

AN EXTENSION PROGRAM IN THE WESTERN AUSTRALIAN CRAYFISHERY*

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ABSTRACT

Outlines the present condition of the fishery for Western crayfish (*Panulirus cygnus*) and describes an extension program undertaken in 1965/66. Discusses the design and production of a pamphlet and film which inform fishermen of the state of their industry and of research progress, which request their help in gathering data, and which make recommendations for fitting escape gaps to crayfish pots.

BACKGROUND TO THE PROBLEM

Catches in the Western Australian crayfishery, Australia's largest fishery, soared from just over 200,000 kilos (half a million pounds weight) in 1944/45 to nearly 10 million kilos (22 million lbs.) in 1962/63. These returns masked a steady decline in catch per unit of effort from an average of about 4 crayfish caught per pot per night in 1951 to about 1 per pot per night in 1964. It was only because more fishermen were setting more pots and fishing further afield that the total catch continued to rise and a solid overseas market was developed. (See Fig. 1 for location).

Since 1963 there has been a steady decline in the total catch. As more than 2,000 fishermen, processors, packers, and their families depend on crayfishing for their livelihood, there has been a sharp increase in public interest and concern for the future of the industry. Fishermen want to know more about the life-cycle of the Western crayfish (*Panulirus cygnus*), and need to understand the results of biological research on which are based the increasing number of controls and regulations in the industry. In the past the task of informing

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the industry of research progress and of explaining the significance of research findings has fallen mainly on two research officers. While they are well equipped with information, the time-consuming work of extension keeps them away from important research work. Some of the extension load has been shared by technical officers and field inspectors, but this also represents an onerous task that draws them away from their normal duties.

At the March 1964 meeting of the Western Fisheries Research Committee 1/ proposals were put forward for production of a 'popular' or highly readable publication that would highlight problems of the industry, describe research in progress, and explain practical measures for arresting the decline in catch. The Agricultural Liaison Unit of CSIRO was asked to undertake production of such a publication and to prepare supplementary material where desirable. This Unit is responsible for integration, interpretation, and dissemination of CSIRO research results relating to agriculture. Biological principles common to agriculture and fisheries made it practical for the Unit to draw on its reserves of communication experience and skills for the crayfish program.

THE COMMUNICATION PROGRAM

(i) Defining problems.

Ideally, before commencing any extension program it is desirable to survey the prospective audience and establish certain characteristics which might influence communication strategy and tactics. For example, we wanted to know what sort of attitudes fishermen had towards the Department of Fisheries & Fauna and CSIRO, what their levels of general knowledge were like, whether they read much, what percentage of illiterates or non-English speaking people there were, and so on. Although a comprehensive sociological survey was impractical, we were able to obtain useful advice about these points from field research, technical, and regulatory staff, and from reports from an economic survey 2/. We were told, for example, that our audience

1/ This Committee, whose terms of reference include consideration of research programs and other measures in relation to fish resources off the western coast of Australia, has a membership comprising representatives from the W.A. Department of Fisheries & Fauna, the South Australian Department of Fisheries & Fauna Conservation, the W.A. Museum, the University of W.A., the Commonwealth Department of Primary Industry, and the Commonwealth Scientific & Industrial Research Organization (CSIRO).

2/ "An Economic Survey of the Western Australian Crayfish Industry" published by the Fisheries Branch, Department of Primary Industry, Canberra, 1964.

comprised at least 1800 licensed crayfishermen of whom about 50% were native Australians. A large colony of Italians fish out of Fremantle, and groups of Yugoslavs and other nationalities are scattered up the coast. The Fremantle Italians ^{3/} tend to stick to their own nationality group whereas the others have been integrated into Australian society and, we were informed, can speak and read English fairly well. General knowledge and reading ability of all fishermen probably covers a wide range, as there are some illiterate non-English speaking people as well as widely travelled and quite wealthy business men. The term 'research' is generally regarded as synonymous with CSIRO despite the wealth of practical research conducted by the State Department of Fisheries & Fauna and the Museum. Attitudes towards the State Department range from being apathetic to being mildly antipathetic, probably because of Departmental responsibility for policing regulations. Since some people distrust official statements and are more likely to be influenced by messages from impartial sources, information should be disseminated to fishermen through newspapers, magazines, etc. simultaneously with the publication of official pamphlets.

(ii) Content and Structure of the Message.

On the basis of research finding and general biological data provided by research officers it was decided to produce a publication as a 'basic document' in the communication program. This publication aimed to:

- (a) make members of the industry aware of reasons behind declining stocks (reduction of accumulated stock and diminishing recruitment of legal-size young crays into the fishable stock);
- (b) explain why Departmental control measures, based on research findings, are necessary to maintain a balance between exploitation and natural increase;
- (c) explain how research points the way to stabilizing and improving the catch, and how fishermen can assist by keeping log-books, etc.;
- (d) answer particular questions put by fishermen about the biology of crayfish.

^{3/} See Gamba, C. (1952) "The Italian Fishermen of Fremantle".
University of Western Australia Text Books Board.

With the knowledge that ability to read and absorb written information varied widely among fishermen, we approached the task of communicating information in three ways. Firstly, the story was told at length and in semi-technical terms for the benefit of more intelligent members of our audience. Secondly, highlights of the story were extracted and printed in large, clear type and in simple, straightforward language for those who might have difficulty with written material. Thirdly, the story was interpreted in visual terms to clarify details for all readers.

Despite this three-pronged approach the authors regarded it as inevitable that some members of the audience would not be able or would not be inclined to read the messages or interpret the visual material. However, on the basis of sociological research findings in rural communities it is known that such people may be influenced to adopt recommended practices by their better-read or more enthusiastic colleagues.

Printing the publication in Italian and Yugoslav would have been an advantage, but limitations of time and finance precluded this.

(iii) Production Methods.

Following recommendations from the Western Fisheries Research Committee, and using information provided by the two crayfish research officers, the authors of this paper produced a draft design and manuscript for the pamphlet. Copies of the manuscript were circulated to the Western Australian Department of Fisheries & Fauna and to research and administrative officers of the CSIRO Division of Fisheries & Oceanography in Perth and Cronulla. Meetings were held with members of these organizations and with a W.A. Museum crayfish research worker to discuss layout and design of written and visual material. Revisions of both design and manuscript were made and rechecked with the same people. When agreement were reached the designer produced his artwork and sent it, together with paste-ups of copy, to the printery for final preparation and offset printing. It took exactly three months from the day the Committee recommended production of a pamphlet to printing the final version.

(iv) Channels of Communication.

A fundamental principle of effective communication is that one should employ as many channels as possible, i.e. to use radio, television, newspapers, films, special publications, and so on. Sociological research findings suggest that radio, television, and newspapers serve primarily to make people aware of problems and of methods for solving these problems. Those seeking more detailed information on which to base changes in methods, etc. receive it either from personal discussions with experts or from authoritative publications specially designed for this purpose.

The cornerstone of this program was the pamphlet 'Maintaining the Catch' which was released officially on 9th September 1965 and posted direct to all licensed crayfishermen two or three days afterwards. Postal delivery was timed to coincide with the arrival of the Australian Fisheries Newsletter, also mailed direct to all licensed fishermen. The cover of the September issue featured crayfishing, and a special article complementing the main pamphlet was included in the central four pages.

Wide local and national publicity was given to the pamphlet by newspapers and weekly magazines. Feature and news articles appeared in Perth and Eastern States dailies following distribution of a special press release. Interviews with the crayfish research officers were also organized on Perth radio and television stations to coincide with press releases.

Copies of the pamphlet were given wide distribution to other members of the industry, to local parliamentarians, and to overseas marine research and fisheries institutions and organizations.

All Departmental officers received copies of the pamphlet at least a week before it was posted to fishermen. During the week before official release a crayfish technical officer visited field staff located in crayfishing areas to explain objectives of the extension program and to answer questions about the publication.

The pamphlet was designed to serve as the main reference source in the program. Although other media were used to create awareness and to inform to a greater or lesser extent, the pamphlet was something physically to hold, refer to, and act as a focus for and stimulus of discussion among fishermen. Initially, on receiving it, they may not have read it. But if the other media did create awareness and interest in seeking answers to their problems, the pamphlet provided the answers.

(v) Continuing Aspects.

Although release of the pamphlet and accompanying press, radio, and television publicity represented the major part of the extension program, there has been continued activity.

Further technical and economic articles have been prepared for the Australian Fisheries Newsletter by other contributors, and feature articles, partially based on the original pamphlet, have appeared in Perth newspapers from time to time.

With the appointment of a full-time extension officer by the Department of Fisheries & Fauna, it is hoped that more personal contact will be possible with fishermen. The pamphlet should complement his work.

Fishermen's meetings are another practical way of discussing problems and passing on research information. A film has been produced for use at these meetings.

(vi) The Crayfish Film.

When production of artwork and manuscript for the pamphlet was complete, attention was turned to designing a film which might assist the publication in communicating information to fishermen. Several television films showing crayfishing operations, interviews with industrial leaders, etc. have been screened in Perth in recent years. Crayfish research scientists suggested that a more dramatic approach to communicating particular information was required. Because there appeared to be little justification for making a conventional documentary film at this stage, the film producers considered it was important to design a film which would communicate a limited number of key messages simply and directly. For this reason a graphic form of presentation was adopted.

Four main points requiring emphasis, and already discussed at length in the pamphlet, were chosen. These were: the effects of overfishing, fitting escape-gaps to pots, cooperating with scientists, and maintenance of daily logbooks. Symbols closely related to those used in the pamphlet were designed to highlight these points (Fig. 2). Audience attention is sought by having few objects on the screen and by moving only the symbol relating to the particular part of the message. Live segments were interpolated where additional emphasis was necessary.

Despite our knowledge that prospective audiences would vary considerably in their ability to follow spoken English, a moderately complex commentary was used. Close interweaving of script and graphic material was employed to heighten comprehension. Even if some members of the audience may not follow the message, the film producers considered it is important to aim information at more progressive members of the industry in the belief they will serve as opinion leaders and demonstrators to the less well educated and informed. Although the film does contain specific recommendations for action, it is designed primarily to supplement messages in the pamphlet and assist in creating awareness that answers to problems do exist.

(vii) Evaluating the Program.

Time and financial limitations restricted the extent of follow-up studies of communication effects in much the same way they precluded a comprehensive survey of the industry before commencing the program. However, the general opinion of a wide range of people concerned with the industry is that the extension program has been very successful.

Cooperation between fishermen and research workers in the Department of Fisheries & Fauna and the CSIRO has improved markedly since the publication was issued. Prior to September 1965 about 60 fishermen were keeping research records to provide data for population studies, many in a sketchy and half-hearted manner. Since the publication was issued, requests for logbooks have increased. Now there are approximately 150 fishermen cooperating in the scheme and standards for recording data have risen notably. These logbooks are kept on a voluntary basis and should not be confused with the monthly returns each boat skipper (approximately 750) is obliged to return to the Department.

Press releases and articles contributed to media circulating outside Western Australia appear to have had some impact. A large number of requests for copies were received from fishermen and other people about two or three weeks after the pamphlet was released. A further batch of requests was received from overseas 4 or 5 weeks later. Despite our emphasis on differences between the two species involved, many requests have been received from crayfishermen in South Australia and Tasmania.

Public interest in the illegal traffic of undersize crays is at an all-time high. Furthermore, an increasing number of fishermen appear to feel they are partners with the Department of Fisheries & Fauna in a positive attempt to improve the industry. Whether or not the communication program has contributed significantly to improving the Departmental image remains largely an academic question.

The communication program is summarised in Fig. 3. Relations are shown between fishing activity, committee recommendations, design, production and release of messages, and introduction of government legislation.

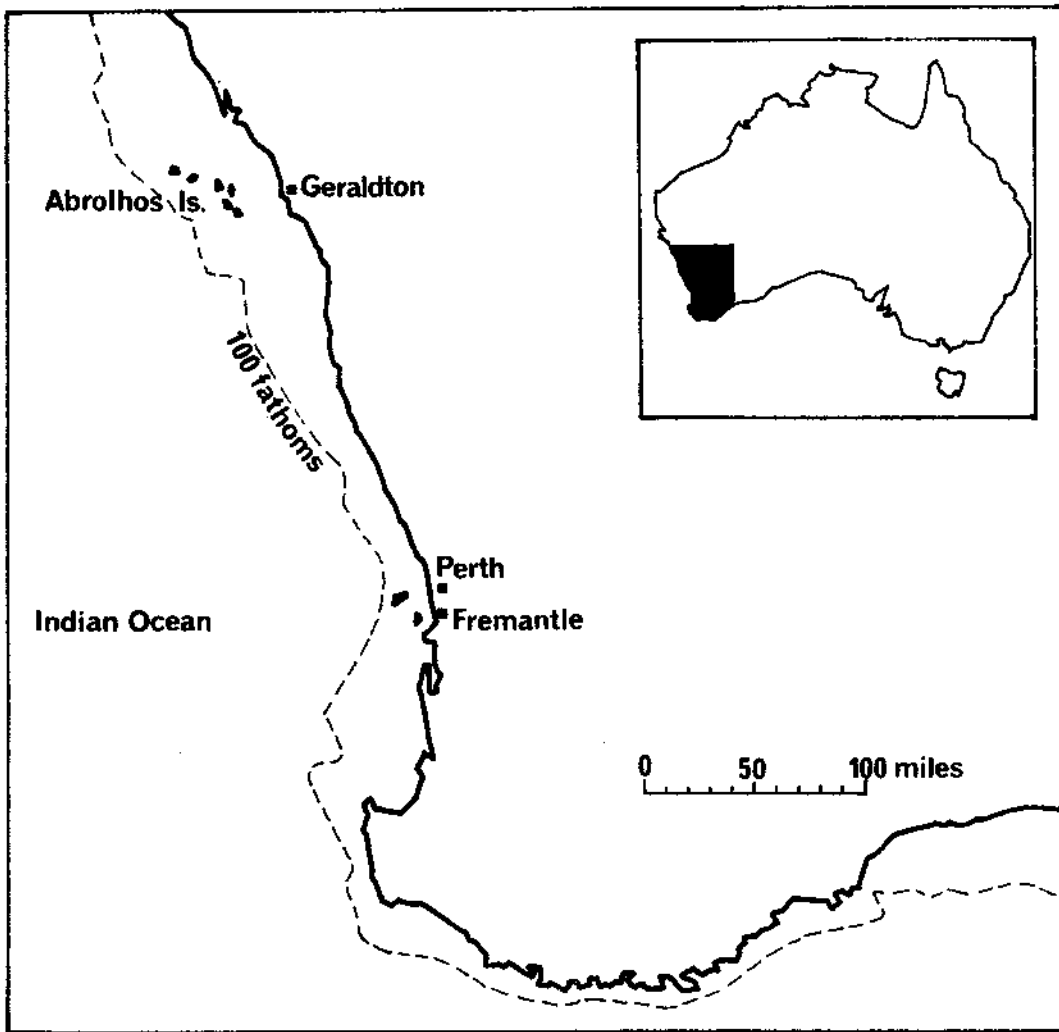


Figure 1. General location.

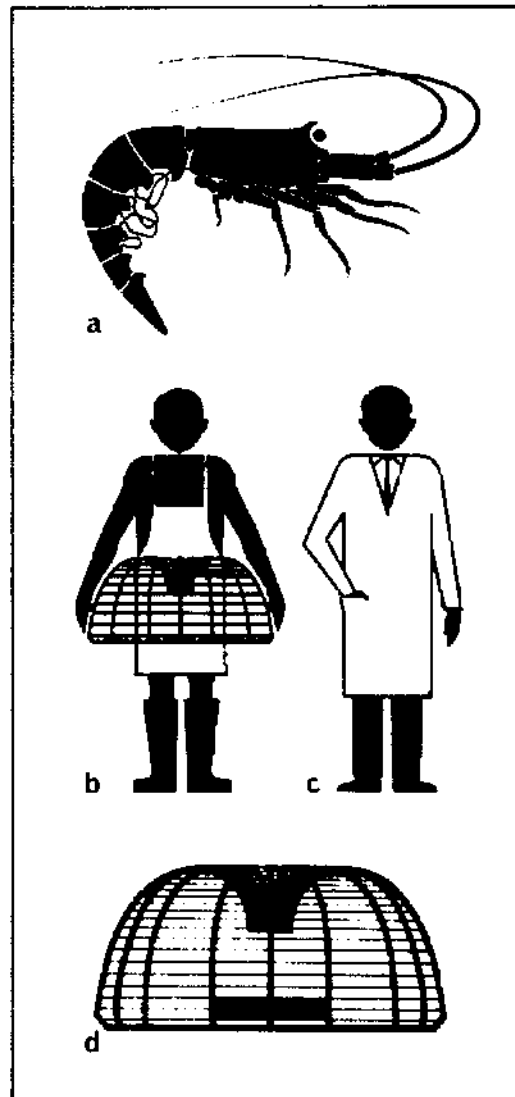


Figure 2. Main symbols used in crayfish film. (a) Crayfish (b) Fisherman (c) scientist (d) Craypot with escape gap.

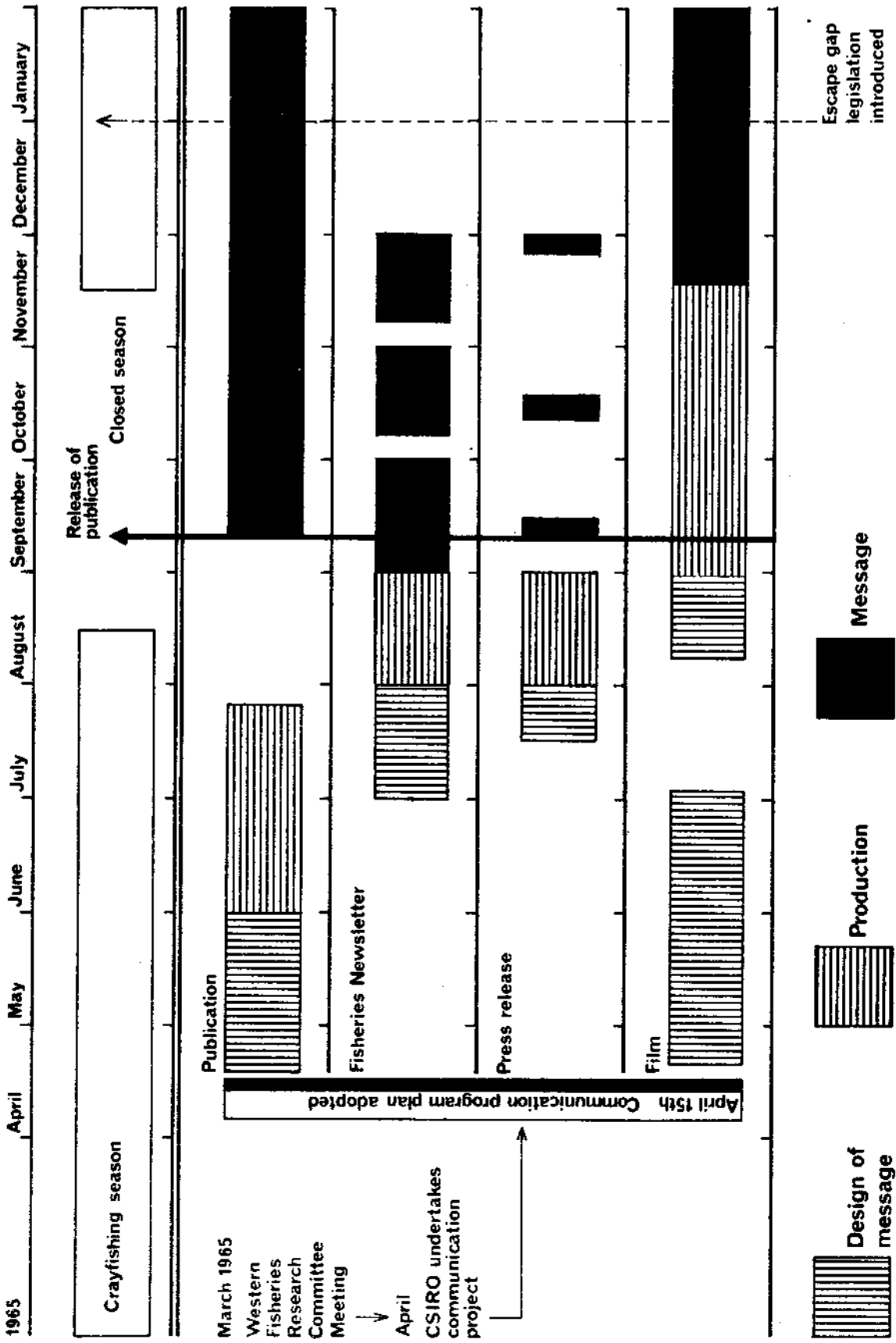


Figure 3. Sequence of events following adoption of the communication program plan.