

A REPORT ON THE  
DEVELOPMENT OF MATERIALS  
TO ACCOMPANY AN  
INSTRUCTIONAL UNIT ENTITLED  
"THE INSHORE CODFISHERY  
OF PETITES"

PART 1

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A

Report

On The Development of Materials to Accompany  
An Instructional Unit Entitled

"The Inshore Codfishery Of Petites"

By

Danny Courtney



A Project Report Submitted  
In Partial Fulfillment Of The  
Requirements For The Degree Of  
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## ABSTRACT

The purpose of this study was to develop an instructional package on the inshore codfishery of Newfoundland. The instructional package has been developed as a supplementary aid to the existing social studies program in Grade Five and Six. The package consists of a series of thirty-five millimeter slides, a cassette audio-tape, and a teacher's manual.

Various stages were involved in the development of the project. Several interviews were conducted by the developer to determine whether there was a need for the production of local materials on the inshore codfishery of Newfoundland. Several teachers from various places across the province, and two representatives from the Department of Education were interviewed. The results of these interviews indicated a definite need for production of such materials.

The package was produced on location at the community of Petites, Newfoundland, and at Memorial University.

When the package was completed two content specialists, two learner specialists, two media specialists and a group of students were consulted for the purpose of evaluating the content and technical qualities of the package. Based upon recommendations from these evaluators, suggested changes were made in the package.



After completion of the formative evaluation, the package was used with three Grade Six classes in three schools in different areas of the province. A total of ninety Grade Six students were involved in the initial testing of the media package.

In determining the effectiveness of the package as a teaching aid, the developer used two types of measuring instruments: a pretest-posttest method for evaluating the achievement level of the students, a teacher attitude and a student attitude questionnaire to determine how teachers and students felt towards the technical aspects of the package. Results of the pretest-posttest analysis revealed that the instructional package was a very effective teaching aid and both teachers and students held positive attitudes towards the technical aspects of the instructional materials.

In summary, the materials in the package have been used and evaluated. Both teacher and student response has been positive towards the instructional package, "The Inshore Codfishery of Petites."

## TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION.....	1
II.	NEEDS ASSESSMENT.....	4
	Statement of Needs.....	4
	Survey of Available Materials.....	9
	Rationale for Development of Materials.....	13
	Outline of Development Process.....	13
III.	LEARNER ANALYSIS.....	15
	Age.....	15
	Achievement.....	16
	Attitudes.....	17
IV.	CONCEPT AND TASK ANALYSIS.....	19
	Concept Analysis.....	20
	Assumptions and Entry Behavior.....	23
	Behavioral Objectives.....	23
V.	RATIONALE FOR CHOICE OF MEDIA.....	26
	Review of the Literature.....	26
	Cost Considerations.....	30
	Teacher Preference.....	30

CHAPTER		PAGE
	Materials Included in the Unit.....	31
VI.	DEVELOPMENT PROCEDURES AND FORMATIVE EVALUATION	33
	Evaluation by Content Specialists.....	33
	Evaluation by Learning Specialists.....	34
	Evaluation by Media Specialists.....	35
	Evaluation by Learners.....	36
VII.	SUMMATIVE EVALUATION.....	37
	Procedure.....	37
	Analysis of Results.....	43
	Conclusions.....	49
VIII.	CONCLUSIONS, RECOMMENDATIONS, IMPLEMENTATION...	50
	Conclusions.....	50
	Recommendations.....	51
	Implementation.....	52
	BIBLIOGRAPHY.....	53
	APPENDIX.....	56
	Appendix A. Instructions for Students.....	57
	Appendix B. Pretest-Posttest.....	59
	Appendix C. Score Key for Pretest-Posttest..	64

## CHAPTER

PAGE

Appendix D. Student Attitude Questionnaire...	66
Appendix E. Teacher Attitude Questionnaire...	69
Appendix F. Slide-tape Presentation (under separate cover).....	72
Appendix G. Teacher's Manual to Accompany "The Inshore Codfishery of Petites".....	73

## LIST OF TABLES

## TABLE

1	Matching of Behavioral Objectives to Pretest Posttest Items.....	39
2	Comparison of Student Scores on the Pretest-Posttest.....	44
3	Comparison of Pretest-Posttest Means.....	46
4	Analysis of Test Items.....	47
5	Results of Student Attitude Questionnaires.....	48

CHAPTER I  
INTRODUCTION

Fishing and the sea have played a major role in the lives of Newfoundland people for many centuries. Historians, such as F.B. Briffet (1964), state that the sea was the chief source of livelihood for Newfoundland inhabitants long before the discovery and colonization of the island by the white man. In the past, Newfoundland settlers have depended upon the sea, and fishing, to provide them with a means of obtaining a livelihood. Today, the development of other industries has reduced that dependence, but fishing still remains a vital factor in the island's economy. Thousands of men and women still make their living from the sea, and dozens of small communities along the province's coastline are totally dependent on and could not survive without the fishing industry.

Although their forefathers were fishermen by trade, many of the school children living in Newfoundland know very little of the traditions of fishing. Neither are they very much aware of the practices of the industry as it exists today. This is particularly true of children who live in larger communities, both those communities on the coast and those away from the coast. In past centuries fishing and the sea were frequent topics of discussion in most households in Newfoundland because most of the people living on the island at the time lived on the coast and most of them were fishermen. Consequently, children

living in those days grew up in an era when fishing was of extreme importance to the residents and undoubtedly they realized the value of the industry. Historians, such as Briffet (1964), tell us that in the early days of colonization, and indeed, on into the first half of the twentieth century, in the outports of the island the fishing trade was not just the occupation of the Newfoundland fisherman only; the whole family was involved. Men caught the fish and women and children helped prepare them for market. Everyone helped, whether the job involved the cleaning and curing of the catch, the mending of nets or the cutting of timber for new boats or buildings. The whole family, therefore, lived a daily life centered around the sea.

Most Newfoundland children today, however, belong to families whose means of livelihood is not dependent on the sea. They do not live a daily life centered around fishing. Many of these children, therefore, are not aware of the importance of the fishing industry as it was traditionally and as it is today. Many of them do not realize the value of the industry to the economy of the individual fisherman, to the economy of the coastal communities and to the economy of the province. Many children are not aware of the skills of the fishing trade, nor of the qualities and nature of the man who pursues the fisherman's way of life.

In Newfoundland today the elementary schools are the only schools giving formal instruction on the province's

fishing industry. The social studies programs in each of Grade Five and Grade Six devotes one short unit to the study of the province's oldest industry. Any other instruction throughout the entire school program, from Kindergarten to Grade Eleven, is purely incidental.

The purpose of this project, entitled "The Inshore Codfishery of Petites" was to produce an instructional unit which would help school aged children to learn more about fishing as it exists in some parts of Newfoundland today.

## CHAPTER II

### NEEDS ASSESSMENT

In assessing the need for the production of the instructional package several steps were taken. A definite need for the production was ascertained, the available materials were surveyed, the rationale for the development of the materials was established, and the development process was outlined.

#### Statement Of Needs

One very common criticism of the educational system in Newfoundland is that students are educated with vast amounts of information published in other countries about other countries. Information about Newfoundland often tends to be neglected, only a small amount of commercially produced material about Newfoundland is available to Newfoundland children. That problem is mainly due to the fact that almost all of the resource textbooks recommended in the Program of Studies for Newfoundland Schools 1978-79 by the Newfoundland Department of Education (1978) were written by authors outside the province, particularly in the United States. Consequently, since textbooks, to a considerable extent, determine what is taught in the schools, not too much attention is paid to Newfoundland. The writer examined the Program of Studies for Newfoundland Schools 1978-79 and found examples at all grade



levels. Elementary School Science, written by Rockcastle, Salamon, Schmidt and McKnight (1972), is the textbook used in the science program for Grades Four, Five and Six, and Investigating School Mathematics, by Eicholz, O'Daffer and Fleenor (1963), is the textbook used in Grade Six mathematics. Both of these books were published by Addison-Wesley in London, Ontario, but they are American books written by American authors, and Addison-Wesley is an American based company. Introduction to Literature, used in Grade Eight, was published by Ginn & Company in Toronto, but the book was written in the United States by Eller, Welsh and Gordon (1969). Likewise, the Grade Eight history text, Exploring World History was published by Ginn, but was written by Americans Holt and O'Connor (1969). Teen Guide to Homemaking, by Barclay and Champion (1968), used in the Grade Nine home economics program, and published by McGraw-Hill, Inc., is a Canadian edition of an American book. In Grades Nine to Eleven the recommended textbook for industrial arts, Power: Mechanics of Energy Control, by Bohn and MacDonald (1970), was published in Bloomington, Illinois by McKnight & McKnight Publishing. And so, the list goes on.

Newfoundland students, therefore, are continually being exposed to American materials, views and ideas. An education for any child should include exposure to materials and information from other countries, but at the same time, however, information and materials should be supplied to educate the child about the province and country in which that child is living. The consensus among teachers in Newfoundland seems

to be that more of the materials used in the province's schools should be written about Newfoundland by Newfoundlanders.

Many teachers and educational groups, such as the Educational Media Council, contend that more materials about Newfoundland must be introduced and taught in the schools if the children of Newfoundland are to grow up as adults who are appreciative, concerned and knowledgeable about their province. Concern of teachers is well illustrated by the involvement of many teachers in the designing and producing of curriculum materials relating to Newfoundland issues. For example, a group of teachers on the Burin Peninsula, working under the auspices of the Canadian Studies Foundation, have produced a multi-media package entitled Resettlement on the Burin Peninsula. The instructional package is one of eight such packages now available to schools anywhere in Newfoundland. Many other teachers throughout the province are involved in similar projects. Such activity on the part of teachers suggests that many teachers are of the opinion that there is a need for more materials that relate to the province.

The social studies programs in most elementary schools in Newfoundland, as was mentioned in the introduction of this report, are providing only a ~~minimum~~ amount of instruction on the fishing industry of the province. The Grade Five social studies program uses a geography text entitled Geography of Newfoundland by Summers and Summers (1972). This text contains one ten-page chapter called "Fishing For A Living" about the fishing industry. The Grade Six program uses a text entitled

Canada: This Land of Ours by Whiley, Fryer, Girt, King, McLean, Thomas and Welsh (1976). As a supplement to this text the program also includes a series of booklets on various geographical concerns of Canada. The textbook contains only a six-page section that gives a general coverage to the fishing industry of the Atlantic Region; very little coverage is given specifically to the fishing industry of Newfoundland. One of the booklets deals with the sardine fishery of New Brunswick, but neither of them deals with the fishing industry of Newfoundland. In many schools these sixteen pages and the booklet, "Sardine Fishing and Canning in New Brunswick," constitute the total information available on the fishery for instruction in the elementary grades. There is barely more than a mention of the inshore codfishery, particularly the trawl fishery, in either program. This deficiency is unfortunate because the inshore cod-trawl fishery is one of the traditional methods of catching cod, and is still a major method practiced in many parts of the province. Many elementary school teachers and the writer of this report consider the limited textbook coverage of the Newfoundland fishery to be insufficient. Instruction in this area should be more thorough than it is at the present time. Additional instruction should be done through other textbooks, or through some resource medium.

When the idea for the production of the instructional package entitled "The Inshore Codfishery of Petites" was conceived in 1976, the developer was convinced that there was a

need for the production of more Newfoundland related resource materials. However, a specific need for such a package had to be established. The producer first undertook to interview Grade Five and Six teachers in schools at various places across the province. Two or more teachers from each grade were visited and were talked with in informal meetings at Port Aux Basques, Grand Falls, Conception Bay South and St. John's. The discussions centered around the following questions: "Do you consider the available resource material for instruction on the fishery of Newfoundland to be adequate? Would you consider a multi-media instructional package, including slides and audio-tape, to be a partial solution to the problem? If this instructional package dealt with a specific type of fishing - codfishing - in a typical outport community - Petites - would it be of some significant value as resource material for Grade Five and Six units on the Newfoundland fishery? Would you, yourself, use such a package if it were available?" The majority of the teachers interviewed agreed that there was a shortage of resource material related to the Newfoundland fishery, and that such a package as described would be of considerable value to Grade Five and Six social studies teachers, and, indeed, should be produced.

The producer then went to the Newfoundland Department of Education and found that at that time the Department had hardly any resource materials concerning the fishery, other than the Grade Five and Six textbooks, to make available to the schools.

This fact was confirmed in conversation with the Director of Curriculum and Instruction for Newfoundland schools, and with the Director of the Instructional Media Centre of the Department of Education. Both agreed that an instructional package on the cod-trawl fishery could be of value to the study of the fishery of Newfoundland.

#### Survey Of Available Materials

The search for available materials revealed that very little material has been produced on the inshore codfishery of Newfoundland. The developer surveyed the resources of the Main Library, the Education Library, the Center for Audio-Visual Education and the Resources Clearing House of Memorial University, the College of Fisheries Library, the Instructional Materials Centre, the National Film Board of Canada, and the various public libraries through the city of St. John's.

The investigation into the various print materials available revealed that very little of the existing print materials on the fisheries was suitable for use in the elementary schools. Most of the existing print materials is in the form of research reports, government studies and statistics. The high level of vocabulary and technical terms used in the books were usually above the reading level of Grade Five and Six students. Some of the books examined were, however, suitable as resource material for the elementary schools social studies teachers.

They were:

1. The Cod by Albert C. Jensen (1972). This book deals with the history of the codfish, the varieties of codfish, its conservation, and its place in the fishing industry today. The book is well written, and has excellent diagrams and illustrations, but is too advanced for Grade Five and Six students. It is a good source of information for the teachers.

2. The Grand Banks by Nern Keating (1968). This book is an excellent source book for the elementary school student of the fisheries of Newfoundland. It is well written and has excellent colour pictures. The book deals with the importance of the Grand Banks to the international cod fishery from the time of Cabot up to the present.

3. Lovely She Goes by William Mitford (1969) is a novel about and a tribute to the trawler men of Grimsby. It is a document of the traditional British fishery. The book is well written, but is best suited for junior and senior high school students.

4. Fish Catching Methods of the World by Andre Von Brandt (1964). The title adequately describes the contents of the book. Its descriptions and illustrations make the book an excellent source book for the elementary teacher for planning a unit on the fisheries.

5. Sea Fishing For Pleasure and Profit by R.C. O'Farrell (1964). This book is the author's personal account of the best methods for catching the different species of fish. The book

is a good source book for any social studies teacher, but the reading level is too advanced for elementary school students.

6. The Geography of the Atlantic Provinces by Clifford R. Dunphy (1965). This book was used as the textbook for Grade Six geography studies up to 1977. The book has an excellent unit on the fisheries, and is suitable for student reference.

Upon examination of the non-print resources the writer found several sixteen millimeter films, some of which may be integrated into a unit on fishing. These were:

1. Down to the Sea is a twenty-nine minute colour production of the Fisheries Research Board of Canada. The film deals with the jobs done by the fisheries scientists and how they contribute to the industry. The ideas and concepts of the film are too advanced for elementary school, but the film is suitable for teacher planning reference.

2. Fisherman is a 1959, twenty-two minute, black and white production of the National Film Board. The film compares inshore fishing to deep sea fishing. The film has excellent subject content and excellent under water animation. It is quite suitable for use with Grade Five and Six students.

3. Tomorrow is Too Late is a twenty-nine minute colour production of the National Film Board. The film is an overview of the inshore, deep sea and inland fisheries of Canada. The film considers the future of the industry and places its emphasis on stock management and conservation. The film is quite suitable for use in elementary school.

4. About Fishermen is an eleven minute colour presentation of the Visual Education Centre of Toronto. The film looks at fishing styles all the world over. The film is narrated by a young person, and is suitable for use with elementary school students.

In addition to the above sixteen millimeter films, the investigation into existing non-print resources also revealed three filmstrips. They were:

1. Our Newfoundland Fisheries: An Introduction. This filmstrip deals with Newfoundland's traditional dependence on the fishery, with the types of boats used, with the types of fish caught, and with the future of the industry.
2. Our Newfoundland Fisheries: Spring and Summer. This filmstrip looks at the seal fishery of Northern Newfoundland, salmon fishing on the South Coast, and cod-trap fishing on the Northeast Coast.
3. Our Newfoundland Fisheries: Fall and Winter. This filmstrip deals with the fall squid fishery, the fall mackerel fishery and the fall and winter codfishery.

The above three filmstrips were produced by David Quinton in conjunction with the Instructional Media Centre of the Department of Education. The filmstrips are highly suitable for teaching at the Grade Five and Six level, and can be effectively used as resource material on the fisheries of Newfoundland. The three filmstrips are, however, general in nature. They do not deal in depth with any specific type of fishing and can be classified as overviews. The instructional



package "The Inshore Codfishery of Petites" does deal specifically and in depth with one method of fishing, and, as well, looks at the nature of the character of the fisherman and his way of life. This instructional package complements the existing filmstrip resource materials without duplication.

#### Rationale For Development Of Materials

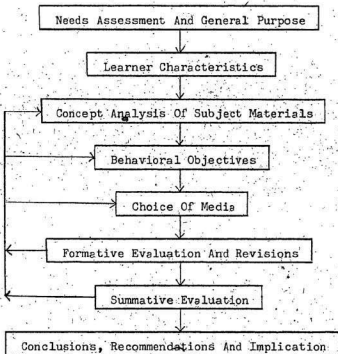
After establishing that there was a need for instructional materials on the fishery of Newfoundland, the developer began to pursue the first of two possible solutions of the problem. First, the developer engaged in a search of the existing materials. The search revealed that while there were available many materials suitable for instruction in the elementary schools, many of the materials were not closely related to the subject and were general in nature. The search also revealed that there were, in fact, no specific materials dealing with the cod-trawl fishery. Therefore, the rationale existed for the developer to pursue the second solution, which was to proceed with the development of material.

#### Outline Of The Development Process

To develop the instructional unit the developer devised a model which was to serve as a guide and outline for the development process. Level one of the development model was

written about in Chapter II of the report; the remaining steps in the model give an overview of the rest of the report.

### The Development Model



### CHAPTER III LEARNER ANALYSIS

The students for which the instructional unit was developed are the Grade Five and Six students of Newfoundland elementary schools. These students possessed the following characteristics of age, achievement and attitude.

#### Age

The average chronological age for students entering Grade Five was approximately nine and a half years. Most students covered each grade in a period of one school year. Therefore, the average chronological age for students completing Grade Six was approximately eleven and a half years. The information regarding the chronological ages of Grade Five and Six students was obtained from the Division of Information, Statistics and Publications of the Department of Education in Newfoundland. The developer also attempted to obtain information regarding the maturity level of the students. The Department of Education did not have records of such information, so the developer checked with the individual elementary schools, which were later to be used in the evaluation of the instructional unit. The three schools involved had used such tests as the Peabody Test of Vocabulary, the Wisc Test and the Stanford-Binet Test to determine the mental maturity of their students. In each school the results of these tests revealed that the relationship

between the mental ages and the chronological ages of the students was normal. The developer did not draw any general conclusions for the rest of the province from these three samples, but, undoubtedly, they can be regarded as positive examples of the mental maturity of Grade Five and Grade Six learners.

#### Achievement

It was the opinion of the writer that the students of Grade Five and Six in the elementary schools in Newfoundland were rated as normal achievers. They were judged by their teachers to be suited for their particular grade levels, and their achievement level corresponded to the standard of achievement set by the schools.

Information obtained from the Division of Instruction of the Department of Education revealed, however, that in October of 1976 on the Canadian Test of Basic Skills, the achievement levels of Newfoundland students in Grade Six was below the national average. The Canadian norm for Grade Six students in October, 1976 was 62.0, while the Newfoundland norm for the same time was 57.2. The 1976 results were the only Grade Six results for the Canadian Tests of Basic Skills that are available for Newfoundland. The Canadian Test of Basic Skills has not been done with Grade Five students in Newfoundland.

While the achievement level of Grade Six students in

Newfoundland schools was below the national average for the Canadian Test of Basic Skills, the range was wide. Students ranged from low achievers to high achievers. The instructional unit for which this report was written has a wide range of applicability, and was designed to be suitable for learners with a wide range of achievement levels.

#### Attitudes

With regard to the attitudes of students in the elementary schools of Newfoundland, no statistical evidence was available to the writer, because no studies relating to that subject area have been done in Newfoundland. In lieu of statistical evidence several assumptions were made, based on the author's experience as a teacher.

The developer assumed that the effectiveness of the instructional unit as teaching material will be determined partly by the attitudes of the learners towards the social studies program of their school. The instructional unit will be more effective with students holding a positive attitude towards social studies than with students holding a negative attitude towards social studies.

The developer also assumed that the effectiveness of the instructional unit as teaching material will be affected by the attitudes of the students towards instruction by means of multi-media techniques, particularly slide-tape presentations.

The instructional unit will be more effective with students holding a positive attitude towards instruction through the slide-tape mediums.

CHAPTER IV  
CONCEPT AND TASK ANALYSIS

The first purpose of the concept and task analysis was to help the developer to organize the information which was to be included in the instructional package. The general purpose for the development of the instructional package was to produce instructional material related to the Newfoundland fisheries, and in the concept and task analysis it was necessary to specify more precisely the concepts essential to achieve that general purpose. Each concept was broken down into a series of sub-concepts or rules that encompassed all the vital elements of information included under the main topic. "The Inshore Codfishery of Petites" contains a total of twelve concepts which were sub-divided into thirty-six rules. Secondly, the concept and task analysis included a breakdown of the developer's assumptions regarding the entry behavior of the learners. The developer assumed that the learners who will be exposed to the instructional package will not need any specific entry behavior. Thirdly, the concept and task analysis involved the breakdown of the tasks into behavioral objectives or learning outcomes. The package anticipated a total of five general learning outcomes and seventeen cognitive learning outcomes. Fourthly, the concept and task analysis served to eliminate any non-essential information from being included in the instructional project.

## Concept Analysis

Topic: "The Inshore Codfishery of Petites".

A. Concept of the community of Petites.

- Rule 1. Petites is totally dependent on the inshore fishery.
- Rule 2. The population of Petites is small.
- Rule 3. Most of the working men are directly involved with the fishery.
- Rule 4. Petites is located on the southwest coast of Newfoundland.

B. Concept of inshore fishing.

- Rule 5. There are two principal types of inshore fishing at Petites.
- Rule 6. Inshore fishing is different from deep-sea fishing.

C. Concept of preparation for a day codfishing.

- Rule 7. The fishing equipment must be made ready.
- Rule 8. The fisherman wears rubber work clothes.
- Rule 9. The principal means of catching codfish at Petites is by trawl.



Rule 10. Three types of bait are used to catch cod.

Rule 11. 'Baiting up' involves preparing the trawl for fishing.

D. Concept of locating fishing spots.

Rule 12. Fishing spots are located by landmarks.

Rule 13. Fishing spots are located with the compass.

E. Concept of setting trawl.

Rule 14. The trawl markers and moorings are set out.

Rule 15. Trawl is set out with the boat in motion.

Rule 16. A second marker and mooring are used on the second end of the trawl.

F. Concept of hauling the trawl.

Rule 17. The first marker and mooring are pulled in.

Rule 18. The trawl is coiled carefully into the tubs.

Rule 19. The fish are taken into the boat.

Rule 20. The second marker and mooring are taken back.

G. Concept of preparing fish for sale.

Rule 21. The fish must be cut and cleaned.

Rule 22. Seagulls clean the ocean of wastes.

H. Concept of selling the fish.

Rule 23. The fish are sold at the collection depot.

Rule 24. The fisherman gets a receipt indicating his catch.

Rule 25. The boat must be cleaned every day.

I. Concept of codfishing season.

Rule 26. The best fishing months are October, November and December.

Rule 27. The worst fishing months are July and August.

J. Concept of a pressing problem for fisherman.

Rule 28. The fish stocks are being reduced.

Rule 29. The 12 mile limit was inadequate.

Rule 30. A 200 mile limit was required.

K. Concept of the hardships of fishing.

Rule 31. Fog is a threat to the fisherman.

Rule 32. The groaner and the foghorn are important to the fisherman.

Rule 33. Winter is a difficult time for the fisherman.

Rule 34. Storms often prove disastrous for the fisherman.

L. Concept of a fisherman's life.

Rule 35. A fisherman's life is difficult.

Rule 36. Fishermen are hardy, happy men.

### Assumptions And Entry Behavior

The developer assumed that Grade Five and Six students will not need any special entry behavioral characteristics before they are exposed to the instructional unit. If the students who are exposed to the unit already possess some general knowledge of the fisheries of Newfoundland, then the instructional unit will serve as an enrichment and will expand their knowledge.

### Task Analysis

The task analysis was developed in terms of behavioral objectives. The behavioral objectives for the instructional unit were stated on two levels. The first level stated five general behavioral objectives that were not meant to be tested. After exposure to the instructional unit each learner should be able to demonstrate understanding of the following concepts:

1. The concept that life in many outport communities in Newfoundland revolves around the fishing industry.
2. The concept that for inshore fishing the trawl method of catching cod is widely used in some coastal parts of the province, especially on the southwest coast.
3. The concept that the fisherman's work day involves a wide range of activities.
4. The concept that the fishing industry of Newfoundland faces many problems.

5. The concept that a fisherman is a man who works face to face with natural elements.

Ensuing out of these five general objectives are seventeen more specific behavioral objectives, all of which may be tested. After exposure to the instructional unit each learner should be able to identify from several alternatives each of the following:

1. The location of the community of Petites.
2. The two types of inshore fishing at Petites.
3. The difference between inshore fishing and offshore fishing.
4. The physical characteristics of the trawl used by the fishermen of Petites.
5. The function of various pieces of trawl fishing equipment used by the fishermen of Petites.
6. The types of fish used as bait fish by the cod fishermen of Petites.
7. The two methods of locating fishing spots used by the fishermen of Petites.
8. The techniques the fishermen of Petites use to set the trawl.
9. The method of marketing fish at Petites.
10. The best season for catching codfish at Petites.
11. The factor that most encourages the fishermen of Petites.
12. The trend that Newfoundland codfish landings have taken from 1960 to 1975.
13. The major step in the plan to improve the Canadian fishing industry.

14. The value of sea gulls to fishermen.
15. The function of groaners and foghorns in fishing.
16. The function of weather forecasts to the fishermen.
17. The characteristics of the fisherman's way of life.

CHAPTER V  
RATIONALE FOR CHOICE OF MEDIA

The instructional package, "The Inshore Codfishery of Petites", is a multi-media package developed for use with Grade Five and Six students in the program of social studies. Before deciding to adopt the multi-media technique for the development of this resource package, the author obtained supportative evidence that a multi-media resource package would provide a beneficial method of instruction for elementary school students on the subject of the inshore codfishery of Newfoundland. A study of the existing relevant literature was made and consideration was given to the cost of producing the package.

Review Of The Literature

Over the last two decades numerous studies have been conducted on the use of media in instruction. The developer examined many of these studies and found that the conclusions derived from a considerable number of them supported the choice of media used in the instructional package.

As a result of an exploratory study on audio-visual media at Stanford University in California, Dozier (1974) concluded that media is of considerable value in teaching-learning situations to assist in reaching a learner's potential.

Gropper (1963), as a result of a behavioral analysis of the role of visuals in instruction, contended that we can identify two general functions of visuals. They serve a cuing/reinforcing function or an example function. Visuals can be used as examples along some generalized dimension. Students can acquire a generalized response, for example, understanding a concept, by being exposed to a series of visual examples which bear a structural or functional relation to one another and also bear a relation to the concept they illustrate.

Sparkes and Unbehaun (1971) also made some positive points in support of the use of instructional media. In a study done at Wisconsin State University to compare achievement of students using an audio-tutorial program with students using a conventional biology course test results indicated that students in the experimental group (audio-tutorial) did significantly better (.05 confidence level) than students in the control (lecture-discussion) group.

Wendt and Butts (1960) tested a series of fifty-four films in the Grade Nine classes in seven schools. In each school each teacher taught both an experimental and a control group. The experimental groups saw the films while the control groups did not. This study revealed that it took the control group one year to cover the same material that the experimental group covered in one semester. A

criterion test given in the subject at the end of the instruction, however, showed no significant difference between the control and the experimental groups.

Deutsch (1972) conducted a study using a class of "general" Grade Nine English students who met with little success in the conventional classroom setting, and placed them into a media class. In this class the students were given instruction in various media techniques and in the operation of media equipment. In the conventional classroom setting these students encountered difficulty in grasping abstractions. This difficulty was further added to by their inability to express themselves adequately either verbally or in written form. In the media class emphasis was placed on the ability of the students to express their thoughts and ideas according to their capabilities. The students were told to select a topic on love, prejudice or violence and to illustrate with pictures, music and poetry, their feelings towards this topic. The results showed that these students not only displayed a grasp of abstractions, but far surpassed what was expected of them. In fact, these students not only used poetry, music and photography which had been produced by professionals, but in many instances the students created their own.

In his doctoral dissertation on the role of sixteen millimeter motion pictures and projected still pictures in science unit vocabulary learnings at Grade Five, Six and Seven, Romano (1955) drew several conclusions. He concluded that: (1) all



experimental groups using 16mm picture films and still pictures evidenced larger gains in vocabulary, over the control group in all units of study; (2) all teachers pointed out the intrinsic value of the use of audio-visual material in creating more effective teaching-learning situations; and (3) the boys and girls participating in the study pointed out that an instructional program using many audio-visual materials enhanced the learning situation.

In a selective review of research studies showing media effectiveness, Molstad (1974) pointed out that twenty years of decision-oriented media research have produced significant evidence to justify the following claims when instructional technology is carefully selected and used: (1) significantly greater learning often results when media is integrated into the traditional instruction program; (2) equal amounts of learning are often accomplished in significantly less time using instructional technology; (3) multi-media instructional programs based upon a 'systems approach' frequently facilitate student learning more effectively than traditional instruction; and (4) multi-media and/or audiotutorial instructional programs are usually preferred by students when compared with traditional instruction.

The majority of the literature examined supported the use of media in instruction. More specifically, the majority of the literature surveyed supported the use of visuals and audio-tapes in instruction. Based partly on the literature examined,

then, the developer's choice of media for the instructional package was the thirty-five millimeter colour slide and the cassette audio-tape.

#### Cost Considerations

The second and third reasons why the developer's choice of media was the thirty-five millimeter slide and the audio-tape were the cost and convenience of that media. The production cost of eighty colour slides and a cassette audio-tape was economical, as compared to, for example, a sixteen millimeter movie production. The production of slides and tapes is much more convenient than, say, the production of super eight movies. Thirty-five millimeter slides and cassette audio-tapes require only the minimum of production equipment, most of which is not difficult to operate. Also, corrections or errors and production changes are not difficult and are not costly to make when using this type of media.

#### Teacher Preference

When the need for the production of instructional materials on the fisheries of Newfoundland was established, the developer also did an informal survey amongst the teachers to determine what type of audio-visual medium they preferred. Most of the teachers who were consulted rated sixteen millimeter as their

first choice and thirty-five millimeter slides (or filmstrips) as their second choice. All agreed that when costs were considered, productions consisting of slides with cassette audio-tapes were more economically feasible than sixteen millimeter productions.

#### Materials Included In The Unit

A total of three types of media materials are used in the instructional package. As was stated earlier in this chapter, two types of non-print materials - the thirty-five millimeter colour slide and the cassette audio-tape - are used. One piece of print material - the teacher's manual - is used.

The media package is designed to enable teachers and students to use the materials with the least amount of difficulty.

The slides provide visual representations of the codfishing industry as it is practiced at Petites, a South-west Coast community, typical of most coastal communities in Newfoundland. The slides deal with the community, the equipment the fishermen use, how they use the equipment, the kinds of boats that are used, the kinds of fish that are caught, what is done with the fish, the routine activity of a day's fishing, and the nature of the fisherman and the kind of life he lives. The various concepts and details represented

by the slides were described more specifically in Chapter IV under Tasks and Sub-tasks.

The cassette tape is nineteen minutes in length. It is equipped with both audible and inaudible signals for use with either manual or automatic slide projectors and cassette tape recorders. Information on the audio-tape corresponds to the concepts and details represented by the slides.

The manual was designed to help teachers integrate the instructional package into their social studies program unit on fishing in Newfoundland. Contents of the manual include: an introduction to the package, instrumental content, intended general learning outcomes, suggested activities for use with the students, background information for teachers, and the script accompanying the slides.

CHAPTER VI  
DEVELOPMENT PROCEDURES AND FORMATIVE EVALUATION

The initial production of the instructional package was completed in the spring of 1976. After the initial package was produced, a one month formative evaluation was conducted through consultation with two content specialists, two learning specialists, two media specialists and a group of students.

Evaluation By Content Specialists

The content specialists were a veteran fisherman from Petites and another from Rose Blanche. Both fishermen are southwest coast fishermen who fish in the style described in the instructional package. The role of the content specialists was to verify the accuracy of the information contained in the package. Because both content specialists were consulted regarding the information in the script before the script was recorded on the audio-tape, very few changes were required.

The initial audio-tape stated that deep-sea fishing boats carried crews numbering from ten to thirty men. The content specialists suggested that in Newfoundland, the crews of deep-sea fishing boats numbered, instead, from five to twenty men. They recommended that this detail be changed.

The developer agreed that this inaccuracy should be corrected, even though this meant a retaping of the audio-tape.

#### Evaluation By Learning Specialists

A Grade Six teacher at St. James Elementary in Port Aux Basques, and a Grade Five teacher at Grand Falls Academy (Elementary Division) in Grand Falls, acted as the learning specialists. Each teacher previewed the instructional package to determine whether the materials contained in the package were suitable for students at the Grade Five and Grade Six levels. Both learning specialists highly approved of the package and judged the materials to be well suited for use with elementary school students.

One teacher suggested that three sound effects - the sound of the seagulls, the sound of the groaner and the sound of the foghorn - be dubbed into the audio-tape at the appropriate places. However, after several re-runs of the presentation and after considerable discussion, that teacher and the producer agreed that these sound effects, if included, might alter the atmosphere created by the narration and the background music.

The learning specialists found no changes that were necessary to be made in the instructional package.

### Evaluation By Media Specialists

The media specialists were two instructors and faculty members of the Division of Learning Resources at Memorial University. The media specialists previewed the package to examine the design aspects and the technical quality of the non-print materials in the package. After examination of the materials, a discussion was held between the media specialists and the producer. Several points of concern were brought up and several recommendations were made by the media specialists.

The media specialists suggested that several of the visuals - in particular, those visuals containing maps and diagrams - were of sub-standard quality. It was recommended that these visuals be reproduced. The media specialists also suggested that the background music on the audio-tape was too loud and distracting and should be retaped at a lower audio level.

These recommendations were immediately acted upon by the producer, by removing the unsuitable slides and replacing them with slides of a higher quality. Since it was previously decided to re-record the script the background music had to be re-recorded as well. In the second recording the producer corrected the errors reported by the media specialists and attempted to acquire an acceptable balance between the narration and the background music.

## Evaluation By The Learners

The formative evaluation was completed by using the package with two groups of learners. All of the school children of the community of Petites who were in Grades Four through to Eight - a total of nineteen students - acted as the first group of learners. The second group of learners was a Grade Six class from Grand Falls Academy (Elementary Division). None of these students was to be used later in the summative evaluation. The purpose of using the package with the groups of learners was to find out what the learners' reaction to the package would be. After the package was viewed, the producer held a discussion with the students. The discussion centered around questions regarding the content and technical aspects of the production, as well as the student's attitude towards the production. No formal instruments were used to measure the learner's cognition and attitudes, because it was planned to use formal evaluation methods in the summative evaluation. The developer's conclusions that the students learned what they were expected to learn was based entirely on the students' reactions. In the discussions the students were encouraged to be open and honest; almost all of them agreed that the package was interesting, enjoyable and easy to understand.

Following the evaluation by the learners, no changes were considered necessary by the developer.



CHAPTER VII  
SUMMATIVE EVALUATION

As a result of the formative evaluation the developer concluded that the instructional package was ready to be subjected to the summative evaluation. In brief, the summative evaluation consisted of the preparation of measurement instruments, the selection of subjects, the preparation for the administration of the instructional unit, the administration of the pretest, the presentation of the materials, the administration of the posttest and the attitude questionnaires, and the analysis of the results.

Procedure

Preparation of Instruments

Instructions for Students. The first part of the preparation of the instruments involved the writing of specific instructions which each teacher read to the students before the administration of the instructional unit (see Appendix A). These instructions were the only comments required to be made by the teachers before administering the unit. These instructions ensured that the presentation of the unit began the same with each of the groups. They also ruled out the possibility that comments from the teachers affected the responses of the students on the measurement instruments.

Pretest-Posttest. The pretest-posttest consisted of fifteen multiple choice questions (see Appendix B). Each question consisted of a statement or question with a choice of four possible responses. Only one response out of the possible four was correct. The pretest and the posttest were identical in content and format.

The pretest-posttest was developed to correspond with the behavioral objectives expected of the students after exposure to the instructional unit. No special instrumentation nor statistical procedures were followed to determine the validity of the pretest-posttest. However, the positive correspondence between the test items and the various behavioral objectives showed that the tests measure what they are supposed to measure. The pretest-posttest was designed to measure the gain in cognitive knowledge after exposure to the instructional unit. Table 1 shows the matching of the behavioral objectives to the pretest-posttest items.

Student Attitude Questionnaire. The student attitude questionnaire consisted of eight questions and was designed to determine the students' reaction towards the technical aspects of the instructional unit (see Appendix D). The students indicated their reactions by selecting one of four possible reaction choices, which ranged from very favourable to very unfavourable.

Table 1  
The Matching of  
Behavioral Objectives to Pretest-Posttest Items

Behavioral Objectives	Test Items
1	2, 3, 11, 13
2	3, 12
3	12
4	4, 7
5	4, 5, 7
6	4
7	14
8	5
9	8
10	14
11	7
12	16
13	11, 13
14	11
15	11
16	6
17	9, 10, 15
18	9, 10, 15
19	11, 16
20	11, 16
21	16
22	11, 16

Teacher Attitude Questionnaires. The teacher attitude questionnaires were different from the student attitude questionnaires in both content and format (see Appendix E). The teacher attitude questionnaires consisted of eight open ended questions, which allowed teachers to express their reactions as they felt. Three of the questions asked teachers what they thought of the technical design of the package, while five of the questions asked teachers what they thought of the package as a teaching device.

### Selection of Subjects

The summative evaluation of the instructional unit was conducted with a random sampling of Grade Six students from classes at three different elementary schools located in various parts of Newfoundland. The random sample consisted of thirty students from each of the three schools, for a total of ninety students. A different teacher was selected to use the package in each of the schools. The three schools involved were located at Port Aux Basques, Grand Falls, and at Long Pond, Conception Bay. The schools were chosen in different areas of the province because a broader sample of students being exposed to the instructional unit would provide a more valid indication of the effectiveness of the unit as a teaching aid.

After the schools and the teachers were selected to field test the instructional unit, the developer, along with each teacher, randomly selected a sampling from the Grade Six population of each school to act as the field test group. An alphabetical list of all the Grade Six students in each school was acquired. By using a table of random numbers, based on the number of possible choices from each school population, three groups of thirty students were selected.

### Preparation for the Administration of the Instructional Unit

The three teachers involved with the instructional unit were provided with the package about one week prior to the introduction of the unit to the students. The purpose of this

was to allow the teachers to become familiar with the package, the pretest-posttest and the attitude questionnaires so that if any questions should arise about any part of the unit, the developer would have sufficient time to clarify the problem before the unit was introduced to the students. No inservice instruction was given to the teachers before using the unit. The reason for this was to determine if the unit would be used without help from the developer. No teacher reported any problems.

#### Administration of the Pretest

The pretest was administered to the students before they were exposed to the instructional unit. Each teacher introduced the unit with the specific written instructions provided by the developer (see Appendix A). Upon completion of the pretest by the students, the test was collected and the results were tabulated by the teachers. An answer key was provided by the developer for the scoring of the pretest and the posttest (see Appendix C). The purpose of the pretest was to determine the amount of knowledge the students already possessed on the inshore codfishery as it is carried on in places such as Petites.

#### Administration of the Material

After the pretest was collected the slide-tape presentation was administered by the teachers (see Appendix F). As was stated earlier in this chapter, the developer of the instructional unit

refrained from active participation in the administration of the material during the evaluation in order to determine whether teachers and students could use the unit effectively without help from the developer.

#### Administration of the Posttest and Attitude Questionnaires

After the information contained in the package was presented to the students, the posttest was administered. Upon completion, the posttest was collected, and the student attitude questionnaire was administered. Upon completion, the student attitude questionnaires were collected, and the results of both tests were tabulated. The purpose of the posttest was to determine how much knowledge the students gained from exposure to the instructional package. As was stated earlier, the purpose of the student attitude questionnaires was to determine the students' reaction to the technical aspects of the instructional material.

After the formal evaluation with the students was completed, the teachers who were involved with the summative evaluation, and any other teachers who were exposed to the unit, also completed attitude questionnaires. As was stated earlier, the purpose of the teacher attitude questionnaires was to determine the teachers' reaction to the technical design and the teaching suitability of the material.

### Analysis Of Results

The final part of the summative evaluation involved the analysis of the results obtained by the students on the measurement instruments. To analyze the results the developer used three indicators of success: the comparison of the student scores obtained on the pretest with those obtained on the posttest, the comparison of the mean on the pretest with the mean on the posttest, and an analysis of the individual test items on the pretest-posttest. In addition to these three indicators of success, the developer analyzed both the students' and the teachers' reactions to the instructional material, as indicated on the attitude questionnaires.

#### Comparison of Pretest and Posttest Scores

The comparison of the individual student scores on the pretest and on the posttest indicated that one hundred percent of the students scored higher on the posttest than on the pretest. This comparison is indicated in Table 2.

Table 2  
 Comparison of  
 Student Scores on the Pretest-Posttest

Student Number	Pretest Score	Posttest Score	Gain	
			n	%
1	5	11	6	120
2	5	12	7	140
3	6	13	7	117
4	6	13	7	117
5	4	10	6	150
6	5	11	6	120
7	4	12	8	200
8	3	14	11	370
9	5	8	3	60
10	5	14	9	180
11	7	10	3	43
12	3	12	9	300
13	6	14	8	133
14	6	12	6	100
15	6	14	8	133
16	7	11	4	57
17	4	15	11	275
18	3	14	11	370
19	3	12	9	300
20	4	13	9	225
21	6	10	4	67
22	5	10	5	100
23	4	15	11	275
24	5	11	6	120
25	3	12	9	300
26	3	10	7	233
27	4	11	7	175
28	8	15	7	88
29	4	11	7	175
30	4	12	8	200
31	6	12	6	100
32	4	12	8	200
33	4	15	11	275
34	4	11	7	175
35	4	12	8	200
36	2	10	8	400
37	3	11	8	267
38	4	11	7	175
39	4	12	8	200
40	5	13	8	160
41	7	12	5	73
42	5	11	6	120
43	5	10	5	100



Student Number	Pretest Score	Posttest Score	Gain	
			n	%
44	3	13	10	333
45	5	11	6	120
46	4	12	8	200
47	4	11	7	175
48	3	15	12	400
49	4	10	6	150
50	4	14	10	250
51	5	15	10	200
52	2	10	8	400
53	4	15	11	275
54	4	14	7	175
55	7	13	7	86
56	7	14	6	100
57	3	9	6	200
58	6	11	5	83
59	6	12	6	100
60	4	13	9	225
61	5	8	8	160
62	4	13	9	225
63	3	13	10	333
64	3	14	11	367
65	6	15	9	150
66	1	14	13	1300
67	7	13	6	86
68	3	13	10	333
69	6	8	2	33
70	4	12	8	200
71	3	14	11	367
72	6	12	6	100
73	2	6	4	200
74	5	13	8	160
75	5	14	9	180
76	5	14	9	180
77	2	9	7	350
78	3	10	7	233
79	3	11	8	267
80	2	7	5	250
81	4	10	6	150
82	4	12	8	200
83	8	12	4	50
84	3	15	12	400
85	4	11	7	175
86	7	13	6	86
87	3	10	7	233
88	4	8	4	100
89	5	13	8	160
90	7	12	5	73

#### Comparison of Pretest-Posttest Means

After the results were tabulated, the difference between the students' scores on the posttest were observed and analyzed. The t-test was used to determine whether the difference between the mean on the pretest and the mean on the posttest was statistically significant. The t-test for dependent means was used because the test groups were not independent. The difference between the mean score on the pretest and the mean score on the posttest was 7.5. As shown in Table 3 this difference was statistically significant at the .001 level of significance. Table 3 indicates the means on both the pretest and the posttest, the t-score and the level of significance.

Table 3  
Comparison of Pretest-Posttest Means

Pretest Mean	Posttest Mean	T-Score	Level of Significance
4.5	12.0	32.2	.001

#### Analysis of Individual Test Items

A detailed analysis was done on the individual items on the pretest-posttest. An analysis was done on each item, considering the number of students who scored correctly, and the number of students who scored incorrectly on the pretest and on the posttest. From this a success ratio for each item was determined. Prior to this statistical analysis the developer arbitrarily set .75 as an

acceptable success ratio. Table 4 indicates that true success can be claimed on eleven out of the fifteen items on the test because the success ratio for each of these items was .75 or above. Items 8, 9, 11 and 12 are slightly below the expected

Table 4  
Analysis of Test Items

Items	(1)	(2)	(3)	(4)	Success Ratio (3) ÷ (3 + 4)
	R-Pretest R-Posttest	R-Pretest W-Posttest	W-Pretest R-Posttest	W-Pretest W-Posttest	
1	34	3	42	11	.79
2	37	3	40	10	.80
3	30	5	41	14	.75
4	17	3	53	17	.76
5	19	0	60	11	.84
6	21	4	50	15	.77
7	31	4	45	10	.81
8	24	2	45	19	.70
9	19	5	48	21	.70
10	21	2	51	16	.79
11	14	5	53	18	.70
12	12	2	52	24	.69
13	34	1	40	15	.73
14	20	1	50	19	.73
15	30	2	48	10	.82

success ratio. This may be due to any one or all of the following factors. These test items may have been more difficult than the rest of the items. The behavioral objectives to which these test items are matched may not have been as well covered as the others in the instructional unit. These items may have been ambiguous or poorly written. Also, the concepts involved may have been

uninteresting or too complicated for the students. Whatever the factors, the success ratios attained on these items are marginal, and do not suggest any major quarrel with the general success of the instructional unit.

#### Results of Student Attitude Questionnaire

The results of the student attitude questionnaires were also tabulated. Table 5 was used to indicate the student

Table 5  
Results of Student Attitude Questionnaires.

QUESTIONS	RESPONSES			
	(1)	(2)	(3)	(4)
1. Did you like the pictures?		2	39	49
2. Did you like the music?		8	37	45
3. Did you think the show was too long?		4	64	22
4. Did you find the words on the tape hard to understand?	1	21	31	37
5. Did you find the ideas in the slides hard to understand?	1	18	19	52
6. Did you find the diagrams in the slides hard to understand?	1	17	20	52
7. Did you find the slides and the tape entertaining?	2	4	37	47
8. Would you like to learn more subjects through slide-tape shows?	1	9	24	56

Key: Responses (1) very unfavourable, Response (2) unfavourable, Response (3) favourable, Response (4) very favourable.

responses, which showed that the students thought favourably about the technical aspects of the instructional unit.

#### Results of Teacher Attitude Questionnaire

The responses to the teacher attitude questionnaire did not lend themselves to table or chart tabulation, because the questions were open ended and the teacher responses consisted of various teacher opinions. However, the responses, in most cases were favourable.

#### Conclusions

The developer concluded from the results of the summative evaluation that the instructional unit entitled "The Inshore Codfishery of Petites" was generally successful. The statistical analysis showed that the increase in student knowledge, as indicated by the pretest-posttest scores, was statistically significant. The analysis of the individual test items showed that achievement of the expected behavioral objectives was adequate. As well, both student and teacher attitudes towards instructional unit were favourable. The developer contended therefore, that the instructional unit was suitable to be made available for use in social studies at the elementary level in Newfoundland schools.

## CHAPTER VIII

### CONCLUSIONS, RECOMMENDATIONS, IMPLEMENTATION

After the completion of the production and the evaluation of the instructional unit, the developer was able to draw several conclusions, and make several recommendations regarding the production of other instructional material on the fisheries of Newfoundland, and the implementations for "The Inshore Codfishery of Petites".

#### Conclusions

The need for such an instructional unit as "The Inshore Codfishery of Petites" was established; a survey of the existing related materials showed that very little instructional material on the codfishing industry of Newfoundland was available to Newfoundland schools. The characteristics of the intended learners were analyzed, and the expected learning outcomes were determined. The type of media for the instructional unit was selected, and a rationale for that choice was presented. The unit was developed and evaluated informally by content specialists, learning specialists and media specialists. Finally, the unit was formally evaluated; the results, under statistical analysis, proved to be favourable.

The instructional unit was intended for use at the Grade Five and Grade Six levels in the elementary schools in Newfoundland.

The unit was formally evaluated with Grade Six students only, but because of the similarity between the learner characteristics of Grade Five students and Grade Six students, the unit can be used as effectively with one grade as it can the other. Indeed, the unit may be suitable for use with students in Grades Four through to Eight.

In conclusion, then, the instructional unit did what it was intended to do; the developer concluded that "The Inshore Codfishery of Petites" was a successful piece of teaching material, and that the project has been successfully completed.

#### Recommendations

It is the hope of the developer that more projects like "The Inshore Codfishery of Petites" be pursued by others. Many types of fishing are carried on around the coasts of Newfoundland, and many of them provide excellent subject material for the development of various kinds of instructional units. Four such topics might be inshore salmon fishing, inshore lobster fishing, inshore herring fishing or inshore codfishing, using methods other than trawl. It is the recommendation of the producer that other ideas and techniques of fishing be explored and that the production of other instructional units on the fisheries of Newfoundland be continued.

## Implementation

Since the package was developed it has been used regularly by elementary schools under the Port Aux Basques Integrated School Board. The unit was initially evaluated at St. James Elementary School at Port Aux Basques. The teachers who were involved in the evaluation recommended to the school's principal that the instructional unit be used as a supplement to their social studies program on the Newfoundland fisheries. That principal and several board supervisors viewed the instructional unit, and then recommended that the unit be used, where appropriate, by all elementary school social studies teachers in that educational district. The Port Aux Basques School Board has since expressed interest in obtaining their own copy of the instructional unit.

It is the desire of the developer to have the instructional unit made accessible to all schools throughout the province. The developer plans to make the unit available to distribution agencies such as the Resources Clearing House of Memorial University, and the Instructional Media Center of the Department of Education. Consideration may be given, as well, to commercial distribution. Teachers must first be made aware of the existence of the unit, and when this becomes so, it is the hope of the developer that "The Inshore Codfishery of Petites" be used for maximum benefit and with maximum success.



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## APPENDIX

APPENDIX A  
INSTRUCTIONS FOR STUDENTS

## Instructions For Students

This information is to be read to the students before exposing them to the instructional package.

Students, the slide-tape show you are about to see deals with the codfishery of Newfoundland. Maybe some of you know some things about the codfishery already. Before we see the slide-tape show I am going to give you a multiple-choice objective test. The purpose of this test is to determine the amount of knowledge you already have regarding the codfishery. This will help me in determining how much you learn from the slide-tape show.

The score you obtain on this test will in no way be held against you. However, I want you to answer all questions to the best of your ability.

APPENDIX B  
PRETEST-POSTTEST

## Pretest-Posttest

## The Inshore Codfishery Of Petites

SECTION A. Write the letter of the correct response in the blanks provided to the right of each item.

Number 1 is done as an example for you.

1. The town of Petites is totally dependent on: 1. d
  - (a) iron ore mining
  - (b) deep-sea salmon fishing
  - (c) deep-sea codfishing
  - (d) inshore cod and salmon fishing
  
2. Petites is located on the: 2.     
  - (a) north coast of Newfoundland
  - (b) west coast of Newfoundland
  - (c) south coast of Newfoundland
  - (d) east coast of Newfoundland
  
3. The two principal types of inshore fishing at Petites are: 3.     
  - (a) lobster and salmon
  - (b) lobster and herring
  - (c) cod and salmon
  - (d) salmon and herring
  
4. Which of the following is not used as a bait fish by the fishermen of Petites? 4.     
  - (a) mackerel
  - (b) halibut
  - (c) squid
  - (d) herring



5. Markers used to mark the location of trawl by the fishermen of Petites are called: 5. \_\_\_
- (a) buoelines
  - (b) high-flyers
  - (c) anchors
  - (d) seds
6. Which phrase could not be used to accurately describe the trawl used by the fishermen of Petites? 6. \_\_\_
- (a) bag or cone shaped nets
  - (b) strong, sharp hooks
  - (c) eight of nine fine sections per tub of gear
  - (d) twenty or twenty-five seds per line section
7. Indian Cove open by the west end of Black Rock and the school over Billard's Point. This is an example of which method of locating fishing spots used by Petites fishermen? 7. \_\_\_
- (a) the sounder method
  - (b) the landmark method
  - (c) the marine compass method
8. At Petites the best months for codfishing are: 8. \_\_\_
- (a) July, August & September
  - (b) January & April
  - (c) February & September
  - (d) October, November & December
9. The graph of Newfoundland Codfish Landings from 1955 to 1975 show that codfish landings are: 9. \_\_\_
- (a) increasing every year
  - (b) remaining unchanged from year to year
  - (c) decreasing since 1960
  - (d) increasing since 1970

10. At the present time, the most encouraging thing for the codfishing industry at Petites is: 10. \_\_\_
- (a) good fish prices
  - (b) large fish catches
  - (c) continuously good weather
11. Which of these statements is false? 11. \_\_\_
- (a) The collection boat at Petites is called the 'smack'.
  - (b) Fishermen place no value on weather forecasts.
  - (c) Sea gulls are nature's ocean cleaners.
  - (d) Tragedy is sometimes a sad part of the fishing industry.
12. Which of these statements is false? 12. \_\_\_
- (a) Inshore fishing takes the fisherman only 4 or 5 kilometers from shore.
  - (b) Deep-sea fishing allows the fisherman to return home every night.
  - (c) Dragnets and long-liners are used for deep-sea fishing.
  - (d) Inshore fishing boats have small crews.
13. After the fishermen of Petites clean the fish they are: 13. \_\_\_
- (a) sold at the collection depot at Petites
  - (b) sold to the people of the community
  - (c) salted and dried
14. Trawl fishermen must first coil the trawl neatly into a trawl tub, and second, must keep the boat in motion when setting out the trawl in order to: 14. \_\_\_
- (a) attract the codfish
  - (b) keep the bait on the hooks
  - (c) prevent the trawl from tangling
  - (d) prevent sea gulls from stealing the bait.

15. Which of the following is not part of a plan to improve the Canadian Fishing Industry? 15. \_\_\_\_\_
- (a) The 200 Mile Fishing Limit
  - (b) Reduced foreign fish catches in Canadian waters
  - (c) The 12 Mile Fishing Limit
16. Which of the following statements is false? 16. \_\_\_\_\_
- (a) Foghorns help keep fishermen safe in the fog.
  - (b) Most small boat fishermen pull back their trawl by hand.
  - (c) Fishermen never share their ideas and experiences.
  - (d) Fishermen often co-operate to help each other.

APPENDIX C  
SCORE KEY FOR PRETEST-POSTTEST

## Score Key For Pretest-Posttest

Item 1.	-----	D (Done as an example)
Item 2.	-----	C
Item 3.	-----	C
Item 4.	-----	B
Item 5.	-----	B
Item 6.	-----	A
Item 7.	-----	B
Item 8.	-----	D
Item 9.	-----	C
Item 10.	-----	A
Item 11.	-----	B
Item 12.	-----	B
Item 13.	-----	A
Item 14.	-----	C
Item 15.	-----	C
Item 16.	-----	C

APPENDIX D  
STUDENT ATTITUDE QUESTIONNAIRE

*Handwritten marks: a squiggle to the right of the title, and a large 'C' at the bottom center.*

Student Questionnaire  
The Inshore Codfishery Of Petites

The following are a list of questions about the slides and the tape. Choose ONE answer to each question and draw a circle around it.

- |    |   |                     |                |                     |             |
|----|---|---------------------|----------------|---------------------|-------------|
| 1. | Did you like the pictures?                                  | Not at all          | Not very much  | Yes                 | Very much   |
| 2. | Did you like the music?                                     | Not at all          | Not very much  | Yes                 | Very Much   |
| 3. | Did you think the showing was too long?                     | Much too long       | Too long       | Just right          | Too short   |
| 4. | Did you find the words on the tape hard to understand?      | All of the words    | A few words    | Hardly any words    | None at all |
| 5. | Did you find the ideas in the slides hard to understand?    | All of the ideas    | A few ideas    | Hardly any ideas    | None at all |
| 6. | Did you find the diagrams in the slides hard to understand? | All of the diagrams | A few diagrams | Hardly any diagrams | None at all |

- |    |   |                |                  |       |                 |
|----|---|----------------|------------------|-------|-----------------|
| 7. | Did you find<br>the slides and<br>tapes entertaining?                             | Not at<br>all  | Not<br>much      | Yes   | Very<br>much    |
| 8. | Would you like<br>to learn about<br>more subjects<br>through slides<br>and tapes? | Never<br>again | Not too<br>often | Often | All the<br>time |



APPENDIX E  
TEACHER ATTITUDE QUESTIONNAIRE

Teacher Questionnaire  
The Inshore Codfishery Of Petites

Please be kind enough to answer these questions. Write as little or as much as you please.

1.(a) Do you think the visuals are appropriate? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(b) Are there some visuals you would change? \_\_\_\_\_

(c) If so, which ones? \_\_\_\_\_

2. Do you think the music is appropriate? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Do you think the presentation is too long or too short for  
Grade Five and Grade Six students? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Do you think the language is too difficult for Grades Five and  
Six? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Do you think the ideas and concepts are too difficult or too easy for Grades Five and Six? \_\_\_\_\_

6. Do you think the diagrams are too easy or difficult for Grade Five and Six? \_\_\_\_\_

7. Do you think the presentation is an effective teaching aid for Grade Five and Grade Six? \_\_\_\_\_

8. Would you recommend that this presentation could be used in Grade Five and Grade Six social studies instruction? \_\_\_\_\_

APPENDIX F  
SLIDE-TAPE PRESENTATION  
UNDER SEPARATE COVER

APPENDIX G  
TEACHER'S MANUAL  
TO ACCOMPANY  
"THE INSHORE CODFISHERY OF PETITES"

THE INSHORE CODFISHERY OF PETITES

BY

DANNY COURTNEY

TEACHER'S MANUAL

THE INSHORE CODFISHERY OF PETITES

BY

DANNY COURTNEY

TEACHER'S MANUAL

RESOURCES CLEARING HOUSE  
MEMORIAL UNIVERSITY OF NEWFOUNDLAND  
ST. JOHN'S  
1979

## TABLE OF CONTENTS

	PAGE
INTRODUCTION .....	1
INSTRUMENTAL CONTENT .....	2
INTENDED LEARNING OUTCOMES .....	3
BAGKGROUND FOR TEACHERS .....	4
SUGGESTED STUDENT ACTIVITIES .....	5
ACCOMPANYING SCRIPT FOR SLIDES .....	7



## INTRODUCTION

This instructional unit on the inshore codfishery of Newfoundland has been developed specifically as a supplement to the existing teaching material on the fisheries that is used in the Grade Five and Grade Six social studies programs in the elementary schools in Newfoundland. The instructional unit can be most effectively used after the students have completed some study on the Newfoundland fisheries in general. It can be used easily in a regular twenty-five or thirty minute teaching period. The teacher's manual suggests some activities which might follow the slide-tape presentation. The unit is not intended to be used in isolation.

"The Inshore Codfishery of Petites" has been designed with a two-fold purpose in mind: (1) to arouse student interest in the inshore codfishery as it is carried on in many of the province's small coastal communities; and (2) to arouse student interest in the fisherman as one of Newfoundland's folk heroes.

The instructional unit has been designed to be used with the least amount of difficulty.

## INSTRUMENTAL CONTENT

Fishing has always been one of the leading industries of the Province of Newfoundland, and for centuries, Newfoundlanders have been going to the sea for their livelihood. However, many young people grow up in Newfoundland today without knowing much about fishing and without knowing how some small coastal communities are totally dependent on the fishing industry.

## Slide-tape Presentation

The slide-tape presentation, entitled, "The Inshore Codfishery of Petites" introduces the students to a small, southwest coast community, and to a fisherman who has gone to sea since he was fourteen years old. The presentation distinguishes between inshore and deep-sea fishing, and then follows the fisherman through the routine of a day fishing. The type of fishing described is trawl or long-line fishing. The presentation shows how the fisherman prepares his equipment, how he sets it out, how he takes it back, and what he does with the fish. The presentation briefly examines some of the problems facing today's inshore fisherman, and attempts, in conclusion, to leave an impression of the fisherman as a folk hero.

The presentation consists of a series of eighty colour slides and a nineteen minute cassette audio-tape. The audio-tape includes the script narration and background music, and is equipped with audible and inaudible signals for use with manual or automatic slide projectors and cassette tape recorders.

#### Teacher's Manual

The teacher's manual is designed to help teachers use the instructional unit with maximum effectiveness and efficiency.

#### INTENDED LEARNING OUTCOMES

The instructional unit has been designed with two major general objectives in mind. These objectives are: (1) to help students acquire some knowledge, understanding and appreciation of the fishing industry, particularly of the codfishing industry, as it is practiced in some parts of the Province of Newfoundland; and (2) to involve students in activities which may help create an interest in the fishing industry in the areas in and around their own communities.

To achieve the first general objective the unit deals with codfishing in the small, southwest coast community of

Petites, as was described previously under instrumental content. To achieve the second general objective suggestions are made later under Suggested Student Activities.

#### BACKGROUND FOR TEACHERS

General information on the fisheries of Newfoundland is provided through the existing Grade Five geography text, Geography of Newfoundland by Summers and Summers (1972) and through the existing Grade Six geography text, Canada: This Land of Ours by Whitley, Fryer, Girt, King, Mclean, Thomas and Walsh (1976).

For teachers wishing to explore the topic of fishing in Newfoundland in more detail, the following magazines, books, films and TV programs are available.

Decks Awash. Publication of the Extension Service of Memorial University of Newfoundland.

The Southwester. Publication of Yarmouth, Nova Scotia.

Fisheries Update. Publication of the Department of Fisheries, Government of Newfoundland and Labrador.

The Grand Banks by Bern Keating. Rand McNally & Company, New York, 1968.

The Cod by Albert C. Jensen. Thomas Y. Crowell Company, New York, 1972.

Lovely She Goes by William Mitford. Michael Joseph Ltd., London, 1969.

Fish Catching Methods of the World by Andres Brant. Fishing News (Books) Ltd., n.d.

About Fishermen. Visual Educational Centre, (Producer), Toronto, 1972. (Film)

Down to the Sea. Fisheries Research Board of Canada, (Producer), n.d. (Film)

Fishermen. National Film Board of Canada, (Producer), 1959. (Film)

Tomorrow Is Too Late. National Film Board of Canada, (Producer), 1974. (Film)

Land & Sea. Weekly production of CBC Television, St. John's.

#### SUGGESTED STUDENT ACTIVITIES

The aim of the teacher's manual is not to dictate to the teacher how to use the instructional unit. Each teacher in the classroom is better aware of the needs of his/her students than the developer. Each teacher should plan to use the unit when and where it will be of the most benefit.

As an aid to the teacher in using this unit the developer offers the following list of suggested student activities:

- (1) Hold class discussions where students are encouraged to relate to the class experiences concerning fishing which they have encountered. The aim of the discussions should be to stimulate interest in the fishing industry and in the fisherman's way of life.

(2) Divide the class into groups. Assign each group a project to research information on a particular type of fishing in a particular part of the province.

(3) Divide the class into groups. Assign each group the responsibility of collecting materials for a scrap book relating to various kinds of fishing around the province.

(4) Instruct students to draw a map of Newfoundland marking on it what kinds of fish are caught at various times of the year in various parts of the province.

(5) Arrange field trips for students to visit a community where fishing is carried on. Arrange to visit a fisherman, to see his boat and his fishing equipment. If possible, provide students with audio-visual equipment, e.g. cameras, and tape recorders, to record the visit.

(6) Arrange field trips to visit museums displaying exhibits on fishing.

(7) Arrange for class visitations by people involved with the fisheries.

ACCOMPANYING SCRIPT FOR SLIDES  
"THE INSHORE CODFISHERY OF PETITES"

(Slides 1-5) Introduction music.

(6) Petites is a small, isolated, Newfoundland community.

It is one of the few communities that remains totally dependent on commercial inshore fishing. (7) The population of the community is approximately 100. There are approximately 25 able-bodied working men in the community, and all but 4 or 5 of them are directly involved with the fishery. (8) Petites is located on the Southwest Coast of Newfoundland, approximately halfway between Port Aux Basque and Burgeo.

(9) There are two principal types of inshore fishing at Petites - salmon fishing and cod fishing. Our purpose is to look at the inshore cod fishery. (10) By the term 'inshore fishing' we mean fishing that takes the fisherman only four or five kilometers from shore and allows him to return home at the end of each fishing day. (11) This is in contrast to 'deep-sea fishing' which takes the fisherman large distances off shore to areas such as the Burgeo Bank and the Grand Bank for one or two weeks at a time. (12) For deep-sea fishing large boats such as these druggers and long liners are used. The crews on these boats may number from 5 to 20 men, depending on the size of the boat. (13) For inshore fishing much smaller boats, such as those we see here at Petites harbour,

are used. The men fish alone or in pairs.

(14) The fisherman's day begins very early in the morning, often before sunrise. (15 & 16) Let's meet a fisherman from Petites and go with him to see just what is involved in a day fishing.

(17) The first steps in a day fishing are to get all the equipment ready and to get properly dressed. (18) The fisherman's clothes consists of rubber boots, rubber pants, rubber jacket and rubber sou'wester. The primary purposes of this rubber clothes are to keep the fisherman clean and dry.

(19) At Petites, like most other Southwest Coast communities, the principal means of catching codfish is by trawl, or gear, as it is commonly called by the fishermen.

(20) Trawl or gear is composed of a series of 100 meter line sections tied together to form a mainline. Hundreds of shorter, side lines called seds are fastened to the mainline. There are between 20 and 25 seds per 100 meter section of mainline. Eight or 9 line sections make up a 'tub of gear'. Strong, sharp hooks are fastened to the seds. To prepare the trawl for fishing a piece of bait is hooked to each hook.

(21) Several types of small fish are used for bait. Herring, squid and mackerel are the three most widely used. The fishermen catch the bait themselves when possible. Otherwise, they are bought from frozen stock at the fish plant. (22) Before it is put on the hooks bait must be cut into small



pieces. (23) Fishermen refer to the process of putting bait on the hooks as 'baiting up'. Taking used bait off the hooks is referred to as 'shacking up'. (24) When a piece of bait is put on each hook, the sed and the mainline are coiled neatly into a trawl tub. The coils must be made carefully to avoid tangles when the trawl is later being set out to catch fish.

(25) When the trawl is ready it is loaded into the boat together with the buoylines, anchors and high-flyers. As we are ready to set off we hope that the day fishing is successful. (26) The entrance to the harbour is calm and the winds are light today; this means that the day will be only half as difficult as is usual on a stormy day. (27) As we move away from the land towards the fishing ground we can barely see the red and white church and the houses in the background. We are 4 or 5 kilometers from shore. The wind and the sea can be very hostile out here.

(28) The fishermen use two basic methods to select their fishing spots. One method is called the 'landmark method'. This method involves lining up distinguishable points of land so that imaginary lines drawn through the lined up landmarks will intersect at the location of the fishing spot. An example might be 'the lighthouse over Black Rock and the church over the eastern end of Gull Island'. This method is used only on clear days. (29) The second method of

locating fishing spots involves the use of the marine compass. This method involves travelling a given time in a given direction from a selected starting point. For example, 22 minutes southeast of Gull Island might put a fisherman right on his favourite spot.

(30) Once the fishing spot is selected, the next step is to prepare for setting out the trawl. First, the trawl is tied to the anchor. (31) Next, the high-flyer, which serves as a marker for the trawl, is thrown out, followed by the buoyline, which is fastened to the high-flyer on one end and the anchor on the other end. (32) Next, comes the anchor, which sinks the trawl to the ocean floor and holds the trawl in place. Codfish normally live close to the ocean floor. (33 & 34) Next, the trawl is set out. The fisherman must be careful not to allow the trawl to become entangled. The boat is kept in motion during the setting process for that reason. (35) When the trawl is set another anchor holds the second end in place and a second high-flyer is used as a second marker.

(36) When the trawl setting process is completed, we go back to the land to wait for the trawl to fish. Sometimes it is left overnight; sometimes it is pulled back after 2 or 3 hours of fishing. (37) This diagram suggests what set trawl looks like when it is set out across the ocean floor. Note the high-flyers, buoylines, anchors, and the

trawl itself.

(38) When it is time to pull back the trawl we must first locate the trawl markers. We wonder — will today's catch be good, or will it be a disappointment? These are always the questions in fishing.

(39) The high-flyer is taken in and the buoylines and anchors are pulled back. (40) Next, the trawl is pulled back, hopefully with some fish. Larger boats use mechanical haulers, but most small boat fishermen pull back the trawl by hand. (41) Just as when he is baiting up, the fisherman must coil the trawl carefully into the tub to prevent tangles. (42 & 43) The fish are shaken off the hooks into the boat. Fishermen call this 'slatting off the fish'.

(44) This hand over hand process of pulling back trawl is extremely strenuous and requires a strong back, strong arms and strong hands. Combine the difficulties of the task with the hardships created by the winds, tides and storms, and we will have little trouble understanding why fishermen are such a strong, courageous breed of men. (45) When the trawl and second moorings are pulled back, it is time to head back home.

(46) Next, the fish must be cut and the stomachs removed. Sometimes this is done during the drive back to port; sometimes it is done in the harbour. (47) Wherever the fish are cut, nature's natural ocean cleaners are there to

clean up the fish wastes, on the ocean... (48) ... or in the harbour. Fishermen are always grateful to sea gulls for this cleaning up service.

(49) Once he is back home the fisherman hoists the trawl up to the stagehead... (50) ... and then the fish are taken to the public collection depot to be sold. (51) The fish are forked from the boat up to the wharf and into a wheelbarrow. (52) It is unfortunate that many Newfoundland fishermen often reduce the quality of the fish they catch by sticking the prongs of the fork into the body of the fish, instead of into the head. (53) The fish are weighed. Today's catch is small, but the price is good. Codfish landings in Newfoundland have been vastly reduced over the last few years, and many fishermen throughout the Province have not been able to remain financially independent like most of the fishermen of Petites have.

(54) Once the fish are weighed the fishermen are given a receipt indicating the day's catch. The fish buyer pays the men every week by cash or check. (55) There are not enough fishermen at Petites to maintain their own fish plant, so the fish are collected each day by a collection boat, called the smack. The fish are taken to the plant at nearby Rose Blanche for processing. (56) The fisherman's boat must be cleaned thoroughly after each day's fishing. (57) When the boat and the trawl are cleaned and the equipment is put away, it is time to go home for a well deserved rest.

(58) Today was not a bad day, but what will tomorrow be like? Will there be storms, high seas, strong tides, fog or what? Only tomorrow will tell.

(59) Cod fishing on the Southwest Coast of Newfoundland is a year round industry — during the hot days of June and cold days of January. The graph of the codfish landings at Petites during 1975 show that the best months for cod fishing are October, November and December, while the poorest months are July and August.

(60) The biggest problem facing the fishermen of Petites today is that of reduced codfish stocks. Reduced codfish stocks present a problem for all Newfoundland fishermen.

The graph shows that Newfoundland codfish landings have dropped from 406 million pounds in 1960 to 170 million pounds in 1975.

(61) Many Newfoundlanders say that the reason for the reduction in the codfish stocks is the 12 mile or 20 kilometer fishing limit. They claim that the 12 mile limit allows foreign fishing ships to fish too near our coastline, and allows them to take too much fish from Canadian waters.

(62) The 200 mile or 320 kilometer fishing limit prevents foreign fishing ships from fishing within 200 miles of the Canadian coastline. Perhaps a reduction of foreign fish landings will allow the Canadian codfish stocks to replenish themselves and therefore conserve the Canadian fishing industry.

(63) The fishermen of Petites work independently as often as possible, but they always co-operate to help each other when a big job requires them to. (64) They frequently meet to discuss the weather forecast and to share their ideas and experiences.

(65) The fisherman's life is a constant struggle against natural elements. Winter is a difficult time especially. The water temperature is always near freezing. The air temperature is constantly below freezing. Sometimes the cold is unbearable and only the hardy can endure. (66) Boats often come back from fishing covered in ice. Sometimes the harbour freezes over and the boats must be dragged over the ice to open water. (67) On so many days there is the threat of fog when visibility is reduced to no more than 50 or 60 meters. (68) The danger of shipwreck on treacherous rocks is ever present. So often survival depends on the man's skill, his experience, his instincts, and his common sense and his courage. (69) The lonely sounds of the groaner, which can be heard for a distance of 2 or 3 kilometers, warn the fisherman when he is approaching dangerous areas, and give him a good idea of his exact location in the fog. (70) The foghorn with its persistent, penetrating whail, serves the same purpose as the groaner. The foghorn can be heard from 4 or 5 kilometers away. (71) The entrance to the harbour is not always as peaceful as it is today. Winter

storms often bring winds up to 160 kilometers per hour and (72) waves often large enough to cover the islands outside the harbour. (73) Boats and equipment are often lost and destroyed. (74) There are too many sad stories of those who went out to fish and did not come back.

(75) The fisherman's life is hard. Nothing can tell his story better than his calloused hands, (76) and his weatherbeaten face.

(77) In spite of the hardships of his rugged life, nothing delights the fisherman more than to venture out against the elements and to return home with a good day's catch.

(78) What life could be more exciting, more challenging, and more satisfying than to live and work face to face with the uncertainties of nature.

(79 & 80) Music.







