Community Intervention to Increase Seafood Consumption (CIISC) Project

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Non-technical summary
A diet that includes regular servings of seafood offers significant health benefits to individuals of all ages. All seafood including fish contains long-chain omega-3 fatty acids which are vital nutrients required by every cell in the body and are essential to brain growth and visual development. Omega-3s are scientifically credited with, among other things, reducing the risk of heart attack and stroke, helping to manage diabetes, relieving the symptoms of inflammatory conditions such as rheumatoid arthritis and autoimmune disease and protecting against asthma and allergies in young children. There are also strong indications that they can help fend off dementia and depression and assist in the treatment of behavioural problems such as attention deficit hyperactivity disorder (ADHD). Because our bodies cannot make omega-3s, they need to be ingested, and seafood – particularly oily fish – is the best source. In addition to this, seafood is an excellent source of protein, minerals, vitamin D (second only to the sun) and vitamin B12 and is low in saturated fat. It is also a good source of iodine and zinc, both of which are lacking in the Australian diet.

Getting people to eat more seafood is a simple, effective, low-cost way of helping to reduce pressure on a health system under strain from an ageing population and the increasing incidence of lifestyle-related diseases (such as diabetes and heart disease). Given the wide range of conditions that increased omega-3 intake can either help to prevent or better manage, increased seafood consumption offers significant benefits to the community in terms of both reduced health care costs and increased productivity. It also aligns with Australian government health policies to increasingly shift the focus from acute care to preventative care and long-term health maintenance. To date, however, there has been no concerted effort – either by industry or health authorities – to encourage broader seafood consumption or to better educate the community about its scientifically proven health benefits. There are generally quite low levels of understanding within the community about what types of seafood people should be including in their diet, and in what amounts. Community perceptions about the difficulties involved in choosing, storing, preparing and affording seafood have also actively discouraged greater seafood consumption.

The Community Intervention to Increase Seafood Consumption (CIISC) Project

The aim of the Community Intervention to Increase Seafood Consumption (CIISC) Project, was to translate the most up-to-date evidence around the health benefits of regular seafood consumption into a suite of resources and educational programs specific to the needs of various sectors within the Australian community and to use these resources as part of a whole-of-community intervention to increase seafood consumption.

The CIISC Project – based firmly on scientific evidence and a researched understanding of existing community habits and attitudes around seafood consumption – was aimed not only at improving health outcomes for Australians, but strengthening the viability and profitability of the Australian seafood industry.

The following resources were developed as part of the CIISC Project:
- ‘Kidzone’ - an interactive online nutritional education resources for primary school children;
- ‘Seafood and Health: Teachers Resource for Secondary Schools’ – a comprehensive stand-alone module for use in the Health and Physical Education Year 10-12 Curriculum that covers nutrition and the importance of seafood as part of a healthy balanced diet;
- ‘Seafood and Health: A Vocational Training Resource’ - that provides instructors with everything required to administer the course to industry participants across all seafood sectors providing an overview of the relationship between seafood and health;
- Point of sale consumer resources around seafood and health;
- Industry guidelines for seafood health nutrition messages (including a guide to food labeling laws/regulations); and
- A series of ‘Seafood and health’ booklets to assist General Practitioners (GPs) and other health professionals when recommending healthy diets for patients with conditions that may be prevented, managed or treated through nutritional intervention. A GP user manual was also developed that outlines the evidence on which the resources were developed. Currently the series includes booklets for arthritis, diabetes, coronary heart disease (both male and female), nutrition related cancers and during pregnancy.
Evaluation of the project

To investigate the effectiveness of the resources, the Centre ran a community intervention project in the City of Mandurah in April and May 2011. This sought to determine whether distribution of the information and resources would lead to changed consumption habits. The intervention was preceded by a community survey, conducted to explore awareness, attitudes and consumption habits in the community. Resources were then sent to businesses, medical practices, GPs, schools (primary and secondary) and vocational educational organisations. Point of sale materials were also distributed to major seafood retail outlets. The local council included promotion of the health benefits of seafood in their weekly advertisements in the community newspaper which was supported by several media stories by CESSH staff over the intervention period.

Seafood sales during the intervention period, compared both with adjacent months, and with the same period in the previous year were used to evaluate success.

The intervention resulted in an increase in seafood consumption (as measured by sales) of 24% over the intervention period and a residual increase of 15% in the month following the intervention.

These results, when viewed in conjunction with the overwhelmingly positive feedback provided by those using the resources (notably, from a health and nutrition perspective, by GPs) there is a strong case for the continued use and development of this approach to the promotion of seafood as a healthy dietary choice.
Executive summary
Introduction

The Community Intervention to Increase Seafood Consumption (CIISC) Project aimed to translate the most up-to-date evidence around the health benefits of regular seafood consumption into a suite of resources and educational programs specific to the needs of various sectors within the community. The resources were then trialed and evaluated in a single community to determine whether seafood consumption in that community is significantly altered through access to the developed resources. The project followed a participatory action research model with each stage of the research informing the subsequent stages, thus ensuring the outcomes were relevant to the end users.

Literature review

The first stage of this project consisted of a comprehensive review of the most up-to-date evidence around the health benefits of regular seafood consumption. The results of the review formed the basis of the CIISC intervention.

The evidence reviewed showed significant health benefits of the regular consumption of seafood as part of a healthy diet. It would appear from the evidence reviewed that most people would benefit from the ingestion of at least two serves of seafood (particularly those high in omega-3s) each week. There was substantial evidence supporting a diet high in seafood to prevent or manage chronic lifestyle conditions such as arthritis, nutrition-related cancers, cardiovascular diseases, diabetes and obesity. In addition, emerging but significant evidence supports the ingestion of seafood or fish oil in the management of mental health conditions including behaviour management associated with conditions such as attention deficit hyperactivity disorder.

Industry guidelines for seafood health and nutrition messages

The Industry Guidelines for Seafood Health and Nutrition Messages were developed to assist the seafood industry to recognise and promote health and nutrition messages regarding seafood consumption and health. The Industry Guidelines summarise the relevant regulations, guiding principles and scientific evidence to be considered when using health and nutrition to promote seafood on food labels and in advertising material.

Resources for general practitioners and allied health professionals

The findings of a scoping exercise indicated the need to develop evidence-based, user-friendly nutritional resources across a number of key health conditions. Based on the strongest evidence and the level of funding available for this project, five ‘Seafood and Health’ booklets resources were developed. The conditions chosen were: arthritis (particularly rheumatoid arthritis); nutritional-related cancer (particularly prostate and colorectal); diabetes; and heart diseases (particularly coronary heart disease). Given the lack of clear nutritional direction during pregnancy, a nutritional resource was also developed for prenatal, antenatal and postnatal women. Each resource provides basic information about the condition (e.g. arthritis, cancer, coronary heart disease, diabetes and pregnancy) and how a balanced diet high in seafood could provide health benefits. Each booklet also contains a condition-specific 14 day meal planner developed using dietary modelling.

In addition, a user manual was designed to provide general practitioners and other health professionals with more detailed information about the evidence on which the resources were developed and suggestions of how to use the user manual effectively with patients or clients. The manual includes a summary of the evidence supporting nutritional intervention for each condition plus an extended version of the nutritional composition of each of the 14-day meal planners.
Point of sale consumer messages

A brief observational supermarket audit was conducted to determine what health messages were being displayed near seafood products on supermarket shelves. Results from the supermarket audit and a review of media messages showed that there is an opportunity to promote specific health benefits of seafood consumption to consumers with clear messages, in ‘eye-catching’ formats.

Based on the findings of the literature review and known barriers and facilitators to seafood consumption, a number of point of sale seafood shelf tags were designed and subsequently evaluated by consumers. A fish-shaped tag was found to be the preferred design, and Smart Choice - Fish Twice a Week was the preferred descriptor to promote seafood. The preferred promotional design and wording are sufficiently generic to be used in any campaign that promotes seafood in general. It would also work as a brand or logo on products to increase recognition, or in individual campaigns across a number of ranges and promotions (e.g. shelf tags, in-store branding, information pamphlets) as a trigger for purchasing and to draw attention to seafood displays.

Educational communications resources on the health benefits of seafood

Three suites of resources on the health benefits of seafood were developed for primary and secondary schools and vocational training courses.

A dedicated section of the CESSH website was created to house resources for primary school-aged children that are accessible, relevant and specifically tailored for each target group. A child-friendly name (Kidzone) and cartoon-themed brand identity were created, focusing on a cast of six young characters that would be used in various ways across the range of resources. The two resources developed for primary school-aged children were: Seafood the Super Food – an interactive ‘body click’ resource that shows how each of the major nutritional components of seafood impact on the body’s physiology and the health benefits that each can provide; and Amazing Omega-3s – an interactive game that encourages children to ‘catch’ their required omega-3 intake for a week. Support materials for both resources were also developed.

The Seafood and Health: Teacher Resource for Secondary Students was produced for secondary schools to develop students’ understanding of the benefits of seafood for health. The teachers’ resource package contains a set of five activities and assignments covering nutrition and the importance of seafood as part of a healthy balanced diet. The assessments include a group activity in spatial mapping, a critical media review, the development of a health survey for fish and seafood consumption in school, and the development of a fact sheet and presentation delivery. Each activity outlines the rationale for the assessment, the course outcomes covered, suggested duration and sequence of the lesson, as well as a guide for any advance preparation needed by the teacher. The resource package also includes assessment sheets, answer sheets and resource lists for ease of use. The resource activities are based on the Curriculum Council Sample Unit Package for easy adoption into the existing education framework for teachers.

A senior educational specialist with expertise in curriculum development and familiarity with the training needs of the seafood industry was employed to develop a vocational training skills package. The training resource pack is entitled Seafood and Health: A Vocational Training Resource and includes: Instructor Resource; PowerPoint; Handout; Quick Seafood Quiz; Quick Seafood Quiz Answer Sheet; Student Task Handout; and Self Assessment Handout/Peer Assessment Handout. The resource was developed to provide instructors with everything required to administer the course to industry participants across all seafood sectors, and to give an overview of the relationship between seafood and health.

Community survey

The aim of the CIISC community survey was to gain an understanding of the seafood purchasing and consumption behaviours of the target community, the City of Mandurah, a coastal Western Australian town situated approximately 72 kilometres south of Perth. The survey was mailed in February 2011 and 300 completed surveys were returned.

Respondents purchased most of their food from large supermarkets (93%) or independent supermarkets (74.35%). Around half (55%) had purchased seafood in the past month and 93% had eaten seafood during that time. One fifth of respondents (21.7%) would buy more seafood if it was more readily available. Canned fish was the most popular purchase (36.7%) followed by fillets (19.4%). Grilled or pan fried seafood was the preferred preparation mode in the home (39.3%) and 67.3% felt that seafood was easy to prepare. Interestingly, 84% of respondents checked food labels when making purchasing decisions and 54.3% wanted more accurate food labelling to aid their decision making process. Almost half (44%) of respondents wanted more recipes and preparation details at point of sale. Overall the main enablers to increased purchases of seafood were affordability, easy to understand food labels, quick and easy recipes and availability of seafood at local outlets.
Communication strategies

The CIISC intervention was promoted through a diverse range of strategies. These included: editorials; newspaper advertisements; industry magazines and newsletters; radio interviews; television coverage; online media; articles in Curtin University magazines and newsletters; conference presentations; peer-reviewed journal articles; and research reports. In addition, target-specific resources were developed and disseminated to schools, general practitioners and allied health professionals, and TAFEs.

Evaluation of the CIISC community intervention

The major outcome of interest used to assess the effectiveness of the CIISC project was the survey of food outlet sales prior to, during and after the implementation of the community intervention. Outlets that sold seafood in the target community were invited to take part in the survey. Respondents were asked to provide information about: the variety of seafood available in their outlet; the main types of seafood purchased for preparation and resale; their knowledge and availability of healthy food choices; and factors influencing the choice of seafood available to their clientele. Pre-intervention surveys were distributed in March 2011 and follow-up surveys were distributed in June/July 2011.

The intervention was conducted during the month of April 2011 and the number of kilograms sold was used as a standardised measure of success. During the CIISC Project, there was an absolute increase of 23.36% in sales over the intervention period (April 2011), and there was a residual increase of 15.29% in the month following the intervention (May 2011).

Another measure of success was the process evaluation of the ‘Seafood and Health’ booklets for arthritis, nutrition-related cancers, coronary heart disease (males and females), diabetes, and during pregnancy, supplied to general practitioners and allied health professionals. Thirty medical practices and 109 general practitioners agreed to be involved in the process evaluation of the ‘Seafood and Health’ booklets for GPs/AHPs and the user manual. All general practitioners who reviewed the resources found them very useful as a complement to traditional medical treatment. They were also interested in supporting the development of additional booklets for general good health, specific populations (such as adolescents and seniors) and for a number of medical conditions that they felt would benefit greatly from evidence-based, tailored nutritional education.

Conclusion

The Community Intervention to Increase Seafood Consumption (CIISC) Project used a whole-of-community approach resulting in an increase in seafood consumption (as measured by sales) of 23.36% over the intervention period and a residual increase of 15.29% in the following month.

The success of the CIISC Project was due, in a large part, to the involvement of a multi-disciplinary team of scientists, researchers, practitioners, key community stakeholders and members of the seafood industry in the extensive planning stage of the project. Their input from the onset of the project ensured that all resources developed were relevant to each of the end-users targeted. This collaborative approach allowed all parties direct input into the project and thus afforded them ownership of the research process. The use of a participatory action research model where each stage informs the subsequent stage was also essential to the success of this project. This model assured currency and relevance of the intervention to the community.

In addition to the outcomes from the CIISC project which have already been achieved, a number of additional outcomes will be achieved by early February 2012 including: 5 additional peer reviewed articles from the CIISC Project (currently in end stage preparation – making 12 in total); and promotion of educational resources through existing networks across Australia to maximise reach. A forum for investigators, researchers and key stakeholders within the City of Mandurah will be held to present the findings of the CIISC project. A half-day forum will be held in Perth with members of the seafood industry to provide an outline of what has been learned from the CIISC Project that may be of benefit to the industry. Other forums can be presented across Australia if additional funding is provided.

The CIISC Project could quite readily be implemented in any city or town across Australia using the methodology, resources and evaluation framework developed. It could be scaled up or down as required with minimal modification depending on the specific target groups involved in the target communities. It would also be suitable for use in urban regional or remote locations. The cost of further implementation would be greatly reduced as the CIISC resources have national relevance and were developed in paper-based and electronic formats. Costs of production could be shared. The educational resources could also be extrapolated to the electronic whiteboard used in schools across Australia with minimal cost making it more accessible to teachers and students. Furthermore, considerable value could be added to any future interventions developing additional resources as requested in the evaluation of CIISC (e.g. additional GP resources); addressing recommendations herein and through the conduct of a more rigorous evaluation of impact on attitudes and behaviours over time.
Recommendation 1 – Planning for success

Interventions targeting food security, seafood supply and seafood consumption across a community must adopt a collaborative and multi-faceted approach that targets key stakeholder groups within that community. It is essential to form an Advisory Group representing key stakeholders that could assist to make the project successful. The CIISC Advisory Group was extensive; however, it is important to inform potential members on recruitment of their expected level of commitment and what it would entail.

A research team with expertise across all major areas involved in the project is essential for success. A whole-of-community project requires input from a large number of people with varying levels of expertise, input and commitment to the project. Detailed planning based on the most current available evidence and with input from representatives from all sectors involved in the proposed intervention is the key to success.

Recommendation 2 – Considerations for interventions aimed at influencing local food supply

Although supermarkets and other food retail stores have state or national management, there is often potential for communities to influence local decisions regarding stock, promotion and pricing policies. This is particularly true when dealing with food stocks from local primary industries such as the seafood industry. Opportunities to improve the promotion of seafood food options at retail outlets in a localised area may involve enlisting the support of a significant number of businesses in the area and auditing these businesses to build a picture of the sales profile of various types of seafood (using one or more indicative types as a measure/s) within that community. In addition to the paper-based food audit, an observation study of the promotion of seafood within a large range of food outlets should be conducted.

Recommendation 3 – Involving restaurants and take-aways

Fast food and take-away outlets vary enormously in the quality and variety of the seafood served, and improvements in the range and nutritional quality of the seafood supply can have a big impact on the diet of a local community. Many people obtain a regular and significant proportion of their seafood from prepared food outlets, therefore it is important to consider the preparation methods, quality of ingredients, and the variety and relative price of the seafood served. There is often potential to improve the nutritional quality of seafood on these menus, as well as introducing identified healthy choices.

Recommendation 4 – Involving convenience stores and local shops

Small corner shops, general stores, and convenience stores are commonly used as ‘top up’ shops to supplement larger shopping trips to a supermarket. However, for many vulnerable people who are unable to access supermarkets on a regular basis, the small local shop can represent the primary seafood retail outlet. Those reliant on local stores include: people without cars; older people and people with a disability who find public transport difficult to negotiate; those living on the urban fringe where public transport is limited and where supermarkets do not exist yet; and people in remote areas with limited retail outlets. The key difficulties faced by those who rely on corner shops or general stores for their primary seafood supply are that the range of seafood available is usually quite limited and the prices are often higher than in most supermarkets.

Small seafood retailers are often unable to modify the range and price of their goods due to: an insufficient volume to achieve wholesale prices; small margins and under-capitalisation in refrigerated storage facilities; customers with little cash; and slow turnover and thus risk of spoilage of perishable goods. Although convenience stores continue to sell basic ‘top up’ items such as bread and milk, they are also more oriented to the sale of high profit snack foods and drinks. Despite this, there is potential for motivated community organisations and consumer groups to negotiate with these stores to include the type and range of seafood that would benefit those who rely on them as their primary seafood source.

Recommendation 5 - Opportunities for local government and community involvement

The 1992 Australian Food and Nutrition Policy identified that local government action could significantly impact on the food system and nutrition. Opportunities exist for health professionals to work with local government to promote nutrition and to impact on the food and nutrition system. Responsibilities of local government that impact on the food system include information provision, monitoring and enforcement of food regulations, and community services. Among the key factors that should be considered by local government when aiming to improve seafood availability and accessibility within the community are:

Location of supermarkets
Supermarkets are a key factor in determining the quality of seafood supply in a community. Mapping the location of supermarkets and influencing decisions around access to healthy seafood across all sectors of the community can significantly improve the food security of whole communities. For example, coordination of public transport routes with locations of healthy seafood outlets can significantly improve the quality of a food supply for those on limited incomes who do not own their own cars.

In-store price, availability and promotion
While supermarkets usually contain a wide variety of foods, the stock of healthier foods is often minimal, and in-store delis and salad bars often offer a limited range of relatively high fat dishes. Local government entities, researchers and organised consumers working
together can significantly improve the range and quality of fresh seafood stocked in food retail outlets, the price competitiveness of those foods, and the way healthy seafood options are displayed and promoted within stores. In-store promotion can assist consumers to locate the healthy choices, and the use of healthy catering practices for the prepared seafood lines in supermarkets has considerable scope for improving nutrition. These strategies can also be implemented as part of a holistic approach to improving community healthy through the promotion of seafood as part of a healthy diet.

Activities focussing on seafood promotion may include regular ‘ specials’ offering: healthy food/prepared dishes at a reduced price; product tasting and demonstrations on how to prepare seafood; more efficient displays of fresh seafood; in-store radio promotions and simple shelf-tags identifying cost effective and healthy seafood options.

Local government involvement in improving seafood consumption
A number of recommendations are made for other councils who may wish to improve the health of their constituents whilst supporting local industries. These include:

- Provision of incentives for businesses to promote local seafood produce — including grants or reductions in business fees for businesses providing reasonably priced healthy food options;
- Provision of leadership in developing mixed-use retail ‘clusters’ in which small or independent seafood outlets can flourish;
- Streamlined applicable licence and permit processes;
- Provision of technical assistance to entrepreneurs and storeowners who are interested in improving their communities’ access to nutritious seafood;
- Improved transportation services to local seafood and fresh food markets;
- Nutrition education classes and activities including education on shopping, storage, freezing and preparation of a variety of cost effective and easy seafood meals;
- Public health campaigns promoting seafood consumption as part of a healthy diet;
- Inclusion of small fresh food markets (including local seafood outlets) as a vital component of neighbourhood revitalisation projects.

Legacies of the CIISC project

- Effective links between State/Territory Departments of Fisheries, Professional Industry Associations and social scientists/researchers;
- An understanding within the seafood industry of the benefits of working with research-active social scientists;
- Strong professional relationships between the seafood industry and seafood scientists and researchers that support proactive engagement;
- The seafood industry values the contribution of scientists and researchers to the promotion and profitability of the seafood industry;
- Institutionalisation of seafood as a core component of nutritional plans in general practice that complement existing best practice treatments for nutrition-related health conditions;
- Communication of seafood health messages to a range of end users;
- A suite of evidence-based nutritional education resources for specific target groups within the Australian population;
- A comprehensive intervention that can be scaled to fit any sized community within Australia with the potential to improve biomarkers for health through increased seafood consumption at a population level; and
- A significant number of scientists, researchers, educations and industry members with a clear understanding of the processes required to develop, implement and/or evaluate a community-based intervention to increase seafood consumption.