
9	2/03/2020	Mornings with Gianfranco Di Giovanni – ABC Great Southern	Beneath Bremer Bay: WA Museum's Andrew Hosie on the underwater discoveries of the R/V Falkor	Radio News Program	https://www.abc.net.au/radio/great southern/programs/mornings/beneath-bremers-waves-mv-falkor-andrew-hosie/12021784
10	2/03/2020	Eco Magazine	Deep-Sea Coral Gardens Discovered in the Submarines Canyons Off South Western Australia	Magazine	https://www.ecomagazine.com/new s/science/deep-sea-coral-gardens-discovered-in-the-submarine-canyons- off-south-western-australia
11	2/03/2020	Upload comet	Coral Garden Was Found in the Depths of the Bremer Marine Park	News article	https://uploadcomet.com/coral-garden-was-found-in-the-depths-of-the-bremer-marine-park/6298/
12	2/03/2020	Weather.com	Deep-Sea Coral Gardens Discovered in Mysterious Canyons	News article	https://weather.com/en-IN/india/science/news/2020-03-02-deep-sea-cor al-gardens-discovered-mysterious-canyons
13	1/03/2020	ZME Science	Australia's deep-sea canyons feature coral gardens	News article	https://www.zmescience.com/scienc e/oceanography/australias-deep-sea -canyons-feature-coral-gardens/
14	29/02/2020	SciTech Daily	Stunning Deep-Sea Coral Gardens Discovered in the Submarine Canyons Off Australia	News article	https://scitechdaily.com/stunning-de ep-sea-coral-gardens-discovered-in-t he-submarine-canyons-off-australia/

15	28/02/2020	Phys.org	Deep-sea coral gardens discovered in canyons off Australia's South West	News article	https://phys.org/news/2020-02-dee p-sea-coral-gardens-canyons-australia.html
16	28/02/2020	Science Daily	Deep-sea coral gardens discovered in the submarine canyons off south Western Australia	News article	https://www.sciencedaily.com/releases/2020/02/200228102206.htm
17	28/02/2020	Marine Technology News	Deep-Sea Coral Gardens, Graveyards Discovered Off Australia	News article	https://www.marinetechnologynews .com/news/coral-gardens-graveyard s-discovered-599188
18	28/02/2020	Live Science	Amazing creatures of the deep seen off SW Australia	Youtube	https://www.youtube.com/watch?v =FY8hXR3V4Tg
19	28/02/2020	Newsweek	Deep-Sea Coral Gardens Discovered by Researchers in Mysterious Underwater Canyons	News article	https://www.newsweek.com/deep-sea-coral-gardens-researchers-never-before-seen-underwater-canyons-14 89758
20	28/02/2020	Mirage News	Deep-sea coral gardens discovered in canyons off Australia's South West	News article	https://www.miragenews.com/deep -sea-coral-gardens-discovered-in-canyons-off-australia-s-south-west/
21	19/02/2020	MSN Network-Geobeats	Rare underwater video captures whale fall	News Video	https://www.msn.com/en-gb/news/ video/rare-underwater-video-captur es-whale-fall/vi-BB108Ptn
22	24/01/2020	GWN 7News	TV interview (Trotter)		
23	11/02/2020	ABC Great Southern	First Look At Bremer Canyon Seafloor	News broadcast	https://www.facebook.com/watch/? v=621447671731762

24	28/01/2020	ABC News	Schmidt Ocean Institute's RV Falkor bound for deep-sea discoveries in WA's Bremer Bay canyon	News article	https://www.abc.net.au/news/2020- 01-29/killer-whale-hotspot-under-the-microscope/11907854
25	24/01/2020	ABC News	TV interview (Trotter)		
26	24/01/2020	GWN 7News	TV interview (Trotter)		
27	22/01/2020	Hydro International	Expedition to the Depths Of the Ocean is About to Start	News article	https://www.hydro-international.co m/content/news/the-great-australia n-deep-sea-coral-and-canyon-adventure-is-about-to-start
28	21/01/2020	UWA News	OI team prepare for an expedition of epic proportions	Press release	http://www.news.uwa.edu.au/2020 012111820/rov/oi-team-prepare-exp edition-epic-proportions
29	8/01/2020	Australian National Maritime Museum	Research Vessel Falkor – See maritime science at work	Article	https://www.sea.museum/whats-on /vessels/research-vessel-falkor
30	8/01/2020	ABC Radio Sydney	Breakfast with Josh Szeps	Radio program	https://www.abc.net.au/radio/sydne y/programs/breakfast/breakfast/118 44840
31	6/01/2020	9 News Sydney	New Ocean Frontiers	News broadcast	https://twitter.com/9NewsSyd/statu s/1214454322022551552

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9. Appendices

9.1 Inventory of seawater samples collected by CTD-Rosette

Sample Site	Date D/M/Y	CTD Cast #	Latitude S	Longitude E	Bottle #	Depth (m)	Sample Name	^{14}C	TE	$\delta^{15}N$	ε_{Nd}	TA	DIC	$\delta^{13}C$	$\delta^{18}O$	S	Nutr.
Hood Canyon	26/01/2020	1	34°43.852'S	119°40.128'E	17	5	FK20_01C_17		X	X		X	X	X	X	X	X
					16	25	FK20_01C_16		X	X		X	X	X	X	X	X
					15	50	FK20_01C_15		X	X		X	X	X	X	X	X
					14	75	FK20_01C_14		X	X		X	X	X	X	X	X
					13	100	FK20_01C_13		X	X		X	X	X	X	X	X
					12	150	FK20_01C_12		X	X		X	X	X	X	X	X
					11	200	FK20_01C_11		X	X		X	X	X	X	X	X
					10	300	FK20_01C_10		X	X		X	X	X	X	X	X
					9		(did not close)										
					8	400	FK20_01C_08		X			X	X				
					7	500	FK20_01C_07		X	X		X	X	X	X	X	X
					6	600	FK20_01C_06		X	X		X	X	X	X	X	X
					5	700	FK20_01C_05		X			X	X				
					4	800	FK20_01C_04		X	X		X	X	X	X	X	X
					3	900	FK20_01C_03		X			X	X				
					2	1100	FK20_01C_02		X			X	X				
					1	1263	FK20_01C_01		X	X		X	X	X	X	X	X
BCS mouth	27/01/2020	2	35°9.536'S	120°0.553'E	24	5	FK20_02C_24		X	X		X	X	X	X	X	X
					23	25	FK20_02C_23		X	X		X	X	X	X	X	X
					22	50	FK20_02C_22		X		X						
					21	50	FK20_02C_21	X		X		X	X	X	X	X	X
					20	75	FK20_02C_20					X	X				
					19	100	FK20_02C_19	X	X	X		X	X	X	X	X	X
					18	250	FK20_02C_18		X		X						
					17	250	FK20_02C_17	X		X		X	X	X	X	X	X
					16	400	FK20_02C_16	X	X	X		X	X	X	X	X	X
					15	500	FK20_02C_15		X			X	X				

					14	600	FK20_02C_14		X		X						
					13	600	FK20_02C_13	X		X		X	X	X	X	X	X
					12	750	FK20_02C_12	X	X	X		X	X	X	X	X	X
					11	1000	FK20_02C_11		X		X						
					10	1000	FK20_02C_10	X		X		X	X	X	X	X	X
					9												
					8	1500	FK20_02C_08		X		X						
					7	1500	FK20_02C_07	X		X		X	X	X	X	X	X
					6	2000	FK20_02C_06	X	X	X		X	X	X	X	X	X
					5	3000	FK20_02C_05		X		X						
					4	3000	FK20_02C_04	X		X		X	X	X	X	X	X
					3	3800	FK20_02C_03	X	X	X		X	X	X	X	X	X
					2	4010	FK20_02C_02		X		X						
					1	4010	FK20_02C_01	X		X		X	X	X	X	X	X
Bremer Canyon	29/01/2020	3	34°44.640’S	119°58.998’E	18	5	FK20_03C_18	X	X	X		X	X	X	X	X	X
					17	25	FK20_03C_17		X	X		X	X	X	X	X	X
					16	50	FK20_03C_16	X		X		X	X	X	X	X	X
					15	50	FK20_03C_15		X		X						
					14	75	FK20_03C_14	X	X	X		X	X	X	X	X	X
					13	100	FK20_03C_13	X	X	X		X	X	X	X	X	X
					12	250	FK20_03C_12	X	X	X		X	X	X	X	X	X
					11	400	FK20_03C_11	X	X	X		X	X	X	X	X	X
					10	500	FK20_03C_09	X		X		X	X	X	X	X	X
					9	600	FK20_03C_08		X		X						
					8	600	FK20_03C_08	X	X	X		X	X	X	X	X	X
					7	750	FK20_03C_07	X	X	X		X	X	X	X	X	X
					6	1000	FK20_03C_06	X		X		X	X	X	X	X	X
					5	1000	FK20_03C_05		X		X						
					4	1500	FK20_03C_04	X	X	X		X	X	X	X	X	X
					3	2000	FK20_03C_03	X	X	X		X	X	X	X	X	X
					2	2591	FK20_03C_02	X		X		X	X	X	X	X	X
					1	2591	FK20_03C_01		X		X						
BCS open ocean	2/02/2020	6	35°35.807’S	120°19.176’E	24	5	FK20_06C_24		X			X	X	X	X		X
					23	25	FK20_06C_23	X	X			X	X	X	X	X	X
					22	50	FK20_06C_22		X			X	X	X	X		X

					21	75	FK20_06C_21		X			X	X	X	X		X
					20	100	FK20_06C_20		X			X	X	X	X		X
					19	250	FK20_06C_19	X	X			X	X	X	X	X	X
					18	400	FK20_06C_18		X			X	X	X	X		X
					17	500	FK20_06C_17		X			X	X	X	X		X
					16	600	FK20_06C_16		X			X	X	X	X		X
					15	750	FK20_06C_15		X			X	X	X	X		X
					14	1000	FK20_06C_14	X	X			X	X	X	X	X	X
					13	1250	FK20_06C_13		X			X	X	X	X		X
					12	1500	FK20_06C_12		X			X	X	X	X		X
					11	1750	FK20_06C_11		X			X	X	X	X		X
					10	2000	FK20_06C_10		X			X	X	X	X		X
					9	2500	FK20_06C_09		X			X	X	X	X		X
					8	3000	FK20_06C_08		X			X	X	X	X		X
					7	3500	FK20_06C_07		X			X	X	X	X		X
					6	3800	FK20_06C_06		X			X	X	X	X	X	X
					5	4000	FK20_06C_05		X			X	X	X	X	X	X
					4	4300	FK20_06C_04		X			X	X	X	X	X	X
					3	4500	FK20_06C_03		X			X	X	X	X	X	X
					2	4810	FK20_06C_02	X				X	X	X	X	X	X
					1	4810	FK20_06C_01		X		X						
Hood Canyon	8/02/2020	16	34°39.631’S	119°44.171’E	13	5	FK20_16C_13			X		X	X	X	X	X	X
					12	25	FK20_16C_12			X		X	X	X	X		X
					11	50	FK20_16C_11	X		X		X	X	X	X	X	X
					10	75	FK20_16C_10			X		X	X	X			X
					9	100	FK20_16C_09	X		X		X	X	X	X	X	X
					8	150	FK20_16C_08			X		X	X	X			X
					7	200	FK20_16C_07			X		X	X	X	X		X
					6	250	FK20_16C_06			X		X	X	X			X
					5	300	FK20_16C_05	X		X		X	X	X	X	X	X
					4	400	FK20_16C_04			X		X	X	X	X		X
					3	500	FK20_16C_03			X		X	X	X	X		X
					2	550	FK20_16C_02			X		X	X	X	X	X	X
					1	580	FK20_16C_01	X		X		X	X	X	X	X	X
Perth Canyon	21/02/2020	19	31°46.59’S	114°24.99’E	1	3830	FK20_19C_01		X		X						

2	3830	FK20_19C_02			X		X	X	X	X	X	X
3	3500	FK20_19C_03					X	X				X
4	3000	FK20_19C_04		X	X		X	X	X	X		X
5	2750	FK20_19C_05					X	X				X
6	2500	FK20_19C_06					X	X	X	X		X
7	2000	FK20_19C_07		X		X						
8	2000	FK20_19C_08			X		X	X	X	X	X	X
9	1750	FK20_19C_09					X	X				X
10	1500	FK20_19C_10		X	X		X	X	X	X		X
11	1200	FK20_19C_11	X				X	X				X
12	1000	FK20_19C_12		X		X						
13	1000	FK20_19C_13	X		X		X	X	X	X	X	X
14	750	FK20_19C_14	X				X	X	X			X
15	600	FK20_19C_15					X	X	X	X		X
16	500	FK20_19C_16		X		X						
17	500	FK20_19C_17	X		X		X	X	X	X	X	X
18												
19	250	FK20_19C_19	X	X	X		X	X	X	X		X
20	100	FK20_19C_20	X				X	X	X			X
21	75	FK20_19C_21	X	X	X		X	X	X	X		X
22	50	FK20_19C_22	X				X	X	X		X	X
23	25	FK20_19C_23	X	X	X		X	X	X	X		X
24	6	FK20_19C_24	X				X	X	X			X

Note: BCS = Bremer canyon systems, ^{14}C = radiocarbon, TE = trace elements, $\delta^{15}N$ = nitrogen isotopes, ε_{Nd} = neodymium isotopes, TA = total alkalinity, DIC = dissolved inorganic carbon, $\delta^{13}C$ = stable carbon isotopes, $\delta^{18}O$ = stable oxygen isotopes, S = sulphur, Nutr. = nutrients.

9.2 Inventory of faunal samples collected by ROV

9.2.1 Samples held at the University of Western Australia in the Chief Scientist's collection

Sample ID	Scientific Name	Sample Site	Date (D/M/Y)	Latitude (ddeg)	Longitude (ddeg)	Location
FK20_312_13	*Lepidisis/Keratoisis*	Knob Canyon, dive 312	28/01/2020	-35.0444	119.7423	Univ. of WA
FK20_313_01	*Vaughanella*	Hood Canyon, dive 313	30/01/2020	-34.6689	119.7613	Univ. of WA
FK20_313_04	*Desmophyllum*	Hood Canyon, dive 313	30/01/2020	-34.6686	119.7610	Univ. of WA
FK20_314_01_01	*Solenosmilia*	Hood Canyon, dive 314	31/01/2020	-34.6680	119.7603	Univ. of WA
FK20_314_01_02	*Desmophyllum*	Hood Canyon, dive 314	31/01/2020	-34.6680	119.7603	Univ. of WA
FK20_314_01_02	*Solenosmilia*	Hood Canyon, dive 314	31/01/2020	-34.6680	119.7603	Univ. of WA
FK20_314_01_02	*Acesta*	Hood Canyon, dive 314	31/01/2020	-34.6680	119.7603	Univ. of WA
FK20_314_03_02	*Desmophyllum*	Hood Canyon, dive 314	31/01/2020	-34.6673	119.7599	Univ. of WA
FK20_314_03_02	*Solenosmilia*	Hood Canyon, dive 314	31/01/2020	-34.6673	119.7599	Univ. of WA
FK20_314_04_01	*Leiopathes*	Hood Canyon, dive 314	31/01/2020	-34.6672	119.7597	Univ. of WA
FK20_314_06_01	Brachiopoda	Hood Canyon, dive 314	31/01/2020	-34.6674	119.7594	Univ. of WA
FK20_314_06_03	*Solenosmilia*	Hood Canyon, dive 314	31/01/2020	-34.6674	119.7594	Univ. of WA
FK20_314_06_03	*Acesta*	Hood Canyon, dive 314	31/01/2020	-34.6674	119.7594	Univ. of WA
FK20_314_09_02	*Acesta*	Hood Canyon, dive 314	31/01/2020	-34.6674	119.7592	Univ. of WA
FK20_314_09_03	*Desmophyllum*	Hood Canyon, dive 314	31/01/2020	-34.6674	119.7592	Univ. of WA
FK20_314_12_02	*Smilium*	Hood Canyon, dive 314	31/01/2020	-34.6674	119.7588	Univ. of WA
FK20_314_13_01	indeterminate cup coral	Hood Canyon, dive 314	31/01/2020	-34.6664	119.7583	Univ. of WA
FK20_315_03_01	*Vaugharella*	Hood Canyon, dive 315	1/02/2020	-34.7413	119.6562	Univ. of WA
FK20_315_05_01	*Polymyces*	Hood Canyon, dive 315	1/02/2020	-34.7413	119.6563	Univ. of WA
FK20_315_06_01	*Lepidisis/Keratoisis*	Hood Canyon, dive 315	1/02/2020	-34.7413	119.6563	Univ. of WA
FK20_315_09_01	*Caryophyllia*	Hood Canyon, dive 315	1/02/2020	-34.7372	119.6569	Univ. of WA
FK20_317_01_01	*Stichopathes*	Hood Canyon, dive 317	5/02/2020	-34.7183	119.6686	Univ. of WA
FK20_317_03_01	*Desmophyllum*	Hood Canyon, dive 317	5/02/2020	-34.7181	119.6681	Univ. of WA
FK20_317_03_01	*Solenosmilia*	Hood Canyon, dive 317	5/02/2020	-34.7181	119.6681	Univ. of WA
FK20_317_04_01	*Solenosmilia*	Hood Canyon, dive 317	5/02/2020	-34.7170	119.6683	Univ. of WA
FK20_317_04_01	*Solenosmilia*	Hood Canyon, dive 317	5/02/2020	-34.7170	119.6683	Univ. of WA
FK20_317_04_01	*Desmophyllum*	Hood Canyon, dive 317	5/02/2020	-34.7170	119.6683	Univ. of WA

FK20_317_04_01	Brachiopoda	Hood Canyon, dive 317	5/02/2020	-34.7170	119.6683	Univ. of WA
FK20_317_05_02	*Desmophyllum*	Hood Canyon, dive 317	5/02/2020	-34.7168	119.6684	Univ. of WA
FK20_317_05_03	*Lepidisis/Keratoisis*	Hood Canyon, dive 317	5/02/2020	-34.7169	119.6684	Univ. of WA
FK20_317_05_03	*Corallium*	Hood Canyon, dive 317	5/02/2020	-34.7169	119.6684	Univ. of WA
FK20_317_06_01	Brachiopoda	Hood Canyon, dive 317	5/02/2020	-34.7157	119.6689	Univ. of WA
FK20_317_09_01	*Javania*	Hood Canyon, dive 317	5/02/2020	-34.7147	119.6695	Univ. of WA
FK20_317_10_01	*Leiopathes*	Hood Canyon, dive 317	5/02/2020	-34.7146	119.6693	Univ. of WA
FK20_318_01_01	*Flabellum*	Hood Canyon, dive 318	8/02/2020	-34.6577	119.7355	Univ. of WA
FK20_318_01_03	*Flabellum*	Hood Canyon, dive 318	8/02/2020	-34.6574	119.7355	Univ. of WA
FK20_318_01_03	*Stephanocyathus*	Hood Canyon, dive 318	8/02/2020	-34.6574	119.7355	Univ. of WA
FK20_318_02_02	*Caryophyllia*	Hood Canyon, dive 318	8/02/2020	-34.6567	119.7347	Univ. of WA
FK20_318_03_02	*Stephanocyathus*	Hood Canyon, dive 318	8/02/2020	-34.6558	119.7330	Univ. of WA
FK20_318_03_03	*Flabellum*	Hood Canyon, dive 318	8/02/2020	-34.6556	119.7329	Univ. of WA
FK20_320_01_02	cup coral, indeterminate	Hood Canyon, dive 320	10/02/2020	-34.6539	119.7248	Univ. of WA
FK20_320_05_04	*Caryophyllia*	Hood Canyon, dive 320	10/02/2020	-34.6532	119.7226	Univ. of WA
FK20_320_05_04	*Caryophyllia*	Hood Canyon, dive 320	10/02/2020	-34.6532	119.7226	Univ. of WA
FK20_320_05_04	*Cyathotrochus*	Hood Canyon, dive 320	10/02/2020	-34.6532	119.7226	Univ. of WA
FK20_320_05_04	cup coral, indeterminate	Hood Canyon, dive 320	10/02/2020	-34.6532	119.7226	Univ. of WA
FK20_320_06_01	*Stephanocyathus*	Hood Canyon, dive 320	10/02/2020	-34.6541	119.7225	Univ. of WA
FK20_320_07_01	*Stephanocyathus*	Hood Canyon, dive 320	10/02/2020	-34.6546	119.7227	Univ. of WA
FK20_320_08_01	*Lepidisis/Keratoisis*	Hood Canyon, dive 320	10/02/2020	-34.6548	119.7230	Univ. of WA
FK20_320_09_01	*Flabellum*	Hood Canyon, dive 320	10/02/2020	-34.6551	119.7229	Univ. of WA
FK20_320_09_01	*Caryophyllia*	Hood Canyon, dive 320	10/02/2020	-34.6551	119.7229	Univ. of WA
FK20_321_01_02	*Lepidisis/Keratoisis*	Henry Canyon, dive 321	11/02/2020	-34.9259	119.7811	Univ. of WA
FK20_321_09_01	*Lepidisis/Keratoisis*	Henry Canyon, dive 321	11/02/2020	-34.9302	119.7848	Univ. of WA
FK20_322_07_02	*Corallium*	Bremer Canyon, dive 322	12/02/2020	-34.6252	119.9739	Univ. of WA
FK20_322_08_1	*Caryophyllia*	Bremer Canyon, dive 322	12/02/2020	-34.6250	119.9738	Univ. of WA
FK20_322_08_04	*Corallium*	Bremer Canyon, dive 322	12/02/2020	-34.6250	119.9738	Univ. of WA
FK20_322_10_01	*Desmophyllum*	Bremer Canyon, dive 322	12/02/2020	-34.6251	119.9736	Univ. of WA
FK20_322_10_02	*Corallium*	Bremer Canyon, dive 322	12/02/2020	-34.6251	119.9736	Univ. of WA
FK20_322_15_01	cup coral, indeterminate	Bremer Canyon, dive 322	12/02/2020	-34.6243	119.9715	Univ. of WA
FK20_322_16_01	*Flabellum*	Bremer Canyon, dive 322	12/02/2020	-34.6229	119.9699	Univ. of WA

FK20_322_16_01	*Caryophyllia*	Bremer Canyon, dive 322	12/02/2020	-34.6229	119.9699	Univ. of WA
FK20_322_17_01	*Flabellum*	Bremer Canyon, dive 322	12/02/2020	-34.6212	119.9679	Univ. of WA
FK20_324_01_03	*Desmophyllum*	Mount Gabi, dive 324	15/02/2020	-35.1332	115.4622	Univ. of WA
FK20_324_03_01	*Desmophyllum*	Mount Gabi, dive 324	15/02/2020	-35.1335	115.4622	Univ. of WA
FK20_324_03_01	*Solenosmilia*	Mount Gabi, dive 324	15/02/2020	-35.1335	115.4622	Univ. of WA
FK20_324_04_02	*Lepidisis/Keratoisis*	Mount Gabi, dive 324	15/02/2020	-35.1340	115.4616	Univ. of WA
FK20_324_06_01	*Polymyces*	Mount Gabi, dive 324	15/02/2020	-35.1347	115.4606	Univ. of WA
FK20_324_10_01	*Caryophyllia*	Mount Gabi, dive 324	15/02/2020	-35.1351	115.4595	Univ. of WA
FK20_324_11_01	*Desmophyllum*	Mount Gabi, dive 324	15/02/2020	-35.1356	115.4584	Univ. of WA
FK20_324_12_01	*Desmophyllum*	Mount Gabi, dive 324	15/02/2020	-35.1354	115.4573	Univ. of WA
FK20_324_15_01	*Caryophyllia*	Mount Gabi, dive 324	15/02/2020	-35.1366	115.4553	Univ. of WA
FK20_324_15_01	*Desmophyllum*	Mount Gabi, dive 324	15/02/2020	-35.1366	115.4553	Univ. of WA
FK20_324_15_03	*Desmophyllum*	Mount Gabi, dive 324	15/02/2020	-35.1368	115.4537	Univ. of WA
FK20_325_03_01	*Crispatotrochus*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0837	115.4358	Univ. of WA
FK20_325_04_01	*Caryophyllia*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0836	115.4357	Univ. of WA
FK20_325_05_02	*Lepidisis/Keratoisis*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0836	115.4354	Univ. of WA
FK20_325_06_01	*Leiopathes*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0836	115.4353	Univ. of WA
FK20_325_07_01	*Desmophyllum*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0834	115.4354	Univ. of WA
FK20_325_07_01	*Lepidisis/Keratoisis*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0834	115.4354	Univ. of WA
FK20_325_07_02	*Desmophyllum*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0834	115.4354	Univ. of WA
FK20_325_08_01	*Caryophyllia*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0833	115.4355	Univ. of WA
FK20_325_09_01	*Javania*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0831	115.4357	Univ. of WA
FK20_325_09_01	*Paraconotrocus*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0831	115.4356	Univ. of WA
FK20_325_09_02	*Enallopsammia*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0831	115.4356	Univ. of WA
FK20_325_10_03	*Flabellum*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0825	115.4356	Univ. of WA
FK20_325_10_05	*Flabellum*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0825	115.4356	Univ. of WA
FK20_325_10_07	*Flabellum*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0824	115.4357	Univ. of WA
FK20_325_11_01	*Flabellum*	Leeuwin slope-shelf, dive 325	16/02/2020	-35.0822	115.4356	Univ. of WA
FK20_327_01_01	*Polymyces*	Perth Canyon, dive 327	19/02/2020	-31.6909	114.8620	Univ. of WA
FK20_327_01_03	*Polymyces*	Perth Canyon, dive 327	19/02/2020	-31.6906	114.8621	Univ. of WA
FK20_327_04_01	stylasterid	Perth Canyon, dive 327	19/02/2020	-31.6887	114.8626	Univ. of WA

Fk20_327_10_02	stylasterid	Perth Canyon, dive 327	19/02/2020	-31.6880	114.8622	Univ. of WA
FK20_327_14_02	*Javania*	Perth Canyon, dive 327	19/02/2020	-31.6830	114.8609	Univ. of WA
FK20_328_02_01	*Arcoscalpellum*	Perth Canyon, dive 328	20/02/2020	-32.1016	114.8569	Univ. of WA
FK20_328_05_01	*Rhombopsammia*	Perth Canyon, dive 328	20/02/2020	-32.0994	114.8601	Univ. of WA
FK20_328_06_01	*Arcoscalpellum*	Perth Canyon, dive 328	20/02/2020	-32.0992	114.8601	Univ. of WA
FK20_328_07_01	*Polymyces*	Perth Canyon, dive 328	20/02/2020	-32.0961	114.8645	Univ. of WA
FK20_328_07_03	*Polymyces*	Perth Canyon, dive 328	20/02/2020	-32.0959	114.8641	Univ. of WA
FK20_328_07_04	*Javania?*	Perth Canyon, dive 328	20/02/2020	-32.0959	114.8641	Univ. of WA
FK20_328_09_01	*Lepidisis/Keratoisis*	Perth Canyon, dive 328	20/02/2020	-32.0951	114.8642	Univ. of WA
FK20_328_09_04	*Polymyces*	Perth Canyon, dive 328	20/02/2020	-32.0949	114.8643	Univ. of WA
FK20_329_10_01	*Arcoscalpellum*	Perth Canyon, dive 329	21/02/2020	-31.9578	114.6141	Univ. of WA
FK20_329_12_01	Isididae	Perth Canyon, dive 329	21/02/2020	-31.9573	114.6117	Univ. of WA
FK20_330_03_01	*Flabellum*	Perth Canyon, dive 330	22/02/2020	-31.9073	115.1152	Univ. of WA
FK20_330_05_01	*Paraconotrochus*	Perth Canyon, dive 330	22/02/2020	-31.9061	115.1158	Univ. of WA
FK20_330_05_02	*Stephanocyathus*	Perth Canyon, dive 330	22/02/2020	-31.9061	115.1158	Univ. of WA
FK20_330_07_03	*Paraconotrochus*	Perth Canyon, dive 330	22/02/2020	-31.9051	115.1163	Univ. of WA
FK20_330_07_04	*Stephanocyathus*	Perth Canyon, dive 330	22/02/2020	-31.9049	115.1163	Univ. of WA
FK20_330_08_01	*Paraconotrochus*	Perth Canyon, dive 330	22/02/2020	-31.9046	115.1165	Univ. of WA
FK20_330_08_01	*Stephanocyathus*	Perth Canyon, dive 330	22/02/2020	-31.9046	115.1165	Univ. of WA
FK20_330_08_02	*Caryophyllia*	Perth Canyon, dive 330	22/02/2020	-31.9046	115.1165	Univ. of WA
FK20_330_09_01	*Paraconotrochus*	Perth Canyon, dive 330	22/02/2020	-31.9029	115.1183	Univ. of WA
FK20_330_09_04	*Fungiacyathus*	Perth Canyon, dive 330	22/02/2020	-31.9029	115.1183	Univ. of WA
FK20_330_09_05	*Stephanocyathus*	Perth Canyon, dive 330	22/02/2020	-31.9028	115.1183	Univ. of WA
FK20_330_10_01	*Stephanocyathus*	Perth Canyon, dive 330	22/02/2020	-31.9023	115.1189	Univ. of WA
FK20_330_10_02	*Flabellum*	Perth Canyon, dive 330	22/02/2020	-31.9018	115.1193	Univ. of WA
FK20_330_11_02	*Letepsammia*	Perth Canyon, dive 330	22/02/2020	-31.9008	115.1201	Univ. of WA
FK20_330_12_01	*Caryophyllia*	Perth Canyon, dive 330	22/02/2020	-31.9003	115.1205	Univ. of WA
FK20_330_13_01	*Deltocyathus*	Perth Canyon, dive 330	22/02/2020	-31.8999	115.1214	Univ. of WA
FK20_330_13_05	*Letepsammia*	Perth Canyon, dive 330	22/02/2020	-31.8994	115.1215	Univ. of WA
FK20_331_01_01	*Fungiacyathus*	Perth Canyon, dive 331	23/02/2020	-32.0078	114.9890	Univ. of WA
FK20_331_03_01	*Fungiacyathus*	Perth Canyon, dive 331	23/02/2020	-32.0069	114.9883	Univ. of WA
FK20_331_04_01+03	*Crispatotrochus*	Perth Canyon, dive 331	23/02/2020	-32.0042	114.9841	Univ. of WA

FK20_331_07_02	*Polymyces*	Perth Canyon, dive 331	23/02/2020	-32.0034	114.9838	Univ. of WA
FK20_331_07_03	*Crispatotrochus*	Perth Canyon, dive 331	23/02/2020	-32.0034	114.9838	Univ. of WA

9.2.2 Samples held at the Western Australian Museum

WAM Sample ID	Scientific Name	Sample Site	Date (D/M/Y)	Latitude	Longitude	Location
WAM S29853	*Glaucus* (gastropod)	FK20_01N, Knob Canyon, Manta net trawl	3/02/2020	-35.0751	119.6901	WA Museum
WAM C75167	*Dosima fascicularis* (arthropod)	FK20_04N, Bremer Canyon, Manta net trawl	2/02/2020	-35.1666	120.1444	WA Museum
WAM C75168	Idoteidae? (arthropod)	FK20_04N, Bremer Canyon, Manta net trawl	2/02/2020	-35.1666	120.1444	WA Museum
WAM S29852	*Janthina* (gastropod)	FK20_04N, Bremer Canyon, Manta net trawl	2/02/2020	-35.1666	120.1444	WA Museum
WAM S29854	*Glaucus* (gastropod)	FK20_04N, Bremer Canyon, Manta net trawl	2/02/2020	-35.1666	120.1444	WA Museum
WAM P35115.001	*Myctophum asperum* (fish)	FK20_09N, Perth Canyon, Manta net trawl	21/02/2020	-31.9561	-114.6117	WA Museum
WAM Z105133	*Velella* (Hydrozoa)	FK20_09N, Perth Canyon, Manta net trawl	21/02/2021	-31.9561	-114.6117	WA Museum
WAM S29848	Eulimidae (gastropod)	FK20_312_01, Knob Canyon, dive 312	28/01/2020	-35.0553	-119.7425	WA Museum
WAM Z105019	Urechinidae (echinoid)	FK20_312_01, Knob Canyon, dive 312	28/01/2020	-35.0553	-119.7425	WA Museum
WAM Z105156	*Plutonaster* (asteroid)	FK20_312_02, Knob Canyon, dive 312	28/01/2020	-35.0550	-119.7419	WA Museum
WAM Z105016	Anthozoa	FK20_312_08, Knob Canyon, dive 312	28/01/2020	-35.0544	-119.7419	WA Museum
WAM Z105017	Corallimorpharia	FK20_312_09, Knob Canyon, dive 312	28/01/2020	-35.0544	-119.7417	WA Museum
WAM Z105001	Cladorhizidae (sponge)	FK20_312_10, Knob Canyon, dive 312	28/01/2020	-35.0544	-119.7417	WA Museum
WAM Z105020	Echinothuriidae	FK20_312_14, Knob Canyon, dive 312	28/01/2020	-35.0436	-119.7425	WA Museum
WAM Z105013	*Atlantisella* (sponge)	FK20_312_15, Knob Canyon, dive 312	28/01/2020	-35.0433	-119.7428	WA Museum
WAM S29850	cf. Trochidae (gastropod)	FK20_312_16, Knob Canyon, dive 312	28/01/2020	-35.0433	-119.7425	WA Museum
WAM Z105018	Euplectellidae (sponge)	FK20_312_16, Knob Canyon, dive 312	28/01/2020	-35.0433	-119.7425	WA Museum
WAM C75105	Copepoda	FK20_313_01, Hood Canyon, dive 313	30/01/2020	-34.6689	-119.7614	WA Museum
WAM V9617	Polynoidae (polychaete)	FK20_313_01, Hood Canyon, dive 313	30/01/2020	-34.6689	-119.7614	WA Museum
WAM Z105006	Cladorhizidae? (sponge)	FK20_313_01, Hood Canyon, dive 313	30/01/2020	-34.6689	-119.7614	WA Museum
WAM Z105160	*Vaughanella* (coral) - tissue for genetics	FK20_313_01, Hood Canyon, dive 313	30/01/2020	-34.6689	-119.7614	WA Museum
WAM Z105161	*Vaughanella* (coral) - tissue for genetics	FK20_313_01, Hood Canyon, dive 313	30/01/2020	-34.6689	-119.7614	WA Museum
WAM Z105002	*Aphrocallistes* (sponge)	FK20_313_03, Hood Canyon, dive 313	30/01/2020	-34.6689	-119.7611	WA Museum
WAM Z105021	*Desmophyllum* (coral) - tissue for genetics	FK20_313_03, Hood Canyon, dive 313	30/01/2020	-34.6689	-119.7611	WA Museum

WAM Z105007	Cladorhizidae? (sponge)	FK20_313_04, Hood Canyon, dive 313	30/01/2020	-34.6686	-119.7611	WA Museum
WAM V9618	Eunicidae	FK20_314_01_01, Hood Canyon, dive 314	31/01/2020	-34.6681	-119.7603	WA Museum
WAM Z105008	*Regadrella* (sponge)	FK20_314_01_01, Hood Canyon, dive 314	31/01/2020	-34.6681	-119.7603	WA Museum
WAM Z105024	Crinoidea	FK20_314_01_01, Hood Canyon, dive 314	31/01/2020	-34.6681	-119.7603	WA Museum
WAM Z105025	Ophiacanthidae	FK20_314_01_01, Hood Canyon, dive 314	31/01/2020	-34.6681	-119.7603	WA Museum
WAM Z105026	*Narella* (coral)	FK20_314_01_01, Hood Canyon, dive 314	31/01/2020	-34.6681	-119.7603	WA Museum
WAM S29823	Capulidae (gastropod)	FK20_314_01_02, Hood Canyon, dive 314	31/01/2020	-34.6681	-119.7603	WA Museum
WAM S29845	Capulidae (gastropod)	FK20_314_01_02, Hood Canyon, dive 314	31/01/2020	-34.6681	-119.7603	WA Museum
WAM V9619	Polynoidae	FK20_314_01_02, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7603	WA Museum
WAM C75106	*Amigdoscalpellum elegans* (arthropod)	FK20_314_03_01, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7600	WA Museum
WAM C75107	*Paralebbeus* (arthropod)	FK20_314_03_03, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7600	WA Museum
WAM Z105011	Rossellidae (sponge)	FK20_314_03_03, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7600	WA Museum
WAM Z105031	Ophiuroidea	FK20_314_03_03, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7600	WA Museum
WAM Z105030	Antipatharia (coral)	FK20_314_04_01, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7597	WA Museum
WAM Z105023	Brachiopoda - tissue for genetics	FK20_314_06_01, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7594	WA Museum
WAM S29814	*Acesta* (bivalve)	FK20_314_06_02, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7594	WA Museum
WAM C75108	*Munidopsis comarge* (arthropod)	FK20_314_06_03, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7594	WA Museum
WAM Z105027	*Solenosmilia* (coral)	FK20_314_06_03, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7594	WA Museum
WAM Z105028	Ophiuroidea	FK20_314_06_03, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7594	WA Museum
WAM Z105029	*Gorgonia* (coral)	FK20_314_06_03, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7594	WA Museum
WAM C75109	*Neopilumnoplax nieli* (arthropod)	FK20_314_08_01, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7592	WA Museum
WAM S29818	cf. Dorididae (gastropod)	FK20_314_08_02, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7592	WA Museum
WAM C75110	Mysida (arthropod)	FK20_314_09_02, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7592	WA Museum
WAM V9665	Sipuncula	FK20_314_09_02, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7592	WA Museum
WAM Z105022	*Desmophyllum* (coral) - tissue for genetics	FK20_314_09_02, Hood Canyon, dive 314	31/01/2020	-34.6672	-119.7592	WA Museum
WAM Z105153	*Paragorgia* (coral)	FK20_314_10_01, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7589	WA Museum
WAM C75111	*Smilium zancleanum* (arthropod)	FK20_314_12_02, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7589	WA Museum
WAM C75112	*Neopilumnoplax nieli* (arthropod)	FK20_314_12_02, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7589	WA Museum
WAM C75724	*Smilium zancleanum* (arthropod)	FK20_314_12_02, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7589	WA Museum
WAM C75725	*Smilium zancleanum* (arthropod)	FK20_314_12_02, Hood Canyon, dive 314	31/01/2020	-34.6675	-119.7589	WA Museum
WAM C75726	*Smilium zancleanum* (arthropod)	FK20_314_12_02, Hood Canyon, dive 314	31/01/2020	-34.6764	-119.7589	WA Museum

WAM V9620	*Swima* (polychaete)	FK20_315_01_01, Hood Canyon, dive 315	1/02/2020	-34.7431	-119.6553	WA Museum
WAM V9621	*Swima* (polychaete)	FK20_315_01_01, Hood Canyon, dive 315	1/02/2020	-34.7431	-119.6553	WA Museum
WAM V9663	*Swima* (polychaete)	FK20_315_01_01, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6553	WA Museum
WAM C75113	*Verum* (arthropod)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM S29811	cf. *Idas* (bivalve)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM S29812	cf. *Idas* (bivalve)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM S29819	cf. *Idas* (bivalve)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM S29820	cf. *Idas* (bivalve)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM S29821	cf. *Idas* (bivalve)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM S29825	cf. Dorididae (gastropod)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM S29828	cf. *Laternula* (bivalve)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM S29851	cf. *Idas* (bivalve)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM V9622	Polynoidae	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM V9623	Polynoidae	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM V9624	Eunicidae	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM V9625	Polynoidae	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM V9626	*Chaetopterus* (polychaete)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM V9627	*Chaetopterus* (polychaete)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM V9628	*Chaetopterus* (polychaete)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM V9629	*Chaetopterus* (polychaete)	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM V9630	Eunicidae	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM Z105032	Ophiuroidea	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM Z105034	Actiniidae	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM Z105163	Ophiuroidea	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM Z105164	Ophiuroidea	FK20_315_02_09, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM C75114	Palaemonidae (arthropod)	FK20_315_03_01, Hood Canyon, dive 315	1/02/2020	-34.7414	-119.6561	WA Museum
WAM S29841	cf. Chaetodermatidae	FK20_315_03_01, Hood Canyon, dive 315	1/02/2020	-34.7381	-119.6561	WA Museum
WAM C75115	*Epimeria*(arthropod)	FK20_315_08_01, Hood Canyon, dive 315	1/02/2020	-34.7381	-119.6569	WA Museum
WAM Z105033	Pennatulacea	FK20_315_08_01, Hood Canyon, dive 315	1/02/2020	-34.7350	-119.6569	WA Museum
WAM Z105157	*Stichopathes* (coral)	Fk20_317_01_01, Hood Canyon, dive 317	5/02/2020	-34.7181	-119.6686	WA Museum
WAM Z105151	*Megalodicopia* (ascidian)	FK20_317_02_01, Hood Canyon, dive 317	5/02/2020	-34.7181	-119.6683	WA Museum

WAM Z105152	*Megalodicopia* (ascidian)	FK20_317_02_01, Hood Canyon, dive 317	5/02/2020	-34.7181	-119.6683	WA Museum
WAM C75116	Amphipoda	FK20_317_03_01, Hood Canyon, dive 317	5/02/2020	-34.7181	-119.6681	WA Museum
WAM Z105035	*Desmophyllum* (coral)	FK20_317_03_01, Hood Canyon, dive 317	5/02/2020	-34.7181	-119.6681	WA Museum
WAM Z105036	*Solenosmilia* (coral)	FK20_317_03_01, Hood Canyon, dive 317	5/02/2020	-34.7181	-119.6681	WA Museum
WAM Z105037	Eupletellidae (sponge)	FK20_317_03_01, Hood Canyon, dive 317	5/02/2020	-34.7181	-119.6681	WA Museum
WAM Z105044	*Narella* (coral)	FK20_317_03_01, Hood Canyon, dive 317	5/02/2020	-34.7169	-119.6681	WA Museum
WAM Z105042	Actiniidae	FK20_317_04_01, Hood Canyon, dive 317	5/02/2020	-34.7169	-119.6683	WA Museum
WAM Z105043	Actiniidae	FK20_317_04_01, Hood Canyon, dive 317	5/02/2020	-34.7169	-119.6683	WA Museum
WAM V9631	Polynoidae	FK20_317_04_02, Hood Canyon, dive 317	5/02/2020	-34.7169	-119.6683	WA Museum
WAM Z105038	Zoanthidae	FK20_317_05_01, Hood Canyon, dive 317	5/02/2020	-34.7169	-119.6683	WA Museum
WAM Z105041	Actiniidae	FK20_317_05_01, Hood Canyon, dive 317	5/02/2020	-34.7169	-119.6683	WA Museum
WAM Z105158	Stylasteridae (Hydrozoa)	FK20_317_05_01, Hood Canyon, dive 317	5/02/2020	-34.7322	-119.6683	WA Museum
WAM Z105040	Brachiopoda	FK20_317_06_01, Hood Canyon, dive 317	5/02/2020	-34.7156	-119.6689	WA Museum
WAM Z105150	*Lepidisis?* (coral)	FK20_317_06_01, Hood Canyon, dive 317	5/02/2020	-34.7156	-119.6689	WA Museum
WAM V9632	Polychaeta	FK20_317_07_01, Hood Canyon, dive 317	5/02/2020	-34.7147	-119.6689	WA Museum
WAM V9633	Serpulidae	FK20_317_09_02, Hood Canyon, dive 317	5/02/2020	-34.7147	-119.6694	WA Museum
WAM C75117	*Leontocaris yarramundi* (arthropod)	FK20_317_10_01, Hood Canyon, dive 317	5/02/2020	-34.7147	-119.6692	WA Museum
WAM C75118	*Leontocaris yarramundi* (arthropod)	FK20_317_10_01, Hood Canyon, dive 317	5/02/2020	-34.7108	-119.6692	WA Museum
WAM C75749	*Leontocaris yarramundi* (arthropod)	FK20_317_10_01, Hood Canyon, dive 317	5/02/2020	-31.9003	-115.1131	WA Museum
WAM C75750	*Leontocaris yarramundi* (arthropod)	FK20_317_10_01, Hood Canyon, dive 317	5/02/2020	-35.1647	-120.1335	WA Museum
WAM Z105149	*Leiopathes* (coral)	FK20_317_10_01, Hood Canyon, dive 317	5/02/2020	-34.7078	-119.6692	WA Museum
WAM S29829	cf. Veneridae (bivalve)	FK20_318_01_02, Hood Canyon, dive 318	8/02/2020	-34.6578	-119.7356	WA Museum
WAM S29838	cf. *Adipicola* (bivalve)	FK20_318_01_02, Hood Canyon, dive 318	8/02/2020	-34.6578	-119.7356	WA Museum
WAM Z105162	Monothalamea (foraminifer)	FK20_318_01_02, Hood Canyon, dive 318	8/02/2020	-34.6572	-119.7356	WA Museum
WAM V9634	Polynoidae (polychaete)	FK20_318_01_03, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM Z105045	*Flabellum* (coral)	FK20_318_01_03, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM Z105046	*Stephanocyathus* (coral)	FK20_318_01_03, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM Z105047	Corallimorpharia	FK20_318_01_03, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM Z105048	Corallimorpharia	FK20_318_01_03, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM Z105052	*Stephanocyathus* (coral)	FK20_318_01_03, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM Z105053	*Flabellum* (coral)	FK20_318_01_03, Hood Canyon, dive 318	8/02/2020	-34.6572	-119.7356	WA Museum

WAM Z105054	*Flabellum* (coral)	FK20_318_01_03, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM C75119	Amphipoda	FK20_318_01_04, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM C75120	*Neoacasta* (arthropod)	FK20_318_01_04, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM C75727	*Neoacasta* (arthropod)	FK20_318_01_04, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM C75729	*Neoacasta* (arthropod)	FK20_318_01_04, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM C75730	*Neoacasta* (arthropod)	FK20_318_01_04, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM V9635	Glyceridae (polychaete)	FK20_318_01_04, Hood Canyon, dive 318	8/02/2020	-34.6575	-119.7356	WA Museum
WAM Z105051	Spongiidae	FK20_318_01_04, Hood Canyon, dive 318	8/02/2020	-34.6567	-119.7356	WA Museum
WAM V9636	Serpulidae (polychaete)	FK20_318_02_01, Hood Canyon, dive 318	8/02/2020	-34.6567	-119.7347	WA Museum
WAM V9664	Eunicidae (polychaete)	FK20_318_02_01, Hood Canyon, dive 318	8/02/2020	-34.6567	-119.7347	WA Museum
WAM Z105049	Scleractinia?	FK20_318_02_02, Hood Canyon, dive 318	8/02/2020	-34.6567	-119.7347	WA Museum
WAM Z105050	Ophiuroidea	FK20_318_02_02, Hood Canyon, dive 318	8/02/2020	-34.6558	-119.7347	WA Museum
WAM S29856	*Sassia* (gastropod)	FK20_318_03_01, Hood Canyon, dive 318	8/02/2020	-34.6539	-119.7331	WA Museum
WAM Z105065	*Flabellum* (coral)	FK20_320, Hood Canyon, dive 320	10/02/2020	-34.6539	-119.7247	WA Museum
WAM Z105055	Actiniidae	FK20_320_01_01, Hood Canyon, dive 320	10/02/2020	-34.6500	-119.7247	WA Museum
WAM Z105070	*Oceanapia* (sponge)	FK20_320_04_01, Hood Canyon, dive 320	10/02/2020	-34.6500	-119.7225	WA Museum
WAM Z105144	Raspailiidae (sponge)	FK20_320_04_01, Hood Canyon, dive 320	10/02/2020	-34.6500	-119.7225	WA Museum
WAM Z105145	Astrophorina (sponge)	FK20_320_04_01, Hood Canyon, dive 320	10/02/2020	-34.6500	-119.7225	WA Museum
WAM Z105064	Dictyoceratida (sponge)	FK20_320_04_02, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM C75121	*Tymolus* cf. *similis* (arthropod)	FK20_320_05_01, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM C75122	*Ebalia tuberculosa* (arthropod)	FK20_320_05_01, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM S29832	cf. Turbinellidae (gastropod)	FK20_320_05_01, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM V9694	Sipuncula	FK20_320_05_01, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM Z105056	Holothuroidea	FK20_320_05_01, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM Z105057	*Truncatoflabellum* (coral)	FK20_320_05_01, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM S29839	cf. Turridae (gastropod)	FK20_320_05_02, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM V9638	Sipuncula	FK20_320_05_02, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM V9639	*Hyalinoecia* (polychaete)	FK20_320_05_02, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM Z105067	Ophiuroidea	FK20_320_05_02, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM Z105068	Ophiuroidea	FK20_320_05_02, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum
WAM Z105058	Caryophylliidae (coral)	FK20_320_05_04, Hood Canyon, dive 320	10/02/2020	-34.6533	-119.7225	WA Museum

WAM Z105059	Caryophylliidae (coral)	FK20_320_05_04, Hood Canyon, dive 320	10/02/2020	-34.6547	-119.7225	WA Museum
WAM V9640	*Hyalinoecia* (polychaete)	FK20_320_07_01, Hood Canyon, dive 320	10/02/2020	-34.6547	-119.7228	WA Museum
WAM Z105066	Ophiuroidea	FK20_320_07_01, Hood Canyon, dive 320	10/02/2020	-34.6550	-119.7228	WA Museum
WAM Z105060	*Flabellum* (coral)	FK20_320_09_01, Hood Canyon, dive 320	10/02/2020	-34.6550	-119.7228	WA Museum
WAM Z105061	Caryophylliidae (coral)	FK20_320_09_01, Hood Canyon, dive 320	10/02/2020	-34.6550	-119.7228	WA Museum
WAM Z105062	*Flabellum* (coral)	FK20_320_09_01, Hood Canyon, dive 320	10/02/2020	-34.6550	-119.7228	WA Museum
WAM Z105063	*Stephanocyathus* (coral)	FK20_320_09_01, Hood Canyon, dive 320	10/02/2020	-34.6550	-119.7228	WA Museum
WAM Z105069	Hydrozoa	FK20_320_09_01, Hood Canyon, dive 320	10/02/2020	-34.6522	-119.7228	WA Museum
WAM C75123	*Ebalia tuberculosa* (arthropod)	FK20_320_10_01, Hood Canyon, dive 320	10/02/2020	-34.6519	-119.7219	WA Museum
WAM V9641	Polychaeta	FK20_320_10_02, Hood Canyon, dive 320	10/02/2020	-34.6519	-119.7219	WA Museum
WAM Z105014	Polymastiidae (sponge)	FK20_320_10_02, Hood Canyon, dive 320	10/02/2020	-34.6592	-119.7219	WA Museum
WAM C75124	*Parapontophilus* cf. *longirostris* (arthrop.)	FK20_321_01_01, Henry Canyon, dive 321	11/02/2020	-34.9258	-119.7811	WA Museum
WAM C75125	Amphipoda	FK20_321_01_01, Henry Canyon, dive 321	11/02/2020	-34.9258	-119.7811	WA Museum
WAM Z105077	Actiniidae	FK20_321_01_01, Henry Canyon, dive 321	11/02/2020	-34.9261	-119.7811	WA Museum
WAM C75126	*Gibbosaverruca* (arthropod)	FK20_321_01_03, Henry Canyon, dive 321	11/02/2020	-34.9261	-119.7811	WA Museum
WAM C75731	*Gibbosaverruca* (arthropod)	FK20_321_01_03, Henry Canyon, dive 321	11/02/2020	-34.9261	-119.7811	WA Museum
WAM C75732	*Gibbosaverruca* (arthropod)	FK20_321_01_03, Henry Canyon, dive 321	11/02/2020	-34.9261	-119.7811	WA Museum
WAM C75733	*Gibbosaverruca* (arthropod)	FK20_321_01_03, Henry Canyon, dive 321	11/02/2020	-34.9294	-119.7811	WA Museum
WAM C75127	*Amigdoscalpellum elegans* (arthropod)	FK20_321_08_01, Henry Canyon, dive 321	11/02/2020	-34.9294	-119.7847	WA Museum
WAM C75742	*Amigdoscalpellum elegans* (arthropod)	FK20_321_08_01, Henry Canyon, dive 321	11/02/2020	-34.9294	-119.7847	WA Museum
WAM C75743	*Amigdoscalpellum elegans* (arthropod)	FK20_321_08_01, Henry Canyon, dive 321	11/02/2020	-34.9294	-119.7847	WA Museum
WAM Z105076	Antipatharia (coral)	FK20_321_08_01, Henry Canyon, dive 321	11/02/2020	-34.9303	-119.7847	WA Museum
WAM C75128	*Glyptelasma orientale* (arthropod)	FK20_321_09_01, Henry Canyon, dive 321	11/02/2020	-34.9303	-119.7847	WA Museum
WAM C75718	*Glyptelasma orientale* (arthropod)	FK20_321_09_01, Henry Canyon, dive 321	11/02/2020	-34.9303	-119.7847	WA Museum
WAM C75719	*Glyptelasma orientale* (arthropod)	FK20_321_09_01, Henry Canyon, dive 321	11/02/2020	-34.9303	-119.7847	WA Museum
WAM Z105074	Isididae (coral)	FK20_321_09_01, Henry Canyon, dive 321	11/02/2020	-34.9303	-119.7847	WA Museum
WAM Z105075	Isididae (coral)	FK20_321_09_01, Henry Canyon, dive 321	11/02/2020	-34.9303	-119.7847	WA Museum
WAM C75129	*Neoscalpellum* cf. *phantasma* (arthropod)	FK20_321_10_02, Henry Canyon, dive 321	11/02/2020	-34.9308	-119.7847	WA Museum
WAM C75130	*Glyptelasma orientale* (arthropod)	FK20_321_11_02, Henry Canyon, dive 321	11/02/2020	-34.9308	-119.7839	WA Museum
WAM C75717	*Glyptelasma orientale* (arthropod)	FK20_321_11_02, Henry Canyon, dive 321	11/02/2020	-34.9308	-119.7839	WA Museum
WAM Z105072	Crinoidea	FK20_321_11_02, Henry Canyon, dive 321	11/02/2020	-34.9308	-119.7839	WA Museum

WAM Z105073	Hydrozoa	FK20_321_11_02, Henry Canyon, dive 321	11/02/2020	-34.9308	-119.7839	WA Museum
WAM C75131	*Munidopsis* cf. *petila* (arthropod)	FK20_321_13_01, Henry Canyon, dive 321	11/02/2020	-34.9311	-119.7822	WA Museum
WAM V9642	Polynoidae	FK20_321_15_01, Henry Canyon, dive 321	11/02/2020	-34.9211	-119.7806	WA Museum
WAM V9643	Aphroditidae? (polychaete)	FK20_322, Bremer Canyon, dive 322	12/02/2020	-34.6256	-119.9678	WA Museum
WAM V9644	Eunicidae (polychaete)	FK20_322_01_02, Bremer Canyon, dive 322	12/02/2020	-34.6256	-119.9744	WA Museum
WAM Z105086	Antipatharia (coral)	FK20_322_01_02, Bremer Canyon, dive 322	12/02/2020	-34.6256	-119.9744	WA Museum
WAM S29827	cf. Mytilidae	FK20_322_01_4, Bremer Canyon, dive 322	12/02/2020	-34.6256	-119.9744	WA Museum
WAM V9645	Eunicidae (polychaete)	FK20_322_03_01, Bremer Canyon, dive 322	12/02/2020	-34.6256	-119.9744	WA Museum
WAM Z105079	*Asthenactis* (asteroid)	FK20_322_03_01, Bremer Canyon, dive 322	12/02/2020	-34.6253	-119.9744	WA Museum
WAM C75132	*Munidopsis spiridonovi* (arthropod)	FK20_322_05_01, Bremer Canyon, dive 322	12/02/2020	-34.6253	-119.9744	WA Museum
WAM Z105005	*Farrea* (sponge)	FK20_322_05_01, Bremer Canyon, dive 322	12/02/2020	-34.6253	-119.9744	WA Museum
WAM C75133	*Leontocaris yarramundi* (arthropod)	FK20_322_06_01, Bremer Canyon, dive 322	12/02/2020	-34.6253	-119.9742	WA Museum
WAM Z105080	Antipatharia (coral)	FK20_322_06_01, Bremer Canyon, dive 322	12/02/2020	-34.6253	-119.9742	WA Museum
WAM S29842	cf. Patellidae (gastropod)	Fk20_322_07_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9739	WA Museum
WAM C75134	*Uroptychus ciliates* (arthropod)	FK20_322_08_03, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9739	WA Museum
WAM Z105081	Echinoidea	FK20_322_08_03, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9739	WA Museum
WAM Z105082	Antipatharia (coral)	FK20_322_08_03, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9739	WA Museum
WAM Z105084	Crinoidea	FK20_322_08_03, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9739	WA Museum
WAM C75135	*Munidopsis comarge* (arthropod)	FK20_322_10_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9736	WA Museum
WAM V9646	Polynoidae	FK20_322_10_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9736	WA Museum
WAM Z105085	Zoanthidae	FK20_322_10_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9736	WA Museum
WAM Z105090	*Corallium* (coral)	FK20_322_10_02, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9736	WA Museum
WAM Z105071	Zoanthidae	FK20_322_11_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9736	WA Museum
WAM Z105089	Zoanthidae	FK20_322_11_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9736	WA Museum
WAM Z105134	Brachiopoda	FK20_322_11_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9736	WA Museum
WAM C75136	Amphipoda	FK20_322_12_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum
WAM S29840	*Acesta* (bivalve)	FK20_322_12_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum
WAM Z105078	Crinoidea	FK20_322_12_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum
WAM Z105091	*Desmophyllum* (coral)	FK20_322_12_01, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum
WAM C75137	*Munidopsis comarge* (arthropod)	FK20_322_12_02, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum
WAM C75138	*Scillaelepas fosteri* (arthropod)	FK20_322_12_02, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum

WAM C75139	*Scillaelepas fosteri* (arthropod)	FK20_322_12_02, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum
WAM S29815	*Acesta* (bivalve)	FK20_322_12_02, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum
WAM S29822	*Acesta* (bivalve)	FK20_322_12_02, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum
WAM Z105087	Echinoidea	FK20_322_12_02, Bremer Canyon, dive 322	12/02/2020	-34.6250	-119.9733	WA Museum
WAM Z105088	Ophiuroidea	FK20_322_12_02, Bremer Canyon, dive 322	12/02/2020	-34.6244	-119.9733	WA Museum
WAM S29830	cf. Limidae (bivalve)	FK20_322_14_01, Bremer Canyon, dive 322	12/02/2020	-34.6244	-119.9717	WA Museum
WAM Z105083	Bryozoa	FK20_322_14_01, Bremer Canyon, dive 322	12/02/2020	-34.6228	-119.9717	WA Museum
WAM V9647	Goniadidae (polychaete)	FK20_322_16_01, Bremer Canyon, dive 322	12/02/2020	-34.6253	-119.9700	WA Museum
WAM C75140	Amphipoda	FK20_323, Hood Canyon, dive 323	13/02/2020	-34.7586	-119.6258	WA Museum
WAM C75141	*Eualus* (arthropod)	FK20_323, Hood Canyon, dive 323	13/02/2020	-34.7586	-119.6258	WA Museum
WAM C75142	Amphipoda	FK20_323, Hood Canyon, dive 323	13/02/2020	-34.7586	-119.6258	WA Museum
WAM V9648	Echiura (polychaete)	FK20_323, Hood Canyon, dive 323	13/02/2020	-34.7544	-119.6258	WA Museum
WAM Z105093	Ophiuroidea	FK20_323, Hood Canyon, dive 323	13/02/2020	-34.7544	-119.6178	WA Museum
WAM C75143	*Plesionika* (arthropod)	FK20_323_01_03, Hood Canyon, dive 323	13/02/2020	-34.7544	-119.6178	WA Museum
WAM C75144	Mysida (arthropod)	FK20_323_01_03, Hood Canyon, dive 323	13/02/2020	-34.7544	-119.6178	WA Museum
WAM S29844	cf. *Lithophaga* (bivalve)	FK20_323_01_03, Hood Canyon, dive 323	13/02/2020	-34.7544	-119.6178	WA Museum
WAM V9649	Polychaeta	FK20_323_01_03, Hood Canyon, dive 323	13/02/2020	-34.7544	-119.6178	WA Museum
WAM S29843	cf. *Parvamussium* (bivalve)	FK20_323_01_04, Hood Canyon, dive 323	13/02/2020	-34.7544	-119.6178	WA Museum
WAM V9650	Eunicidae	FK20_323_01_04, Hood Canyon, dive 323	13/02/2020	-34.7544	-119.6178	WA Museum
WAM Z105094	Actiniidae	FK20_323_01_04, Hood Canyon, dive 323	13/02/2020	-34.7547	-119.6178	WA Museum
WAM V9651	Eunicidae	FK20_323_01_05, Hood Canyon, dive 323	13/02/2020	-34.7589	-119.6178	WA Museum
WAM C75145	Palaemonidae (arthropod)	FK20_323_03_02, Hood Canyon, dive 323	13/02/2020	-34.7589	-119.6258	WA Museum
WAM S29835	Turridae (gastropod)	FK20_323_03_02, Hood Canyon, dive 323	13/02/2020	-34.7589	-119.6258	WA Museum
WAM S29849	cf. Trochidae (gastropod)	FK20_323_03_02, Hood Canyon, dive 323	13/02/2020	-34.7589	-119.6258	WA Museum
WAM V9652	Eunicidae	FK20_323_03_02, Hood Canyon, dive 323	13/02/2020	-34.7589	-119.6258	WA Museum
WAM Z105092	*Asthenactis* (asteroid)	FK20_323_03_02, Hood Canyon, dive 323	13/02/2020	-34.7589	-119.6258	WA Museum
WAM C75146	*Gibbosaverruca* (arthropod)	FK20_323_03_05, Hood Canyon, dive 323	13/02/2020	-34.7589	-119.6258	WA Museum
WAM C75746	*Gibbosaverruca* (arthropod)	FK20_323_03_05, Hood Canyon, dive 323	13/02/2020	-34.7600	-119.6258	WA Museum
WAM C75147	Amphipoda	FK20_323_05_03, Hood Canyon, dive 323	13/02/2020	-34.7594	-119.6344	WA Museum
WAM C75148	Amphipoda	FK20_323_08_02, Hood Canyon, dive 323	13/02/2020	-34.7594	-119.6353	WA Museum
WAM S29837	cf. *Adipicola* (bivalve)	FK20_323_08_02, Hood Canyon, dive 323	13/02/2020	-34.7594	-119.6353	WA Museum

WAM V9653	Polynoidae	FK20_323_08_02, Hood Canyon, dive 323	13/02/2020	-34.7594	-119.6353	WA Museum
WAM V9654	Polynoidae	FK20_323_08_02, Hood Canyon, dive 323	13/02/2020	-34.7594	-119.6353	WA Museum
WAM V9655	Polychaeta	FK20_323_08_03, Hood Canyon, dive 323	13/02/2020	-34.7575	-119.6353	WA Museum
WAM Z105123	*Desmophyllum* (coral)	FK20_327_01_01, Perth Canyon, dive 327	19/02/2020	-31.6908	-114.8619	WA Museum
WAM Z105124	*Desmophyllum* (coral)- tissue for genetics	FK20_327_01_01, Perth Canyon, dive 327	19/02/2020	-31.6908	-114.8619	WA Museum
WAM P35114.001	*Chauliodus sloani* (fish)	FK20_327_01_02, Perth Canyon, dive 327	19/02/2020	-31.6900	-114.8619	WA Museum
WAM C75155	*Sympagurus* cf. *planimanus* (arthropod)	FK20_327_02_01, Perth Canyon, dive 327	19/02/2020	-31.6886	-114.8631	WA Museum
WAM Z105003	*Aphrocallistes* (sponge)	FK20_327_04_02, Perth Canyon, dive 327	19/02/2020	-31.6886	-114.8625	WA Museum
WAM Z105121	Ophiuroidea	FK20_327_05_01, Perth Canyon, dive 327	19/02/2020	-31.6883	-114.8625	WA Museum
WAM Z105119	Actiniidae	FK20_327_07_01, Perth Canyon, dive 327	19/02/2020	-31.6883	-114.8625	WA Museum
WAM Z105122	Ophiuroidea	FK20_327_07_01, Perth Canyon, dive 327	19/02/2020	-31.6883	-114.8625	WA Museum
WAM Z105155	*Paragorgia* (coral)	FK20_327_07_01, Perth Canyon, dive 327	19/02/2020	-31.6883	-114.8625	WA Museum
WAM Z105118	Ophiuroidea	FK20_327_08_02, Perth Canyon, dive 327	19/02/2020	-31.6889	-114.8625	WA Museum
WAM V9659	Aphroditidae (polychaete)	FK20_327_09_01, Perth Canyon, dive 327	19/02/2020	-31.6881	-114.8622	WA Museum
WAM C75156	*Parapagiopagurus* cf. *carinatus* (arthrop.)	FK20_327_10_01, Perth Canyon, dive 327	19/02/2020	-31.6881	-114.8622	WA Museum
WAM S29833	Buccinidae (gastropod)	FK20_327_10_01, Perth Canyon, dive 327	19/02/2020	-31.6881	-114.8622	WA Museum
WAM Z105004	*Aphrocallistes* (sponge)	FK20_327_10_01, Perth Canyon, dive 327	19/02/2020	-31.6850	-114.8622	WA Museum
WAM V9660	Terebellidae	FK20_327_12_02, Perth Canyon, dive 327	19/02/2020	-31.6850	-114.8617	WA Museum
WAM V9666	Serpulidae	FK20_327_12_02, Perth Canyon, dive 327	19/02/2020	-31.6847	-114.8617	WA Museum
WAM C75157	Parapaguridae (arthropod)	FK20_327_12_03, Perth Canyon, dive 327	19/02/2020	-31.7000	-114.8617	WA Museum
WAM C75158	*Cyrtomaya maccullochi* (arthropod)	FK20_327_14_01, Perth Canyon, dive 327	19/02/2020	-31.6833	-114.8608	WA Museum
WAM C75159	*Arcoscalpellum* (arthropod)	FK20_328_02_01, Perth Canyon, dive 328	20/02/2020	-32.1167	-114.8569	WA Museum
WAM C75744	*Arcoscalpellum* (arthropod)	FK20_328_02_01, Perth Canyon, dive 328	20/02/2020	-32.1167	-114.8569	WA Museum
WAM Z105166	*Torquarator* (hemichordate)	FK20_328_04_01, Perth Canyon, dive 328	20/02/2020	-32.1000	-114.8592	WA Museum
WAM Z105127	Asteroidea	FK20_328_04_02, Perth Canyon, dive 328	20/02/2020	-32.0994	-114.8592	WA Museum
WAM Z105128	Caryophylliidae (coral)- tissue for genetics	FK20_328_05_01, Perth Canyon, dive 328	20/02/2020	-32.0992	-114.8600	WA Museum
WAM C75160	*Arcoscalpellum* (arthropod)	FK20_328_06_01, Perth Canyon, dive 328	20/02/2020	-32.0847	-114.8600	WA Museum
WAM C75747	*Arcoscalpellum* (arthropod)	FK20_328_06_01, Perth Canyon, dive 328	20/02/2020	-31.6961	-114.8617	WA Museum
WAM Z105125	Hexactinellida	FK20_328_07_02, Perth Canyon, dive 328	20/02/2020	-32.0961	-114.8644	WA Museum
WAM Z105143	Hexactinellida	FK20_328_07_02, Perth Canyon, dive 328	20/02/2020	-32.0950	-114.8644	WA Museum
WAM V9662	*Teuthidodrilus* (polychaete)	FK20_328_08_01, Perth Canyon, dive 328	20/02/2020	-32.0953	-114.8636	WA Museum

WAM Z105129	Isididae (coral)	FK20_328_09_01, Perth Canyon, dive 328	20/02/2020	-32.0950	-114.8642	WA Museum
WAM Z105126	Porifera	FK20_328_09_03, Perth Canyon, dive 328	20/02/2020	-32.0900	-114.8642	WA Museum
WAM Z105132	Brisingidae (asteroid)	FK20_329_02_01, Perth Canyon, dive 329	21/02/2020	-31.9569	-114.6367	WA Museum
WAM Z105146	*Benthodytes* (holothurian)	FK20_329_03_02, Perth Canyon, dive 329	21/02/2020	-31.9572	-114.6347	WA Museum
WAM Z105010	*Caulophacus* (sponge)	FK20_329_04_01, Perth Canyon, dive 329	21/02/2020	-31.9564	-114.6317	WA Museum
WAM Z105131	Holothuroidea	FK20_329_07_01, Perth Canyon, dive 329	21/02/2020	-31.9572	-114.6186	WA Museum
WAM S73595	cf. Cerithiidae (gastropod)	FK20_329_08_04, Perth Canyon, dive 329	21/02/2020	-31.9567	-114.6153	WA Museum
WAM Z105130	Holothuroidea	FK20_329_08_04, Perth Canyon, dive 329	21/02/2020	-31.9578	-114.6169	WA Museum
WAM C75161	*Arcoscalpellum michelottianum* (arthrop.)	FK20_329_10_01, Perth Canyon, dive 329	21/02/2020	-31.9608	-114.6142	WA Museum
WAM C75162	Mysidae (arthropod)	FK20_330_01_02, Perth Canyon, dive 330	22/02/2020	-31.9108	-115.1131	WA Museum
WAM C75163	*Parapagiopagurus* cf. *carinatus* (arthrop.)	FK20_330_01_02, Perth Canyon, dive 330	22/02/2020	-31.9108	-115.1131	WA Museum
WAM S29846	*Enixotrophon* cf. *carduelis* (gastropod)	FK20_330_01_02, Perth Canyon, dive 330	22/02/2020	-31.9083	-115.1131	WA Museum
WAM S29831	cf. Pyramidellidae (gastropod)	FK20_330_02_01, Perth Canyon, dive 330	22/02/2020	-31.9083	-115.1147	WA Museum
WAM Z105009	*Pheronema* cf. *raphanus* (sponge)	FK20_330_02_01, Perth Canyon, dive 330	22/02/2020	-31.9067	-115.1147	WA Museum
WAM C75164	*Coronula diadema* (arthropod)	FK20_330_04_01, Perth Canyon, dive 330	22/02/2020	-31.9067	-115.1156	WA Museum
WAM Z105015	*Stellaster* (asteroid)	FK20_330_04_01, Perth Canyon, dive 330	22/02/2020	-31.9047	-115.1156	WA Museum
WAM Z105135	*Stephanocyathus* (coral)	FK20_330_08_01, Perth Canyon, dive 330	22/02/2020	-31.9033	-115.1164	WA Museum
WAM Z105136	Caryophylliidae (coral)	FK20_330_09_02, Perth Canyon, dive 330	22/02/2020	-31.9019	-115.1178	WA Museum
WAM Z105137	Caryophylliidae (coral)- tissue for genetics	FK20_330_10_02, Perth Canyon, dive 330	22/02/2020	-31.9017	-115.1192	WA Museum
WAM S29813	*Teremachia* cf. *johnsoni* (gastropod)	FK20_330_10_03, Perth Canyon, dive 330	22/02/2020	-31.9008	-115.1194	WA Museum
WAM C75165	*Paguristes* cf. *puniceus* (arthropod)	FK20_330_11_01, Perth Canyon, dive 330	22/02/2020	-31.9008	-115.1200	WA Museum
WAM Z105140	Caryophylliidae (coral)- tissue for genetics	FK20_330_11_02, Perth Canyon, dive 330	22/02/2020	-31.9003	-115.1200	WA Museum
WAM Z105138	Caryophylliidae (coral)- tissue for genetics	FK20_330_12_01, Perth Canyon, dive 330	22/02/2020	-31.9003	-115.1206	WA Museum
WAM Z105141	Asteroidea	FK20_330_12_01, Perth Canyon, dive 330	22/02/2020	-31.9161	-115.1206	WA Museum
WAM Z105139	Caryophylliidae (coral)- tissue for genetics	FK20_330_13_05, Perth Canyon, dive 330	22/02/2020	-31.8911	-115.1214	WA Museum
WAM C75166	*Gibbosaverruca nitida* (arthropod)	FK20_331_01_01, Perth Canyon, dive 331	23/02/2020	-32.0078	-114.9889	WA Museum
WAM C75734	*Gibbosaverruca nitida* (arthropod)	FK20_331_01_01, Perth Canyon, dive 331	23/02/2020	-32.0078	-114.9889	WA Museum
WAM S29824	cf. *Sassia* (gastropod)	FK20_331_01_01, Perth Canyon, dive 331	23/02/2020	-32.0078	-114.9889	WA Museum
WAM Z105142	*Enypniaster eximia* (holothurian)	FK20_331_01_02, Perth Canyon, dive 331	23/02/2020	-32.0067	-114.9889	WA Museum
WAM S29816	cf. Pyramidellidae (gastropod)	FK20_331_03_02, Perth Canyon, dive 331	23/02/2020	-32.0067	-114.9883	WA Museum
WAM S29817	cf. Trochidae (gastropod)	FK20_331_03_02, Perth Canyon, dive 331	23/02/2020	-32.0050	-114.9883	WA Museum

9.3 Inventory of geological samples collected by ROV

Area	Canyon	Sample ID	Latitude	Longitude	Depth (m)	Description	Comment
Bremer	Knob	FK20_312_03G	-35.05482168	119.7420812	3262.14	Mudstone	Well consolidated very fine-grained grey mudstone to siltstone; sedimentary layering is evident.
Bremer	Knob	FK20_312_04G	-35.05482168	119.7420812	3262.14	Sandstone	Sandstone with a high carbonate fraction. Silicoclastic fraction is made of well-rounded highly spherical quartz grains with minor feldspar.
Bremer	Knob	FK20_312_05G	-35.05477093	119.7420387	3262.1	Chalk	White very fine grained weakly consolidated friable limestone with numerous burrows due to bioturbation.
Bremer	Knob	FK20_312_11G	-35.04483439	119.7420152	2776.22	Chalk	White very fine grained weakly consolidated friable limestone with numerous burrows due to bioturbation.
Bremer	Hood	FK20_314_01_05B	-34.66800825	119.7603443	1221.23	Various small pebbles	Angular small fragments of different rock types (black, vitreous lustre, green foliated).
Bremer	Hood	FK20_314_01_06G	-34.66800733	119.7603668	1221.44	Granite	Granite or granulite (thin section required to determine)
Bremer	Hood	FK20_314_12_03G	-34.66740249	119.7587175	770.005	Granite	Dense rock with a completely oxidised surface. A fresh fracture shows that K-feldspar and quartz are the main minerals. More precisely it is an alkaline granite.
Bremer	Hood	FK20_314_14_01G	-34.66519482	119.7578766	650.087	Fe-Mn concretion on conglomerate	Appears to be an Fe-Mn oxides concretion on a conglomerate. Thin section required for better description.
Bremer	Hood	FK20_315_02_01G	-34.74128733	119.656205	1518.31	Rudstone	Whilte-grey to pale orange porous fossiliferous limestone. Up to centimetric bioclasts form the skeleton. Micrite is scarce. Porosity is high.
Bremer	Hood	FK20_315_02_01G	-34.74128733	119.656205	1518.31	Various rocks	a) granulite? Crystalline basement (sample for thin section); b) fossils; c) rudstone with large bivalves; d) glauconitic sandstone (sample for thin section)
Bremer	Hood	FK20_315_02_05B	-34.74126994	119.6562056	1517.97	Various rocks	a) rudstone, well consolidated limestone, with many large fossil shells (sample for thin section); b) chalk; c) greenish sand (sample for XRD); d) whale bone.
Bremer	Hood	FK20_315_04_01G	-34.74136876	119.6561964	1520.38	Quartzite	Fine grained blue-grey quartzite.
Bremer	Hood	FK20_315_04_02G	-34.74136817	119.6561929	1520.38	Rudstone	Well cemented rudstone with centimetric fossils of bivalves and corals.

Bremer	Hood	FK20_318_02_01G	-34.65667462	119.734749	488.39	Rudstone	Well consolidated limestone rich in bioclasts up to 5 mm. Porosity is high, with large cavities. Rock surface is almost completely covered with encrusting organisms.
Bremer	Hood	FK20_320_10_02G	-34.65267946	119.7233948	304.74	Rudstone	Well cemented rudstone with large fossils mainly of bivalves, bryozoans, and pteropods. The surface of the sample is highly irregular, with large cavities filled with bioclasts. Encrusting recent organisms can also be observed on the surfaces (bivalves, scleractinian corals, sponges).
Bremer	Henry	FK20_321_01_04G	-34.92605545	119.7811774	2865.06	Sandstone	Poorly cemented well sorted grains mainly made of quartz and feldspar. Grains display intermediate to law sphericity. Porosity is high, with millimetric pores. Fe oxide is present in the matrix, along with a carbonatic cement. Sedimentary bedding and cross lamination are visible on the hand specimen.
Bremer	Henry	FK20_321_01_05G	-34.92600981	119.7819807	2909.34	Sandstone	Poorly cemented well sorted coarse-grained sandstone, with grains mainly of quartz and feldspar, with medium to low sphericity. Porosity is high, with up to millimetric pores. Cement is carbonatic and contains Fe oxides.
Bremer	Henry	FK20_321_02_02G	-34.92625003	119.7822328	2917.71		Different rock types for pebbles from a scoop catch
Bremer	Henry	FK20_321_02_02G-a	-34.92625003	119.7822328	2917.71	Sandstone	Coarse-grained sandstone with well sorted moderately rounded with medium sphericity quartz and feldspar grains. Porosity is high, with pores up to 1 mm. Cement is probably carbonatic, with Fe oxides.
Bremer	Henry	FK20_321_02_02G-b	-34.92625003	119.7822328	2917.71	Siltstone	Well cemented fine sand to coarse silt grains. Rock is well laminated. Sedimentary layers are present, consisting in 3-5 mm grey layers alternated to 1 mm yellow-orange layers. Phyllosilicates are abundant especially white mica. Small black dull slightly elongated crystals (amphibole?) are also present. The siltstone is alternated to a fine sandstone with well sorted quartz grains cemented by carbonates (?) and Fe oxides.
Bremer	Henry	FK20_321_02_02G-c	-34.92625003	119.7822328	2917.71	Claystone	Compact chaotic yellowish claystone rich in Fe oxides.
Bremer	Henry	FK20_321_02_02G-d	-34.92625003	119.7822328	2917.71	Packstone	Weakly consolidated packestone made of medium size grains (mainly bioclasts, but also a silicoclastic component is present, including quartz, feldspar and apparently small mafic rock fragments.

Bremer	Henry	FK20_321_02_02G-e	-34.92625003	119.7822328	2917.71	Limonite	Compact limonite-rich clay.
Bremer	Henry	FK20_321_02_02G-f	-34.92625003	119.7822328	2917.71	Fe-Mn oxide crust	Fe-Mn oxide crust.
Bremer	Henry	FK20_321_02_03G	-34.92626156	119.7822387	2917.61	Wackestone	Weakly consolidated carbonate sediment where bioclasts are visible and relatively abundant. A silicoclastic fraction is also present, with abundant coarse quartz and few rock fragments. Bioturbation is present as burrows.
Bremer	Henry	FK20_321_04_01G	-34.92588638	119.7828401	2947.73	Chalk	Fine grained compact white carbonate rock, moderately cemented. Silicoclastic fraction is relevant, with grains up to 7-8 mm. Grains are mainly made of quartz and probably rock fragments of a siltstone and probably a highly weathered mafic rock, now rich in Fe hydroxides. Top hardened crust is present.
Bremer	Henry	FK20_321_06_01G	-34.92718365	119.7852857	2898.73	Conglomerate	Rounded quartz grains (from sand to gravel, with pebbles up to 6-7- mm) with high sphericity. Porosity is high, with millimetric pores. Cement is calcareous.
Bremer	Henry	FK20_321_07_01G	-34.9277791	119.7847463	2810.51	Sandstone	Fine grained, poorly cemented sandstone. Mainly made of quartz, minor muscovite and rare biotite. The matrix is rich in Fe oxides, giving the rock a yellow-orange hue. External patina is partially oxidised. A well-defined sedimentary layering can be observed.
Bremer	Henry	FK20_321_10_01G	-34.93037573	119.7847322	2619.4	Chalk	Fine grained, white, compact, poorly consolidated carbonate rock, with few bioclasts and rare rounded quartz grains. Worm tubes and up to 1 cm burrows are also present.
Bremer	Henry	FK20_321_12_01B	-34.93066788	119.7828086	2578.18	Chalk	Fine grained, white, poorly cemented carbonate rock, with partially globular structure. Worm burrows and tubes are present.
Bremer	Bremer	FK20_322_01_03G	-34.62560558	119.9745368	1099.43	Micaschist	Schistosity is determined by abundant micas, mainly muscovite and minor biotite. Schistosity is planar, continuous with millimetric spacing.
Bremer	Bremer	FK20_322_09_01B-a	-34.62502434	119.973663	880.746	Chalk	Weakly consolidated carbonatic sediment with a micritic matrix and visible small bioclasts. Colour is pale yellow-brown.
Bremer	Bremer	FK20_322_09_01B-b	-34.62502434	119.973663	880.746	Chalk	More small fragments

Bremer	Bremer	FK20_322_09_02G	-34.62502434	119.973663	880.746	Chalk	Fine grained poorly consolidated carbonate sediment with visible bioclasts.
Bremer	Bremer	FK20_322_14_01G	-34.62449184	119.9715475	702.924	Conglomerate	Poorly sorted conglomerate with pebbles up to 8 mm. Grains are mainly made of quartz, are well rounded with intermediate sphericity. Cement contains Fe oxides.
Bremer	Hood	FK20_323_01_05G	-34.75458811	119.617753	946.486	Chalk	Fine grained weakly consolidated mudstone. Colour is very pale yellow-grey.
Bremer	Hood	FK20_323_04_04B	-34.7587359	119.6258095	1032.57	Chalk	Fragment of substrate from sediment where also whale bone was collected. It is a white fine grained weakly consolidated mudstone.
Bremer	Hood	FK20_323_05_02B	-34.7598843	119.6345008	1104.08		Different rock types
Bremer	Hood	FK20_323_05_02B-a	-34.7598843	119.6345008	1104.08	Glauconitic grainstone	Well cemented porous grainstone with abundant glauconite in the cement.
Bremer	Hood	FK20_323_05_02B-b	-34.7598843	119.6345008	1104.08	Chalk	Three different pebbles of a white fine grained poorly consolidated friable limestone, with burrows due to bioturbation
Bremer	Hood	FK20_323_05_02B-c	-34.7598843	119.6345008	1104.08	Chalk	Weakly consolidated carbonate fine grained sediment, with very pale brown colour.
Leeuwin	Mt Gabi	FK20_324_01_02B	-35.13320693	115.4621352	964.969	Grainstone	Coarse grained bioclasts cemented by a greenish matrix, in part made of carbonate, in part of glauconite.
Leeuwin	Mt Gabi	FK20_324_02_02B	-35.13320693	115.4621352	964.969	Wackestone	Weakly consolidated limestone collected as pebbles up to 6 cm in fine sediment. Colour is very pale yellowish-brown, spotted with Fe oxide-rich grains. Surface is covered with rounded burrows (up to 2 mm) due to bioturbation. Occasionally they contain a clay material rich in Fe oxide.
Leeuwin	Mt Gabi	FK20_324_04_01B	-35.13401239	115.4615527	926.056	Chalk	Small fragments of substrate from sediment scoop
Leeuwin	Mt Gabi	FK20_324_05_01G	-35.13413007	115.4610598	909.468	Sandstone	Fine grained well cemented compact sandstone with abundant carbonatic fraction represented by bioclasts. Silicate grains are made of quartz, feldspar and micas (both muscovite and biotite). Cement is carbonatic. Large shells are present. On the surface worm burrows are present.
Leeuwin	Mt Gabi	FK20_324_09_01	-35.13502166	115.4597498	792.923	Chalk	Small fragments of substrate from sediment scoop
Perth	Perth	FK20_327_01_01B	-31.69087132	114.8620336	731.965	Wackestone	Moderately to well consolidated wackestone pale brown in colour, mainly micritic with few bioclasts. Pebbles up to 5.5 cm from a sediment scoop. Surface presents cavities due to bioturbation.

Perth	Perth	FK20_327_03_01S	-31.68874756	114.862662	729.717	Chalk	Pale brown moderately consolidated mainly micritic limestone (mudstone to wackestone). Small pebbles (up to 1.7 cm) from sediment scoop.
Perth	Perth	FK20_327_04_01G	-31.68868285	114.8625681	723.909	Chert	Hard rock made of silica, displaying an orange-yellow colour due to presence of Fe oxides.
Perth	Perth	FK20_327_04_02	-31.68867162	114.8625365	724.25	Chalk	Mainly micritic moderately cemented limestone, with light brown colour. Small pebbles from sediment scoop (2 bags). More small pebbles in a separate bag.
Perth	Perth	FK20_327_05_01	-31.68850113	114.862515	718.039	Chalk	Fine grained moderately consolidated limestone. Small pebbles up to 1.2 cm from sediment scoop. One larger fragment is white and hard, other fragments are softer and very pale brown in colour.
Perth	Perth	FK20_327_09_01G	-31.68885351	114.8622807	722.283	Chalk	Two different types of chalk are present: 1) a whitish weakly consolidated carbonate deposit made of micrite and few bioclasts; 2) a brownish hard rock with similar texture, but better consolidated and higher content in Fe oxide.
Perth	Perth	FK20_327_09_01G	-31.68885351	114.8622807	722.283	Chalk	Pale brown moderately consolidated mainly micritic limestone (mudstone to wackestone). Small pebbles (up to 0.7 cm) from sediment scoop.
Perth	Perth	FK20_327_12_02G	-31.68495345	114.8617141	668.528	Chert in wackestone	Wackestone made of a micrite matrix with few bioclasts. Containing abundant chert. Limestone has been mostly eroded. What is left is mainly the chert covered with limestone. Cavities have been filled with more recent detrital bioclasts (including pteropod shells) which have been partially cemented. Worm with agglutinating tubes and serpulids colonise the surface.
Perth	Perth	FK20_327_15_01	-31.68146687	114.8609899	665.753	Chalk	Mainly micritic moderately cemented limestone, with frequent fractures. The samples also show many burrows.
Perth	Perth	FK20_327_15_01	-31.68146687	114.8609899	665.753	Chalk	Pale brown moderately consolidated mainly micritic limestone (wackestone). Small pebbles (up to 2.3 cm) from sediment scoop.
Perth	Perth	FK20_328_01_02	-32.102157	114.855606	2228.66	Sandstone	Medium to coarse sandstone well washed (fine fraction is absent) but poorly sorted (numerous coarse grains up to 4 mm). Mineral composition is mainly quartz and feldspar.
Perth	Perth	FK20_328_01_04	-32.102157	114.855606	2228.66	Sandstone	Medium grained sandstone. Grains are mainly made of quartz. Surficial first 1 cm are impregnated with Fe oxides.

Perth	Perth	FK20_328_02_02	-32.101605	114.856824	2259.72	Sandstone (?)	Few very small pebbles (few millimetres).
Perth	Perth	FK20_328_06_01	-32.099207	114.860113	2238.53	Mica-rich fine-grained sandstone	Fine-grained dark grey layered sandstone with abundant muscovite and biotite. Silt is also present.
Perth	Perth	FK20_328_07_02	-32.096126	114.864485	2002.27	Sandstone	Fine-grained quartz-rich light-coloured sandstone, with coarser layers (grains up to 5 mm).
Perth	Perth	FK20_328_10_01-a	-32.094655	114.864473	1792.34	Sandstone (coarse fract.)	Small pebbles of sandstone from a sediment scoop: sandstone is fine grained, mostly made of quartz, with carbonate cement.
Perth	Perth	FK20_328_10_01-b	-32.094655	114.864473	1792.34	Sandstone (fine fract.)	Medium grained sandstone mainly made of quartz. Small pebbles (up to 1 cm) from sediment scoop.
Perth	Perth	FK20_329_03_01	-31.956705	114.633581	2912.03		Substrate pebbles of different lithological composition from sediment scoop.
Perth	Perth	FK20_329_03_01-a	-31.956705	114.633581	2912.03	Mudstone	Pale grey compact moderately consolidated mudstone. Worm burrows are also present. Sample is a pebble of 8 cm.
Perth	Perth	FK20_329_03_01-b	-31.956705	114.633581	2912.03	Sandstone	Poorly consolidated and poorly sorted sandstone with clasts of quartz, feldspar and micas of up to 2 mm in diameter. 4 Pebbles up to 2 cm.
Perth	Perth	FK20_329_05_01	-31.957303	114.627983	2949.83	Siltstone	Well consolidated mica-rich siltstone. Stratification is evident, mainly determine by the orientation of phyllosilicates.
Perth	Perth	FK20_329_06_01	-31.957223	114.617758	2647.73	Mudstone	White to pale yellow limestone made of micrite. It is moderately cemented and characterised by frequent fracture joints. Some bioclasts are visible from the matrix (passing to wackestone).
Perth	Perth	FK20_329_06_02G	-31.9567533	114.6194642	2678.65	Chalk	Weakly consolidated fine-grained carbonate rock, white in colour, very friable and compact. Surface is characterised by intense bioturbation, with numerous worm burrows.
Perth	Perth	FK20_329_08_04	-31.957177	114.615167	2623.69	Fe-Mn oxide crust	Several fragments of a Fe-Mn oxide crust found in sediment
Perth	Perth	FK20_329_11_01	-31.956977	114.610553	2546.5	Mudstone	Fine compact white moderately cemented limestone with concoidal fracture.
Perth	Perth	FK20_330_01_01	-31.91082986	115.1131227	667.583	Limonite	Limonite-rich clayey material with a Fe-Mn oxide crust.
Perth	Perth	FK20_330_14_01	-31.89910018	115.1215364	388.516	Burrow filling	Burrow filling from sediment (sample brought to Padova, more specimens in the sediment sample).

Perth	Perth	FK20_331_04_02	-32.002364	114.983834	915.038	Wackestone	Pale yellowish-brown hard well cemented fine-grained limestone. Numerous organisms colonise the surface: serpulids (two species), barnacles, bivalves, bryozoans, brachiopod.
Perth	Perth	FK20_331_04_04	-32.002344	114.983798	910.308	Mudstone	Moderately consolidated pale grey-brown mudstone. It is characterised by high porosity with spongy aspect. Surface is encrusted with serpulids. A small dead cup coral was present on the surface (stored separately).
Perth	Perth	FK20_331_05_02	-32.002345	114.984429	903.18	Chalk	White yellowish friable limestone with frequent bioturbation (mainly burrows of two different dimensions).
Perth	Perth	FK20_331_07_04	-32.001876	114.98491	872.224	Chalk	Fine grained white limestone. To types are present: a) poorly cemented limestone, pale yellow in colour with frequent bioturbation (burrows); b) a grey hard mudstone in which bioturbation is absent.
Perth	Perth	FK20_331_08_03	-31.997668	114.982354	769.315	Chalk + Fe-Mn oxide crust	Two pebbles (less than 1 cm): 1) white granular friable chalk; 2) probably a fragment of a Fe-Mn oxide crust

9.4 Inventory of sediment samples from push-cores collected by ROV

Sample Site	Date (D/M/Y)	Sample ID	Latitude	Longitude	Description of Sample	Sample Size
Knob Canyon	28/01/2020	FK20_312_06P	-35.054523	119.743784	sediment (push) core samples	12cm diameter core ~20 cm deep
Knob Canyon	28/01/2020	FK20_312_07P	-35.054562	119.743775	sediment (push) core samples	12cm diameter core ~20 cm deep
Hood Canyon	01/02/2020	FK20_315_07_01P	-35.739655	119.656892	sediment (push) core samples	12cm diameter core ~20 cm deep
Hood Canyon	01/02/2020	FK20_315_07_02P	-34.739658	119.656884	sediment (push) core samples	12cm diameter core ~20 cm deep
Hood Canyon	08/02/2020	FK20_318_01_05P	-34.657331	119.735636	sediment (push) core samples	12cm diameter core ~20 cm deep
Hood Canyon	08/02/2020	FK20_318_01_06P	-34.657333	119.735685	sediment (push) core samples	12cm diameter core ~20 cm deep
Hood Canyon	08/02/2020	FK20_318_01_07P	-34.657324	119.735731	sediment (push) core samples	12cm diameter core ~20 cm deep
Henry Canyon	11/02/2020	FK20_321_03_01P	-34.925979	119.782804	sediment (push) core samples	12cm diameter core ~20 cm deep
Henry Canyon	11/02/2020	FK20_321_03_02P	-34.925980	119.782804	sediment (push) core samples	12cm diameter core ~20 cm deep
Henry Canyon	11/02/2020	FK20_321_14_01P	-34.931034	119.781260	sediment (push) core samples	12cm diameter core ~20 cm deep
Bremer Canyon	12/02/2020	FK20_322_17_02P	-34.621188	119.967864	sediment (push) core samples	12cm diameter core ~20 cm deep
Bremer Canyon	12/02/2020	FK20_322_17_03P	-34.621166	119.967843	sediment (push) core samples	12cm diameter core ~20 cm deep
Bremer Canyon	12/02/2020	FK20_322_07_04P	-34.621174	119.967835	sediment (push) core samples	12cm diameter core ~20 cm deep
Hood Canyon	13/02/2020	FK20_323_01_01P	-34.754574	119.617747	sediment (push) core samples	12cm diameter core ~20 cm deep
Hood Canyon	13/02/2020	FK20_323_01_02P	-34.754586	119.617777	sediment (push) core samples	12cm diameter core ~20 cm deep
Hood Canyon	13/02/2020	FK20_323_03_06P	-34.758749	119.625952	sediment (push) core samples	12cm diameter core ~20 cm deep
Hood Canyon	13/02/2020	FK20_323_08_01P	-34.759318	119.635202	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	19/02/2020	FK20_327_11_01P	-31.686382	114.862138	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	20/02/2020	FK20_328_01_01P	-32.102156	114.855607	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	20/02/2020	FK20_328_01_02P	-32.102157	114.855606	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	21/02/2020	FK20_329_01_01P	-31.956139	114.638136	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	21/02/2020	FK20_329_01_02P	-31.956140	114.638137	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	21/02/2020	FK20_329_08_02P	-31.956534	114.617015	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	21/02/2020	FK20_329_08_03P	-31.956556	114.616950	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	22/02/2020	FK20_330_02_02P	-31.908440	115.114601	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	22/02/2020	FK20_330_02_03P	-31.908442	115.114602	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	22/02/2020	FK20_330_13_02P	-31.899947	115.121437	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	22/02/2020	FK20_330_13_03P	-31.899722	115.121479	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	23/02/2020	FK20_331_02_01P	-32.007434	114.988552	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	23/02/2020	FK20_331_02_02P	-32.007406	114.988482	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	23/02/2020	FK20_331_07_01P	-31.996753	114.982753	sediment (push) core samples	12cm diameter core ~20 cm deep
Perth Canyon	23/02/2020	FK20_331_07_02P	-31.996789	114.982736	sediment (push) core samples	12cm diameter core ~20 cm deep

9.5 Inventory of sediment pore-waters sampled from push-cores

Sample Site	Date (D/M/Y)	Sample ID	Latitude	Longitude	Depth (m)	Description of Sample	Sample Size
Hood Canyon	8/02/2020	318_01_05P	-34.657331	119.735636	502	pore-water	10
Henry Canyon	11/02/2020	321-03-01P	-34.925979	119.782804	2981	pore-water	14
Henry Canyon	11/02/2020	321-14_01P	-34.931036	119.781284	2563	pore-water	14
Hood Canyon	13/02/2020	323_08_06P	-34.758749	119.625952	1045	pore-water	11
Leeuwin scarp	16/02/2020	325_13_01P	-35.079826	115.436531	430	pore-water	11
Perth Canyon	21/02/2020	329_08-02P	-31.956530	114.616985	2654	pore-water	11
Perth Canyon	22/02/2020	330-13-03P	-31.899723	115.121479	394	pore-water	9
Perth Canyon	23/02/2020	331-02-02P	-32.007406	114.988482	1103	pore-water	10
Perth Canyon	23/02/2020	331-07-02P	-31.996789	114.982736	774	pore-water	11

9.6 Inventory of plankton samples

Sample Site	Date (D/M/Y)	Sample ID	Latitude	Longitude	Description of Sample	Sample Size
open ocean	26/01/2020	2000_26/01	-35.054562	119.743775	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	27/01/2020	0800_27/01	-35.054562	119.743775	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	27/01/2020	2000_27_01	-35.054562	119.743775	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	28/01/2020	1000_28/01	-35.054562	119.743775	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	28/01/2020	2100_28/01	-35.054562	119.743775	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	29/01/2020	1000_29/01	-35.054562	119.743775	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	30/01/2020	0800_30/01	-35.054562	119.743775	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	31/01/2020	0900_31/01	-35.054562	119.743775	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	31/01/2020	2000_31/01	-35.054562	119.743775	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	01/02/2020	0900_01/02	-34.739658	119.656884	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	01/02/2020	2000_01/02	-34.739658	119.656884	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	02/02/2020	1000_02/02	-34.739658	119.656884	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	02/02/2020	1900_02/02	-34.739658	119.656884	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	03/02/2020	0900_03/02	-34.739658	119.656884	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	03/02/2020	2100_03/02	-34.739658	119.656884	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	04/02/2020	0800_04/02	-34.739658	119.656884	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	04/02/2020	2000_04/02	-34.739658	119.656884	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	06/02/2020	0900_06/02	-34.657324	119.735731	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	06/02/2020	1000_06/02	-34.657324	119.735731	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	08/02/2020	0900_08/02	-34.657324	119.735731	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	09/02/2020	0900_09/02	-34.657324	119.735731	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	10/02/2020	0900_10/02	-34.925979	119.782804	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol
open ocean	10/02/2020	2000_10/02	-34.925979	119.782804	Plankton sample, filtered from ship-water	~1mg of dry mass in ~20 ml of ethanol