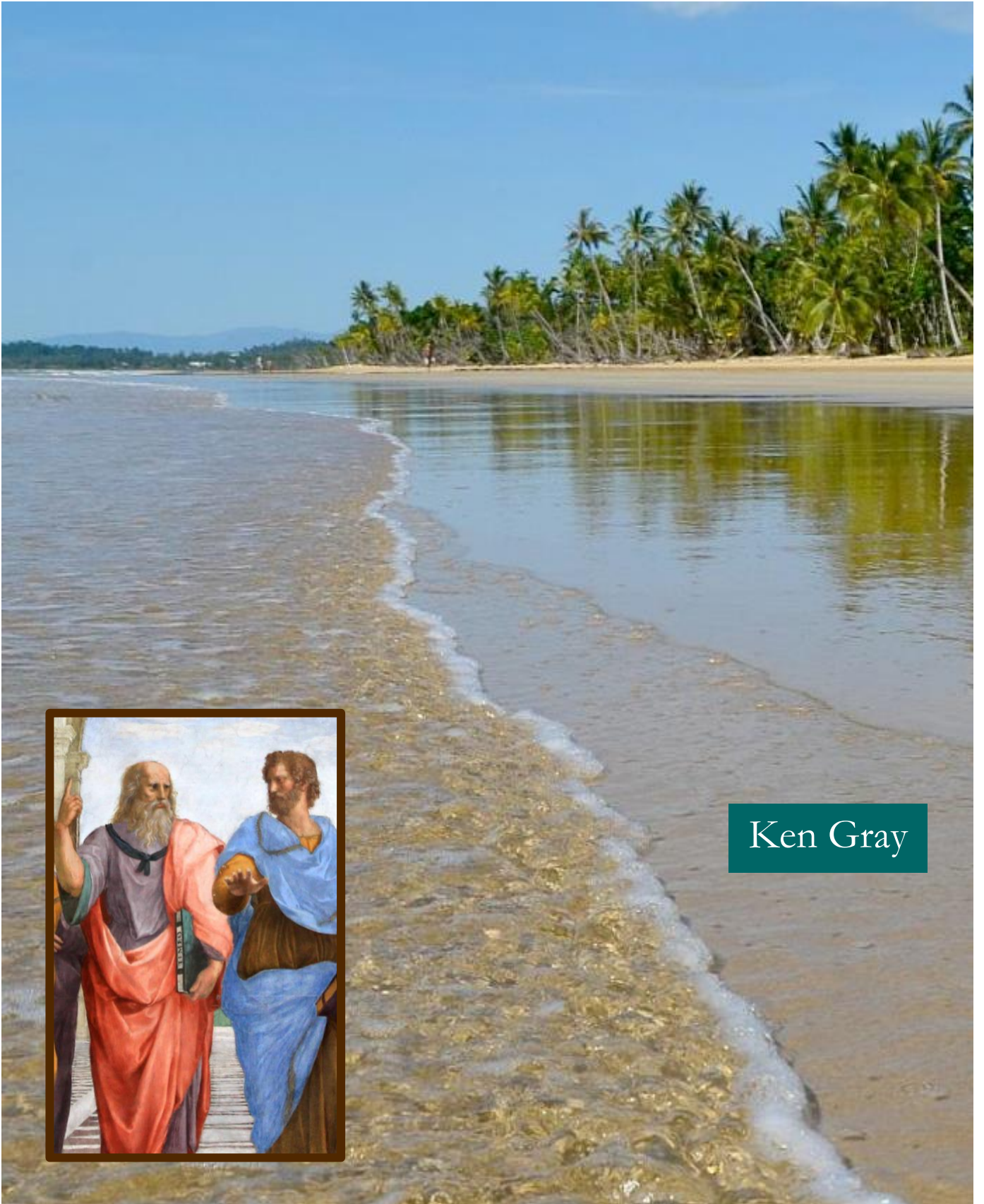


KERFUFFLE

A HISTORY OF MISSION BEACH SEWERAGE



Ken Gray

Published by

Mission Beach Historical Society Inc.

Document H022 Version 1.0.

Web address: www.mbhs.com.au



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First published in 2023.

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Acknowledgements

Dominic Mobbs' important corrections to the content of the story are greatly appreciated. Dominic has been a long-time advocate for Mission Beach and has effectively contributed to several important infrastructure community projects, including the Aquatic Centre. Dom was a member of the Community Advisory Committee for the sewerage study in 1999 and recalls many of the important events, including some pre-1999.

The many volunteer hours that Dom put in attending Council meetings for years and reporting on key issues to keep the community informed will be not forgotten. He also worked to influence Councillors at these meetings to obtain better outcomes for Mission Beach and it was Dom who hounded Councils on the sewerage costs and kept them to their promises to make the sewerage scheme affordable.

Thanks also to Lex Appelgren, the sewerage engineer from Sinclair Knight Merz, Cairns, who led the environmental study that put our sewerage scheme back on a solid footing. Lex kindly corrected some of the content of this story as well.

Diane Bull also made a significant contribution by correcting many of my wicked writing mistakes.

Cover: Mission Beach, Plato and Aristotle debating in The School of Athens.

GOATS AND COCONUTS

Small towns can create great commotions about things that may seem minor to those outside the town. Small dogs frequently bark at larger dogs, and small towns also tend to make a lot of noise due to their size.

Wategos Beach is a small beach located on the north side of Cape Byron. It's part of the popular tourist town in NSW, Byron Bay. Byron was a small town when the goats started to cause a kerfuffle many years ago, but it has grown to over 10,000 residents today.



Wategoat. The famous escapee from Cape Byron.

In 1903, the lighthouse keeper at Cape Byron brought two goats to live with him on the Cape. This dangerous point, which is the most easterly part of the Australian mainland, was protected by the lighthouse. The problem escalated when the keeper left the site in the 1970s, and the herd quickly grew to around 40 and became out of control. At times, they went to town and clipped-clopped down the main street of the chic town of Byron Bay. As you can imagine, that caused a stir.

At the time, a local stated that they pooped everywhere and ate everything and said, *They were a menace, but they were also funny, they were cute, they were eccentric – like Byron is.* Half of the town regarded the goats as an attraction and a great symbol of the local culture. The other half of the town wanted to get rid of them, and it caused many heated debates.

You may have heard of *Wategoat*, the escapee goat that eluded the NSW Parks and Wildlife rangers when they rounded the Cape Byron goat herd up and took them away in 2006. He became a celebrity. Landcare volunteers were trying to revegetate the headland and were thwarted by the goats who ate everything in sight – even clothes hanging out to dry on lines were fair game for the goats.

Residents protested the removal of the goats, but ultimately the government prevailed and removed the herd. *Wategoat* escaped capture and remained on a remote ledge overlooking the sea. He died on the cape in 2013, and one of his horns was discovered later and is now on display in the lighthouse museum.

The coconut controversy in Port Douglas, north Queensland is another case of a small town having its fair share of squabbles. The town has varying opinions on whether to keep the coconuts or remove them. For now, the Council has deemed the palms an invasive species and has a policy of removing juvenile plants while retaining mature trees.

That triggers ferocious arguments. Coconuts are commonly believed to be evocative of the tropics and a significant feature of the town and its appeal to visitors. Equally righteous arguments are made by

those who see the palms as weeds that destroy the unique north Queensland flora that visitors come to see, claiming that the cocos only make the town look like most other beachside destinations in the world. The battle continues and one wonders why the Council does not have parts of the beach declared as heritage areas (no coconuts) and parts where coconuts are retained – keeping both sides of the debate happy. Perhaps.

The eccentricities of community divisions in small Australian coastal towns can be seen in the goats of Byron Bay and the cocos of Port Douglas. These kerfuffles seem to be most common in towns that have grown quickly due to a tourism boom. The common factor is the transience of the population, that is, there is a core of long-term residents, yet the greater portion of people has lived there for only a few years. It appears that this is a recipe for causing commotions and debates.

MISSION BEACH KERFUFFLES

Mission Beach is another small Queensland coastal town that is growing quickly with the expansion of tourism and kerfuffles have always occurred, with vigorous debates being waged between residents or between residents and Councils.

The common theme of many debates has been people arguing about specific development proposals and what is or is not appropriate for Mission Beach. The 1980s saw the start of these debates when Bingil Bay residents learned that the Planning Scheme permitted landowners to build blocks of units on residential land. That one became red-hot in 1987 and was not resolved fully until 1993 when the planning scheme eliminated the loophole.¹

A large development was proposed by a group of entrepreneurs, including well-known Australian business people, at the mouth of Porters Creek in Wongaling at the same time. That one caused a major commotion. The development application (DA) was for a marina and a resort. The formation of the districts first environmental activist groups stemmed from that development proposal as well as the need to save Kennedy Bay from development.² As a result, the Tully Wildlife Protection Society (formed in 1980) helped create the M.R.C.D in Mission Beach in 1990 (Movement for Responsible Coastal Development.) Shortly after, the Consultative Committee for Cassowary Conservation was formed, and in 1994, these two groups merged to form C4 (Community for Coastal and Cassowary Conservation).

The creation of infrastructure has always been a source of heated debates in Mission Beach. Herb Cutten, who was the secretary of the newly formed Progress Association of Clump Point in 1912, wrote to newspapers complaining about the Council's inaction on road building in the district. He spoke passionately about the high level of rates paid and the absence of any investment in Clump Point infrastructure.³ That feeling of injustice has endured at Mission Beach for more than 100 years with locals demonstrating that Mission Beach ratepayers provide a very high portion of Council rates compared with other towns in the region, yet the amount spent on infrastructure at Mission Beach has always been miniscule.⁴

Len Cutten, brother of Herb, was the earliest and one of the most effective of our local activists, always writing to newspapers about the near insurmountable problems faced by settler families. In 1926, he wrote that there was a movement afoot to secede from the Council because the Innisfail councillors always voted to spend every shilling of rates income in their hometown. He referred to the Council as the *Innisfail octopus Council*. That theme continues today in Mission Beach. The Council did not construct the road to Bingil Bay until 1936, following the deaths of Herb and Len Cutten. They waged another campaign on the need for a wharf, which was built by the State government in 1917, but blown away a few months later in the 1918 cyclone.

Arguments for safe boating facilities started again in 1984 and raged on for 36 years with many emotionally charged debates occurring until the current facility at Clump Point was completed in 2020. Most residents agreed that there was a strong community demand for these facilities, but it took years

¹ Christine Forbes, *Chris and Gary: The Forbes Family of Bingil Bay*, Mission Beach Historical Society Inc., 2023, p. 43.

² *Protecting Kennedy Bay: 25 Years on. The History of the Conservation Movement at Mission Beach during the Modern Era from 1982 to 2007*, Wet Tropics, accessed 11 September 2023 at: <https://www.wettropicsplan.org.au/wp-content/uploads/2019/11/Protecting-Kennedy-Bay-25-years-on.pdf>

³ Ken Gray, *Bicton: The Cuttens of Clump Point*, Mission Beach Historical Society Inc., 2022, p. 32.

⁴ Dominic Mobbs, *Cardwell Shire Correspondent, Mission Beach Advertiser and Village Voice*, Issue 60, October 2002.

to address the questions of what to construct and where to build them. That story will soon be published as *The Battle for Boating Facilities: Mission Beach Boating Infrastructure History* online at mbhs.com.au

A related theme that created great kerfuffles in Mission Beach was marinas. The first such proposal was short-lived and local. Peter and Don Wheatley proposed a marina on the beach at Wongaling in 1957, but it was shut down soon after by Council and State government rulings. Then there was the Porters Creek marina in the 1980s (as mentioned earlier) and then a few different proposals for Boat Bay. Around 1994, these first emerged. In 2005, there was a massive public protest that continued until 2011, and no marina was constructed.

The push for a community pool was a recent and enduring infrastructure debate that began in 2000. The discussion was like those about boating facilities, with over 90% of residents asking for a pool, but there were differences in the preferred location and design. Most of the heat on this kerfuffle was between the local activists (Mission Beach Aquatic and Recreation Club Inc.) and Councils. The wrangle lasted for almost 20 years before an Aquatic Centre was finally constructed in 2018. The story of that history is told in Ken Gray's *A Pool to Be Cool*, which was published on the Mission Beach Historical Society website, mbhs.com.au.

This Kerfuffle history is about another enduring fight over infrastructure developments at Mission Beach that started in the early 1990s - the bitter arguments over whether to build a centralised sewerage system for the town. In the first issue of the C4 *Mission Beach Bulletin* in October 1995 (there was a publication called *Footprint* earlier), the sewerage proposals of the time were mentioned: *C4 agrees with the general consensus of the community that the joint council sewerage scheme is very expensive both in installation and on-going maintenance costs.*

The discussion about the pros and cons of a sewerage plan was in full swing.

PIGS-SQUIFFLE-PUMPKIN-POO

I struggled to come up with a title for this small history. Logic suggested it could simply be, *The History of the Mission Beach Sewerage Scheme*. Exciting stuff.

In early life, Oscar, my youngest grandson, had a unique exclamation that he used when he felt extreme feelings of indignation and frustration and wanted those around him to share the pain and witness the injustice of it all ... *Pigs-Squiffle-Pumpkin-Poo!* he would shriek, so that everyone could hear.

Usually, that grabbed the attention and achieved the desired outcome. The use of the colloquial term 'poo' as a title for this historical event is fitting. However, it would probably not pass the scrutiny of the Mission Beach Historical Society's editorial panel, many members being retired schoolteachers who had all too often heard poo-inspired expressions in their careers.

It is merely 23 years since Mission Beach won approval to build a centralised sewage collection, treatment, and disposal system for its main population areas in Mission Beach, Wongaling and South Mission Beach. Since its recent history, one might wonder why it's important to record it now. It is easy to forget the details and Councils are seldom safe record keepers or generous about access to their records, so it makes sense to record the story while we retain some semblance of knowledge of the events.

The author of this story was the person appointed by the Council to run the community engagement component of the 1999 sewerage study that would decide the fate of the project, so has some records. I will refer to him as the LPM (Local Project Manager) in the text for simplicity, instead of using the first person or referring to 'the author'.

Mission Beach's sewerage saga quickly escalated in 1999. There had been years of debate and seven different studies had been conducted in the previous ten years alone to determine the case for or against centralised sewerage facilities in the district. The studies had not yielded any conclusive answers to this controversial dilemma.

There must have been a motivation to build sewerage facilities in the district, considering the number of studies conducted. That was probably the case for business owners who were hampered by the lack of basic infrastructure. By 1997, the Council was in control of the agenda.

Around 3,000 residents lived in Mission Beach at that time. The Council had polled people about their views on the need for a centralised sewerage system and found that opinions were roughly split into equal portions: a third wanted a centralised system, a third did not want it and a third either did not care or had no view.

Mission Beach was divided by two Local Government Authorities, making the politics of Local Government more difficult than it is today. The Cardwell Shire (CSC) was in the south of the town and Johnstone (JSC) was in the north.

The State Government was demanding that the councils take action to manage effluent effectively in this quickly growing town adjacent to the Great Barrier Reef and the Wet Tropics Rainforests. Their belief was that the Councils must address the public health and environmental risks of an unsewered town before allowing the town to grow further. The pressure was rapidly rising.

Eddie McEachan, the General Manager of Johnstone Shire Council, led the two Councils in resolving the community conflict and finding a solution. A Community Advisory Committee (CAC) and a community engagement consultant from the State's Environmental Department were appointed by Eddie. Conversations were commenced to find a way forward, but the engagement officer found the Mission Beach residents involved on the CAC far too robust and angry to deal with and soon resigned.

Ken Gray had been the community engagement consultant for a larger project at Innisfail recently. That was a scientific study involving modern computer flood modelling and aiming to discover suitable flood mitigation strategies for the Johnstone River. The Johnstone River Trust was responsible for this. It was a highly controversial project too with polarized community views on the validity of computer flood modelling and the acceptability of flood mitigation options it supported. Flood mitigation is always a strong community flashpoint due to the fact that it always creates winners and losers.

The Johnstone River Flood Study progressed well with many spirited arguments among the people directly consulted and involved, yet no blood was spilled, and the group were able to agree on a way forward. Council, being a major player on the Johnstone River Trust, saw that project play out firsthand, and after it was completed, Eddie asked Ken to facilitate the Mission Beach Sewerage CAC and manage the project locally for the two Councils. Ken was not expected to do the work pro bono by Eddie, but he was asked to do it at half his regular consulting fee to meet the tightest budget. That was agreed.

Ken lived in Brookes Beach, which is a part of the Mission Beach district but would never be seweraged, so there was no conflict of interest. He had no definitive opinion on whether sewerage was necessary or not. However, he freely stated that he tended towards the belief that the study would show there was a strong need to protect the environment because he had heard of many residents with malfunctioning septic tanks, especially in the wet season. He had also seen evidence of nutrient buildup in the groundwater with strong algae growth in the sand at Mission Beach at times during the monsoon period. Having studied microbiology, biochemistry, and chemistry at university, he was content to let the data generated by the planned environmental study answer his questions.

Eddie was awarded \$200,000 of State funding to conduct the study to determine the best course of action for effluent facilities in Mission Beach. The State said that to obtain SCAP Funding (the State's 'Smaller Communities Assistance Program') to build a sewerage system for the district, the Councils must achieve strong resident support and make the case based on rigorous scientific evidence.

The fact that there had been many years of strong and sometimes angry debate on effluent infrastructure made it a high-level request. It often caused a big scuffle in town. Some saw a sewerage system as a threat, arguing that having no central system would keep development under control. The reasoning was that if a sewerage scheme were constructed, it could lead to rapid development. There were those who voiced their concerns about Mission Beach becoming like the Gold Coast where high-rise buildings are prevalent.

Business owners who struggled to operate effectively with their expensive and often malfunctioning on-site sewerage systems were on the other side of the argument. Their primary concern was that previous sewerage proposals were not affordable. Unless they had access to a modern public sewage system, some businesses were prohibited from expanding. In the middle were many regular householders with existing septic systems: some of them had major problems with their septic systems and needed a solution, especially in the wet season, while others had no problems and did not fancy paying \$400 a year for a service they did not personally need.

To support the funding of a central sewerage scheme, Eddie consulted with State departments to determine what they required. In essence, the State wanted a study of existing infrastructure and its effectiveness, a robust environmental study of the status of water quality in the district and an objective assessment of all the potential options and solutions for the future. Eddie believed that he would need to involve the community when the study was conducted so that they trusted the process, had a say in how it was designed and fully understood and trusted the results and conclusions. He decided that a community poll must be run again after the study results were communicated widely and he would need over 50% of residents saying Yes to any proposal that Councils could run with.

In a masterstroke, on reflection, Eddie appointed an internationally recognized sewage expert to provide the community and Councils with an independent view of the study method, its proper application and the relevance of the results and recommendations. Professor Paul Greenfield was a highly regarded Deputy Vice-Chancellor, Research, at the University of Queensland (UQ). It's rare for a person of such international standing to be available, but as fate would have it, Paul was the ideal choice and readily accepted Eddie's request for aid. Few could argue with his authority on the science.

Full points to Eddie McEachan because there were concerns and doubts from some in the community as the study progressed and Professor Greenfield was available to provide answers and balanced, expert opinions. He was very well received by the community who appreciated his sage advice and calm demeanour in the small storms that ensued.



An aerial image shows Tully STP next to Banyan Creek. Image from CCRC Sewerage Report..

COMMUNITY ADVISORY GROUP

The Community Advisory Committee (CAC) was appointed and running before Ken was appointed Local Project Manager (LPM) to facilitate community engagement and ensure that the project remained on plan. Jay McDonnell was hired by the Council as a secretary to assist. The CAC members were selected by a public vote during a meeting at Frogs Hollow, which was supervised by Councils and their consultants, GHD. The meeting was heated and GHD individuals were disliked by the residents due to their performance and approach in previous studies.

Apart from facilitating CAC meetings and workshops, an important role for the LPM was to communicate and engage widely with residents and ratepayers and provide relevant feedback to the Councils and the consultants hired to conduct the study.

Residents were invited by councils to participate in the CAC, with a focus on selecting those who were office bearers of local community organizations. C4 (Community for Coastal and Cassowary Conservation) and the Mission Beach Tourism and Regional Development Authority were each represented by several members. The CAC group were:

- Michael Adams
- Bruce Beavis
- Bevan Bobbermein (Chair)
- George George
- Dan Hatten
- Peter Heywood
- Dave Kimble
- Tony Lee
- Ritchie MacKay
- Dominic Mobbs
- Norma Morgan
- Jamie Neill
- Dave Nissen
- Anne Sutcliffe

Few of these people still remain at Mission Beach in 2023.

It was immediately apparent that the members were a good representation of the diverse viewpoints in the town. Around one-third of the members were conservation-focused and some of this group saw the idea of central sewerage systems as being a danger to the environment because it could, in their opinion, accelerate the pace of development in the district. A few of them indicated that the results of the environmental studies would not alter their views.

Around one-third of CAC members were involved in tourism and business, and they were largely of a belief that central sewerage was an essential requirement, but most businesses would not accept it at any cost. In the Councils' first attempt at a sewerage scheme for Mission Beach, the Cardwell Shire Council hired their favourite consultants (GHD) and started conducting water testing. Dominic Mobbs, a financial consultant for many major Australian infrastructure projects, who was a resident of Mission Beach, analyzed the proposal and determined that the cost per pedestal per year would have been over \$1,000. This proposal was widely canned because it was beyond what most accommodation businesses could afford to remain viable. The Council CEOs and businesses had a verbal agreement that a scheme must not cost more than \$400 per pedestal for it to be viable and receive community support.

Some advocates of a marina at the time wanted a sewerage system whatever the costs and they were in heavy conflict with others who held a strong line on affordability being a make-or-break factor. Meetings in the lead up to the study had been tense due to that.

The other third of the CAC was not affiliated with business or environmental organizations, and some of them had less fixed positions and seemed happy to let the scientific evidence decide the outcome.

There was considerable heat in the debate and a danger was that if members were not given an adequate voice on who did the study and how it was done, they may seek to discredit the results of the study. To reduce that risk, the LPM developed a set of criteria for the selection of the consultant team to undertake the study and asked the Committee for input into this scoring system. It was crucial to select consultants who had the support of the entire group.

Another danger was that the Councils would neglect the CAC's advice on the best consultants for the job. The assessment method for selecting the study team was simplified and quantitative; applicants were scored on a weighted scale that was understood by everyone.

In March 1999, the Council released their study tender and CAC members assessed the applicants based on their written applications. Three leading contenders were invited to present to the Committee and Council after being short-listed. CAC members were encouraged to ask questions and once more, they assessed each applicant.

Fortunately, the choice of the preferred consulting team was quite clear-cut, and a consensus was achieved readily by the CAC members and Council decision-makers (mainly Will Higgins, Works Manager, Johnstone Shire Council).

Politics of Local Government at the time more difficult than it is today because of the town being split into two Councils. The Cardwell Shire (CSC) was in the south of the town and Johnstone (JSC) was in the north. CSC was home to two-thirds of the population.

To resolve issues that affected Mission Beach infrastructure, the two Councils had formed a joint committee earlier, commonly called JACSJFAC and pronounced Jaxfax (meaning Johnstone and Cardwell Shires Joint Facilities Advisory Committee.) Although issues could be largely resolved at a JACSJFAC meeting, the approval of both Councils was still required for all infrastructure spending decisions.

The contract was won by Sinclair Knight Merz (SKM) with Lex Appelgren ultimately being appointed as the lead consultant/Project Manager. Lex's Master of Engineering Science (Environmental) degree from Melbourne University and his extensive experience in relevant sewerage studies gave SKM an advantage over other applicants.

SKM employed subcontractors for a portion of their computer modelling work (Jelliffe Environmental) and for their nutrient, microbial, and water quality testing work (Australian Laboratory Services).

The quote for the studies was \$115,000.

PROJECT SCOPE

The study was commissioned on 10 May 1999 and had several components. When the consultants met with the CAC and JACSJFAC, a regular reporting process was agreed upon.

Study of Existing Effluent Systems (Septics)

The initial plan was to gather information from Council and EPA records, which included maps and locations of systems. SKM and the Local Project Manager (LPM) wrote a newsletter that included a community questionnaire on existing septic systems. SKM conducted interviews with plumbers, septic contractors, and a local bore driller named Roly Pearce. Obtaining a street-by-street understanding of septics, drains, and streams and an assessment of likely problem spots was the next step. Dave Nissen and Beavan Bobbermein helped with these tours. The outcome of this was maps of septic areas, potential septic inspections, and water sampling sites. Maps were created for soil types and geomorphology as well.

Then they selected 100 on-site septic systems for evaluation including 25 large commercial systems, some known problem household septics and some known non-problem sites in areas that often experience problems plus 60 random sites. Visual assessment was required for some and questionnaires were only used for a few. Several Jelliffe computer models were used to enter this data.

Environmental Analysis of Water Quality

The first step was to map and define the water sampling sites then agree on the plan with the LPM who worked with Wongaling bore-hole contractor, Roly Pearce, to create eight new bores for testing groundwater. These were augmented by existing bores; a total of 55 water sites were agreed upon (surface water, groundwater, ocean water, and background water).

The plan was to test each site three times at monthly intervals. Tests were for bacteria (several test types), nutrients (ammonia, oxidised nitrogen, total nitrogen and total phosphorous), pH, BOD (biochemical oxygen demand), dissolved oxygen, oxidation/reduction (redox potential), conductivity, total dissolved solids, water colour and odour. Then all the data would be run in the computer-generated environment models to determine if the current effluent systems were presenting a danger to the environment and/or public health by exporting nutrients and/or microorganisms to creeks and the ocean.

Feasibility and Cost of Upgrading On-Site Systems

The study involved analysing the costs and feasibility of upgrading all existing on-site systems, including large commercial sites. The studies of legislative requirements and the establishment of water quality objectives were conducted in consultation with the Government (EPA and DNR).

Study of Technologies Available – Costs and Feasibility of Options

The engineers investigated the viable options for the collection, treatment, and disposal of effluent in the district. The task was given to them to pick the best options and suggest the most advantageous approach. They investigated the acceptability of different fee levels for a centralized system and simulated the financial options.

PROJECT OUTCOMES

Existing Effluent Systems (Septics)

The engineers discovered that many septic systems were frequently failing. Treatment and/or disposal systems failed in 44% of houses and 52% of commercial sites.

Owners reported high wet season groundwater levels causing septic systems to *back up* into plumbing systems and the testing was done in the period May to June so did not assess the septic systems during the worst operating conditions. Failures occurred in all soil types, and in many cases, there was not enough room to fix problems by lengthening the trenches.

The conclusions were clear: septic systems were frequently failing and were difficult to fix.

Water Quality

In June 1999, the study team tested all sites, then again in July 1999, and they were prepared to test again in August as planned. In these types of studies, the relevant times to test the water quality are in peak load seasons i.e., from July to September. However, some members of the CAC who were staunchly opposed to centralized sewerage systems were disappointed at the dire results of the first two test periods and, hopeful of a reprieve, asked that the third tests be conducted in the low-load and high-rainfall period.

Most Councils would have objected, but Eddie McEachan agreed to delay for nine months. He asked the LPM to analyse the rainfall patterns and recommend a trigger point for when the tests would restart. The analysis was accepted by the CAC and the testing went according to the revised plan in February 2000 when the rainfall was highest, and the visitor effluent loads were lowest.

This was a risk, as if the third test results were not as conclusive as the first two, what decision would Council make? If the third sampling results were similar, the case would be resolved. The outcome was that all three periods produced similar numbers.

The microbial tests were not completely clear-cut. They indicated that a problem certainly existed, yet it was not highly alarming. According to human aquatic food consumption standards, 21 out of the 38 neighbourhood areas assessed were exporting faecal coliform bacteria above the standards.

The nutrient tests were unambiguous. The most significant factor was the excessive ammonia levels. Ammonia is a toxic chemical, and if the groundwaters are high in ammonia, the town will be constantly exporting toxins into the creeks and the sea. The combination discovered of high ammonia levels, low pH and low dissolved oxygen levels was a rich recipe for environmental degradation.

Using the Australia and New Zealand Environment and Conservation Council (ANZECC) standards for example, the maximum allowable ammonia levels are 65 micrograms/litre for surface water and 20 mcg/L for groundwaters. The average levels discovered were more than three times the permissible levels in surface waters and more than 20 times the standard set for groundwaters. The maximum levels were extremely significant, with 35 times the limit for surface waters and 169 times the limit for groundwaters.

To put it in perspective, 120 micrograms of ammonia per litre means that only 75% of species are safe on 50% of occasions. The average level of our groundwater was four times that level, and on occasion, it was almost 30 times that level. The case for change was indisputable and was largely based on environmental impacts, not public health concerns.

Professor Greenfield was content with the study conducted by SKM in accordance with the agreed methods. He questioned some of their assumptions yet agreed with the conclusions and their recommendation to construct two or three treatment plants locally. He concluded that the nutrients were more alarming and required more urgent action than the microbial levels.

A surprise to the SKM engineers was the finding that ammonia levels were also high in all five of the ocean water sites tested on both occasions. The warning was grim.

To put it plainly, the urban area surface and groundwaters were found to be toxic and we were definitely degrading the environment because of our ineffective sewerage systems. Ammonia was everywhere – all 38 neighbourhood areas used in the computer modelling had regularly failed those standards.

Option to Retain and Upgrade Septics

Some people hoped that this option (fixing existing systems) would work. The idea was to retain the septic tanks but ensure that they were working properly.

Unfortunately, septics do not effectively remove microbes or, more importantly, nutrients, including ammonia. The toxicity of the groundwater remains, even if they are working well. Furthermore, in many cases, it was found to be impossible to make a septic system work.

This option was found to be utterly unviable by the study.

Option to Replace Septics with Aerated Water Treatment Systems

High-quality on-site Aerated Water Treatment units (AWTs) can remove up to 50% of nitrogen. That compares to up to 90% for a sewerage plant, though. That option was rendered unviable by two factors. The cost was a lot more expensive than centralized sewerage systems. The estimated cost per household was \$13,000 - \$17,000 to install the systems and \$1,290 to \$1,520 per year to operate them, which included capital costs. That compared to \$2,000 instalment costs and \$400 per year operating costs for the central sewerage proposal. The high-water table and high rainfall were also a challenge. The conclusion was that only a few AWTs would be effective in this high rainfall, flat land environment.

Central Sewerage Options

Numerous sewerage technologies were evaluated by the scientists. The biggest challenge was the disposal of effluent. The recommendation was to have two sewage treatment plants (STPs), one at Mission Beach and one at Wongaling, and possibly a third one at South Mission Beach. To reduce the cost of installing deep sewer pipes, they chose to use a combination of gravity feed and vacuum pumps for collection. They recommended a combination of groundwater injection and land irrigation for disposal. However, they had not fully proven the feasibility of either of these two methods, and further evaluation was recommended.

The infrastructure cost was estimated at \$15.2 million for a two-plant operation and an additional \$1.8 million if a third plant was added at South Mission Beach.

Other Studies and Issues Examined

Lex Appelgren and his SKM team examined numerous nooks and crannies to answer all significant CAC questions and explore all options. While we were waiting for the third round of water quality tests, Lex presented several papers to address these issues.

The first option was the possibility of having a third STP at South Mission Beach. The option was quickly dismissed because it increased capital cost by nearly \$2 million, reduced economies of scale, and increased operating costs.

An option to dispose of the effluent using ‘woodlots’ (forestry) was then examined. That was the alternative to banana irrigation. This option was found to add \$1.4 million to the capital cost and an extra operating cost of \$80,000 per year. Obviously, that was also unattractive.

The next step was to consider removing South Mission Beach from the scheme. More nutrient modelling was involved in this. This option was not financially viable for residents and did not address the nutrient issues. The councils' ability to attract State funding was also compromised by it.

Lex was asked to evaluate constructed wetlands for effluent disposal. While some CAC members were drawn to this, it was a costly operation due to the need to harvest biomass every two to three years. The residents would have to pay for all costs since State funding was not applicable to this system. That option was eliminated as well.

The fifth paper addressed several questions that were posed by a member of the CAC. This member stated that *the experiment was done in such a way that it would be impossible to get an accurate answer out of it and was a waste of money. This reflects badly on the professionalism of SKM.* The CAC member was looking for a program that was fully statistically valid.

However, SKM rejected these arguments on several grounds and stated that *the results of the program may not lend themselves to rigorous statistical analysis, but the general picture is quite clear. ... Professor Greenfield confirmed that the geographical distribution of hot spots was a valid method of presentation. He also said that a statistically valid program would be very expensive and was not required.*

Professor Greenfield led the consultants to adopt the hot spots frequency analysis, stating that it was a more effective method for determining the truth. Lex Appelgren concluded from that analysis that, *our groundwater is quite radical and in more trouble than our surface water. 19 of 20 groundwater sites tested had Hot Spot frequencies in the range 46% to 88%. Overall results show that Mission Beach has a much more consistent problem with water contamination than Wongaling or South Mission Beach: the Hot Spots analysis showed Mission Beach failed in 100% of the cases, Wongaling Beach in 75% and South Mission Beach in 65% of the cases.*

COMMUNITY WORKSHOP and EXIT POLL

The study outcomes were generally well-accepted by CAC members. As usual, a few would never be convinced. Despite the study's findings that environmental degradation was the main issue making change essential, it was surprising that those who opposed the recommended solution cited environmental arguments.

A one-page newsletter was agreed upon and published after the October 1999 draft report to inform residents and absentee property owners. A copy of the draft report was made available to residents through the holding of copies by several CAC members, and a copy was also available at Council offices and the library.

This occurred after the second set of water tests were finished. After the CAC members pointed out some small errors in the microbiology data, a second draft of the Water Monitoring Chapter of the report was provided. Two workshops were held where Lex Appelgren, the lead engineer from SKM, and Professor Greenfield, an independent expert, explained the findings and answered questions. These meetings were facilitated by the LPM.

All up, 55 people attended, some twice - 33 residents, 14 CAC members, 6 Council members, and the Innisfail Advocate. Many questions were asked during these convivial meetings.

After the third water quality samples were analysed and the report revised, the CAC agreed on an independent community researcher to conduct a poll of views among residents and absentee property owners. The Cairns-based W S Cummings Group was chosen to conduct the phone survey in March 2000.

The main conclusions were:

- 78% of those who could or would answer the question of whether or not to use centralized sewerage said yes and 22% said no.
- When asked which option they preferred, 63% chose Centralised Sewerage, 19% chose Upgrade Existing Systems, and 18% chose nothing.
- 55% of respondents felt their own on-site system was acceptable, 15% felt there were some problems, 10% saw it as unacceptable, 7% did not know, and 12% owned land with no on-site systems.
- Public health (35%), environment (26%), cost (22%), and inadequate existing systems were the most significant factors for them.

The Councils viewed the project as a success, given the community's deep division on the issue prior to the SKM study. The residents and absentee ratepayers were now overwhelmingly in favour of centralised sewerage for the town.

WHAT HAPPENED?

Three years after the study was finished, the Mission Beach Sewerage System was constructed. The design that was approved was significantly changed for valid reasons without any fanfare or further kerfuffle. Instead of building two treatment plants, or three, at Mission Beach, Wongaling Beach (and South Mission Beach) and treating the effluent locally as recommended, Councils evaluated further options and found the optimal solution was to pipe the effluent to the existing Tully sewage treatment plant (STP). The recommendation to use groundwater injection to dispose of the treated effluent did not stack up at Mission Beach, so it made more sense to upgrade the small Tully plant and treat it and dispose of it there.

STPs are not attractive facilities and do not provide ideal sights in an attractive tourist destination. The decision to construct the treatment facilities near Banyan Creek was an excellent outcome.

In June 2022, CSC appointed GHD to manage the project. GHD had previously been involved and persuaded councils to buy land at the corner of the South Mission Beach turnoff for \$200,000. Cardno CCS won the design contracts for the reticulation and collection systems, pump stations, and the rising main to Tully.

Cardwell Shire Council Correspondent, Dominic Mobbs, met the Engineering Director (Alf Raiti) and CEO (Mal Mallyon) of CSC to discuss progress and reported that the project was a little behind on the time schedule and slightly overspent. The budget was \$21.5M and the digging was planned to commence in June 2003 and finish in May 2004. The sewerage area was designed to encompass the Eco Village at Clump Point to The Horizon at South Mission Beach. The estimated costs to residents were forecast to be \$400 to \$415 per pedestal pa.

In July 2003, the Council predicted cost overruns due to tenders being over budget and sewer lines needing to be deeper, up to 7 metres. CSC intended to construct the rising main by themselves instead of employing an external contractor. In August, CSC Mayor Tip Byrne remained steadfast in his commitment that the annual pedestal fee would not exceed \$400. He led a delegation to seek additional funding from the Minister and in September the good news arrived that Councils would receive an additional \$5M from the SCAP fund, bringing the total State subsidy up to \$20.5M. The scheme's total cost estimate now stood at \$28M. Tip Byrne deserved a lot of credit for winning the additional funding.

The tender for Tully STP was given to United KG in November 2003 for \$4.9 million. In December 2003, councils decided to charge pedestal rates of 91% of the residential pedestal fee for commercial users and 82% for vacant lots. Election time was causing everything to be put on hold.

CEC was appointed as the contractor to build the mains and pumps in May 2004. It was reported that there would be 32 km of gravity mains, 12.3 km of pressure mains, and 12 pump stations with 60 employees. In September 2004, councils announced a policy of compulsory land acquisition for easements when residents fail to sign consent letters.

In December 2004, CSC decided not to test the pipes for the rising mains to Tully, but the gamble backfired with 51 pipes leaking. This led to a dispute between CSC and pipe supplier Tyco. Concerns were raised about the finalization of the connection policy in February 2005.

An open day was held by the STP in July 2005. The connection subsidy was agreed upon at \$600 per household.

After the facilities had been working for a short time, the rising main to Tully and the pump stations were found to be corroded due to the release of hydrogen sulphide and that led to the early replacement of the 300 mm diameter rising main. The transfer station that pumps effluent from Mission Beach to Tully was also replaced in 2021. To reduce this corrosion, the Council is now using magnesium hydroxide treatment of the effluent.

Most of the 12 pump stations were placed in visible locations, with their sizes varying. That was unavoidable, yet Council did not cover itself in glory in terms of providing suitable vegetation screening to improve the visual amenity, so important in a town that depends heavily on its tourism economy.



The visual amenity outcomes for the pump station located on Reid Road Wongaling are poor.



Some screening was provided at the Rotary Park station in Wongaling.

The Mission Beach sewerage dispute, which had been ongoing for many years until 1999, was mostly resolved when the CAC was established. The community was empowered and kept informed. That was not the end of the debate, yet the CAC performed well and while there were

the usual fiery discussions, the community forum helped the town to clear the air and find a solution peacefully.



The visual appeal of this small station located at Banfield Parade was not enhanced.

The recommendations were still rejected by a few people because of the costs. If you already have a system that works, why pay \$400 a year? Some residents still believed that the environmental damage caused by our effluent was minor in the larger scheme of things. Despite this, most people found the outcomes and Councils' approach to this challenging matter to be satisfactory.

In November 2003, a local publication provocatively attempted to reignite the debate stating that they could not see a need for central sewerage *apart from a lot of shonky work by SKM Pty Ltd*. Then, in June 2005 they declared that the scheme would cause harm to Mission Beach, predicting that the population would quickly increase to 9,000 due to the implementation of a sewerage scheme.

In January 2006, C4s editorial for the Mission Beach Bulletin declared: *Many people say development has been stimulated by the sewerage development. The scheme was inevitable once evidence was given that the existing systems were polluting the ocean.* The heated discussion was concluded.

Minister Desley Boyle officially opened the scheme on December 14, 2005. The Tully Sewage Treatment Plant had 3,441 connections in 2022, with 2,327 from the Mission Beach district and 1,112 from Tully. The Innisfail STP had 3,916 connections, which is only a few more than Tully, but the plant has a much greater capacity of 40 ML per day compared to Tully's 12.3 ML/day.

RECOGNITION

Sewerage is no longer a hot topic in the town, and we can ask ourselves who to thank for it. We should remember several people who solved the seemingly insurmountable problems of managing the town's effluent.

Johnstone Shire Council (JSC) General Manager, Eddie McEachan, was the primary leader. It's not common for a Council CEO or GM to take on this leadership role in an infrastructure project. Eddie, to his credit, understood that a solution was urgently required. He understood that if the two councils did not reach an agreement and solve the problem themselves, then the State EPA would have intervened, and imposed their solution on the district, probably with the urging of the Great Barrier Reef Marine Park Authority (GRMPA).

The Cardwell Shire Council was expected to take the lead role, as Eddie was the GM of the small council in Mission Beach terms. Eddie was the mastermind who was responsible for pulling the strings when action was necessary, but also left the community and engineers to find a way forward. The Community Advisory Committee (CAC) was established by Eddie and was crucial to the success of the venture. He consistently empowered the community and allowed residents to choose the engineering team to conduct the study. When the CAC asked for something, he invariably listened and gave them considerable scope to alter things e.g., he allowed the third set of water tests to be delayed by nine months, which added to the cost and significantly delayed the outcome.

After the study was finished, Eddie did not blindly adhere to the SKM recommendations. He ensured that the required investigations took place and persuaded the two councils to accept a superior solution: treatment and disposal in Tully.

Tully, a small and declining town, has a population of only 2,300 in 2023 in the urban sewered area (about 3,000 for greater Tully). That was always a problem because it meant that the economies of scale were poor, and ultimately, the plant would become unviable. The regional dilemma was resolved by adding the effluent from Mission Beach.

Mission Beach is a town that is growing with a population of around 3,000 in its sewered areas and an overall population of approximately 4,000 residents (2021 census). The Cassowary Coast region was left with two viable sewerage schemes due to the population swelling greatly during the tourist season. Three sewage treatment plants, including the State-owned plant at Port of Hinchinbrook, Cardwell, are managed by the two councils that were merged in 2008.

Lex Appelgren of SKM was undoubtedly a key player in the project. Lex, the Project Manager, was a skilled leader with high integrity who fought hard to achieve optimal outcomes. Patiently and positively, he responded to the feedback from the CAC and Council and was not offended by the abrasive tone of the discussions. Lex provided quality analysis beyond the study's scope and answered substantive questions. Lex made every effort to reach consensus and come up with a solution that was both effective and affordable.

The study's success was largely due to Lex's work to evolve it as things changed and make it relevant to everyone in the community. His conclusions were appropriate, fitted the data and did not favour any side of the debate. He did everything in his power to ensure that the study came up with acceptable answers to all important questions. He did further work for the Cardwell Shire Council after the primary scientific study to determine the best options, and these were ultimately selected by the councils and implemented.

Professor Paul Greenfield's contribution to the success of the project was both exemplary and vital. It was an amazing feat to attract him to the role of expert adviser and for that, we were grateful, again, to Eddie. Paul was seen as a world expert and the way he approached the role was outstanding. He was open to critiquing the approach or data analysis and listened respectfully to the CAC member's questions and concerns. The technologies being discussed were not taught to CAC members, and he assured them that they were not being tricked in any way. The calm and confident manner he displayed was just what this divided community required after the storms of the past.

The CAC members who donated their time and energy to represent their community in this infrastructure dilemma are greatly appreciated. Their attendance was good, and they put in their best effort to represent Mission Beach. The council benefited from their input in understanding the district's needs and concerns and finding the best solutions.

Mission Beach has never encountered a Local Government Authority that is so engaging for an infrastructure project before or after this event. For example, it took 13 years to achieve an effective Community Reference Group for the Mission Beach community pool in 2013 and the next Council in 2016 dumped the group immediately and ceased all engagement. Eddie was the difference.

Eddie McEachan remained faithful to his word. The community was empowered, the great sewerage debate was ended, and a solution that works well for the district was implemented by him.

Did the predictions of doom come to pass? The notion that Mission Beach would turn into a clone of the Gold Coast has not been realized. The population has grown slightly from 3,000 to 4,000 after 18 years of operation, but it has not grown to be anywhere near the 9,000 predicted by some. High rise buildings have not sprung up either – there have been a couple of three storey buildings added, but strict building height limits remain in force.

The sewerage kerfuffle fizzed out and the town moved on and found new topics to fight over.