

About the Rock lobster fishery

As licence holder and fisher since 1985-86 it is obvious to me that lobster numbers on the ground in catchable areas, in general, are in decline, although some years are worse than others as you would expect.

I believe that too much emphasis has always been put on the amount of spawning biomass that moves through the Torres Straits as the main source of reproduction.

I believe that most of the settlement of larvae in the Torres Straits has its origins from the East Coast Spawning. With the computer modelling of larvae flow charts available now it has re-inforced my long held views. The East Coast fishery really took off post 1995 and by 2000 the whole fishery was deemed "On a Knife Edge". Measures were taken and East Coast was closed down October to end of January, together with size limit introduction and co-incidentally more stringent 'Green Areas' were introduced.

It must be remembered that East Coast Spawning occurs roughly 1 month behind Torres Straits - New Guinea Spawning i.e. Roughly middle of December to middle of February. Most spawning, I believe, occurs from small clusters of lobster located typically on edges of shelves where there is more tidal flow and protection from predation, i.e. Wanky holes and small bays located in high flow areas. Obviously, some spawning may occur in deeper water but the feedback from divers is that the closer you get to "The big Drop-off" numbers decrease more likely due to increased predation.

2 years ago East Coast lobster fishery was opened up for fishing in January because of marketing reasons i.e. higher prices in January. With modern technology i.e. GPS and high tech echo Sounders these breeding clusters became easy pickings. Females with and without eggs are plucked from their nesting place brought to the surface usually taken to the mother-boat location, exposed to UV light rays, finally identified as having eggs and thrown back in much shallower waters with more predation and less tidal flow. The females without eggs are taken to Cairns, ~~some~~ of which toe up whilst in the holding tanks while in transit.

Do the maths - a typical cluster of ~~3-4~~ females able to breed up to 3 times in 2 months. 250,000 eggs each time i.e. 100,000 eggs $\times 4 = 2,800,000$ potential lobster per cluster. Just not good management practice when there maybe a thousand clusters destroyed? It must be remembered that eggs, larvae, juvenile lobster live their life at the wrong end of the food chain so to survive and be nesting in ideally located wonky holes only moments away from reproduction deserves protection. Its akin to a farmer killing a noxious weed after it has gone to seed - a waste of herbicide.

I've seen larval flow chart from Torres Strait (Yule Isl area) and Princess Charlotte bay area. I've not seen one from the major east coast area i.e. lockhart (eel RF) to Cape Grenfell (cockburn RF) area. My long term held belief ~~was~~ is Princess Charlotte bay areas provide larvae for more northern regions of East Coast such as eel RF thro to cockburn

and eel RF to Cockburn RF area provides for more northern areas again ie Cape York thro the Torres Straits. Green areas in the East Coast fishery provide some insurance but I believe lobster numbers on the ground will never reach the levels of the 1980's - early 90's unless breeding areas are protected in vital months ie East Coast closure November → February.

In the Torres Straits we know breeding is mainly Mid November → January and occurs outer islands and more eastern areas and is protected by free-diving only rule.

To enhance breeding in the Straits maybe more emphasis should be put on protecting potential breeding Sites rather than 85% of Spawning Biomass. We know spawning occurs Murray Island, Darley Island way - quite likely in similar fashion to East Coast (ie smaller clusters) located on eastern fringe. Places like Cumberland Passage area come to mind as areas that could be protected.

larval flow charts show that most of the larvae is lost in the oceans to the east and north New Guinea. Makes sense because at the height of egg release ie ^{Nov} December - January we have a predominate tide run from the west and monsoons are generally kicking in from the direction as well. For this reason, it's probably a waste of time having management based on 85% of Biomass in the Torres Straits.

It would be good if some more effort could be put into identifying more larval release areas but I suppose resources are limited.

Now that we are moving towards a catch share kilogram allocation system; counting juvenile lobster becomes critical for accurate TAC assessment.

I am not very familiar with current transect counting arrangements but I've briefly seen a chart with transects locations. I think more emphasis should be put to areas where fishing actually occurs and close adjacent areas, i.e. feel in areas. One location I observed was at Wyban Reef - not even in the Torres Straits - probably legacy of the past when it was managed as one fishery.

~~Are~~ transects a single line drift?

Transects probably should be 4 drifts with current run logged at particular direction say 50 metres apart to allow for tidal direction changes. i.e. Target Areas rather than lines. If time and expense is an issue a little more time doing an area and fewer areas should be more cost effective than a larger number of single transect

~~Count~~ Areas ① Ti To Badu ② Badu To Orman Rf

③ Orman To Borgu Isl on western flank.

⑤ Saibai To Gabba ⑥ Gabba To Mr Earnest ⑦ Mr

Earnest (Naga.) To Twin ⑧ Johnson Isl To Kirkcaldie

⑨ Kirkcaldie To ~~Dangerous~~ Sessie Isl ⑩ Sessie Isl To Warner

Two counting dories could knock the job on the head in 10 days.

CPUe. having a say on Quota ^{TAC} allocation once the season has started has been thrown in as an option. Should be remembered that CPU at the beginning of the season is usually great due to calmer weather & longer daylight hours.

It seems to me that CPUe is treated as a mathematical Constant by management but in practice is more exponential. ie The first few hours of diving is spent finding where the lobster predominate - after that the catch rate accelerates - eg Catch maybe 4kg in 1st & 2nd & 3rd hour predominate location detected so 4th, 5th - 6th - 7th hour catch rate accelerates to 10kg. This may carry through to next days CPUe.

CPUe on multiple dory mother boats is increased to feedback on lobster locations. Also one diver maybe working much harder and have dived more waypoints. CPUe becomes a measure of efficiency rather than a measure of lobster numbers.

Smarter people than me might be able to pin an exponential factor which ^{CPUe} could be used in determining TAC.

Juvenile numbers at the moment seem to be good. What concerns me is environment (weed growth) factor. Weed die off means dirty water and less feed which means fewer diving days and smaller eray. ~~By~~ Areas in deeper waters are not as greatly affected in these situations. Some sort of environmental assessment might be able to be ~~assess~~ made when counting juveniles.

Thanks for reading (if you do)
K/MX