

JELLYFISH PRODUCTS AND MARKETING FEASIBILITY

The main purpose of the study is to ascertain if the vast quantities of jellyfish (CYANEA CAPILLATA) available in the Clarence River, adjacent estuaries and ocean waters are suitable for Japanese "KRAGI" and sundried or pickling for chinese and asian trade.

A brief history of the jellyfish in the Clarence River area is that each October large and dense areas of juvenile jellyfish approximately 400mm in diameter appear in LAKE WOOLAWBYAH, a large shallow lake adjoining the main arm of the Clarence River. By early november the jellyfish increase dramatically in size reaching 150mm diameter plus and begin to migrate from the sheltered still waters of the lake into the main arm of the Clarence. Here they travel upstream some twenty kilometre from the mouth of the river. The jellyfish quickly grow to 300mm (diameter of knob) and are clearly visible swimming in dense masses in and out with the tide over the twenty kilometre area.

The jellyfish remain in the main tributories of the Clarence until end March, early April, when they migrate to sea and disappear.

Two noticeable factors effect this pattern.

The first is the event of flooding, this quickly disperse the jellyfish to sea and large numbers of mortality occur. These can be seen lying on the high tide on the river banks and adjacent beaches to the mouth of the river. The second occurances which influences the annual pattern is if early than usual cold south west winds should blow. This has the effect of forcing an early migration to sea.

ESTIMATION OF RESOURCE AVAILABLE.

This was the most difficult task of the study and only educated assessments could be made. This was carried out by speaking to fishermen working in the area and visual estimations.

The area in the Clarence River and LAKE WOOLAWBYAH where jellyfish abound is also heavily fished for school prawns by otto trawling and pocket netting. It is by these two methods of fishing the feasibility of processing jellyfish is based as they are by products of prawn trawling. This will be spoken about more later.

Catch rate of jellyfish in 9 metre ~~Length trawl~~ vessel for 30 minutes can exceed 2000 kgs, with larger boats this rate is much higher. Fishermen experience difficulty retrieving their nets due to large hauls and quickly learn where the jellyfish are densely concentrated and avoid working in the area. Fishermen on many occassion are forced to stop trawling altogether until the jellyfish disperse with the tides. Fishermen also have had to adopt their prawn nets with "BLUBBER traps" to enable them to keep trawling for prawns. Due to jellyfish numbers.

Similar experience occur with tidal pocket nets.

From these experiences the estimation of the resources can be classified as very large and is quite obvious a land processing plant would not be available to handle the quantities available.

UNFORESEEN PROCESSING PROBLEMS

Speaking with and writing to potential trading clients it became evident that the methods of machine drying and pickling to be used were not going to be suitable for the Asian Markets.

First problem experienced is that Asian Countries are insistant that the product is produced in such a way it resembles their own traditional processing.

This envoles using pine casks for pickling and wooden, bamboo rocks for sun drying. The pine casks were substituted with "Nally" plastic casks and proved quite satisfactory.

Secondly the main markets is KOREA, HONG KONG and JAPAN all have different end product styles so to cover all these markets a comprise in porcessing method has to be determined.

Thirdly many negotive responses for the Department Of Primary Industry Fish Inspection Service has caused the abanduent of sun drying jellyfish. This aspect of the process to my mind has the most potential as it is a traditional method, very exonomic efficient and successfully carried out by most other fish producing countires in the world.

METHOD OF PROCESSING

After visiting the KOREA, JAPAN, TAIWAN and HONG KONG to witness the traditional methods it became obvious the best method of processing is to the first picklingg stage. This would then enable the respective countries to finish the product to their own respective style.

METHOD OF 1st STAGE PICKLING;\*

- (a) As soon as jellyfish landed on board, sever head from tentacles and wash throughly. This is the most important step as the quality of the end product will be determined by this step.
- (b) Keep wash kobs in shade and keep cool. Until

returning to place of processing.

- (c) Place knobs in casts with alternative layers of coarse salt and knobs until east full. Keep covered and cool.
- (d) Drain off excess brine each day and repeat process for three days.
- (e) Wash and transfer to casks with light salting ready for shipment.

METHOD FOR JAPANESE KRAGI

- SEE ATACHED.

STATICS FOR MARKET ANALYSIS

A three to five percent recovery can be expected from raw material to finished product. Based on this recovery and the price levels offered it would seem only economical to establish this market using jellyfish caught as a by product of prawnjng. By this method trawlers can utilise a resouce at little addition costs or work effort. To the crew as the jellyfish are already caught in their nets and have to be landed on board for soring from the prawns With little effort the prime knobs~~s~~ can be separated into containers when discharging offal overboard and washed during the next trawl.

6th November, 1980.

HOW TO PREPARE JELLYFISH BODIES AND TENTACLES FOR JAPANESE  
MARKET ONLY

HEADS

1) 1st Stage

- (a) Separate bodies from tentacles on boat as soon as jellyfish are caught. Keep bodies and tentacles separated so that bodies may not be stained by blood from tentacles which could be a cause of inferior quality of finished product.
- (b) Put bodies into nets, plunge into the sea from the boat so that blood and stain may be washed away in seawater.
- (c) Spread bodies on boards or the deck and separate bodies from tentacles with bamboo spatulas. Also get rid of veins, mucous membranes with bamboo spatulas. This work has to be done thoroughly and very quickly. During the process never use gaffs. Also avoid bodies being exposed to the direct sun.

2) 2nd Stage

- (a) Prepare brine by adding salt to seawater until the salinity shows 6 degrees on Baume scale. Then add alum powder, the quantity of which has to be equivalent to 0.5% of bodies to be treated.
- (b) Soak bodies in brine for about ten hours. Uniform dehydration may be attained by stirring bodies occasionally. Drain bodies six to eight hours. Then soak again and stir in brine and leave for about ten hours and drain for six to eight hours. The same process should be repeated three times.

3) 3rd Stage

- (a) A mixture equivalent to 15% of the weight of bodies to be treated should be made up from salt and alum powder with a ratio of 100 to 3 by weight.
- (b) After draining (2(b)), spread each body on drainboard, add a handful of the mixture around the centre of each body. Pile one over another and store in barrels.
- (c) Barrels have to be fitted with drain taps so that extracted liquid may be drained out. Drain liquid twice a day for seven days.

4) 4th Stage

- (a) Another dehydration process has to be applied to bodies to ensure longer shelf life. Prepare a mixture of salt and alum powder (100 to 3 by weight). Amount of the mixture to be used has to be equivalent to 10% of the total quantity of bodies to be treated. Rub in the mixture of salt and alum powder evenly (not just around the centre of bodies).
- (b) Pile up in barrels and add some salt onto the top. Leave in the shade for five days and bodies will be ready to pack.

~~NOT~~  
NOT ACCEPTABLE  
AJST. D.P.I. HEALTH  
STANDARD"

HOW TO PREPARE JELLYFISH BODIES AND TENTACLES (CONT.)

TENTACLES

1) 1st Stage

Prepare brine water to 6 degrees on Baume scale. Add alum powder equivalent to 0.8% of tentacles to be treated. Soak tentacles in brine for three to four hours.

2) 2nd Stage

Prepare a mixture of salt and alum powder (100 to 3 by weight). Add the mixture to tentacles and leave in barrels for seven days. Extracted liquid has to be drained through taps twice a day during the period. Amount of the mixture has to be equivalent to 10% of tentacles to be treated.

3) 3rd Stage

Repeat dehydration process using the mixture of salt and alum powder. The amount of salt and alum powder has to be equivalent to 8% and 0.15% respectively to the total quantity of tentacles to be treated.

4) 4th Stage

Drain on the boards and then store in barrels with 5% of salt.

\*\*\*\*\*

Queen Street, ILUKA. N.S.W. 2460

14th October, 1980.

Ref: 40-4-123

JWS:DM

Mr. Jim Harrison,  
Senior Fish Control Officer,  
Department of Primary Industry,  
G.P.O. Box 778  
BRISBANE

Dear Sir,

RE: DRIED JELLYFISH PRODUCT

Re confirming discussion held with Mr. John Short on the above topic.

The method of handling Jellyfish product which would be satisfactory to both your Department and ourselves would be as follows:-

- 1) As soon as the prototype drier is constructed, a photo to be submitted to the Department. NOT ACCEPTABLE  
TO ASIAN COUNTRIES.
- 2) The drier to be used only as an experimental model and as explained it is envisaged the maximum capacity would be only to jellyfish. This capacity would enable the necessary assessments of the resulting product to be carried out.
- 3) When samples are ready for despatch, an application be forwarded to yourself in the manner as set out in the Export (Fish) Circular 141 under the heading SAMPLES or EXPERIMENTAL SHIPMENTS.
- 4) The trade description to be, as per the regulations.

I am presently waiting for the draft stencil to arrive and immediately it comes to hand I will forward the same to you for appraisal.

I trust the above meets your requirements.

Yours faithfully,

R. CREIGHTON  
ILUKA MANAGER.

DEPARTMENT OF PRIMARY INDUSTRY

BRISBANE, Qld., 4000, Telephone (07) 225 0122



Reference: 40-4-123  
JWS:DM

9th September, 1980.

The Iluka Manager,  
Clarence River Fishermens Co-op Ltd.,  
Queen Street,  
ILUKA N.S.W. 2460

Dear Sir,

EXPORTS (FISH) REGULATIONS

Re your correspondence dated 13th August 1980 in relation to research into processing and marketing of jellyfish.

The process of drying is a registerable operation and the only exemption issued applies to sun drying on board large vessels that are at sea for the full period of drying, i.e. shark fins that are intended for further processing. All drying of product carried out on land requires that the premises be registered and that the requirements re hygiene, handling, vermin control, staff amenities etc., be met as per Australian Fish Exports Manual.

To allow a further evaluation of your proposal, full details should be submitted outlining intended handling, processing and packaging details.

The trade description requirements remain unaltered and a suitable product description would be "Dried Jellyfish" with the other four items as per previous submissions. This should be in the form of a principal label or stencil and draft copies should be submitted through this office for approval.

If you require any further assistance please contact this office.

Yours faithfully,

*J. W. H. Harrison*

J. W. H. HARRISON  
Senior Fish Exports Inspector,  
Eastern Zone.

spoke to D.P.I. RE SUN DRYING ON RACKS. - TOTALLY REJECTED  
DUE TO NO ACCEPTANCE OF DEPT.  
REASONS - RACKS UNHYGIENIC  
- BIRDS  
- VERMIC etc.

- QUOTED OTHER COUNTRIES DOING SUN DRYING ON RACKS - NO MAIL.  
Australian Government Centre, Cnr. Ann and Creek Streets, G.P.O. Box 778, Brisbane, Telex 40593





# DEPARTMENT OF TRADE AND RESOURCES

181 CASTLEREAGH STREET, SYDNEY, N.S.W.  
BOX 7054 GPO SYDNEY, AUSTRALIA, 2001.

TELEPHONE 266-0222  
TELEX 2 1555

In reply please quote: 38-1-20689  
DS:RB

22nd July, 1981

Mr. R.J. Edmiston,  
15 George Street,  
BARNESLEY. N.S.W. 2301

Dear Mr. Edmiston,

The Senior Trade Commissioner in Hong Kong has advised that there is a limited demand for jelly fish in Hong Kong. This market is entirely met by import. In the absence of a breakdown of statistics, it is not possible to provide an indicative level of imports. Supplies are obtained mainly from Thailand, Indonesia and China, and are brought in in the dried salted form.

Prices of the jelly fish vary and value of the product can only be assessed upon sighting actual samples.

Regarding the Japanese market for jelly fish, I have been advised as follows:-

a) Dried jelly fish enters Japan, subject to an import duty of 10% but free of any quota restrictions. Import statistics for 1980 are attached.

b) Jelly fish in Japan are dried, using alum and salt. After treatment of about one month, they are packed in 25kg and 50kg plastic bags, ready for shipment in wooden boxes.

c) There are two types of jelly fish available in Japan. Red jelly fish commands a higher price and is used in the Chinese restaurant trade. White jelly fish is mostly used for processing.

d) Red jelly fish originates mostly from China, and the white from South East Asia. The current prices being offered to exporters are:-

Red jelly fish - U.S. \$7,000 - \$8,000  
C & F Japan per m/t

White jelly fish - Average U.S. \$1,800  
C & F Japan per m/t

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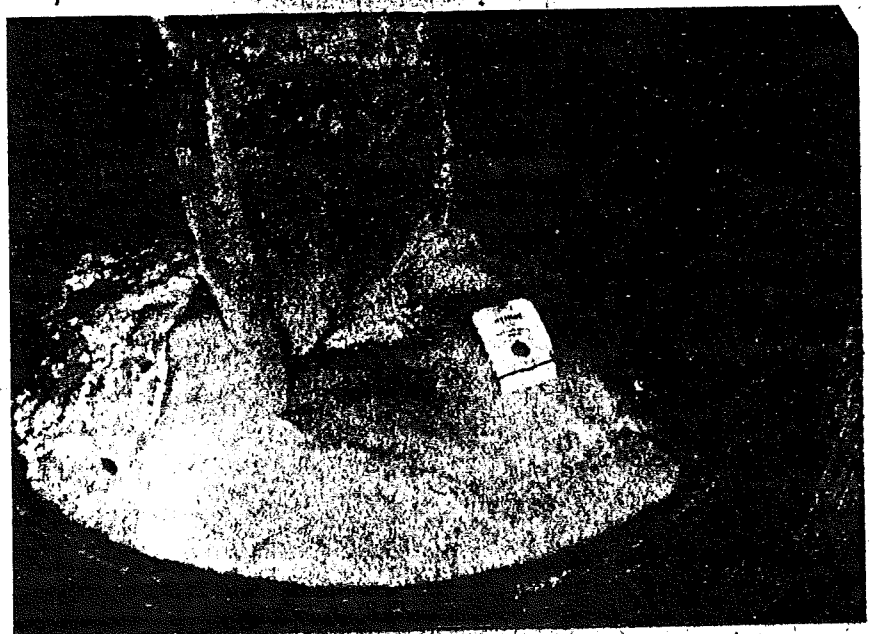
We trust this information is of value to you. However, we are still awaiting advice referring to your activities as requested in our letter of 22nd May, 1981.

Yours Sincerely,

*W.D. Cairns*  
for W.D. CAIRNS,  
REGIONAL DIRECTOR.

Imports - 1980  
Jelly Fish and Trepang

	<u>Kg</u>	<u>₹'000</u>
R. Korea	11,272	38,821
N. Korea	8,230	11,778
China	1,652,528	1,731,108
Hong Kong	2,024	4,375
Thailand	29,020	12,625
Singapore	6,300	5,222
Malaya	1,225,025	592,778
Sarawak	736,317	593,990
Philippines	270,057	112,828
Indonesia	889,236	439,865
Burma	111,000	59,655
U.S.A.	196	125
<u>Total:</u>	<u>4,941,205</u>	<u>3,603,170</u>



POSTAL ADDRESS:  
G. P. O. BOX 5939  
HONG KONG  
CABLE ADD. "SUNENTER"  
HONG KONG  
TEL. 3-033152 3-033163

TELEX: 84979 SUNEN HX

Your Ref:

Our Ref:

Mr. Russell Creighton,  
Iluka Manager,  
Clarence River Fishmen's Co-op. Ltd.,  
Queen Street,  
Iluka, N.S.W. 2460  
Australia.

Dear Mr. Creighton,

Re: JELLYFISH

Thank you for your letter of 9th April, 1981 concerning subject, contents of which read with interested.

For your information, to catch the live jellyfish to be need special equipments, but, which is rather simple and not expensive. The pickled jellyfish have various grade, current price for China origin about from US\$6.- up to \$10.- per kg. in our market and, the Indonesia products about 30-40% lower due to its quality. Therefore, the finished products processed by the skill technician always enjoy much better price.

You may well aware that, Japan does't produce pickled jellyfish and, they are importing this product mainly from China. In China, only few region available jellyfish and have skill labour/technician. From past 30 years until present, Hong Kong is the major market for jellyfish and mainly impert from China.

If the jellyfish caught in your region are good quality, then plus better processing by experienced technicians, the finished products shall enjoy good market with better price.

In view of the foregoing, I shall be appreciated to have your pickled samples for evaluation and study, because, ne photos or literature available for your reference as you were requested. Meantime, I believe that, any such photos or literatures may can't assist you in jellyfish process, which always depend on experience based on various factors, such as fish's natual quality, climate, etc.

The undersigned handling this line of business for long period and maintained a wide range of else connections in this field, therefore, we are in a better position to cooperation with you in market development and process.

# Sun Sun Enterprises

SUITE 47 IMPERIAL COURT, 6th Fl.,  
No. 79 WATERLOO ROAD,  
KOWLOON, HONGKONG

電話：三三三三三三  
三〇〇三三三三  
三三三三三三  
三五二  
九龍窩打老道79號  
帝國大廈七樓四七室  
生華行

April 21st, 1981.

POSTAL ADDRESS:  
G. P. O. BOX 5939  
HONG KONG  
CABLE ADD. "SUNENTER"  
HONG KONG  
TEL. 3-033152 3-033163

TELEX: 84979 SUNEN HX

*Your Ref:*

*Our Ref:*

# Sun Sun Enterprises

SUITE 47 IMPERIAL COURT, 6th Fl.,  
No. 79 WATERLOO ROAD,  
KOWLOON, HONGKONG

29  
生 生 華 行  
九龍窩打老道79號  
帝國大廈七樓四七室  
電話：三三三三三三  
三〇〇三三三三  
三三三三三三  
六三三三三三

Pickled Jellyfish Sample:

Please send us your samples by air-freight soonest possible, one kilo to be direct to our Company and one kilo to be despatched to:


Cheng Li Enterprise Co. Ltd.,  
878 Min-Sheng East Road, 3rd floor,  
Taipei, Taiwan. Tel: (02) 765 4211

Thanking you for your kind prompt attention in this respect and, your early favourable reply shall be highly appreciated.

With best regards,

Yours faithfully,

SUN SUN ENTERPRISES

  
Soffre Ni  
President

POSTAL ADDRESS:  
G. P. O. BOX 5939  
HONG KONG  
CABLE ADD. "SUNENTER"  
HONG KONG  
TEL. 3-033152 3-033163  
TELEX: 84979 SUNEN HX

# Sun Sun Enterprises

SUITE 47 IMPERIAL COURT, 6th Fl.,  
No. 79 WATERLOO ROAD,  
KOWLOON, HONGKONG.

九龍窩打老道79號  
帝國大廈七樓四七室  
電話：三三三三三三  
三三三三三三  
三三三三三三  
三三三三三三  
三三三三三三  
三三三三三三

Your Ref:

Our Ref:

25 April, 1981.

Mr. Russell Creighton,  
Iluka Manager,  
Clarence River Fishmen's Co-op. Ltd.,  
Queen Street,  
Iluka, N.S.W. 2460  
Australia.

Dear Mr. Creighton,

Re: Jellyfish


Referring to your letter of 9th inst. concerning subject and learned that, you are prepared to work with us to establish a viable market for captioned products. Taking this opportunity, we shall appreciate to have more details from you consisting following points:-

1. Do you need fishing vessel together with fishermen provide by us to assist you to catch Jellyfish in Australia water? If so, please advise us your terms and conditions, i.e. on a joint-venture basis or, on a charter basis?
2. Do you need technicians and skill labours to be provide by us to assist you in processing jellyfish? If so, please advise us the relevant terms and conditions
3. The quantity you plan to catch this specie for first season?
4. The estimate date which you planning to start catch this specie and the name of the coast.

Thank you for your kind prompt attention and looking forward to hearing the favouably from you soon.

Yours faithfully,

SUN SUN ENTERPRISES

  
Soffre N  
President

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G. P. O. BOX 5939  
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HONG KONG  
TEL. 3-033152 3-033163  
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# Sun Sun Enterprises

SUITE 47 IMPERIAL COURT, 6th Fl.,  
No. 79 WATERLOO ROAD,  
KOWLOON, HONGKONG

生 生 華 行  
九龍窩打老道79號  
帝國大廈七樓四七室  
電話：三〇〇三三二  
三〇〇三三二  
三〇〇三三二  
六五二

Your Ref:

Our Ref:

May 20th, 1981.

Mr. Russell Creighton,  
Manager,  
Clarence River Fishermen's Co-op. Ltd.,  
Queen Street,  
Iluka, N.S.W. 2460  
Australia.

Dear Mr. Creighton,

Re: Processed Jellyfish for overseas market

From our previous correspondence concerning the subject, unfortunately, until present, we are not yet favoured your response to our last letter of April 25, 1981 pertaining various points as stated therein and, shall be very much appreciated if you will kindly let us have your comments in details as soon as possible.

Please find herewith enclosed a photo copy for specimen for eight common species of jellyfish, which available in our country, for your reference. Meantime, please advise us which specie/species of jellyfish are available in your end, which you are planning to catch and process.

For your information, the specie "Stomolophus nomurai" is the best quality among the eight species, which have higher commercial value after process. The second one of good quality is "Rhopilema esculenta".

Thanking you for your kind prompt attention and, your early reply to the above shall be highly appreciated.

Best regards,

Yours faithfully,  
SUN SUN ENTERPRISES

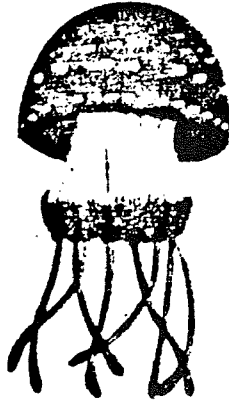
  
Soffre Ni  
President



Name of the following 8 species:

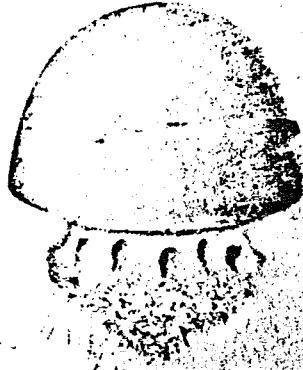
1. *Rhopilema esculenta*;
2. *Stomolophus nomurai*;
3. *Mastigias papua*;
4. *Netrostoma setouchiana*;

5. *Aurelia aurita*;
6. *Cyanea capillata*; (BROWN SPOT BUBBER)  
(OFF CLARENCE RIVER)
7. *Sanderia malayensis*;
8. *Dactyometra pacifica*.
9. *CYANEA CAPILLATA*. (CLARENCE RIVER).  
PLATE 88



3

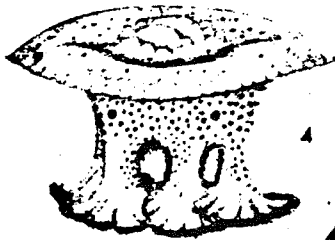
*Rhopilema esculenta*



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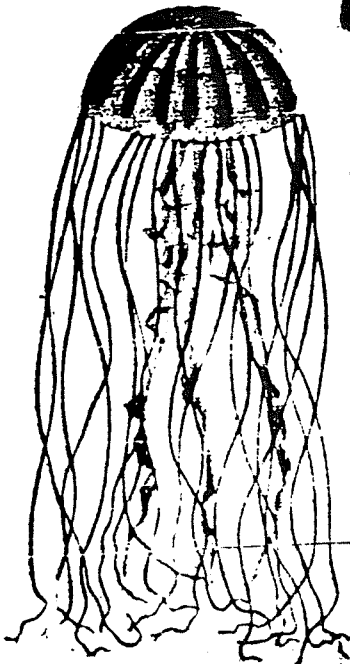


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*Stomolophus nomurai*



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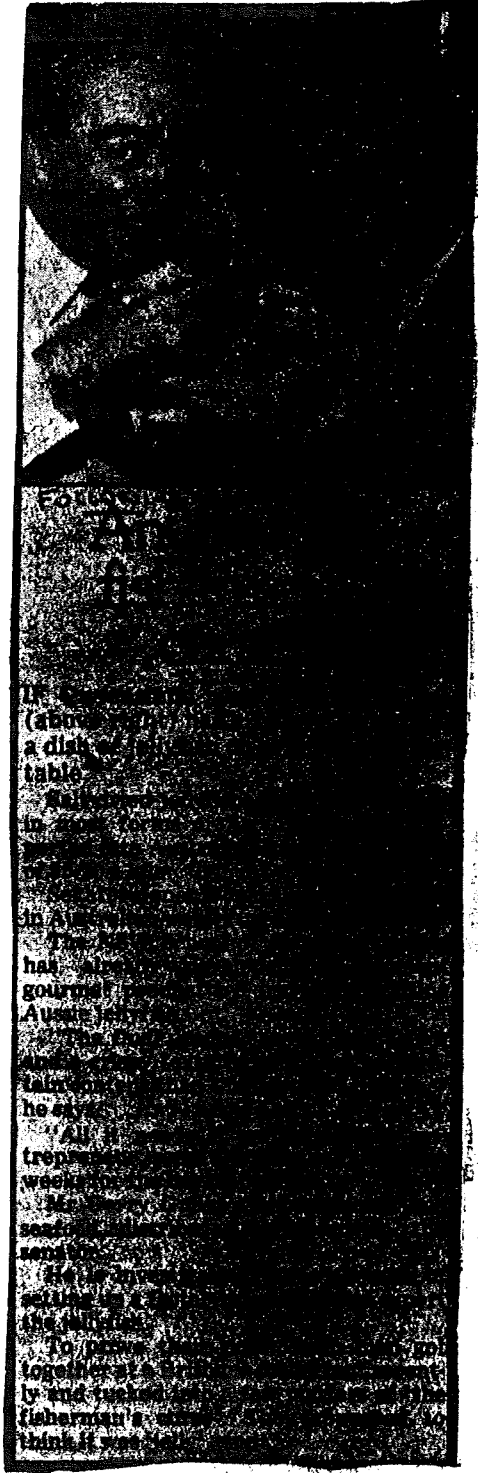


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# Clarence River Fishermen's Co-operative Ltd.

OFFICE ADDRESS : 51-55 RIVER STREET, MACLEAN, 2463 TELEGRAPHIC ADDRESS : "CLARFISHCOP" MACLEAN

TELEPHONE : MACLEAN 45 2055 - ILUKA 46 6116



NOTE PRICE

Clarence River Fisherman's Co-operative Ltd.

ANY ONE FOR  
FISHERMAN'S  
CURSE?

If Queensland Senator Gerry Jones (above right) has his way, there'll be a dish of jellyfish on every Australian table.

Salt-dried jellyfish, a popular delicacy in most forms of Asian cuisine, is imported into Australia from Asia at a cost of \$5.20 a kilo. ... note price

Senator Jones would like the jellyfish in Australian waters used instead.

The NSW School of Food Technology has already developed a succulent gourmet product by drying and salting Aussie jellyfish.

'The final product has a bland flavour and a crispy texture with a higher protein content than the imported brands' he says.

'All it needs is an imaginative entrepreneur, some alum and salt and five weeks for the drying process.

Mr Gerry Gullen (left) scientist and seafood distributor, agrees with the senator.

He is investigating the economics of setting up a factory to process and export the jellyfish.

To prove their point, both men got together at a Brisbane restaurant recently and tucked into a few platters of 'the fisherman's curse'. They appeared to think it was 'jelly' good.