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2021 Sustainability Review  
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**Fishstock this submission refers to:** [Review of Sustainability Measures for Yellow-eyed Mullet \(YEM 9\) for 2021/22 \(mpi.govt.nz\)](#)

Fisheries NZ Discussion Paper No: 2020/31: Closing date for submissions 5 February 2021

**Submission from:** Jim Mikoz, President, Wellington Recreational Marine Fisheries Association.

**Dear Sir or Madam**

**Introduction**

While this submission may be considered a bit long it is long due to over twenty years of research undertaken when I found Government funding to describe the value of the intertidal zone to marine species had been misdirected. This lack of Government scientific research has resulted in many assumptions and guesses by the Ministry of Fisheries in this discussion paper on yellow eyed mullet.

I have documented the life of yellow eyed mullet, identifying where, when and how they spawn, what they eat and where they go. In 2003 I was invited by senior management of the *Foundation of Research Science and Technology* (FRST) to use my intertidal marine knowledge to help identify what was not scientifically known about our intertidal zone. The project was called "*Natural Ecosystems.*" At the first meeting FRST management informed those present that "there will be no funding into the intertidal zone unless a user is found." Instead FRST management proved they had another agenda for the \$32 million allocated and misdirected

the funding. As a result there has never been any scientific research undertaken to discover the value of the intertidal zone to marine species such as yellow eyed mullet.

The information that the Ministry of Fisheries has used in this Discussion Paper on yellow eyed mullet could never have come from any scientific research as there has been none. I, along with a number of recreational fishers, would watch yellow eyed mullet spawning in the intertidal zone. When I found no one had captured these fish spawning it only took one and half hours before I had the first ever recorded yellow eyed mullet with ripe running roe. A little more searching around the raupo reeds and I captured a native freshwater fish with ripe running roe.

I then later found there had not been one scientific paper published in New Zealand or Australia describing their food sources. What has been presented by the Ministry of Fisheries can be easily proven to be totally wrong as I set out to record their food sources. Through a Power Point presentation submission presented to the Board of Enquiry to the New Zealand Coastal Policy Statement and the NZ National Policy Statement for Freshwater Management I identified almost all of their food sources and later I was to find more. Of the four hundred submissions to both Boards of Enquiry the submission I compiled for the WRMFA was the only one describing the value of the intertidal zone to marine species and showing the food sources of yellow eyed mullet.

In the FRST programme we were asked to look at our Nationally Recognized Databases where I found there was not a nationally recognized Plant Database that named an intertidal plant. I became involved in correcting the error and had a number included in DOC plant identification and the NZ Plant Database. However the most important intertidal plant to both marine and native freshwater fish is the raupo reed and it had never been named in any database. While I had raupo included in those databases its function has never been described by science as informal marine knowledge is not recognized by NIWA or Mfish scientists.

In this discussion paper there is a view that yellow eyed mullet spawn out at sea but when I asked NIWA to provide proof they replied there is none and it comes from an assumption that was misinterpreted. Yellow eyed mullet can be seen spawning in the intertidal zone that has stands of raupo reeds. Many of the yellow eyed mullet spawning grounds were destroyed around 2000 when regional councils removed the native intertidal plant and replaced them with rocks. The rocks cannot be used to replace the function of raupo and through no knowledge of their function Government and regional councils destroyed the spawning grounds of both yellow eyed mullet and our native freshwater fish.

With only a life span of seven years, the massive schools of yellow eyed mullet we saw as teenagers have now disappeared. As yellow eyed mullet can be seen spawning in the intertidal zone on the same day and time as native freshwater fish, it is not surprising that their numbers are also decreasing reducing the number of whitebait returning in the North Island. In contrast in the South Island rivers and streams have large stands of raupo and the populations of both yellow eyed mullet and whitebait numbers are not in decline.

The Ministry of Fisheries has demonstrated they lack the correct information on when, where and how yellow eyed mullet spawn and where they go and what they eat as the proposed TAC suggested is far too high. There has been no information presented that recognises that yellow eyed mullet are the primary food source of Hector Dolphins. Nor has there been any statement made to confirm their numbers have been decreasing in direct proportion to the reducing numbers of yellow eyed mullet and native fresh water fish.

#### **An Option 4 should have been included**

This Option 4 would have recognized that yellow eyed mullet are an important source of food for many marine species that are also in decline. The Option 4 would have acknowledged yellow eyed mullet are the primary food source for Hector Dolphins.

#### **Option 4 would be set at 6 tonnes.**

This would eliminate the commercial catch as they have indicated they are not interested in this fish stock. They have proved their disinterest by never funding any research nor warned that the stock was in trouble.

The allowances for Customary Maori, Recreational and other allowance would then be divided equally between these types of allowances.

With the help of many recreational fishers and quite a number of marine scientists we have obtained a considerable amount of information over the years. As a result we have divided our submission into sections.

**Section One :** Questions for submitters on options for varying TACs, TACCs and allowances.

**Section Two:** Identification of misinformation.

**Section Three:** Additional information describing yellow eyed mullet.

**Section One :** Questions for submitters on options for varying TAC, TACC and allowances.

**Question 1** Which option do you support for revising the TAC and allowances?

We do not support any of the three Options presented by the Ministry Of Fisheries.

#### **Reason:**

The information in this paper contains far too many errors and too many assumptions.

In 2003 the Ministry of Fisheries failed to act on any of the information provided in a report the Ministry had commissioned for Kincett Mitchell Ltd to review the *Environmental impacts of harvesting beach-cast seaweeds in New Zealand*. The review was carried out by Zemke-White, Speed, and McClary in 2002/03 (KBS 2002/03-KMA). In the section Summary – Objectives 1-2, they made the following comments:

*When not collected beach-cast seaweed plays a role in terrestrial, beach and near shore food webs.*

- *Removal changes structure/density of beach fauna.*
- *No data on the impacts of removal on near shore food webs.*

Yet without any data and no funding to support a scientific study the Ministry of Fisheries has produced a discussion paper on yellow eyed mullet with wild guesses as to what they eat or where they go and every one of the guesses can be easily proved to be wrong. The yellow eyed mullet's importance to all marine species has not been described. There is no information describing that yellow eyed mullet obtains its protein from the life in beach cast seaweed. There is no mention made of the food sources they eat in the intertidal zone of streams and rivers.

When the Ministry of Fisheries were advised in 2003 from their own research programme there is no data they failed to instigate any research into the value of beach cast seaweed to marine species. Commercial species such as moki, flounder, blue cod and yellow eyed mullet to name a few all find a food source in beach cast seaweed. There has been no Government funding allocated to research yellow eyed mullet, I know I was in the FRST meeting room when I saw it go elsewhere. But the fact remains the Ministry of Fisheries has failed to stop the removal of the yellow eyed mullet's primary food source found in beach cast seaweed from our country's beaches.

**Question 2 If you do not support any of the options listed, what alternatives should be considered and why?**

**Reply:**

The reason why we cannot support any of the three options is because the Ministry of Fisheries has identified they know very little about this fish. The Ministry of Fisheries has incorrectly described their spawning habitat and has failed to identify correctly any of their food sources. This has resulted in the Ministry of Fisheries doing nothing to prevent these commercial fish species primary source of protein being destroyed by Government and councils. The Ministry has failed to read the information we supplied in 2020 describing their food sources and has made wild guesses. The Ministry has failed to advise the public and local and regional councils of the importance of beach cast seaweed to marine species and allowed the yellow eyed mullet main food source to be taken to the rubbish tip every two weeks. The Ministry of Fisheries has failed to stop an \$800 million industry from being intentionally formed to strip millions of tonnes of beach cast seaweed from beaches whenever it arrived all around New Zealand. This failure has denied many marine species the protein they require for a successful spawning

season. This failure can be seen in all the fish stocks that obtain their major food supply from the life in beach cast seaweed declining, including yellow eyed mullet.

The Ministry of Fisheries has failed to prevent councils from removing raupo a native intertidal plant that had been essential for the successful spawning requirements of these fish and native fresh water fish. The Ministry of Fisheries has failed to acquire any knowledge of the value of the intertidal zone to yellow eyed mullet by describing they go out to sea at night when in fact they travel into the intertidal zone at night to feed on mysid shrimps and graze on intertidal native plants. This major food source was not mentioned by the Ministry of Fisheries even though they had been informed through two major submissions.

**Reason:**

This fish stock all around New Zealand and in the North Island is in serious trouble not only in Area 9. It is obvious from the misinformation presented in this paper and the lack of research and the failure to recognise their primary food source by all Government parties including DOC, Ministry of Fisheries, NIWA and including the commercial fishing industry, that they have all contributed to this fish stocks serious decline. DOC, in their ten year study called *The Regions Estuaries*, failed to record how the intertidal life is used by yellow eyed mullet. They failed to record the hundreds of mysid shrimps that yellow eyed mullet would be eating at night which suggests those involved in the research went home at sunset and missed the intertidal marine world.

Nowhere in this Discussion Paper has the Ministry of Fisheries identified that yellow eyed mullet graze on a native plant called Ureure Glasswort (*Sarcocornia quinqueflora*) which has flowers and fruit that requires a magnifying glass to see. A visit to the intertidal zone would have discovered that. DOC should have included this information in their ten year study called *The Regions Estuaries* as in clear water they can be plainly seen feeding on this plant.

The poor standard of research under taken jointly by Ministry of Fisheries and DOC produced a publication titled "*Threat Management Plan for Maui Dolphins*" but they failed to record that yellow eyed mullet will leave a river, stream or shallow harbour when it becomes muddy after heavy rain or strong winds as their gills would become clogged with mud. Those involved in the study described at a meeting what they observed. They saw dolphins feeding on the yellow eyed mullet and native fresh water fish arriving out the rivers and swimming in and out of the surface bubble of mud. Those involved in the research expressed disappointment that within the Ministry of Fisheries and the Department of Conservation someone had prevented this information being recorded in the "*Threat Management Plan for Maui Dolphins*." There were 298 pages in the publication and there were only twelve lines describing pollution as a threat and not one word describing where the dolphins were obtaining their food source. Reading the report it was obvious that the writers had another agenda as almost all of the pages were blaming commercial netters for the loss of Hector Dolphins. As a result I asked four commercial netters who have been netting continually for fifty years and not one had caught a dolphin.

DOC produced a draft of their publication *The Regions Estuaries* and in the draft they called the fish they saw anchovies. I had been invited to comment on the draft and informed them that anchovies do not enter fresh water. Ten years later the final version was published but in 440 pages they still could not scientifically identify the fish they saw. The fish they saw could have been the young of grey mullet, yellow eyed mullet, kahawai, flounder, trevally, stargazer or snapper as they all spend much of their lives in fresh water. In that publication they incorrectly described the yellow eyed mullet life cycle as they said “*they only or occasionally enter an estuary*” when in fact other research describes they spend 70% of their life in fresh water. Then DOC describes “yellow eyed mullet feed in the sediment”. This is also totally incorrect.

In the over one hundred yellow eyed mullet we dissected to learn about their food sources we never found one spec of mud nor the remains of any fish. We also never found them in muddy water. This Mfish Discussion Paper describes that yellow eyed mullet eat fish. Where on earth did you find that misinformation as past scientists, David H Graham in his book “*A Treasure of New Zealand*” and R M McDowall in his book “*New Zealand Freshwater fishes*”, describe they never found fish in their gut.

Yellow eyed mullet obtains their protein from the life found in beach cast seaweed. This life in the beach cast seaweed will between spring tides; convert the cellulose found in beach cast seaweed into protein. I found a considerable number of yellow eyed mullet had eaten this life which gets washed into the intertidal zone as the tide comes in to the point where their guts are almost bursting. They then pass on the protein to those marine species that would eat them, including Hector Dolphins, penguins and other marine mammals. We are at present experiencing a rapidly declining population of Hector Dolphin and penguins who rely on an abundance of yellow eyed mullet full of protein to provide them with protein for their successful spawning.

On the North Island West coast there is a total netting ban to protect Hector Dolphins yet Government through the Ministry of Fisheries and the Department of Conservation have proved they know absolutely nothing about their food source. There is only misinformation about where the yellow eyed mullet spawn. There has been no protection given to their major food source found in beach cast seaweed. There is nothing in the discussion paper that shows the Ministry of Fisheries knows anything about this fish’s other food sources in the intertidal zone.

The reason why marine mammals beach themselves can be better understood by knowing it is estimated that yellow eyed mullet spend 70% of their time in fresh water and travel onto the intertidal sand flats to graze on the algae that grows between tide changes near a river or stream. This food source was not identified by DOC but there are many recreational fishers who see this every day.

In the ten years of research into *The Regions Estuaries* DOC failed to record or scientifically identify any of the 7 millimeter long mysid shrimps found in all estuaries in New Zealand. When I found a number of yellow eyed mullet full to bursting with mysid shrimps I went to an estuary to see if I could locate them free swimming. I captured a number and then had to purchase a

special camera to obtain a photographic record and sent the photo to Gerry Closs from Otago University to see if he could identify them, which he did. He replied describing they are called *Tenagomysis novae-zealandiae*. He sent me a 2010 paper written by Adrian W.T Lift, Aparna Laf and Gerard P Closs entitled *Life history and reproduction of two abundant mysid shrimps in an intermittently open NZ estuary* which has identified that we have five known species and one still to be identified. This research has proven scientifically the value of the intertidal zone to marine species as the paper describes “a mean density of 595 individuals per square meter”. This research provided the reason why yellow eyed mullet enter the streams at night as the mysid shrimps are nocturnal. The photo of the mysid shrimps was of such quality I was able to use it in the full gloss pages of the New Zealand Fishing Coast to Coast magazine. This was the only story ever written describing the importance of mysid shrimps to yellow eyed mullet. It was titled *Raising the bar to get more bait fish in the water*.

The Ministry of Fisheries has produced in their Discussion Paper on yellow eyed mullet some unsupported serious misinformation by describing yellow eyed mullet eat fish and polychaete worms. An experienced recreational fisher would know they do not eat fish nor do these fish have the complicated guts required to separate food from mud which a red cod does.

### **Question 3 Are the allowances made for other sources of mortality appropriate? Why?**

#### **No definitely not**

There has been no allowance made at all for the destruction of what was once their massive food supply that they found in beach cast seaweed.

There has been no allowance made for the loss of their other food sources they once found in the intertidal zone.

There is has been no information provided that explains why they spend 70% of their lives in fresh water.

The Ministry of Fisheries has failed to acquire any knowledge of the value of beach cast seaweed to marine species. It has therefore failed to protect the major food supply of yellow eyed mullet. This failure has directly allowed 43 councils to remove beach cast seaweed every two weeks from their managed beaches all around New Zealand. The loss of their food source has had serious repercussions on Hector Dolphins as they have lost their major food source. The Ministry of Fisheries have proved they have failed to understand the importance of beach cast seaweed to marine species as since 2001 the beach cast seaweed has been commercially harvested.

There has been no allowance made for the loss of the micro food source yellow eyed mullet find in beach cast seaweed and sand that is now being destroyed by the Government approved extraction process that requires using ten tonne loaders, truck and trailers over beaches.

The Ministry of Fisheries has made no allowance to prevent the sand and the beach cast seaweed being taken to the rubbish tip or crushed to death.

The Ministry of Fisheries is totally responsible for the decline in yellow eyed mullet fish stocks and for preventing all marine species in that food chain including Hector Dolphins from obtaining an adequate food source.

There has been no allowance made for the local and regional councils spraying weed killer along waterway banks that scientific research has proven kills another major food source, mysid shrimps.

There has been no allowance made for the loss of algae that they can be seen feeding on in streams and tidal flats that is now smothered in mud by poorly designed regional council sediment traps.

There has been no allowance made for the loss of algae along miles of coastline that is being poisoned by the sap of pine plantations.

There has been no allowance made for the mud that is running off land into streams from pine harvesting and the construction of haul out sites in streams.

There has been no allowance made for the use of aluminum sulphate as a flocculent in sediment traps. The theory is that the chemical attaches to the mud and settles in the pond, but as few ponds are cleared when it rains they overflow into streams and into the intertidal zone, killing all aquatic life.

The lack of understanding by those who do not access the sea can be judged in a NIWA study in 2008. It describes the difficulty they had in making allowances for the land based effects on coastal fisheries. The 2008 paper titled *A review of land based effects on coastal fisheries and supporting biodiversity in New Zealand* by Morrison, Lowe, Parsons, Usmar and McLeod says that "little is known scientifically about our inter-tidal zone or the impacts of our actions upon it." On page 25 when trying to describe the impact of mud and silt on marine species, they said, "*Most of our current knowledge concerning the effects of suspended sediments on fish is based on freshwater species.*" Then they further state that "*most existing information of the effects of suspended sediment is based on acute exposure laboratory experiments, with little empirical information available on chronic responses to high concentrations for extended periods, especially for marine species, or under natural field conditions*".

NIWA then fumbled their way writing a paper in 2009 called *The Living World* in which they stated "until quite recently, not a lot was known about the importance of estuarine habitats to fish in New Zealand". They should have said NIWA has gone from "knowing little about the intertidal zone" in 2008 to "not knowing a lot" in 2009 which means the same thing. NIWA managers have failed to provide any research as in 2002 they were provided with a lot of information and failed to act or carry out any research to confirm what was told to them.



The Ministry of Fisheries catch records have documented how muddy water will affect marine species. At a FMA 2 & 8 Recreational Fishing Forum we discussed the catch details of blue cod commercial cod potting in Area 8 which is Whanganui. Prior to the Whanganui floods of 2007 there were four commercial fishers cod potting taking a responsible catch. After the floods there were thirteen commercial fishers but combined they could only catch a quarter of what was caught before the floods

Scientists from NIWA and Mfish have admitted at a Ministry for the Environment Environmental Reporting Forum, they know nothing about the value of the intertidal zone to marine species. At a MofE Environmental Reporting Forum attended by over 200 people representing councils from all around New Zealand NIWA and Mfish scientists were asked to describe the intertidal zone at the next meeting. At the next meeting after five or six slides they stopped and informed the meeting they knew nothing about the value of the intertidal zone and reported their funding had been cut and asked for ideas to get some funding.

So I asked: "what was the monitoring programme's outcome and what could we learn from it and would it not be better to sell the value of the intertidal zone to marine species as this could be seen as an outcome". The suggestion was not accepted and instead I received from the NIWA scientists "we cannot use your information as you are not a scientist," yet they had just told everyone at the meeting they knew nothing about the intertidal zones value to marine species.

When Mfish, DOC and NIWA proved they had no information describing the food sources of yellow eyed mullet I began obtaining the missing information. After the Te Papa fish identification expert Andrew Stewart and Dr Clive Roberts had identified the yellow eyed mullet had ripe running roe we began identifying what they eat. In a number of samples we found them full to bursting with sand hoppers. A call to Rick Weber, Te Papa's crustation expert opened up another world when I asked, "What specie are they?" In his reply he stated there are over one hundred and fifty different species of sand hoppers. He described the history and believed they had never been collected from the gut of yellow eyed mullet before. He then estimated that there would be over two years work describing them before he knew if there was new specie amongst them.

This discovery of mysid shrimps in the gut of yellow eyed mullet proved there was still more misinformation displayed in the Mfish Plenary, the NZ Atlas of Freshwater Species and the 440 page DOC book "The Regions Estuaries". They all have described that yellow eyed mullet travel out to sea at night which is obviously not true. If DOC, NIWA and the Ministry of Fisheries had stayed after the sun went down they would have seen what recreational fishers see as massive schools of yellow eyed mullet of all sizes come into the intertidal zone of streams and rivers at night to feed on the nocturnal mysid shrimps. Then if they had stayed longer they would have seen the yellow eyed mullet returning to the sea at the first hint of daylight in the morning.

There has been no allowance made for the loss of mysid shrimps which provide yellow eyed mullet with a massive food source. But all around New Zealand the mysid shrimp habitat is being destroyed by Government and councils. Government built a road through the estuary at

Tairua without any thought given to the life that lives under the water in the estuary they were going through and a major yellow eyed mullet food source was lost.

There has been no allowance made for the loss of native plants in the intertidal zone by councils. These plants produce algae that mysid shrimps feed on. The converting of intertidal streams into grass lined banks without native plants standing in the water is preventing nature from making algae which is another major food source for yellow eyed mullet that has been lost.

There has been no allowance made for the loss of the deep pools in streams and rivers by councils who have no knowledge of their use by marine and freshwater life. This is environmental madness by councils who are turning our rivers into fast flowing irrigation ditches which is removing a major food source for yellow eyed mullet and in turn a loss of a food source for Hector Dolphins. The daily use of machinery in rivers is also producing huge clouds of mud and silt to flow downstream. This mud is clogging all fish gills, smothering the algae and intertidal plants that yellow eyed mullet feed on.

There has been no allowance made for the loss of the quiet waters in the upper reaches of an estuary where both yellow eyed mullet and native freshwater fish lie up in to recover after spawning. There would not be a marine or freshwater scientist who has any understanding of the waters in the intertidal zone and a number in Wellington had no knowledge of the effect the salt water wedge has and constructed an estuary at Moera with an inlet pipe above low tide preventing yellow eyed mullet access.

There has been no allowance made for under water noise. A report came out of the Tauranga Harbour when the past Minister of Fisheries Hon John Luxton appointed Judge Tapsell to find a cause as to why the snapper numbers had declined. He found it was caused by the environmental damage to the snapper spawning areas and loss of native wetland plants. He also noted that the wading birds and pied shags that have migrated in recent years were eating the small fish bait fish including yellow eyed mullet after they had began life.

The impact of underwater noise was identified by commercial fishers in Tauranga who described that after a powerboat race the snapper would leave the harbour for three weeks before returning. Likewise a speedboat race in Wellington Harbour drove over four hundred flat fish into a set net, that normally only produced ten on each setting. The report therefore identified underwater noise as a major factor in fish disappearing which would include yellow eyed mullet.

There was no allowance made by the councils building the Whitianga estuary as a major yellow eyed mullet spawning habitat and food source was destroyed when they replaced the native raupo reeds with boulders and the mysid shrimps lost their habitat and food source.

No allowance was made by the council at Whangamata for the mysid shrimps and the micro life that lives in the interface of the both waters when they filled in a fresh water spring in the intertidal zone and made a car park over it. The council removed the native raupo reeds that

the mysid shrimps live in that had historically provided yellow eyed mullet with a food source. Ministry of Fisheries were unable or unwilling to provide any technical support to the past Minister of Conservation Hon Chris Carter when he raised concerns about the loss of the major food source in the region for marine species.

No allowance was made by the council in the Hokianga Harbour that severely reduced the water flowing into an estuary alongside the Opara and Ohuri towns. This was done against the advice of experienced Maori in the area who knew the stream dried up every ten years but also historically they would catch yellow eyed mullet in it.

No allowance was made for the GWRC environmental madness that in 1970 prevented yellow eyed mullet travelling into and out of the Parangarahu Lakes Area. Prior to 1970 Wellington Harbour was full of yellow eyed mullet and they provided a major food source for many species of dolphins. Since introducing a management plan for the lakes seven years ago the GWRC has failed to allow freshwater fish and yellow eyed mullet back into the Parangarahu Lakes Area.

Research from Otago University has proven that all freshwater species travel in and out of the sea all of their lives. They established the importance of a continuous flow of water to the sea from our rivers and streams. This team led by Gerard Closs included Bruno David, Lindsay Chadderton, Bernard Barry and Andrew Markwitz researched the life cycle of the giant kokopu and discovered “by using microchemistry on their otolith that native freshwater fish travel in and out of the sea throughout their life cycle.” The GWRC has been advised of this but still prevent native freshwater fish, eels and yellow eyed mullet from returning to the Parangarahu Lakes Area.

The Ministry of Fishery, NIWA and DOC have displayed a terrible lack of intertidal and marine knowledge throughout this “discussion paper on yellow eyed mullet” not to know yellow eyed mullet travel into fresh water to feed and spawn there. All of these Government departments and the GWRC could well learn from the forefathers of the Waimate District Council who in 1896 built then rebuilt what is called the Waihao Box on the Lake Wainono catchment along the coast of the Waimate Lake which has allowed yellow mullet to migrate into fresh water from the sea. The website displays massive schools of yellow eyed mullet in the catchment and when the conditions become suitable they return to the sea. The web site on the Waihao Box also contains a video by Gordon Lawrence that shows the box surrounded in native raupo reeds that in summer would attract yellow eyed mullet to spawn there. <https://www.youtube.com/watch?v=-f8Vd6LQeyA>

In 1999 through the Easter break yellow eyed mullet proved they spawn in the intertidal zone when the estuary at Kuaotuna was cut off from the sea once again. Inside the lagoon was trapped a massive school of yellow eyed mullet numbering many tens of thousands measuring around 70 millimeter or more. This estuary had become blocked off for some months prior. For the Ministry of Fisheries and NIWA to describe that yellow eyed mullet spawn out at sea after seeing this would prove they have another agenda. To believe their own rubbish scientists at both NIWA and Ministry of Fisheries would also have to believe yellow eyed mullet can transport tens of thousands of their eggs over the Kuaotuna estuary sand bar and into the

estuary. They can't as the yellow eyed mullet spawn in the warm waters of the intertidal zone, not in cold waters miles out at sea.

It is incredible the amount of illogical unproven information that has been presented by the Ministry of Fisheries in this discussion paper on yellow eyed mullet which should never have gone past their peer review system. This paper makes no reference to the micro life found in beach cast seaweed that converts the cellulose found in the seaweed into protein which is then eaten by yellow eyed mullet. The loss of beach cast seaweed around New Zealand is having a huge impact on sea birds as they can no longer find their food source. Recreational fishers report that beaches that had many sea birds years ago, no longer have sea birds on the beach.

When in 2019 the Minister of Agriculture Hon Damien O'Conner announced a proposal to use beach cast seaweed as a stock food, did the Ministry of Fisheries advise him not to, I don't think so? The Ministry of Fisheries has in this discussion paper on yellow eyed mullet clearly demonstrated they have ignored the information that has been sent to them over the years. I immediately wrote to him, copying in the Minister of Fisheries Hon Stuart Nash and the Prime Minister Rt Hon Jacinda Ardern, describing the value of beach cast seaweed to marine species, with attachments. The Minister of Fisheries reply invited me to send my information to the Ministry as they were developing an Ecosystem Based Inshore Fishery Management Plan and my information would be useful. I did this but nothing from the information I sent has been included in this paper yet you have included unscientific misinformation and guesses extracted from NIWA. Years ago NIWA described in writing to WRMFA they cannot support any of their information with a science paper.

## **Section Two**

**Identification of misinformation in the Ministry of Fisheries Discussion Paper No 2020/31 Within Section 14 there are listed:**

### **Section 3/10**

There are a number of comments that could never be supported by any field study as they are all not true for example, "Yellow eyed mullet appear to leave their estuarine habitat to spawn in coastal waters". This is totally incorrect; it took me only one and half hours of targeting netting to capture a yellow eyed mullet with ripe running roe in the intertidal zone of the Makara Stream and have it identified at Te Papa to prove they spawn in that zone. I then spent hours targeting netting to discover their food sources.

Another comment in this section 3/10 that could never be supported is the view, "yellow eyed mullet are separated to some extent by age, with older fish preferring more saline water and juveniles sometimes found in fresh water". This comment is totally unresearched and incorrect. In our research into the food sources of yellow eyed mullet we captured these fish of all sizes entering the intertidal zone to feed on mysid shrimps, algae and graze on Ureure Glass wort. Other research describes yellow eyed mullet spend 70% of their lives in freshwater.

Another comment in section 3/10 that “larger fish also prefer deeper water than juveniles” is totally untrue as we have captured yellow eyed mullet of all ages coming into streams at night to feed. Obviously those who made these comments went home when the sun set.

### **Section 3/11**

There is the comment that “yellow eyed mullet are omnivores feeding on polychaete worms and fish”. Where on earth did you get this misinformation? This is serious misinformation as there is not a book that describes they eat worms and fish and I can support that view of what they eat. Yellow eyed mullet do not have the gut structure to separate the worms from the mud and sediment. Their gut structure is identical to a pelagic fish that also does not dig in the mud for worms. Unlike the fish red cod that feeds on the worms and has a gut structure that can separate the worms from the sediment.

Yellow eyed mullet can spend almost all of their lives in fresh water. They have been seen as far up the Hutt River as Stokes Valley. In Australia which has the same species they have been netted 60 miles up the Lisbon River. DOC’s 440 page study of estuaries describes yellow eyed mullet as “only likely or occasionally to enter an estuary” which is obviously not true as that is where they obtain their food source at night. They also can be seen moving in with the incoming tide to graze on the newly formed algae growing on the stones of a stream in the day light. This study by DOC of “The Regions Estuaries” contains far too many errors to be quoted anywhere. Not only did they fail to scientifically identify any of the fish they saw they never saw them feeding on the algae that grows in streams when the tide goes out.

### **Section 5/16**

In Section 13(2A) of the Fisheries Act it provides “that the Minister must use the best available information to set a TAC that is not inconsistent with the objective of maintaining the stock at or above a level that can produce MSY.”

The Ministry of Fisheries has produced a discussion paper containing easily proven misinformation although months before the Ministry had been provided with a great amount of correct information, at the Minister of Fisheries request, but those involved in constructing this discussion paper have failed to use it. This Discussion paper is no better than DOC 440 page publication on “The Regions Estuaries” calling yellow eyed mullet anchovies and failing to describe the function of the salt water wedge that can be found flowing into every river, stream and estuary twice a day throughout New Zealand. DOC has also misinformed the readers of their book that the waters of an estuary are brackish. Sea water and fresh water have two different specific gravities and they do not mix throughout the two daily tidal cycles.

While this discussion paper is only referring to Quota management at Area YEM 9 for the 1 October 2021 fishing year, the decline in this species stock levels would have to be Nationwide as this species can be found all around New Zealand in declining numbers.

### **Section Three**

### **Additional information describing yellow eyed mullet**

When two community groups could not find a New Zealand scientist who could describe the value of the intertidal zone to marine species they invited me to produce submissions at two resource consent applications by Meridian Energy Ltd to build two wind turbine farms around Makara. Twice Meridian Energy accepted my informal marine knowledge information and this was also presented and accepted by the NZ Environment Court.

None of the information I provided to the Ministry of Fisheries in January 2020 has been used or referenced in this discussion paper on yellow eyed mullet. Instead the Ministry of Fisheries has produced a paper on yellow eyed mullet with unresearched information, guesses and misinformation with a complete ignorance of this fishes food sources. Why? What happened to the information I had sent at the request of the Minister of Fisheries? Was it not provided to those who wrote this paper? Or was the Ministry of Fisheries not bothering to include logical commonly understood information as they were running out of time and hoping no would know they had written a discussion paper full of misinformation?

Are all submissions by recreational fishers going to receive the same treatment as those presented to the blue cod management options management plan? It's a small world and as I have been on Ministry of Fisheries committees for over 40 years it did not take very long before I was told most of the recreational fishers submissions were defaced with rubbish and the information ignored and the blue cod fishery collapsed. Has the current management at the Ministry of Fisheries learnt anything from that well known experience? Is the Ministry of Fisheries going to allow this to happen with the yellow eyed mullet submissions and destroy yet another fishery important to recreational fishers, marine life and marine mammals such as Hector Dolphins? Is the Ministry of Fisheries going to continue to ignore the fact that yellow eyed mullet are a major food source of Hector Dolphins, as they have failed to describe this in the discussion paper? Is the Ministry of Fisheries going to continue they have no knowledge of the value of beach cast seaweed to yellow eyed mullet and other marine species and allow beach cast seaweed to be removed by councils and commercial seaweed collectors?

In 12 June 2018 DOC made a presentation to the GWRC Proposed Natural Resources Plan in which they corrected their past presentation made in 2008 to the past Minister of Conservation Hon Kate Wilkinson. Then DOC Senior Management had described beach cast seaweed had no value to marine species in the Taputeranga Marine Reserve. Now DOC either from reading the science paper we presented to DOC for publication, which they refused to publish, or from reading the many stories I wrote for the NZ Fishing Coast to Coast magazine that was describing the value of beach cast seaweed to marine species DOC has now come out and recognised beach cast seaweed has value to marine species. In a DOC 2018 review of the Taputeranga Marine Reserve Katherine Anton Council for the Minister of Conservation is now quoting research that I have published in my NZ Fishing Coast to Coast stories without acknowledging where her information had come from, "The Parties acknowledge the importance of beach cast seaweed and debris to the marine ecosystem."

The Ministry of Fisheries has not described there is any food source for yellow eyed mullet in beach cast seaweed in this discussion paper and I know there has been no Government funded scientific research, so the only information Katherine Anton Council for the Minister of Conservation would have to “acknowledge the importance of beach cast seaweed and debris to the marine ecosystem” would have been found from my research. Their study of “*The Regions Estuaries*” failed to describe the importance of beach cast seaweed.

While senior managers at DOC have “acknowledge the importance of beach cast seaweed and debris to the marine ecosystem” and they have acknowledged they no marine knowledge. This they demonstrated in their 2018 discussion on the Taputeranga Marine Reserve where those involved have recommended “The Council (WCC) undertakes to redistribute the beach cast seaweed along the beach” of Island Bay. “The removal or disposal being carried out after a storm.”

Removing the beach cast seaweed immediately after a storm prevents the micro life in beach cast seaweed from converting the cellulose into protein for the marine species that live in the marine reserve. This is absolutely crazy marine management by DOC and an example of their lack of marine knowledge as they have failed to manage the Taputeranga Marine Reserve for the marine life that lives within there. Marine life can not choose where they find their protein but man can walk on a foot path if they do not like walking over and around beach cast seaweed. DOC should have a look at Petone Beach and see how beach cast seaweed and debris is managed there as I stopped the use of machinery on the beach and now the community is managing the beach. DOC has described in the 2018 plan they are also allowing the removal of beach cast seaweed and debris by heavy machinery in Taputeranga Marine Reserve so people can walk on a flat beach. The reserve is for marine life and DOC should make people aware of that.

DOC have also identified in the GWRC proposed Natural Resources Plan has “The definition of wetland explicitly includes wetlands in the coastal marine area.” This whole discussion on the value of beach cast seaweed in a marine reserve should have signaled to DOC they are making guesses, as what they are describing has no scientific support. I have described in detail the life in beach cast seaweed in my stories published in the NZ Fishing Coast to Coast magazine and my co-written science paper. These discoveries are discoveries that both NIWA and Mfish scientists have dismissed at a MofE Environmental Reporting Forum as I am not a marine scientist yet Katherine Anton Council for the Minister of Conservation you have used my unscientific discoveries without giving me any credit for them.

On the 30 January 2020 we made a submission to the National Inshore Finfish Fisheries Plan Fisheries New Zealand Discussion Paper No 2019/18. This was 44 pages long where we detailed the food sources of yellow mullet and quoted a number of science references to past history and environmental impacts on the yellow eyed mullet food resources.

The life we found in the gut of a number of yellow eyed mullet was identified by Rick Webber New Zealand’s crustation expert as being sand hoppers, which are found in beach cast seaweed. These samples are held in Te Papa marine collection of marine life. This life was also

scientifically identified in the Environmental Impact Report obtained by Meridian Energy for their proposed West Wind Turbine site assessment. The technical description of this life has been provided by Rick Webber the crustacean expert at Te Papa.

From my point of view as a crustacean, they are a good record of what scoffs amphipods. To be a bit more technical; Subphylum Crustacea; Order Amphipoda; Suborder Gammaridea (generally referred to as gammaridean amphipods). There are something like 130 separate families in this suborder containing thousands of species and almost all amphipods you see are gammarideans.

A marine report prepared for Meridian Energy Ltd for their proposed West Wind Turbine site at Ohau Point described the food source that yellow eyed mullet find in beach cast seaweed. *"vast quantities of drift-algae that are washed into the bay (Ohau), which are then covered by the very mobile beach sediments, where they decompose in low oxygen conditions"*(AEEBS, p8). The document also states that *"Beneath the decomposing algae large numbers of amphipods and isopods were present (Lysianassid and Phoxocephalid specimens were identified)"*. These are what we call sand hoppers and they also are at the beginning of the food chain.

When Meridian Energy Ltd announced proposal to construct a 70 wind turbine farm south of Makara local residents formed a group called *The Makara Guardians* but could not find a marine scientist to describe the inevitable impact of mud run off into their coastal waters. In 1997 they asked me to represent them as their marine and intertidal expert witness through the resource consent process and after research I wrote the story *"The Dirt behind wind turbines.. your fishing is at serious risk"* for the NZ Fishing Coast to Coast magazine. I then met with senior Managers of Meridian Energy and discussed their proposed options to off load the wind turbine parts. I described the importance of the intertidal zone in Ohau Bay and how their proposal to mine the beach to build a causeway would have a massive impact on not only yellow eyed mullet but on the young of Orcas and hector dolphins that come into the bays to feed on them.

At the meeting with Meridian Managers we discussed their resource consent proposal to mine the beach at Oteranga Bay to build a causeway there. I described the life that is found in beach cast seaweed and asked Meridian to instead build a wharf at Oteranga Bay to off load the wind turbine parts and then when they are finished to remove the wharf. As building a wharf was not part of Meridian Energy resource consent application I had to describe the value of the marine life in the intertidal zone at the New Zealand Environmental Court. Both Meridian Energy and the NZ Environmental Court accepted my marine knowledge and the Court allowed Meridian Energy to build the wharf in Oteranga Bay. Later in discussions Meridian accepted my suggestion for its location and why I had selected that site. All through this resource consent process in 2005 not one Government body or NIWA made a submission to describe the value of the intertidal life found in sand, shingle or beach cast seaweed to Meridian Energy. DOC had supported the mining of the beach and the building of a causeway in their submission.

In 2008 I was contacted by the *Ohariu Valley Preservation Society* to be their marine and intertidal expert witness through another Meridian Energy wind turbine project called *Mill*



*Creek Wind Farm*. They also had failed to find a scientist who could describe the impact on the intertidal zone. The Society asked me to describe the impact of mud on the intertidal zone of the Makara Stream as it would receive sediment run off from the Mill Creek Wind Farm. To do this I recorded how the GWRC was managing mud run off into the Porirua Harbour only to find their *Regional Sediment Management Plan* was responsible for the loss of over one meter of depth in the harbour in ten years. Now mud was causing the Pauatahanui Arm of the Porirua Harbour to be rapidly filling in with sediment run off. I identified and recorded four major sediment traps failures as a result of the GWRC sediment trap design. I advised Meridian of the faults and they introduced a method to trap sediment that worked. The power point presentation was retitled and presented to the Board of Enquiry hearing submissions for the MofE NZ National Policy Statement for Freshwater Management.

When the GWRC was in the planning stages of the realignment of the Hutt River in the intertidal zone they asked Mfish, DOC, NIWA and MofE what marine species would be affected and none of them could provide any information. I was asked and was able to provide detailed information. I was advised by senior advisory fresh water scientists this is because although we have fresh water and marine scientist they do not extend their studies into the others specialty environment. I raised this issue with the past Minister for the Environment Hon Marion Hobbs and described the intertidal zone could be eight or ten miles long in some rivers and all Government knows is what I have been describing. It is little wonder this discussion paper on yellow eyed mullet has so much misinformation and obvious guesses.

The beach cast seaweed provides yellow eyed mullet with other sources of protein. In our research of the food sources of yellow eyed mullet "*we found kelp fly larvae (Diptera: Coelopidae) in the diet of yellow-eyed mullet, Aldrichetta forsteri (Cuvier and Valenciennes 1836).*" In 2005 we presented our findings through a science paper and presented it to the Department of Conservation and the Journal of Marine and Freshwater Research (Mikoz, Heath and West) for publication.

The DOC at the time had no marine scientist and no one with any marine and intertidal knowledge. The managers at the time could not accept there was any life of value to marine species in beach cast seaweed and refused to publish it. By 2008 these managers proved they lacked any marine knowledge when they advised the then Minister of Conservation, Hon Kate Wilkinson that beach cast seaweed had no value to marine species in the Taputeranga Island Marine Reserve. She then created an Order in Council for the Wellington City Council to remove all of the beach cast seaweed that arrives on the only beach of sand in the Taputeranga Island Marine Reserve. As there is no scientific information describing the value of beach cast seaweed to marine species the DOC managers prevented their staff and the Ministry of Fisheries from obtaining our information.

The NZ Journal of Marine and Freshwater Research would not publish our discovery as they were supporting another agenda to develop an \$800 million dollar industry to commercial harvest beach cast seaweed. Yellow eyed mullet is under continual threat from Government

science providers, regional and local council's who continually demonstrate how little they know about the value of the intertidal zone to marine species.

In New Zealand, yellow-eyed mullet have been reported in the diet of spiny dogfish (*Squalus acanthias*), red cod (*Pseudophycis bachus*), trumpeter (*Latris lineata*), blue cod (*Parapercis colias*), monkfish (*Kathetostoma giganteum*), ling (*Genypterus blacodes*) and green-back flounder (*Rhombosolea plebeia*) (Graham 1956) and in the diet of New Zealand fur seals (*Arctocephalus forsteri*) (Dix 1993; Holborow 1999) and Hector's dolphin (*Cephalorhynchus hectori*) (Slooten & Dawson 1988).

Years ago I wrote to the Mayor of Hutt City, John Terris asking him to stop the grooming of Petone Beach from occurring every two weeks. I supplied him with a number of my "NZ Fishing Coast to Coast stories" which described the value of beach cast seaweed to marine species, yellow eyed mullet and dolphins. The information included that their contractors were grooming past the low tide mark and destroying the shell beds as the young of shell fish are attached to the female by a small cord that would be destroyed.

Previously I had asked the GWRC for help in limiting the grooming of Petone Beach. In reply GWRC informed they had contracted the Cawthron Institute to investigate any long term effects of grooming the beach. Their Rule 29 describes what "the contractors must adhere to" stating "no sand can be removed" but the GWRC Rule 29 fails to mention anything about the value of the life found in beach cast seaweed or that heavy machinery on the beach every two weeks will kill it. The report only commented on the impact on shell fish but then Cawthron dismissed the concern by commenting, "These are found in the wetted areas of the beach, therefore the impact of beach grooming is confined to the areas above MHWS, is unlikely to have a significant impact." Both Cawthron and GWRC in the GWRC letter dated 12 July 2004 failed to mention the Petone Beach sand and beach cast seaweed are pushed up from MLWS past MHWS to the concrete wall by the ten tonne loader every two weeks and then taken to the tip. However GWRC Rule 29 of the Regional Coastal Plan describes "sand must be relocated about the beach during re-contouring" but it would be impossible to separate sand from beach cast seaweed scraped off the beach with a front end loader.

The grooming had reduced Petone Beach to be as flat as a cricket wicket with no seaweed or sticks and few families with children visiting the beach. The Tokelauan fishermen people I knew at Petone asked me for help to stop the grooming as with no beach cast seaweed their main sea food source the yellow eyed mullet was longer arriving. Today only large logs are removed and smaller sticks are used by the public to make structures on the beach.

After a southerly storm logs and sticks arrive and a past Green Hutt City Councilor Lisa Bridson went in the local media demanding that the Petone Beach be groomed again, she called the public to a meeting at the Wharf. I arrived early and just before the meeting I described to her the value of beach cast seaweed to yellow eyed mullet and how they in turn provided dolphins with their food requirements and what she was proposing was not a green thing to do. She accepted my knowledge and concern for the marine food chain and used the opportunity to change the direction of the meeting. She organized those present into groups to remove the

plastic that arrived on the beach. Those present were shocked at how much plastic arrived and formed groups to remove plastic from other beaches

Without the machinery on Petone Beach native plants began to grow trapping the sand which then impressed planting groups who took that as an opportunity to plant more plants and native grass. I am on HCC waste water committee with senior HCC managers who have given me credit for the way the community has become involved in managing the Petone Beach and they said Hutt City Council will never go back to the old way as now the public collects the plastic and almost no sand goes over the road into houses which had resulted in many complaints years ago. The way the Petone Beach is managed was copied and introduced to beaches around Gisborne and New Plymouth. Those in the Waikato District Council have also seen the results achieved at Petone and are looking at introducing a similar way to manage their beaches.

All around New Zealand there are few councils or Government Divisions who know the importance of allowing logs, debris and beach cast seaweed to remain on their beaches as a measure to trap sand and reduce the effects of storm surge. Other councils use their arrival as an excuse to put their heavy machinery on the beaches killing the micro life which is an essential food source for yellow eyed mullet. Logs are nature's way of trapping sand to form barriers and protection for the sand hoppers and they are nature's way of making beaches. Most arrive during a spring tide storm and remain on the beach until the next storm which removes them. Years ago a kayaker asked me if I could get the council to remove them and I replied "Who says they will be there tomorrow?" Storms cause seaweed and logs to arrive but in the next storm, two weeks later they are gone. If the Department of Conservation had any marine knowledge they would have never allowed the grooming of the only beach of sand in the South Coast marine reserve as it can now be seen as environmental madness.

It is hard to believe the Ministry of Fisheries with all their field work have never seen yellow eyed mullet spawning for themselves. This discussion paper comes up with the rubbish that yellow eyed mullet spawn out at sea. When I read this, years ago, I asked NIWA for the science paper to support that view, in reply they said there is none. If the Ministry had asked an experienced recreational fisher or a commercial fisher who has netted yellow eyed mullet where they spawn they would have told them, not out at sea.

With regional councils removing raupo and changing stream banks into banks of grass and advising stream planting groups to plant their supplied plants on top of stream banks is environmental madness as now there is nowhere for the yellow eyed mullet and native freshwater fish eggs to attach to. The Greater Wellington Regional Council has provided a perfect example of what not to do along the banks of the Waiwhetu Stream and the Moera Estuary in Wellington. Around 2000 GWRC removed all of the raupo from the streams and rivers throughout the region and replaced them with grass, boulders and plants not fit for the purpose on top of water ways. In the past raupo would have captured the eggs of the yellow eyed mullet and native freshwater fish at the time of spawning in the root mats of the raupo.

To prove the GWRC was not using plants suitable to catch native fresh water or yellow eyed mullet eggs in their fish count in the Waiwhetu Stream last year they only recorded two native fresh water fish in the stream. This loss of fish is being recorded by pied shags as they no longer arrive to eat the newly arriving fish fry as there is none to eat.

A number of years back DOC produced a slogan as their way forward called *Everything is connected*. The failure of the GWRC to plant raupo and native plants that stand in the water of the Waiwhetu Stream and the Moera Estuary has prevented algae growing which is the food source for fish fry and mysid shrimps. Recreational fishers are reporting beaches that would have sea gulls and oyster catches eating the life in beach cast seaweed as the tide came in are finding these beaches are not attracting these birds any more.

Without any NZ Nationally Recognized Database describing the function of raupo the Greater Wellington Regional Council (GWRC) without a scientist with marine intertidal knowledge used a wetland plant called Oioi all along the top of the Waiwhetu Stream and planted willows along the banks of the Hutt River for miles. Using Oioi has proved to be a waste of time as, not only do they not have the root structure of raupo the stream water flows under them causing the stream banks to collapse adding more mud into the estuary. But at a time when this country wants to use native plants everywhere and removing non native plants we have a regional council with no knowledge of the function of native plants such as flax, toetoe and raupo to control a river.

I have found both yellow eyed mullet and native fresh water fish spawn in summer on the spring tide with an onshore wind assisting to push the salt water wedge higher. This has the effect of pushing the sticky eggs into the raupo root mat deeper. The spawning is identical to goldfish as the female swims in cycles with males bumping her until the eggs are released. When they are released the males will swim through the thousands of eggs milking them and with their strong swimming action it is also pushing the eggs into the raupo. After four to seven days the eggs grow and become fry that are able to swim with their egg sack as a food source, for a few hours, until feeding on algae and later on native mysid shrimps at night.

It is obvious without any scientific research to support them NIWA, the Ministry of Fisheries, and DOC have made a guess as to where, when and how yellow eyed mullet spawn and have got it wrong.

GWRC and DOC have described on a notice board alongside the Whareroa Stream at Queen Elizabeth Park they have a serious lack of marine and intertidal knowledge. On the notice board they have not mentioned that yellow eyed mullet spawn in the same area as native fresh water fish. The message to the public contains a number of errors and a lot of misinformation it reads:

- 1 *Adult galaxiids lay their eggs on grasses hanging in the water at high tide.*
- 2 *After the tide recedes the small eggs, about 1mm diameter, develop into larvae.*

3      *When the next big tide covers the grasses, the larvae hatch and are washed out to sea.*

Error (1) Fish do not “lay their eggs on grasses hanging in the water at high tide”. Fish are not chickens or insects that lay their eggs on grasses. The whole spawning process is not like that and I have described it above.

Any fish egg that becomes exposed at low tide becomes exposed to the sun, mice, rats, stoats and birds. At a DOC NGO forum they showed us a video of mice eating the eggs at night that had become exposed on the grasses. By morning the eggs would have gone.

Error (2) The eggs are described as “hanging in the water at high tide”. So they would also be hanging in the air at low tide and exposed to the sun. Now they are dead. DOC and GWRC you obviously have got this wrong.

Error (3) The notice board reads “after the tide recedes the small eggs develop into larvae.” But the eggs would have been cooked out in the sun all day or have been eaten by birds, stoats, weasels, rats and mice that we often see in the Park. So this has to be rubbish. Fish cannot be compared to insects that lay eggs which hatch into larvae or maggots and fly away. Fish develop inside the eggs and become fry that immediately swim, sometimes with their egg sack still attached for a few hours. Yellow eyed mullet and native fresh water fish lay their eggs around raupo so that their eggs can develop in the wet root system away from predators such as pied shags.

Error (4) The notice board reads “the next big tide covers the grasses” but these big tides would be spring tides and they occur every two weeks. So if you think native fresh water fish eggs would survive hanging on the grasses out in sun for two weeks waiting for the next big tide, you would have to be sadly mistaken. Anything that looks like food in the wild is eaten. If you believe this is how native freshwater fish spawn then we would not have whitebait, their eggs would have been eaten years ago.

Error (5) The notice board reads “the larvae wash out to sea”. This is not how marine or freshwater fish life begins in the aquatic world. Fish life quickly forms inside an egg and after about four to seven days the fry swims away some with the remains of the egg still attached as its food source. The lack of marine knowledge by DOC and GWRC is obvious as they believe fish eggs hatch and form larvae just as a fly on land would. The reported fish eggs found out at sea could have only arrived after a flood as they float on freshwater and sink in sea water. I have captured two centimeter yellow eyed mullet in the Korokoro Stream and they were fully formed and swimming strongly, which I took to Te Papa for identification.

When I read in the draft DOC publication on “*The Regions Estuaries*” I found this information:

Where the land meets the sea are one of the most productive ecosystems on earth (Perkins, 1974). They are four times more productive in plant matter than a rye grass pasture and 20 times more productive than the open sea (Knox, 1980). They are

extremely rich in organic matter and nutrients which provide food to sustain a network of bacteria, amphipods, crabs, bivalves, snails, fish, birds, and people.

In most places little of the original estuarine vegetation remains. Changes in land use practices in the surrounding lands have in term had a large effect on water quality. Suspended fine sediment in estuaries can reduce the diversity and abundance of invertebrates by mechanisms such as clogging gills, reducing quality of the food supply, reducing survival of juveniles. Effects on fish include delayed hatching, increased respiration and reduced feeding (Morrison et al. 2009).

This discussion paper states that only small yellow eyed mullet travel in rivers and the big fish live in deep water. This statement proves the Ministry of Fisheries knows absolutely nothing about this fish. Those who have target fished this specie cannot believe you know so little about this fish. For your information the female yellow eyed mullet that I captured at night in the Makara Stream spawning was 330 cm long. Those caught in the Waikanae River have measured 550 cm long while the biggest of 590 cm was caught in the intertidal zone of the Pauatahanui Arm of the Porirua Harbour many years ago. The longest fish were all females and the males a lot shorter. There were more males than females all documented with photos.

It is unbelievable to read the Ministry of Fisheries has stated in this paper that only small yellow eyed mullet can be found in a river or stream. This seriously questions the Ministry of Fisheries marine and intertidal knowledge as a visit to a stream at night would have proved this is not true. This also questions the marine knowledge of those who peer reviewed this Discussion Paper. Whoever produced this misinformation must have gone home at sunset.

I have represented recreational marine fishers for over forty years on regional and national advisory groups of Ministry of Fisheries, working groups or committees including Mfish Mid Water Stock Assessment Committees, Recreational Fishing Liaison Committees, Regional Recreational Advisory Group, Ocean Policy Forums and attended the Ministers Quota Setting Meetings and I have never seen a discussion paper containing so many errors and straight out misinformation before.

For a number of years I was on the Mfish Regional Recreational Advisory Group and we made the Ministry of Fisheries aware of the impacts man was making to fish stocks. However we were constantly informed the NZ Fisheries Act is about the impact of fisheries on the environment and has nothing to do with the impact of the environment of the fisheries. This Discussion Paper clearly demonstrates you have not bothered to acquire any marine knowledge about the environment the yellow eyed mullet lives and feeds in.

What is more alarming is that in 2019 the Ministry of Fisheries were provided with a lot of information describing yellow eyed mullet at the request of the last Minister of Fisheries Hon Stuart Nash to help formulate the new Finfish Plan aimed at progressing New Zealand towards a more Ecosystem Based Fisheries Management Plan. None of the information I provided has been included and now you have proved through the guesses and assumptions in your paper

you know nothing about yellow eyed mullet and their environmental threats and you have used unscientific guesses throughout this paper.

When I was invited to represent all New Zealand recreational fishers on the DOC NGO forum I met Ian West the DOC Marine Scientist and I showed him my discoveries. He then provided me with every science paper ever written about yellow eyed mullet with a request to find out what we do not know. I found no one had ever documented their food sources. The information in this Fisheries Discussion Paper No 2020/31 describing the yellow eyed mullet food sources is not true and easily proven unresearched guesswork. It is little wonder yellow eyed mullet are matching Hector Dolphins in their decline.

Concerned at the damage GWRC was doing to the intertidal zone, at a DOC NGO forum I was attending, I was directed to the New Zealand Coastal Policy Statement. There I found there was no reference to the value of the intertidal zone to marine species although it had been reviewed by over sixty scientist of the day. I immediately wrote to the then Prime Minister Rt Hon Helen Clark and the then Minister for the Environment Hon Marion Hobbs. The Prime Minister announced three months later the NZCPS would be reviewed. I helped the then Minister of Conservation Hon Chris Carter by providing information unknown to DOC and Mfish. I have been credited with the review of the NZCPS. Through my involvement on the Oceans Policy Working Group I met the then Minister for the Environment Hon Marion Hobbs and we discussed the need for a New Zealand Freshwater Management Plan that included the intertidal zone which she later advanced. Of the over four hundred submissions Government received to each Board of Enquiry the submission I had put together for the WRMFA was the only one describing the value of the intertidal zone to marine species.

When I met the Editor and owner of the fishing magazine “*New Zealand Fishing Coast to Coast*” I described the discoveries I was making. He invited me to write stories describing these discoveries so that readers and the general public could learn from them. Now a number of colleges are using the stories. The past Minister of Fisheries invited me to send the stories I had given him to the Ministry Finfish Management Group as they were developing an Ecosystem Based Inshore Fisheries Management Plan.

### **Section Three**

#### **Additional information describing yellow eyed mullet**

While researching information for our blue cod submission I found at NIWA, hidden away, a masters study on blue cod in which Rapson described blue cod spawning in bays and their condition prior to and after spawning. The study, produced in his Master’s Thesis (1956), described how he had access to the commercial fishers’ catch for study purposes, sampling ten thousand blue cod. He identified pilchards and yellow-eyed mullet as being the preferred food for blue cod and he had this to say;

*In August 1938 a large shoal of cod in Admiralty Bay was found to be feeding entirely on shoals of clupeoids (pilchards, yellow-eyed mullet, anchovy etc), which had entered the*

*bay... About 200 cod were caught, but the next day only 20, the greater part of the shoal having apparently followed the shoals of clupeoids out of the bay... The stomachs of the 200 blue cod revealed that they had consumed in a few hours more pilchards and sprats (yellow-eyed mullet) than fish of all other varieties obtained from blue cod stomachs during several years.*

In another research paper I found it described yellow eyed mullet were a major food source of pilot whales and dolphins.

In May 2014 the WRMFA made a submission to the GWRC Draft Management Plan for the Parangarahu Lakes Area. We were shocked to read in the draft plan a proposal on page 31 by the contracted biologist Amber McEwan to install gates at the lake outlets with the intention of controlling what fish species can migrate and what fish must remain behind the gates. Man has not discovered the biological clock of fish and comments such as this in a GWRC public document describes the lack of marine knowledge within the GWRC environment division to allow such crazy views to be published.

Years ago the Department of Conservation also blindly accepted the NIWA unscientific misinformation and created a national policy to use chemical weed sprays in all estuaries in NZ. It was not until I asked the then Mayor of Porirua City Council, Jenny Brash, why they were spraying chemical weed killers around trees and plants bordering the Porirua Harbour that DOC's lack of intertidal knowledge was exposed. The Mayor asked for a report on the impacts and Ian Popay, a past DOC scientist, was commissioned and identified that chemical weed sprays kill zoo plankton and mysid shrimps.

Spraying chemicals in estuaries and lakes has been DOC's policy for years highlighted in a 2004 DOC newsletter which shows them using a helicopter for this purpose in the Waikanae Estuary Scientific Reserve that borders the Kapiti Marine Reserve. In 2010 DOC confirmed that it is a national policy when their draft estuary management plan for the Wellington region had them stating that every estuary will receive chemical weed killers. This is environmental vandalism by DOC management and in their ignorance they are turning every estuary in NZ silent at night. I was given a DOC funded research paper stating that these chemicals kill aquatic life forever. Their plan also states that by spraying chemical weed killers the droplets will only settle on those plants DOC think are unworthy.

In 2011 I raised an agenda item at a DOC NGO forum why DOC was funding four scientists from NIWA to research the use of Garlon 360 in controlling weeds and willows in the intertidal zone of the Waikato River without also requesting they describe the impact the chemical will have on the intertidal life. I asked why DOC was ignoring scientific research both here and overseas by allowing this product into our intertidal zone as it is known to kill zoo plankton and mysid shrimps, a major source of food for marine species. The DOC funded research also failed to describe the impact on the horticulture industry as without willows bees would not find the flowers of willows, which are the first to flower.

All around New Zealand pine forests have been planted up the sea water edge and this has had a massive impact on not only yellow eyed mullet but also shell fish. The sap from the pines



running into the sea is killing the algae that not only shell fish eat but also prevents yellow eyed mullet from obtaining their traditional food source, the algae. When I was flown up to Auckland by Scott Macindoe from Legasea to speak to over 150 recreational fishers in a hall out of Bethells Beach about how I represented recreational fishers I realised that I would have to obtain their attention somehow. I had been driven to Bethells Beach so I described that catching fish off that beach would be hard as a large pine plantation ran into the sea and the pine sap would be killing the food source of shell fish and marine species. I then described the difference there would be by fishing in front of the native flax and toetoe plants. Many agreed and thanked me for passing on my marine knowledge knowing I had never fished off the beach in my life. When I made a submission to the "Proposed National Environmental Standard for Plantation Forestry" I used that knowledge to describe the impact pines were having on the intertidal zone food sources. Then I supplied a power point showing the impact of pines in a stream from the beginning to the harvesting as a result pine plantations will have a riparian buffer of native plants from waterways and the sea.

The function of our native intertidal plants was only passed down to a few Maori experienced fishers who knew of my interest and passed their acquired knowledge onto me as they had given up trying to convince Government of their value. Years ago streams and rivers were sprayed with 245T but today we see councils poisoning the life along stream banks without obtaining any knowledge of the life that lives under the water. In other areas regional councils are removing the native plants and replacing them with willows.

A Gisborne farmer described how native flax, toetoe and raupo that had been alongside the river in his farm for two generations were removed by the regional council and replaced with willows. In the next flood he lost 200 metres of farmland alongside the river. Farmers and councils are not only draining wetlands they are also straightening rivers and streams and with machinery they are loosening the shingle which in the next flood causes shingle banks to form and redirect the rivers. The removal of the deep pools in rivers and stream prevents yellow eyed mullet and native fresh water fish from resting up after spawning. The impact of mud on fish from the continual use of machinery in rivers would be massive as their gills would quickly become blocked. Years ago a massive die off of pilchards in the Frank Kitts lagoon was researched by the Cawthron Institute who found their gills had becoming blocked by a micro form of marine life.

Today every subdivision is allowed to discharge massive quantities of mud into estuaries through design faults in regional council sediment trap management plans. The GWRC disregard for the impact of mud that will flow into the Porirua Harbour from pine plantations was exposed at a public meeting at Tawa when a woman express concern that the GWRC was allowing a pine plantation to be planted up steep gullies that has its water running into the Porirua Harbour. The GWRC spokesperson replied "Don't worry you will not be around when they are harvested."

The mud would smother the native plant beds called eelgrass which had been recorded as providing shelter for almost every marine species. The importance of eelgrass is only now being discovered by NIWA but known to Maori and recreational fishers for years.

Another loss of food for yellow eyed mullet can be seen in streams where the algae that once grew on the gravel is now covered in mud. The yellow eyed mullet enter a stream with the incoming tide to eat the algae that grows on the gravels and stones of a stream as the tide goes out. However the algae becomes toxic after a drought as the first heavy rain fall brings the chemicals that have been applied to land to now run off and impact on the algae of the streams.

The fish are not affected by the toxic algae but as the Woods Hole Institute discovered when they were asked to find out why a number of whales had died they found they had eaten the fish that had eaten the toxic algae. The toxic algae would not be causing any deaths to yellow eyed mullet and mackerel but knowing this I have predicted seven times when and where marine mammal will beach themselves. I have taken this observation a step further and described if those trying to keep a stranded mammal alive can do so for three days the toxic poison will wear off and the mammal will be able to swim out to sea. Years ago a scientist came along to a DOC NGO meeting asking for permission to take brain samples of stranded pilot whales but DOC refused.

## **Conclusion**

I have provided the Ministry of Fisheries with many reasons why the yellow eyed mullet fish stocks are declining. The information I have put together for a case to lower the TAC for yellow eyed mullet to 6 tonne or less must be acknowledged. I have acquired the marine knowledge to produce this submission through my involvement in many Ministry of Fisheries advisory groups, DOC NGO groups, MofE groups, fishing NZACA fishing competitions all around the North Island, using the knowledge of experienced recreational fishers from around NZ including those in the Wellington Surfcasting and Angling Club, experienced Maori fishers from around New Zealand, scientists and marine scientist and the many practical fishing experiences I have had to discover almost everything that needs to be known about yellow eyed mullet.

I have received no funding and some of the information was used to produce a science paper that DOC did not recognise. The discoveries I have made will require science to acknowledge where the information came from to produce a science paper. I have described the life of yellow eyed mullet in the fishing magazine *New Zealand Fishing Coast to Coast* as a reference and have many photos. This information I have provided must be used to lower the TAC for yellow eyed mullet all around New Zealand.

I believe if you fail to inform councils of the importance of the intertidal zone to marine species and continue to allow the intertidal zone to be destroyed by Government and councils a like then the yellow eyed mullet fish stocks will continue to fall. I am most concerned at the failure of Government and councils to acknowledge Policy 21 to 23 of the New Zealand Coastal Policy Statement which was included to protect inshore species from man. Management and

Government acknowledgment of the value of the intertidal zone to marine species and including Hector Dolphins must change.

It should not be left to experienced recreational fishers to describe. There was a lack of direction by Government to NIWA management on the purpose of the \$32 million as the funding had been allocated for science to acquire marine intertidal knowledge not for NIWA to trip around the Antarctica? This lack of any scientific research into the value of the intertidal zone for marine species is the primary reason why this important bait fish yellow eyed mullet fish stocks are in decline and Hector Dolphins and penguins are disappearing.

If the continual failure by the Ministry of Fisheries to manage New Zealand's intertidal zone continues it will contribute to the decline in yellow eyed mullet fish stocks into the future taking with it other fish stocks. The loss of yellow eyed mullet will seriously threaten marine mammals such as Hector Dolphins who rely on this fish for protein.

Yours sincerely

Jim Mikoz

President

Wellington Recreational Marine Fishers Association since 2008 and Secretary from 2000 to 2008

Honorary Vice President

New Zealand Angling and Casting Association since 1996.

Past Secretary of the Wellington Surfcasting and Angling Club from 1987 to 2014, 27 years.

Represented the Wellington Regions marine recreational fishers from 1987 to 2018, on Mfish Fishing Liaison committees, FMA 2 & 8 Recreational Advisory Forums and Mfish Recreational Policy Advisory Groups, 31 years.

Made the only submission and power point out of 400 received to both the New Zealand Coastal Policy Statement review and the New Zealand National Policy Statement for Freshwater Management that described the value of the intertidal zone to marine species.

Co-wrote a science paper that described how kelp flies provide the protein to yellow eyed mullet.

Represented all NZ recreational marine fishers on DOC NGO forums from 2005 to 2011, 6 years.

Represented the New Zealand Recreational Fishing Council on the Mfish Mid Water stock assessment committee for 5 years.

Represented all New Zealand marine recreational fishers on the Ministry for the Environment Environmental Reporting Forums for 5 years.

In 2003 I was invited by the Foundation of Research, Science and Technology to take part in a research program called "Natural Ecosystems."

Information describing the value of the intertidal zone to marine species was accepted at two separate NZ Environment Court hearings.

Represented all NZ recreational marine fishers on the various stages of the proposed NZ Ocean Policy and Economic Exclusion Zone working group.

Represented the regions recreational marine fishers on the Wellington City Council wastewater community group since 2003 and identified errors in the resource consent conditions. Then helped Wellington Water Ltd to correct the condition and introduced a procedure so that waste water samples are not confused with the properties of seawater again. Wellington Water Ltd is now using the correct procedure in the HCC and Porirua waste water sampling method.

Represented the regions recreational marine fishers on the Hutt City waste water community group since 2009.