

# *BIBLE OF THE ISLANDS*

Expert System



**Lucas Wyte**

**11 IPT**

**August 1995**





# *BIBLE OF THE ISLANDS*

## Expert System

### PROBLEM DEFINITION AND SOLUTION SPECIFICATION

Queensland's Great Barrier Reef is one of the most magical, beautiful wonders of the world. In particular, the Whitsundays offers to the boatie or yachtie some of the most exquisite islands, best anchorages, diving locations, camping sites and resorts. The *Bible of the Islands* Expert System was an easy choice of topic as my family and I have often spent many days and nights sailing around the beautiful blue waters of the Whitsundays and its surrounds. We have found that any party wishing to explore this magic region should have a general idea of where to go (safe anchorages, diving spots, etc.) before departing on such an adventure. Extra information such as cyclone anchorages can also prove to be helpful if such an emergency arises. ✓

Eshell, a knowledge engineering tool by T. Dwyer, is the program that shall be used in the creation and implementation of the *Bible of the Islands*. In the Expert System, the user will be prompted to respond to questions such as what type of anchorage they are seeking, what the wind's direction is, whether they are looking for diving spots, etc, and what the user's location is. The Expert System will reply by displaying a suitable island for anchorage, which was selected by the user's circumstances. The material used for the creation of the *Bible of the Islands* has been gathered from the current printed 'bible', *100 Magic Miles of the Great Barrier Reef*, by David Colfelt. This information was then used to formulate the Expert System's decision tree and attribute table.

The *Bible of the Islands* Expert System is designed to be used by the charter yachtie or boatie in determining a suitable island to anchor. The user should have general boating knowledge and an understanding of the Whitsundays, as the *Bible of the Islands* is not a boating manual nor a navigational map. This program is, however, designed to be used "in the field" - on the boat and on the water, where the information is undoubtedly most valuable. It is aimed to cover the most popular and reputable islands in the Central Whitsundays Group, from Hayman to Hamilton Island. It will offer a suitable island to consider for anchorage as well as information on diving potential, hazards, etc. Further information on the bays and inlets of the island may then be sought from the traditional, paper 'bible'. ✓

The most valuable feature of the *Bible of the Islands* Expert System is that it will be so easy to use; no navigational or mapping experience is required to find the most suitable island for the user from the many to choose from. All the user should need to know is what they're looking for and where they are - easy !!! The *Bible of the Islands* will be self-explanatory, with useful help screens that detail everything the user needs to get the program up and running, and a brief description of what to expect when they press the enter key. ✓

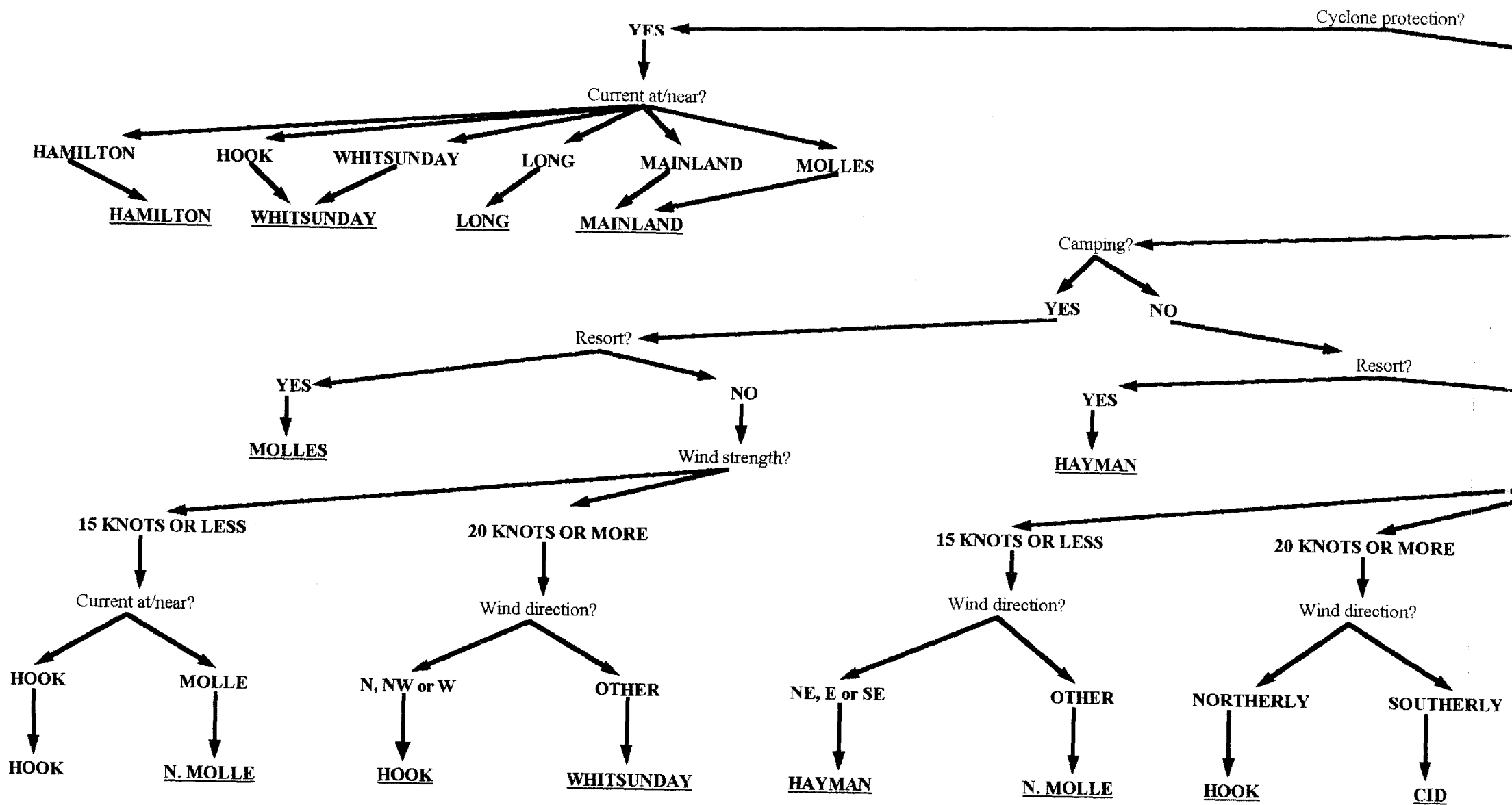
ATTRIBUTES							CONCLUSIONS			
CYCLONE PROTECTION	DIVING	CAMPING	RESORT	WIND STRENGTH	WIND DIRECTION	CURRENT AT/NEAR	ISLAND	SUGGEST. ANCHORAGE	HAZARD	POTENTIAL
Yes						Hamilton Island	Hamilton Island	Hamilton Harbour		
Yes						Hook Island	Whitsunday Island	Upper Gulnare Inlet		
Yes						Long Island	Long Island	Woodcutter Bay		
Yes						Mainland	Mainland	Trammel Bay		
Yes						Molle Islands	Mainland	Trammel Bay		
Yes						Whitsunday Island	Whitsunday Island	Upper Gulnare Inlet		
No	Yes	Yes	Yes				Molle Islands		Unsafe passages	Good
No	Yes	Yes	No	15 knots or less		Hook Island	Hook Island	Nara Inlet	Deceptive reef	Good
No	Yes	Yes	No	15 knots or less		Molle Islands	North Molle Island	Hannah Point		Good
No	Yes	Yes	No	20 knots or more	N, NW or W		Hook Island	The Pinnacles	Strong currents	Excellent
No	Yes	Yes	No	20 knots or more	Other		Whitsunday Island	Sawmill Beach	A strong current	Good and safe
No	Yes	No	Yes				Hayman Island	Blue Pearl Bay		Excellent
No	Yes	No	No	15 knots or less	NE, E or SE		Hayman Island	Blue Pearl Bay		Excellent
No	Yes	No	No	15 knots or less	Other		North Molle Island	Hannah Point		Good
No	Yes	No	No	20 knots or more	Northerly		Hook Island	The Pinnacles	Strong currents	Excellent
No	Yes	No	No	20 knots or more	Southerly		Cid Island		A strong current	Good and safe
No	No	Yes	Yes				Molle Islands		Unsafe passages	
No	No	Yes	No	15 knots or less	NE	Hamilton Island	Henning Island	North Spit	Bareboats beware!	
No	No	Yes	No	15 knots or less	NE	Molle Islands	North Molle Island	North West Beach		
No	No	Yes	No	15 knots or less	Other		Hook Island	Observatory	Flukey winds	
No	No	Yes	No	20 knots or more	N, NW or W		Shute Island	North West Beach	Eddies	
No	No	Yes	No	20 knots or more	Other		Whitsunday Island	Sawmill Bay	A strong current	
No	No	No	Yes			Hamilton Island	Hamilton Island		Restricted areas	
No	No	No	Yes			Hayman Island	Hayman Island		Fringing reefs	
No	No	No	Yes			Long Island	Long Island		A strong current	
No	No	No	Yes			Molle Islands	Molle Islands		Unsafe passages	
No	No	No	No				ANYWHERE !!!			



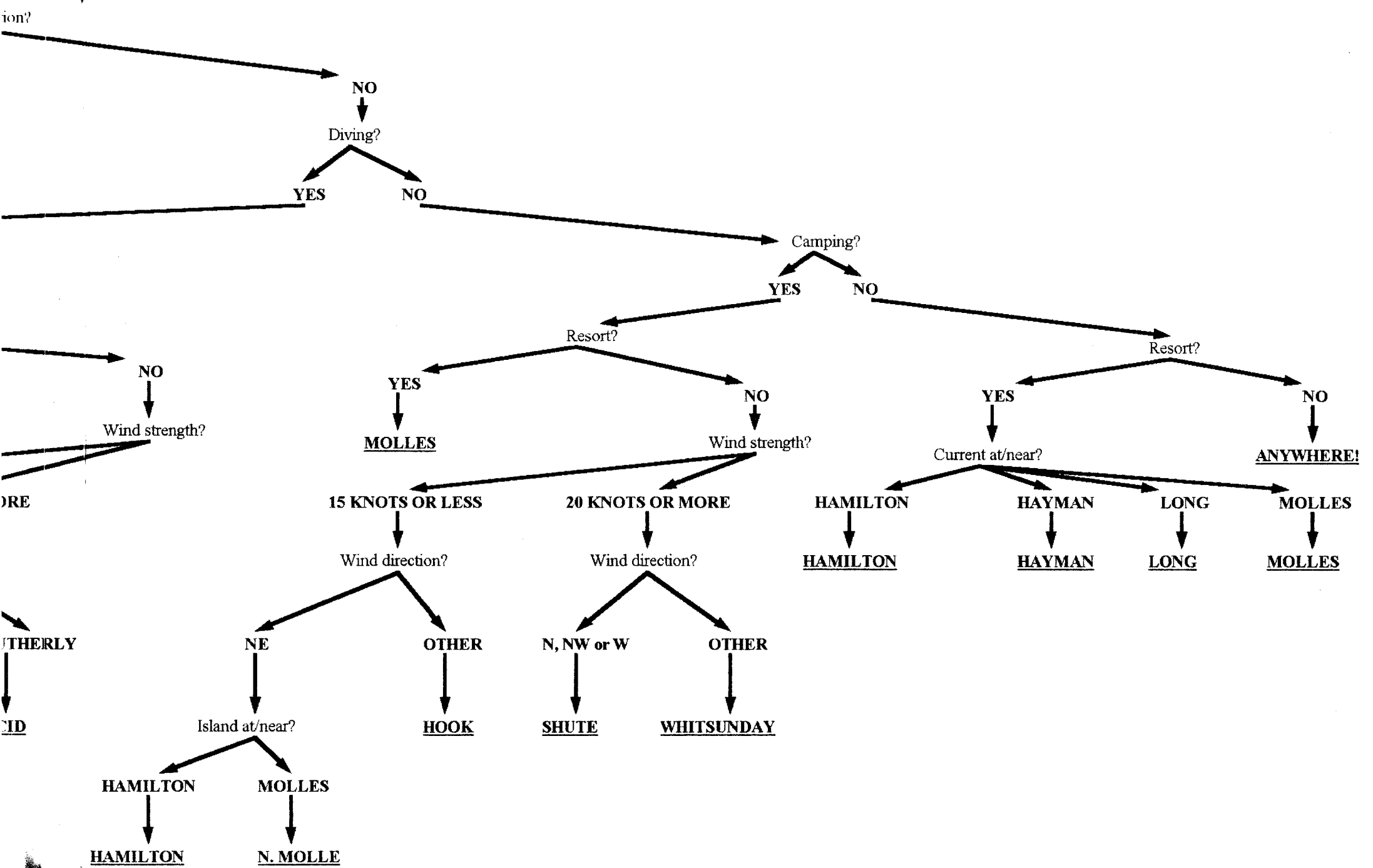
## CONCLUSIONS

SUGGEST. ANCHORAGE	HAZARD	DIVING POTENTIAL	CAMP FACILITIES	"MAGIC MILES" REF.
Hamilton Harbour				C12-13
Upper Gulnare Inlet				C20
Woodcutter Bay				C6
Trammel Bay				C5
Trammel Bay				C5
Upper Gulnare Inlet				C20
	Unsafe passages	Good	Available	C9
Nara Inlet	Deceptive reef	Good	Not Available	C10
Hannah Point		Good	Available	C8
The Pinnacles	Strong currents	Excellent	Not Available	C15
Sawmill Beach	A strong current	Good at Ross It.	Available	C19
Blue Pearl Bay		Excellent		C12
Blue Pearl Bay		Excellent		C12
Hannah Point		Good		C8
The Pinnacles	Strong currents	Excellent		C15
	A strong current	Good at Ross It.		C19
	Unsafe passages		Available	C9
North Spit	Bareboats beware!		Not Available	C20
North West Beach			Available	C8
Observatory	Flukey winds		Available	C17
North West Beach	Eddies		Available	C3
Sawmill Bay	A strong current		Available	C19
	Restricted areas			C22
	Fringing reefs			C12
	A strong current			C4
	Unsafe passages			C9

pages 170-221



**DECISION TREE**





# *BIBLE OF THE ISLANDS*

Expert System

**Expert System: A:\BIBLE.EXP**

Number of attributes: 7  
Number of conclusions: 6  
Number of rules: 27

## **LIST OF ATTRIBUTES WITH DESCRIPTIONS**

- 1     Attribute name:     **CYCLONE PROTECTION**  
       Description:        Do you require a cyclone protected anchorage?
- 2     Attribute name:     **DIVING**  
       Description:        Are you looking for a reputable diving site?
- 3     Attribute name:     **CAMPING**  
       Description:        Do you seek an anchorage with a camping site nearby?
- 4     Attribute name:     **RESORT**  
       Description:        Are you looking for a commercial resort?
- 5     Attribute name:     **WIND STRENGTH**  
       Description:        What is the wind's strength?
- 6     Attribute name:     **WIND DIRECTION**  
       Description:        What is the wind's direction?
- 7     Attribute name:     **CURRENTLY AT/NEAR**  
       Description:        Where are you currently located (or near)?



### LIST OF CONCLUSIONS WITH DESCRIPTIONS

- |   |                  |  |
|---|------------------|--|
| 1 | Conclusion name: | <b>A suitable island</b>                         |
|   | Description:     | The most suitable island for you.                |
| 2 | Conclusion name: | <b>Suggest. anchorage</b>                        |
|   | Description:     | A reputable anchorage.                           |
| 3 | Conclusion name: | <b>Hazard</b>                                    |
|   | Description:     | Hazards you should be aware of.                  |
| 4 | Conclusion name: | <b>Diving potential</b>                          |
|   | Description:     | The diving potential at (or near) the anchorage. |
| 5 | Conclusion name: | <b>Camping facility</b>                          |
|   | Description:     | The availability of facilities at the camp site. |
| 6 | Conclusion name: | <b>"Magic Miles" ref.</b>                        |
|   | Description:     | The traditional "bible" map reference.           |





## LIST OF RULES

### **RULE 1**

*IF*

CYCLONE PROTECTION = Yes  
DIVING = null  
CAMPING = null  
RESORT = null  
WIND STRENGTH = null  
WIND DIRECTION = null  
CURRENTLY AT/NEAR = Hamilton Island  
*THEN*

A suitable island is Hamilton Island  
Suggest. anchorage is Hamilton Harbour  
Hazard is null  
Diving potential is null  
Camping facility is null  
"Magic Miles" ref. is C12-13

### **RULE 2**

*IF*

CYCLONE PROTECTION = Yes  
DIVING = null  
CAMPING = null  
RESORT = null  
WIND STRENGTH = null  
WIND DIRECTION = null  
CURRENTLY AT/NEAR = Hook Island  
*THEN*

A suitable island is Whitsunday Island  
Suggest. anchorage is Upper Gulnare Inlt  
Hazard is null  
Diving potential is null  
Camping facility is null  
"Magic Miles" ref. is C20

### **RULE 3**

*IF*

CYCLONE PROTECTION = Yes  
DIVING = null  
CAMPING = null  
RESORT = null  
WIND STRENGTH = null  
WIND DIRECTION = null  
CURRENTLY AT/NEAR = Long Island  
*THEN*

A suitable island is Long Island  
Suggest. anchorage is Woodcutter Bay  
Hazard is null  
Diving potential is null  
Camping facility is null  
"Magic Miles" ref. is C6

### **RULE 4**

*IF*

CYCLONE PROTECTION = Yes  
DIVING = null  
CAMPING = null  
RESORT = null  
WIND STRENGTH = null  
WIND DIRECTION = null  
CURRENTLY AT/NEAR = Mainland  
*THEN*

A suitable island is Mainland  
Suggest. anchorage is Trammel Bay  
Hazard is null  
Diving potential is null  
Camping facility is null  
"Magic Miles" ref. is C5

### **RULE 5**

*IF*

CYCLONE PROTECTION = Yes  
DIVING = null  
CAMPING = null  
RESORT = null  
WIND STRENGTH = null  
WIND DIRECTION = null  
CURRENTLY AT/NEAR = Molle Islands  
*THEN*

A suitable island is Mainland  
Suggest. anchorage is Trammel Bay  
Hazard is null  
Diving potential is null  
Camping facility is null  
"Magic Miles" ref. is C5

### **RULE 6**

*IF*

CYCLONE PROTECTION = Yes  
DIVING = null  
CAMPING = null  
RESORT = null  
WIND STRENGTH = null  
WIND DIRECTION = null  
CURRENTLY AT/NEAR = Whitsunday Island  
*THEN*

A suitable island is Whitsunday Island  
Suggest. anchorage is Upper Gulnare Inlt  
Hazard is null  
Diving potential is null  
Camping facility is null  
"Magic Miles" ref. is C20

**RULE 7***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = Yes

RESORT = Yes

WIND STRENGTH = null

WIND DIRECTION = null

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is Molle Islands

Suggest. anchorage is null

Hazard is unsafe passages

Diving potential is good

Camping facility is available

"Magic Miles" ref. is C9

**RULE 8***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = Yes

RESORT = No

WIND STRENGTH = 15 knots or less

WIND DIRECTION = null

CURRENTLY AT/NEAR = Hook Island

*THEN*

A suitable island is Hook Island

Suggest. anchorage is Nara Inlet

Hazard is deceptive reef

Diving potential is good

Camping facility is available

"Magic Miles" ref. is C10

**RULE 9***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = Yes

RESORT = No

WIND STRENGTH = 15 knots or less

WIND DIRECTION = null

CURRENTLY AT/NEAR = Molle Islands

*THEN*

A suitable island is North Molle Island

Suggest. anchorage is Hannah Point

Hazard is null

Diving potential is good

Camping facility is available

"Magic Miles" ref. is C8

**RULE 10***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = Yes

RESORT = No

WIND STRENGTH = 20 knots or more

WIND DIRECTION = N, NW or W

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is Hook Island

Suggest. anchorage is The Pinnacles

Hazard is strong currents

Diving potential is excellent!

Camping facility is not available

"Magic Miles" ref. is C15

**RULE 11***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = Yes

RESORT = No

WIND STRENGTH = 20 knots or more

WIND DIRECTION = Other

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is Whitsunday Island

Suggest. anchorage is Sawmill Beach

Hazard is a strong current

Diving potential is good at Ross It.

Camping facility is available

"Magic Miles" ref. is C19

**RULE 12***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = No

RESORT = Yes

WIND STRENGTH = null

WIND DIRECTION = null

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is Hayman Island

Suggest. anchorage is Blue Pearl Bay

Hazard is null

Diving potential is excellent!

Camping facility is null

"Magic Miles" ref. is C12



**RULE 13***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = No

RESORT = No

WIND STRENGTH = 15 knots or less

WIND DIRECTION = NE, E or SE

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is Hayman Island

Suggest. anchorage is Blue Pearl Bay

Hazard is null

Diving potential is excellent!

Camping facility is null

"Magic Miles" ref. is C12

**RULE 14***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = No

RESORT = No

WIND STRENGTH = 15 knots or less

WIND DIRECTION = Other

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is North Molle Island

Suggest. anchorage is Hannah Point

Hazard is null

Diving potential is good

Camping facility is null

"Magic Miles" ref. is C8

**RULE 15***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = No

RESORT = No

WIND STRENGTH = 20 knots or more

WIND DIRECTION = Generally north

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is Hook Island

Suggest. anchorage is The Pinnacles

Hazard is strong currents

Diving potential is excellent!

Camping facility is null

"Magic Miles" ref. is C15

**RULE 16***IF*

CYCLONE PROTECTION = No

DIVING = Yes

CAMPING = No

RESORT = No

WIND STRENGTH = 20 knots or more

WIND DIRECTION = Generally south

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is Cid Island

Suggest. anchorage is null

Hazard is a strong current

Diving potential is good at Ross It.

Camping facility is null

"Magic Miles" ref. is C19

**RULE 17***IF*

CYCLONE PROTECTION = No

DIVING = No

CAMPING = Yes

RESORT = Yes

WIND STRENGTH = null

WIND DIRECTION = null

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is Molle Islands

Suggest. anchorage is null

Hazard is unsafe passages

Diving potential is null

Camping facility is available

"Magic Miles" ref. is C9

**RULE 18***IF*

CYCLONE PROTECTION = No

DIVING = No

CAMPING = Yes

RESORT = No

WIND STRENGTH = 15 knots or less

WIND DIRECTION = NE

CURRENTLY AT/NEAR = Hamilton Island

*THEN*

A suitable island is Henning Island

Suggest. anchorage is North Spit

Hazard is bareboats beware!

Diving potential is null

Camping facility is not available

"Magic Miles" ref. is C20

✓

**RULE 19***IF*

CYCLONE PROTECTION = No  
DIVING = No  
CAMPING = Yes  
RESORT = No  
WIND STRENGTH = 15 knots or less  
WIND DIRECTION = NE  
CURRENTLY AT/NEAR = Molle Islands  
*THEN*

A suitable island is North Molle Island  
Suggest. anchorage is North West Beach  
Hazard is null  
Diving potential is null  
Camping facility is available  
"Magic Miles" ref. is C8

**RULE 20***IF*

CYCLONE PROTECTION = No  
DIVING = No  
CAMPING = Yes  
RESORT = No  
WIND STRENGTH = 15 knots or less  
WIND DIRECTION = Other  
CURRENTLY AT/NEAR = null  
*THEN*

A suitable island is Hook Island  
Suggest. anchorage is the Observatory  
Hazard is flukey winds  
Diving potential is null  
Camping facility is available  
"Magic Miles" ref. is C17

**RULE 21***IF*

CYCLONE PROTECTION = No  
DIVING = No  
CAMPING = Yes  
RESORT = No  
WIND STRENGTH = 20 knots or more  
WIND DIRECTION = N, NW or W  
CURRENTLY AT/NEAR = null  
*THEN*

A suitable island is Shute Island  
Suggest. anchorage is North West Beach  
Hazard is eddies  
Diving potential is null  
Camping facility is available  
"Magic Miles" ref. is C3

**RULE 22***IF*

CYCLONE PROTECTION = No  
DIVING = No  
CAMPING = Yes  
RESORT = No  
WIND STRENGTH = 20 knots or more  
WIND DIRECTION = Other  
CURRENTLY AT/NEAR = null  
*THEN*

A suitable island is Whitsunday Island  
Suggest. anchorage is Sawmill Bay  
Hazard is a strong current  
Diving potential is null  
Camping facility is available  
"Magic Miles" ref. is C19

**RULE 23***IF*

CYCLONE PROTECTION = No  
DIVING = No  
CAMPING = No  
RESORT = Yes  
WIND STRENGTH = null  
WIND DIRECTION = null  
CURRENTLY AT/NEAR = Hamilton Island  
*THEN*

A suitable island is Hamilton Island  
Suggest. anchorage is null  
Hazard is restricted areas  
Diving potential is null  
Camping facility is null  
"Magic Miles" ref. is C22

**RULE 24***IF*

CYCLONE PROTECTION = No  
DIVING = No  
CAMPING = No  
RESORT = No  
WIND STRENGTH = null  
WIND DIRECTION = null  
CURRENTLY AT/NEAR = Hayman Island  
*THEN*

A suitable island is Hayman Island  
Suggest. anchorage is null  
Hazard is fringing reefs  
Diving potential is null  
Camping facility is null  
"Magic Miles" ref. is C12-13



**RULE 25***IF*

CYCLONE PROTECTION = No

DIVING = No

CAMPING = No

RESORT = Yes

WIND STRENGTH = null

WIND DIRECTION = null

CURRENTLY AT/NEAR = Long Island

*THEN*

A suitable island is Long Island

Suggest. anchorage is null

Hazard is a strong current

Diving potential is null

Camping facility is null

"Magic Miles" ref. is C4

**RULE 26***IF*

CYCLONE PROTECTION = No

DIVING = No

CAMPING = No

RESORT = Yes

WIND STRENGTH = null

WIND DIRECTION = null

CURRENTLY AT/NEAR = Molle Islands

*THEN*

A suitable island is Molle Islands

Suggest. anchorage is null

Hazard is unsafe passages

Diving potential is null

Camping facility is null

"Magic Miles" ref. is C9

**RULE 27***IF*

CYCLONE PROTECTION = No

DIVING = No

CAMPING = No

RESORT = No

WIND STRENGTH = null

WIND DIRECTION = null

CURRENTLY AT/NEAR = null

*THEN*

A suitable island is ANYWHERE !!!

Suggest. anchorage is null

Hazard is null

Diving potential is null

Camping facility is null

"Magic Miles" ref. is pages 170 - 221

"BIBLE OF THE ISLANDS"  
Expert System 1.0

Created by Lucas Wyte, August 1995.

Queensland's Great Barrier Reef is one of the most magical, beautiful wonders of the world. In particular, the Whitsundays offers to the boatie some of the most exquisite islands, best anchorages, diving locations and camping sites.

The "Bible of the Islands" Expert System is designed to be used by you, the user, in determining a suitable island to anchor. This program will offer you an island to consider, in addition to information such as hazards and diving sites. You need to know nothing about navigation to use this program - just turn it on and go!

Press any key to continue . . .

"Bible of the Islands"  
M A I N M E N U

Please select an option from below ....

1. Run the "Bible of the Islands" Expert System.
2. HELP !!
3. Exit to DOS.

PLEASE ENTER YOUR SELECTION>



"Bible of the Islands"  
H E L P !

Loading Instructions: (some already completed)

1. Insert "Bible of the Islands" disk in drive A and turn your computer on.  
The "Bible of the Islands" introduction and main menu will then load automatically.
2. Select an option from the main menu. If you have not used this program previously, the 'Help' option is recommended - which is where you are now.  
If you select 'Run the "Bible of the Islands" Expert System', you would follow these instructions ....

(continued)

Press any key to continue . . .

"Bible of the Islands"  
H E L P !

TO USE THE "BIBLE OF THE ISLANDS" EXPERT SYSTEM:

1. Once selecting 'Run the "Bible of the Islands" Expert System' from the main menu, EShell will load into the computer's memory. When EShell's main menu appears, select 'Run a Knowledge Base' with the arrow keys or mouse and press enter.
2. A file selection menu will then be displayed. Select the file 'BIBLE.EXP' and press enter.

The computer will then proceed to load the "Bible's" knowledge base into memory.

(continued)

Press any key to continue . . .

"Bible of the Islands"  
H E L P !

3. EShell will then display the "Bible's" first question. Upon answering all the questions, the conclusions will then be displayed. If you wish to run the "Bible of the Islands" again, select 'Run K. Base Again' option.

4. To exit at any stage, repeatedly press escape.

NOTE: For trouble-free use, do not at any stage select 'Edit a Knowledge Base'.

Please enjoy using the "Bible of the Islands" Expert System and remember for more detailed information on the Whitsundays consult the traditional paper 'bible' - "100 Magic Miles of the Great Barrier Reef".

Press any key to continue . . .

"Bible of the Islands"  
M A I N M E N U

Please select an option from below ....

1. Run the "Bible of the Islands" Expert System.
2. HELP !!
3. Exit to DOS.

PLEASE ENTER YOUR SELECTION>

Expert System Shell Main Menu
Run a Knowledge Base Print a Knowledge Base Edit a Knowledge Base Create a Knowledge Base Quit

by Terry Dwyer 1993

to move. Esc to abort.

F1 Help	↓ Select	Space Toggle
A:\*.EXP		
Matching files: 1		Total bytes: 10277
BIBLE.EXP	10277	Aug 26,1995 9:26a A



to move. Esc to abort.

Do you require a cyclone protected anchorage?

CYCLONE PROTECTION
Yes
No

to move. Esc to abort.

Are you looking for a reputable diving site?

DIVING
Yes
No

to move. Esc to abort.

Do you seek an anchorage with a camping site nearby?

CAMPING
Yes No

to move. Esc to abort.

Are you looking for a commercial resort?

RESORT
Yes No

to move. Esc to abort.

What is the wind's strength?

WIND STRENGTH
15 knots or less
20 knots or more

to move. Esc to abort.

What is the wind's direction?

WIND DIRECTION
NE
Other



to move. Esc to abort.

Where are you currently located (or near)?

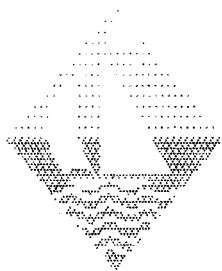
CURRENTLY AT/NEAR
Hamilton Island Molle Islands

Conclusion:

A suitable island is Hook Island  
Suggest. anchorage is The Pinnacles  
Hazard is strong currents  
Diving potential is excellent!  
Camping facility is not available  
"Magic Miles" ref. is C15

Knowledge Base  
Conclusion Menu

Display conclusions  
Show reasoning  
Print reasoning  
Run K.Base again  
Quit to Main Menu



# *BIBLE OF THE ISLANDS*

## Expert System

### EVALUATION

To evaluate the "Bible of the Islands" Expert System, I asked Mr Stuart Wolfe, an expert in sailing and the Whitsundays. He has had fifteen years sailing experience and has competed in many races and events including the famous "Whitsunday Fun Race". He has also completed two round trips from Launceston to the Whitsundays. In addition, bareboat chartering is a family business for Mr Wolfe, as his uncle owns such a business in the Whitsundays.

Mr Wolfe feels:

"I foresee that this program could have very real commercial potential as a guide for sailors wishing to cruise in the Whitsundays. It would especially help those who hire a boat and only have a limited time in the Whitsundays in determining a suitable island to anchor - yes, it would help them immensely. I find all the knowledge in the "Bible of the Islands" Expert System to be correct and I would like a copy for use on my own home computer."

Mrs Nancy McInnes, a 78 year old pensioner from Sydney, was also asked to evaluate the "Bible of the Islands" Expert System as a non-expert in the field. She has never used a computer before and has little knowledge on boating and the Whitsundays.

Mrs McInnes stated:

"I think it was absolutely amazing. I never dreamed I could use a computer. I found it very easy to use and the "Bible of the Islands" program very easy to understand. I think this program would be very helpful on boats in the future - making boating much more safe. Being a novice at both sailing and computers, the instructions were most valuable. With the directions of this program, I think I would be able to find the right island for me if ever I went sailing in the Whitsundays."

Signed:

Mr Stuart Wolfe  
Expert.

Mrs Nancy McInnes  
Non-Expert.

Disk checked  
All OK

ST. BRENDAN'S COLLEGE YEPPPOON  
INFORMATION PROCESSING & TECHNOLOGY  
**MINOR CASE STUDY EXPERT SYSTEMS(A.I.)**

**DUE DATE:** 23rd August, 1995

**TASK:** You are to design and implement a working Expert System for a Universe of Discourse of your own choice. Some suggestions are included overleaf. You are to undertake the task in three stages. Each stage is to be submitted to your teacher before proceeding to the next stage. The area of expertise chosen must be appropriate for an Expert System and must contain at least 12 rules but not more than 30 rules. The planning and design stages are carried out before touching the computer and are absolutely vital to the successful completion of your project.

**1. PLANNING STAGE** (Problem Definition and Solution Specification)

In at least one word processed page (approx 500 words) clearly outline the following :

- . the reasons for choosing your topic(WHY)
- . a description of the specific areas you will be covering(WHAT)
- . the technique used to extract your expert knowledge(HOW)
- . the proposed users of your system(WHO)
- . the suggested location of where your system will be used(WHERE)
- . what value your system should have to proposed users
- . the specific goal states to be included in your Expert System

Due no later than 28/7/95

**2. DESIGN STAGE** (Decision Tree and Table Design)

Using a word processor or appropriate table/tree generating software, you are required to submit :

- . a decision tree prioritising attributes in order to reach conclusions via the most efficient paths and clearly indicating the prompts to be used in your system.
- . a neat induction table(attribute table) showing attributes, values(instances and goal states(conclusions)).

These items must be consistent with your plan from stage 1. If you amend your plan, you must resubmit it with this stage;

Due no later than 4/8/95



### **3. IMPLEMENTATION STAGE**

Implementation, Testing, Evaluation, Documentation]

You are required to submit :

- . a word processed listing of the knowledge base
- . a clearly labeled self booting disk containing the expert system shell, knowledge base and auto loading batch file of user help
- . word processed user documentation, operating instructions, sample screens generated, user aids eg diagrams to aid terminology
- . written verification/evaluation of your expert system using data gathered from :
  - (a) an expert in the field who can verify that the knowledge encapsulated in your system is correct;
  - (b) a non-expert in the field who can comment on the ease of use and understandability of your Expert System.

NOTE: All stages must be consistent with each other. You are solely responsible for security of your data. Save regularly and backup often.

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### **Possible Topics**

#### **A Repair/Advise**

- type of racquet, golf club, camera, bicycle needed
- selecting a computer system, software - career choice
- tourist/holiday destinations
- events, places for Speech Weekend
- geographical location key
- investments
- tertiary/school courses
- computer prices
- bites and stings
- local sporting venues
- local tourist venues
- local eaterys

### **B Diagnosis**

- childhood diseases
- car, mower, outboard, motorbike faults - computer faults
- skin rashes
- diseases for doctors
- VCR faults
- eye problems
- timber types
- colds and flu
- business failure
- water testing

### **C Classification**

- tropical fish, birds, hawks, native trees
- eligibility to vote, citizenship
- taxation category for business/individual
- students in class, sports team, subject teachers - rifles, planes, tanks
- chemicals, acids
- insects, spiders, reptiles
- books in a collection or software library
- flags
- birth signs
- wars
- dinosaurs
- gems, minerals, rocks, soils
- whales

### **D Instructional**

- application of rules in sport
- first aid or resuscitation key
- system for operating on share market, racetrack, lotto - meals or diet
- business discounts, taxes, profits