Formation of an industry strategic plan for development of a quality index for Australian seafoods

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Project No. 2002/423

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2002/423 Formation of an industry strategic plan for development of a quality index for Australian seafoods

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OBJECTIVES:

- To achieve broad agreement of key stakeholders on development of a Strategic plan for establishing a Quality Index for selected Australian seafoods including benefits and costs.
- 2. To outline how to implement the first stage of this strategy including proposals for trials
- 3. To assess infrastructure, resource and training requirements for implementation of the strategy

NON TECHNICAL SUMMARY:

Outcomes Achieved

The industry confirmed the need for a quality index suited for use on Australian seafoods and a strategic plan was outlined for its development. The plan was reported to and endorsed by the Seafood Services Australia Network

A workshop was held on September 18, 2002, to discuss the development of a quality index suited for use on Australian seafoods. A wide range of stakeholders from industry, fisheries organisations and R&D providers was represented and many others, unable to attend, requested to be kept informed. There was unanimous agreement within this Working Group that a form of Quality Index was urgently required for Australian seafoods.

The group concurred unanimously that an agreed quality index has enormous advantages in monitoring every aspect of the seafood chain from catch through to final point of sale. Properly used, a quality index can help eliminate inefficiencies, provide standard material, minimize waste, provide control records, improve image, diagnose faults, predict shelf-life, reduce disputes and enhance market confidence in the products.

The working group discussed methodology and considered that a technique, first developed in this country, should be further investigated. This method has been widely taken up in Europe where it is used in industry as well as in

research. Thus its practical uses and advantages, its principles and the theoretical bases underpinning it are now well known. The approach can satisfy the need for a quality index that can be universally understood and readily transmitted, that provides a measure of the time-temperature history of the fish and that provides a good prediction of remaining shelf-life to satisfy the requirements of electronic trading.

The Working Group then proceeded to appoint a Steering Group, outline a Strategic Plan, develop an Action Plan, identify key Stakeholders, list key contacts and consider potential Funding Sources.

This strategy included the aim of

- ➤ 1.To provide the Australian Seafood Industry with a Quality Index System (QIS) by 2010.
- ➤ 2.To examine internationally-accepted QIS systems and determine the most appropriate method for Australasia.
- 3.To integrate with ongoing initiatives and existing research both domestically and overseas
- ➤ 4.To use the members of the SSA network to test and, where appropriate, to implement the adopted system.
- > 5.To collaborate with New Zealand to develop a common QIS
- ➤ 6. To make use of, and build on, existing knowledge for individual species.

The steering group was charged with developing an action plan to illustrate how these could be fulfilled. Following this an application has been developed and submitted to FRDC headed by the Sydney Fish Market and supported by industry, consultants and using R&D providers to tailor a quality index for selected typical species and subject it to trials under practical conditions.

KEYWORDS: Quality index, E-commerce.

ACKNOWLEDGMENTS

FRDC and Seafood Services Australia for Seafood Industry Development Fund (SIDF) funds to hold the Workshop, SSA Network, CSIRO Marine Laboratory Hobart for providing a meeting venue, various organizations and R&D providers for supporting the attendance of the participants.

BACKGROUND

Modern communications and advances in information technology have made transfer of information rapid and reliable; electronic commerce is a reality and seafoods are traded online.

Key stakeholders in industry, government and fishery development bodies have identified that the development of a quality index is long overdue and is an essential for electronic trade in perishable seafoods (Leech 1999, Smith and Reid 1993; Smith Tran and Ruello 1995).

To fully realize the potential of SFM online, the E-boat project and other E-commerce initiatives there is a need for a well defined, well accepted and well understood quality index. Draft proposals about this issue have previously been prepared but the best way to proceed has not been certain and selection of suitable methodology has been unclear.

Considerable advances in understanding and in practices have occurred in Europe exemplified in projects dealing with Traceability (www.Tracefish.org), Labelling and Quality Marking , Freshness; Electronic recording and transmission of a quality index (www.Qim-IT.com) culminating in a Consortium to establish the Quality Index Method (QIM) as official in the European Union (www.Qim-Eurofish.com).

NEED

An agreed quality index has enormous advantages in monitoring every aspect of the seafood chain from catch through to final point of sale. Properly used, a quality index can help eliminate inefficiencies, provide standard material, minimize waste, provide control records, improve image, diagnose faults, predict shelf-life, reduce disputes and enhance market confidence in the products.

The need for such an index has never been greater as the industry moves towards greater use of electronic communications. The project was designed to meet stated FRDC and SSA aims of overcoming impediments, dealing with whole supply chains, improving efficiencies, achieving higher returns, developing systems and standards, and acquiring and disseminating new technologies.

In turn there was a need to bring together key participants to develop the strategic approach underpinned by a staged implementation plan to be test proven on a few important Australian species.

OBJECTIVES

- 1.To achieve broad agreement of key stakeholders on development of a Strategic plan for establishing a Quality Index for selected Australian seafoods including benefits and costs
- 2.To outline how to implement the first stage of this strategy including proposals for trials

➤ 3.To assess infrastructure, resource and training requirements for implementation of the strategy

METHODS

The method used was to invite key stakeholders to a meeting to thoroughly discuss the perceived need and the issues involved and to develop a strategy for further initiatives. The principles behind quality indices and their characteristic properties were discussed and various methods were considered.

The methodology proposed is based on that, initially developed in Australia for Australian species, that has been widely taken up in Europe where it is used in industry as well as in research. This method, the Quality Index Method (QIM), will shortly become official in the EU. The PI was involved in the early development of the method in Australia and outlined its practical uses and advantages, it's principles and the theoretical base underpinning it (Bremner 1985; Bremner *et al.* 1987). The work was funded by the predecessors of FRDC. QIM has been presented to the International Association of Fish Inspectors and there is momentum to explore its use in the USA and Canada. It has entered standard textbooks (Botta 1995; Regenstein and Regenstein 1991)

RESULTS

General results

The overall result has been a raising of the awareness of the issue of a quality index that can be used for Australian seafoods.

The steering group made the following recommendation:-

It is recommended that FRDC adopt the formation of a Strategic Plan for the Development of a Quality Index for Australian Seafoods into its R&D Plan at the earliest possible opportunity with reference to Program 2: Industry Development at Strategic Point 7 Quality, food safety and consumer health and cross referral to Points 8 Value-adding and 3 Fishing technology.

Subsequently a full proposal 'Development of a quality index for Australian seafoods' has been submitted to FRDC (2003/237).

RESULTS RELATED TO OBJECTIVES

Objective 1

There was unanimous agreement on the need for a quality index and the group developed the outline of a strategic plan and an action plan then appointed a steering group to consult and articulate these further.

Strategic plan

The overall strategy – To develop the ability for all major Australian seafoods to be evaluated by a Quality Index system that has wide market acceptance within both domestic and export markets by 2010.

Point by point strategy

- 1.To provide the Australian Seafood Industry with a Quality Index System (QIS) by 2010.
- ➤ 2.To examine internationally-accepted QIS systems and determine the most appropriate method for Australasia.
- 3.To integrate with ongoing initiatives and existing research both domestically and overseas
- ➤ 4.To use the members of the SSA network to test and, where appropriate, to implement the adopted system.
- > 5.To collaborate with New Zealand to develop a common QIS.
- ▶ 6.To make use of, and build on, existing knowledge for individual species.

This strategy is to be achieved by developing grant applications to fund work on selected species to confirm the approach and demonstrate its effectiveness. This is to be followed by larger projects to rollout the methodology to include a broad range of commercial species.

Objective 2

A steering group was appointed by the working group to

Steering Group

The steering group consisted of Allan Bremner (Allan Bremner and Associates, Consultant), Don Nicholls (Seafood Quality Management Initiative, WA Fisheries) and Mark Boulter (QA Manager, Sydney Fish Market).

The group was charged with the immediate responsibilities for:-

- Informing the SSA Network (a task completed 19.09.2002)
- Placing information on the SSA website (edited minutes have been sent to SSA and distributed to the Working Group)
- Developing explanatory material (material was submitted to the magazine Seafood Australia in September 2002)

They were also charged with issues in the Action Plan (see below), specifically to develop a model for a validation project and to secure funding and, to report back to the Working Group on the results.

Action Plan

- 1. Identify those species on which relevant data already exists.
 - > This action is being undertaken by those members of the Working Group who are technical service providers e.g CFT, AFISC, AMC. The

Steering Committee will also use all other contacts to collate and list existing QI schemes in other parts of the world.

- 2. Determine the species that should undergo the initial trials.
 - The working group selected the following species since they provide a range of species characteristics, come from different locations, some occur in more than one State, they are caught by different techniques, they are being researched in other related FRDC projects and all are of commercial significance. Thus the selected group thoroughly test the robustness of the system.
 - Goldband snapper
 - Silver warehou
 - Snapper
 - · Sand flathead
 - Broadbill swordfish
 - Farmed prawns
 Other possible options to include
 - Blue swimmer Crabs
 - Atlantic salmon

Objective 3

Infrastructure, resources and training were discussed thoroughly at the Working Group and in further follow up by the steering group and incorporated into the grant application that was developed (FRDC 2003/237).

BENEFITS

All sectors should benefit from the use of a means of expressing quality in a neutral way. The quantification and benefit analysis forms part of the resulting application (FRDC 2003/237) and will arise from that project.

FURTHER DEVELOPMENT

Likewise, further development is planned in the application (FRDC 2003/237) and as a topic of interest in the SSA Network.

PLANNED OUTCOMES

The project outputs of a strategic plan and an implementation plan were delivered as a draft strategy to FRDC and SSA. The actions taken on the suggestions in this combined document by members of the working and steering groups led to development of a project application (FRDC 2003/237).

CONCLUSION

The project achieved the objectives of:

- Gaining broad agreement by key stakeholders on development of a strategic plan for establishing a quality index for Australian seafoods
- Outlining how to implement this strategy and in developing proposals for trials, and
- Assessing needed infrastructure and resources required to implement the strategy.

This culminated in development of a project application to fund the aims of the strategy, to conduct trials, to examine the methodology and to evaluate cost and benefits along the chain.

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APPENDIX 1 - INTELLECTUAL PROPERTY

The FRDC share of the intellectual property is 21%. The remainder is vested in the working group.

However, no specific claims are made arising from the work.

APPENDIX 2 - STAFF

Staff:- Dr Allan Bremner

APPENDIX 3 - MINUTES OF WORKSHOP HELD IN HOBART

Formation of an Industry Strategic Plan for Development of a Quality Index for Australian Seafood –Wednesday 18 September 2002

Attendees Allan Bremner, Jayanthi Weerasinghe, Sue Poole, Tristan

Richards, Don Nicholls, Mark Boulter, Bryan Skepper, Colin Dyke, Roy Palmer, Alan Snow, Felicia Kow, Ralph Mitchell,

Richard Stevens

Apologies Jayne Gallagher, Lyn Malcolm, AFFA, ABARE, Ian Knuckey

(in Canberra), John Roach (in Canberra), Phil Walsh, Jim

Kennedy

Lyn Malcolm, Perry Smith, and Ian Knuckey want to be kept informed

Scene Setting

Objectives of the Project (FRDC project 2002/243)

- 1. To achieve a broad agreement of key stakeholders on development of a Strategic Plan for developing a Quality Index for selected Australian seafood's including benefits and costs.
- 2. To outline how to implement the first stage of this strategy including proposals for trials
- 3. To assess infrastructure, resources and training requirements for implementation of this strategy

Points raised in discussion

- Multitude of species
- Tuna sashimi may need different process because it is eaten raw
- Problems of identification of sashimi grade tuna
- Silver warehou and redfish possibility of cooperation within existing projects looking at through chain handling to increase value
- The use of a quality Index is not restricted solely to electronic trading but to the whole chain
- A QI provides the capability to measure along the supply chain to identify problems
- An agreed and understood method of grading or evaluation will give buyers confidence
- The QI provides a continual assessment system rather than an initial grading
- Gradings do not provide a good measure of history, nor do they predict shelf-life or other characteristics

A presentation about quality issues was provided by Allan Bremner in PowerPoint form (see attached) covering the following:

- Desirable characteristics
- Grading Schemes
- Quality Index Method (QIM)
- Need to have more than one parameter but less than fifty probably ten to twenty.
- QIM can cover a range of species
- Storage changes in chilled Seafood

Other Techniques and Indices Available

- Sydney Fish markets method may not translate well down chain. For SFM, valuable information is the name of the seller – Buy on reputation
- Buying on reputation is very common through Europe
- QIMIT Converting of QIM system to an online or handheld system
- Demonstration of WiseFresh system CD. Wisef
- Fresh is the commercial QIMIT system developed into a handheld device for use in any situation onboard, dockside, at the market, in the processors, during sales and distribution. Its output can be electronically dispatched up and down the chain.
- One option for example is to get a group of knowledgeable "silver perch" growers into a room and to develop their own quality indicators
- Bryan Skepper SFM are willing to bench test a number of species on the market floor
- Three sources of potential collaboration and funding, South East Fishery, New Zealand project, and the e-boat project
- The New Zealand Crown Research Institute, Crop & Food Research intends conducting its own work into the use of QIM for NZ species. Since many of these are common and are traded into Australia the opportunities for collaboration and savings by sharing information and developing a common approach are considerable.
- Links to a current project on swordfish led by Steve Slattery of CFT
- Possible links also with the Sandy Wood-Meredith traceability trial
- QIM schemes are available for many species including salmon.
- Snapper would also be a good species to road test and schemes have been developed for snapper (sea bream) from the Mediterranean by Portuguese, Spanish and Greek workers
- Need to include a number of links in the transport chain on the trial
- Another candidate for bench testing is the Blue Crab found in all states
- WA would be interested in including deepwater snappers, and crystal crabs
- Some information already exists in files which could be used as a basis to form QI schemes. Sue Poole of CFT will examine records to uncover Taste panel data and visuals for a range of species, snapper, red spot prawns, and others

- Link any information on specific species to the Australian Fish Names
 List on the web site
- It is common to have information presented as pictures in a folder but it is equally possible to have an online system
- Demonstration of two online systems Internet based Iceland and Danish systems (<u>www.dfu.min.dk/qimrs</u>) which has been online for about 4 years and the <u>www.qim-Eurofish.com</u> consortium site (online for about 1½ years)
- The QIM-Eurofish consortium was formed to coordinate development of QIM schemes and to also provide training and accreditation.
- Discussion on accreditation of the "auditors" of the European system. Needs to be a quality check of the quality assessors.
- If an Australian based scheme is to be called a QIM then it should be consistent with QIM-Eurofish
- SFM suggest Adding Index Rating to required information. Current grading system is not really working – All product tends to be classed as "A" grade so that differentiation is not possible.
- If a QI scheme is implemented it was thought that commercial forces will keep the system honest
- A QI should go hand in hand with traceability no aggregation of product should occur to keep the integrity of the product secure
- Handling for sashimi grade could be a grade within a grade e.g. If
 product grades as one, then use a different grading system to grade for
 sashimi grade as sashimi has special requirements including emphasis
 on safety as it is not cooked.
- The PEFA.com network online auction system was demonstrated. PEFA now has over 12 large European auctions operating online in several countries and it is possible to simultaneously purchase in more than one country at a time.
- QIM-Eurofish has developed equivalence between QIM and the European Grading Scheme. This is in process of being officially recognized by the EC
- QIM is voluntary in Europe but many buyers and processors use it to select fish for specific purchases, particularly of high grade products such as the Silver Sealed brand of MAP fillets in Holland.
- Amongst the arguments to convince Australian catchers and processors are that the QIM is
 - Standard in Europe
 - Australia does export to Europe
- Further there will be a joint meeting

 Europe, USA, and Canada in Reykjavik, Iceland in 2003 to look at expansion of QIM into other markets
- SE Asia do not have any similar systems although Japanese scientists are well aware of the QIM system
- In any funded exercise, sensory and visual assessment would be required. Microbiological and Chemical analyses are not necessary but the participants may do them at their own cost as the results may add useful interpretive information.

 Jay Weerasinghe volunteered that for Victorian species she can find matching funding.

Formation of a Steering Committee

Under the terms of the project the coordinator, Allan Bremner, has to

- Provide a report of this meeting and
- A draft strategic plan, implementation plan and a commercialization plan.

The Steering Committee

- 1. Don Nicholls
- 2. SFM Mark Boulter (or Bryan Skepper)
- 3. Allan Bremner

Actions

- Inform the SSA Network Meeting
- Put information on SSA web site (half page possibly)
- Include an explanatory graph (stylized– Allan B to prepare

The key Stakeholders

- ASIC, other Peak Industry bodies, State Industry Councils
- SSA
- SFM, Melbourne Fish Market, MFMA, Restaurant and Caterers Association, Food and Grocery Council, major supermarkets
- AFFA, AQIS, ABARE, State Governments (Food safe and food quality)
- FSA, CFT, AMC
- STA and other training groups, Sydney Seafood School
- Logistics groups
- Consumer Groups

Development of a Strategic Plan

The strategy – To develop the ability for all major Australian seafood's to be evaluated by a Quality Index system that has wide market acceptance within both domestic and export markets by 2010.

- To provide the Australian Seafood Industry with a Quality Index System (QIS) by 2010.
- 2. To examine internationally accepted QIS systems and determine the most appropriate method for Australasia.
- 3. To integrate with ongoing initiatives and existing research both domestically and overseas

- 4. To use the members of the SSA network to test and where appropriate implement the adopted system.
- 5. To collaborate with New Zealand to develop a common QIS.
- 6. To make use of and build on knowledge and existing species specific data.

Development of an Action Plan

- 3. Identify those species on which relevant data already exists
- 4. Determine the species which should undergo the initial trials.
 - Goldband snapper
 - Silver warehou
 - Snapper
 - Sand flathead
 - Broadbill swordfish
 - Farmed prawns
 Other possible options to include
 - Blue swimmer Crabs
 - Atlantic Salmon
 - Octopus
- Steering committee to develop a model for a pilot project and secure funding.
 - 5.1. The pilot project will develop the scales and conduct unstructured sensory assessment
 - 5.2. Confirm the previous findings undertaken.
- 6. Steering committee to report back to the Working group on the results.
- 7. SSA will publish the results on the SSA web site
- 8. The Working group to review the strategy in light of the findings.

Resources

Key Contacts

- ATBOA (Jeffries, Stehr), Australian Fisheries Academy
- Salmon Growers, Vicki Wadley, Col Dyke, Phil Walsh, AMC (Felicia)
- Melbourne Fish Markets (Jay, Ian Knuckey, Roy Palmer)
- SFM, MFMA, Sydney Seafood School (Bryan Skepper, Ian Knuckey)
- Sue Poole, Martin Perkins, de Brett's, Swordfish (SP)
- NT Contacts) (Sue Poole)
- SQMI (Donald Nicholls)

Funding Sources

- SIDF
- AFFA
- Jay Weerasinghe (matching \$)
- WA Industry Development Unit
- Others, to be identified by the Steering Committee

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APPENDIX 4 - ELEMENTS CONTAINED IN THE DRAFT REPORT SUBMITTED TO FRDC BUT NOT INCLUDED ELSEWHERE IN THE ABOVE FINAL REPORT.

Actions initiated from the Point by Point Strategy

Internationally accepted QI systems

The Board of QIM-Eurofish has been advised by E mail of this initiative and they have been requested to consider mechanisms for collaboration at their annual Board meeting in early November. Discussion about cooperation was held in person on (3 October) with one of the Board members, Dr. Grethe Hyldig of the Danish Institute for Fisheries Research.

Integration with ongoing initiatives

Contact with various stakeholders in other initiatives is in progress *Collaboration with New Zealand*

Follow up contact with the Seafood Group of the NZ Crown Research Institute Crop & Food Research has occurred and collaboration proposed. Existing knowledge

 Service providers CFT, AFISC and AMC have been asked to collate existing knowledge and forward it to the Steering Committee

Contact with South East Asian Fisheries Development Center (SEAFDeC)

The Marine Fisheries Research Department (MFRD) of SEAFDeC (www.seafdec.org) in Singapore has responsibility for the post harvest projects of this organisation. They have indicated their willingness to collaborate on species of mutual interest.

Development

A three pronged approach is suggested.

- That a proposal be prepared for FRDC funding with SFM as the lead agency, SQMI (WA Fisheries) as co-agency and Allan Bremner as a sub-contractor and service providers CFT, AFISC AMC. This proposal will cover the basic work in research application in developing the QI scales for the species. Budget at around \$120,000.
- 2. That a proposal be put to the National Industries Development Program (NIDP) headed by an SME (?) using the participants in the other grant as support agencies. This proposal involves putting the index into practice and seeking to establish it in commerce both domestic and international. Budget around \$90,000.
- 3. That a proposal to the National Food Industry Strategy (NFIS) be prepared when details of conditions of application are released. These currently await Ministerial approval. Meanwhile a scoping proposal can be lodged.

Commercialisation Plan

Discussion has centred on the option of forming a company for the express purpose of commercialising the Quality Index and acting as a focus for all domestic and international contacts including promotion and collaboration. This company could then be responsible for maintaining the standard of the index, licensing subscribers and so on. It would act as the interface for the

work done by the service providers as subcontractors on normal fee for service basis in the FRDC proposal and form the spearhead for applications to NIDP and NFIS.

The relationships are outlined below in a Cooper Schema.

COOPER SCHEMA

FRDC Grant

Lead agency

SFM

Tasks

R&D

Scale development

Providers

AFISC CFT

AMC

Co-Agencies

SQMI SME's SETFIA

QIM-AusFish

Roles

Coordination Commercialisation Training Accreditation Licensing Extension

Co-agencies

SFM

Other SME's Seafood School CFT

AFISC

AFISC

NFIS Grant

Lead agency

QIM-AusFish?

Tasks

Further development Export marketing Extension

Co-agencies

Seafdec

NZ Crop & Food

NIDP Grant

Lead agency:-QIM-AusFish

Tasks

Application of R&D Implementation Market development

Co-agencies

SSA SETFIA

