

NON TECHNICAL SUMMARY OF PROJECT NUMBER  
97/413

97-01 Evaluation of producing U.H.T. Seafood Soups

Principal developers George and William Mure  
Mures Fish Centre  
Victoria Dock  
Hobart 7000

Telephone 0362312121      Fax 0362344464

ORIGINAL OBJECTIVES

1. To develop five seafood soup recipes using ultra high temperatures.
2. Report on approximate costs of production with wholesale and retail selling prices.
3. Investigate and report on marketing opportunities.
4. Promote finished products.

Since 1997 when this concept was devised we have had both success and failure. One of the more obvious soups was to be Atlantic salmon based. We were to use heads and frames of fish we had filleted for our smoked salmon sides. To date we have been unable to produce a satisfactory product despite producing two batches of 1000 litres each. Our other failure has been oyster soup. Despite a superb product the price of oyster meat was too expensive to make this soup viable. We could have used imported Asian oyster meat but we consider ourselves an Australian company and so this was not a real option.

The basis for our success has been the fish fumét (stock) made from blue eye trevalla heads and frames. This basic stock is the

key ingredient for the four soups that are in current production, Smoky Chowder, Prawn Bisque, Provençal Fish Soup and Fish Stock. Of these the Fish Stock is more of a Food Service product for the restaurant and hotel trade and is in a plain package. Due to retail inquiries we are now looking at the cost of producing a retail pack of Fish Stock.

The enclosed paper that I gave at Innovations for Seafood '99 on the Gold Coast and at Aquafest 2000 in Hobart gives an accurate account of the development of these products. We have also exhibited at the 1998 Fine Foods Fair in Melbourne at Innovations for Seafood in Brisbane and at Hofex 2001 in Hong Kong.

## BENEFITS TO INDUSTRY

We feel that our small company has been a leader in utilizing what would have been seafood waste. By using frames and fish heads in soup production. We have found that we have made a significant influence in making seafood soups popular. This has also benefited our business from a marketing point of view. Every packet advertises Mures Fish Centre and we have received a lot of favorable press.

Further research is continuing and at present we are looking at a thinner soup more suitable to the Asian market that can be used as a base for Asian dishes like Laksa. We have produced a 1000 litre batch but the product was too cloudy.

## BACKGROUND

Waste disposal is expensive, so we decided to try and utilize fish frames and heads from our fish-processing factory. The first soups we made were frozen in 1 litre plastic tubs. These were not very successful for the following reasons. They had to be held in freezer cabinets and so could not be displayed properly, they tended to thaw in shopper's bags, the plastic containers chipped and cracked easily and they were expensive to store.

It was decided to investigate the possibility of producing U.H.T. soups. Initial contact was made with the M.D. of classic Foods in Northern Tasmania, Bob Wilson. It was obvious that flavors and textures changed dramatically at the high temperatures needed for the U.H.T. process. This meant that there would be a fairly high wastage factor with the experiments. It was a line ball decision to go ahead. By a remarkable coincidence Steven Thrower and Ian Wells of the Fisheries Research and Development Corporation called to see me in Hobart. I explained our dilemma and they indicated that if I were to apply for a grant it would be considered. My application was successful and we decided to proceed. The rest as they say, is history.

## NEED

When we started we thought we knew what people wanted. Now that we have three years of trading under our belts we find that the Smoky Chowder outsells the other soups two to one. The Salmon Skilly was not a success but we are experimenting with a smoked salmon version smoking the frames and heads first. We are also experimenting with thin soup for the Asian market.

We have regular inquiries for smaller boxes of soup say 500ml or 600ml. Our first print of boxes is coming to an end and it is time to start asking questions. The smallest run of boxes printed for us is 100,000. At 30cents a box times four types of soup ties up an inordinate amount of money. We are unable to afford both one Litre and 600 ml boxes of all types of soup we therefore have to make decisions. As the cost of these boxes is \$120,000 dollars it is a major decision.

We have upgraded our factory at a cost of another \$100,000 and now have AQUIS certification to export these products. Are we over capitalised?

## OBJECTIVES

The objective is to have a range of five retail U.H.T.soups. We have actually produced six but Salmon Skilly and Fish Consommé were not commercially successful and have been discontinued. Only 1000 of each were produced. We now produce Smokey Chowder, Prawn Bisque, Provencal Fish Soup and Fish Stock so that I believe we have achieved our objective to profitably produce and market U.H.T. Seafood Soups.

## METHODS

The methods we have used have not always been successful. We first produce a very good seafood soup in our commercial restaurant kitchen. We then calculate what ingredients we need for a thousand litre batch. The U.H.T. process denatures the food as it has to undergo such very high temperatures and so much testing and tasting is necessary. We have to drive some one thousand kilometers (return) to the Classic Foods plant at Edith Creek in the North of Tasmania to taste the food as it is mixed and during its process. The first batch is not always perfect and other batches need to be trailed. The smallest batch that can be made at the plant is five hundred litres and so there is much waste. When the recipe is finely tuned we make our first batch of 5000 litres and hope that the rest of Australia like it too.

## RESULTS

The soups have not made us millionaires but have run at a modest profit. We shall continue to develop this area of our business with improved recipes and new products.



## PRICE STRUCTURE AND BENEFITS

We perceive our main problem to be the high mark up made by the wholesale and retail side of the business. Below is a breakdown of the cost per unit.

	Chowder	Provençal
Prawn bisque		
Cost of production	\$2.10	\$1.60
\$2.00		
Cost to Agent c.i.f.Melb.	\$2.70	\$2.60
\$2.60		
Cost to retailer	?	?
?		

Retail cost Between \$5.50 and \$8.50

Prices of up to \$6.00 are acceptable allowing for 30% wholesale and 50% retail markup and freight but we will find substantial buyer resistance when the price reaches over \$7.00.

There is a definite benefit for fishmongers and fish departments in large grocery stores. The recipes on the packages encourage the clientele to value add by buying the extra ingredients (eg fish, prawns, mussels and scallops) to change the Mures Soup into a substantial meal



## FURTHER DEVELOPMENT

As previously stated we are currently negotiating a retail 1kg pack for our fish stock and experimenting with smoking Atlantic salmon frames and heads to make a Smoky Salmon Skilly. We are also trialling various Asian soups.

The cost of packaging seems to be our biggest problem at the moment. To this end we are looking at having our boxes printed in Hong Kong or Singapore.

## CONCLUSION

We are very happy with the development so far and hope to increase the range as demand increases.

## APPENDIX 1

There is no intellectual property in this report.

## APPENDIX 2

Staff involved with soups

Staff involved in the project are:

Rodney Richardson - Factory Manager

David Beresford - Products Manager

Mary Stewart - Factory Supervisor

Susan Bone - Leading Hand

Will Mure - Director Mures Fishing P/L

George Mure - Director Mures Fish Centre

Jill Mure - Director and Chef Mures Fish Centre

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**FINAL REPORT**

**Development of UHT Seafood Soups  
Using Seafood Processing Waste**

**G. & W. Mure**



**NSC Project 97/413**

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## **NON TECHNICAL SUMMARY**

This project was aimed at using processing waste to produce a range of value added products in the form of shelf stable UHT soups. Since 1997 when this concept was devised we have had both success and failure. One of the first soups was to be Atlantic salmon based. We intended to use heads and frames of fish we had filleted for our smoked salmon sides. To date we have been unable to produce a satisfactory product despite producing two batches of 1000 litres each. Our other failure has been oyster soup. Despite producing a superb product, the price of oyster meat was too expensive to make this soup viable. We could have used imported Asian oyster meat, but we consider ourselves an Australian company and so this was not a real option.

The basis for our success has been the fish fumét (stock) made from heads and frames from blue eye trevalla (*Hyperglyphe antarctica*). This basic stock is the key ingredient for the four soups that are in current production, Smoky Chowder, Prawn Bisque, Provençal Fish Soup and Fish Stock. Of these, the Fish Stock is more of a food service product for the restaurant and hotel trade and is in a plain package. Due to retail inquiries, we are now looking at the cost of producing a retail pack of Fish Stock.

Papers given at *Innovations for Seafood '99* on the Gold Coast and at *Aquafest 2000* in Hobart, give an accurate account of the development of these products. The soups were exhibited at the *1998 Fine Foods Fair* in Melbourne, at *Innovations for Seafood* in Brisbane and at *Hofex 2001* in Hong Kong.

Further research is continuing, and at present we are looking at a thinner soup more suitable to the Asian market that can be used as a base for Asian dishes like Laksa. We have produced a 1000 litre batch but the product was too cloudy.

## **BACKGROUND**

To reduce the cost of waste disposal, we decided to try to use fish frames and heads from our fish-processing factory by making retail packs of seafood soups. The first soups we made were frozen in 1 litre plastic tubs. These were not very successful for the following reasons:

- they had to be held in freezer cabinets and so could not be displayed properly,
- they tended to thaw in shopper's bags,
- the plastic containers chipped and cracked easily and
- they were expensive to store.

To overcome these problems, we decided to investigate the alternative of producing U.H.T. soups which could be displayed and stored at room temperature. Initial contact was made with the Managing Director of Classic Foods, Bob Wilson, who had a UHT processing factory in northern Tasmania.

It was obvious that flavours and textures would be changed dramatically at the high temperatures needed for the U.H.T. process. This meant that there would be a fairly high wastage factor with the experiments. I explained our dilemma to Stephen Thrower and Ian Wells of the Fisheries Research and Development Corporation, and they indicated that funding assistance might be available through the National Seafood Centre. Our application was successful, and we decided to proceed.

## **NEED**

Seafood is a very expensive food item, and to achieve maximum profitability processors must extract every possible dollar from their raw material. Waste occurs in many seafood operations both at sea, and ashore. One quite major area of waste is the trimmings, heads etc. from filleting operations. Not only is this a loss of edible raw material, but processors also pay for the cost of disposal. Thus it becomes a doubly attractive proposition to convert this waste into a high priced value added product, turning cost into profit.

## **OBJECTIVES**

1. Develop five shelf stable seafood soup recipes using ultra high temperature sterilisation.
2. Report on approximate costs of production with wholesale and retail selling prices.
3. Investigate and report on marketing opportunities.
4. Promote finished products.

The objective was to have a range of five retail U.H.T. soups. We have actually produced six, but Salmon Skilly and Fish Consommé were not commercially successful, and have been discontinued. Only 1000 units of each were produced. We now produce Smokey Chowder, Prawn Bisque, Provencal Fish Soup and Fish Stock, so that I believe we have achieved our objective to profitably produce and market U.H.T. Seafood Soups.

## **METHODS**

The methods we have used have not always been successful. Scaling up the process proved difficult. We first produced a very good seafood soup in our commercial restaurant kitchen. We then calculated what ingredients we needed for a thousand litre batch. The very high temperatures in U.H.T. process denatured the flesh, and much testing and tasting was necessary.

We had to drive some one thousand kilometres (return) to the Classic Foods plant at Edith Creek in the North of Tasmania to taste the product as it was being mixed and processed. The first batch was not perfect and other batches needed to be trialed. The smallest batch that can be made at the plant is five hundred litres and so there was much waste. When the recipe was finely tuned, we made our first batch of 5000 litres and put it on the market.

## **RESULTS**

The soups have not made us millionaire but have run at a modest profit. We shall continue to develop this area of our business with improved recipes and new products.

### **Pricing**

We perceive our main problem to be the high mark up made by the wholesale and retail side of the business. Below is a breakdown of the cost per unit.

	Bisque	Chowder	\$Provencal
Cost of production	2.00	2.10	1.60
Cost to agent (cif) Melb.	2.60	2.70	2.60

The retail cost is between \$5.50 and \$8.50 Prices of up to \$6.00 are acceptable, allowing for 30% wholesale and 50% retail markup and freight but we will find substantial buyer resistance when the price is over \$7.00.

## **FURTHER DEVELOPMENT**

When we started, we thought we knew what people wanted. Now that we have three years of trading under our belts we find that the Smoky Chowder outsells the other soups two to one. The Salmon Skilly was not a success but we are experimenting with a smoked salmon version, smoking the frames and heads first. We are also experimenting with thin soup for the Asian market.

We have regular inquiries for smaller boxes of soup say 500ml or 600ml. Our first print of boxes is coming to an end and it is time to start asking questions. The smallest run of boxes printed for us is 100,000. An outlay of 30 cents a box times four types of soup ties up \$120,000, an inordinate amount of money. Since we cannot afford both 1 litre and 600ml boxes, we must decide which size to use.

We are currently negotiating a retail 1kg pack for our fish stock and experimenting with smoking Atlantic salmon frames and heads to make a Smoky Salmon Skilly. We are also trialing various Asian soups.

The cost of packaging seems to be our biggest problem at the moment. To this end we are looking at having our boxes printed in Hong Kong or Singapore.

## **CONCLUSION**

We feel that our small company has been a leader in utilizing what would was formerly seafood waste. By using frames and fish heads in manufacturing high quality, convenient retail packs of seafood soup, we have had a significant influence in making seafood soups popular. This has also benefited our business from a marketing point of view. Every packet advertises Mures Fish Centre and we have received a considerable volume of favorable Press.

This product is very attractive to fishmongers and the seafood departments in large grocery stores. The recipes on the packages encourage the clientele to value add by buying the extra ingredients (eg fish, prawns, mussels and scallops) to change the Mures Soup into a substantial meal

We are very happy with the development so far and hope to increase the range as demand increases. We have upgraded our factory at a cost of another \$100,000 and now have AQIS certification to export these products.

## **INTELLECTUAL PROPERTY**

There is no intellectual property in this report.

## **ACKNOWLEDGEMENTS**

Staff involved in the project:

Rodney Richardson - Factory Manager

David Beresford - Products Manager

Mary Stewart - Factory Supervisor

Susan Bone - Leading Hand

Will Mure - Director Mures Fishing P/L

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