# MARINE TEACHERS ASSOCIATION OF QUEENSLAND INC.

## The birth of a syllabus

# Coast and Marine Education Syllabus report

## June 2000 - November 2004

**A partnership project with Education Queensland and the Marine Education Industry Network in consultation with the Queensland Studies Authority**

## *Financial acknowledgements to date*

*Figures are a combination of actual and estimated*

**1998 - 2001**

- $1,200 — Hervey Bay, SHS, Mercy College and Holy Spirit Colleges for TRS days and airfares.
- $8,000 Wet Paper Publications - Coolangatta and Hervey Bay conferences
- $10,000 Grant from ANZSBEG (The Australian and New Zealand Safe Boating Group) Kids and Water Project
- $3,000 Queensland Transport, QYA and Great Barrier Reef Marine Park Authority

**2002**

- $5,500 Queensland Transport, QYA and Wet Paper Publications
- $1,100 members funds

**2003**

- $4,000 Curriculum Strategy Branch Education Queensland
- $5,500 Queensland Transport, QYA and Wet Paper Publications
- $12,000 accumulated members funds
- $2,200 individual subscriptions (Snorkelling examiners)
- Minister for Education and The Arts for giving us permission to use the Agriculture Syllabus as a template for the Junior Marine Syllabus and for permission for State School teachers to place their unit outlines and worksheets on our web site.
- $25,000 project officer wages (Donated Wet paper Publications)

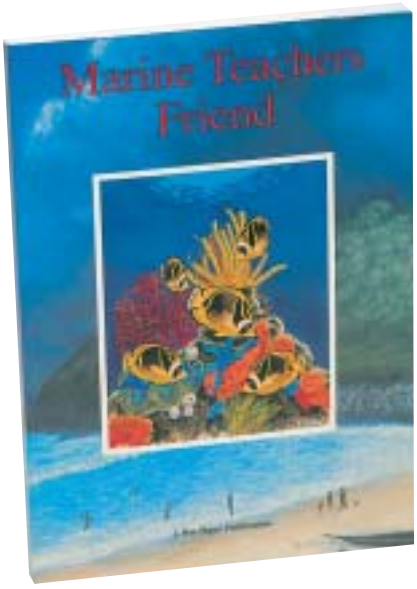
**2004**

- $4,000 Curriculum Strategy Branch Education Queensland
- $4,000 Australian Government Quality Teacher Program
- $16,000 from Australian Maritime College, Marine Safety Qld, Great Barrier Reef Marine Park Authority and Yachting Queensland for funds to print the syllabus and Noosa Conference
- $7,000 Principals of Kirwan, Mercy College, Sunshine Beach, Hervey Bay, Clontarf for giving us TRS days out of their school budgets.
- $10,000 Representatives and departmental heads from Qld Fisheries Service, Great Barrier Reef Marine Park Authority, Wet Paper, Marine Safety Queensland for supplying wages and other resources such as phone, fax, email, postage and photocopying to attend and process information meetings .
- $3,000 est - committee members who paid for their own fuel and wages to travel to meetings and put up with the budget meals and accommodation
- $2,000 Education Queensland for providing meeting rooms, advice and syllabus interpretation disks for planning for Workshop 1.
- $3,000 Mackay SHS for providing rent free workshop facilities and accommodation for Workshop 1.
- $25,000 Wet Paper Publications for logistical administration support and wages for a project officer
- $500 The Goodinghams for providing rent free accommodation, meals and Sunshine Beach SHS for Workshop 2.
- $500 AUFQ for providing rent free meeting rooms for Workshops 3 and 4.
- $500 Mercy College for Workshop 5 and Simone Bakers parents for providing accommodation for the workshop
- $3,000 individuals donations for travel, meals and accommodation

# The gestation period

### *1998 - 2001*

- Junior marine studies began in Queensland in 1998 with the introduction of a copyright free teachers guide - called the Marine Teachers Friend written for schools who wanted a multi-disciplinary approach to Science, Health and Physical Education, Study of Society and Environment and Technology.
- The Junior Program began with activities and programs from this copyright free publication.
- Schools introduced a 1, 2 or 3 year program, with a range of successes were Hervey Bay, Clontarf Beach, Maryborough, Marymount College, Benowa, Robina, Sunshine Beach, Robina, Pioneer, Rockhampton Grammar, Sarina, Southern Cross College, Southport, Springwood, St Mary's College, Tin Can Bay, Urangan, Victoria Point, Woodridge and Yeppoon.
- In 2000, a 2 day conference at Coolangatta funded with a $4,000 grant from Wet Paper Publications, heard of the successes and failures of the programs and made plans to run workshops where possible to network ideas to improve classroom teaching.
- In 2001, a one day workshop in Hervey Bay funded with $10,000 sponsorship from ANZSBEG (The Australian and New Zealand Safe Boating Group) examined ways to extend the program into the Primary School which lead to the now successful Kids and Water Primary School Marine Reader literacy program.
- Conference sessions were also run at our Townsville Conference. Representatives were also invited to the then Curriculum Studies Authority community meeting on syllabuses that were most likely to fit into the level 4 — beyond level 6 learning areas outside the key learning areas.




*Copyright free publication to schools*

*Hervey Bay Junior Marine Studies students in action 1998*

## *2002*

- At our 2002 annual conference at Malanda, it was proposed to seek interest from members about the possibility of having our own Junior Marine Syllabus and a committee was formed to rally interest.
- In August 2002 a Junior Writers workshop was held at Hervey Bay with $4,000 sponsorship from Queensland Transport, QYA and Wet Paper

**The aims of the Hervey Bay Workshop were:**

- To develop outcomes for Junior Marine Programs from Holy Spirit Mackay, Hervey Bay State High and Clontarf Beach SHS
- To investigate a series of rich tasks from combinations of 3-4 key learning areas from Qld Science, Health and PE, Technology and SOSE syllabus
- To prepare an in-service brief for MTAQ Mackay State Conference in Marine Studies

**Program leaders**

- Tim Ryan Education Advisor Science Wide Bay Region
- Graham Rogers Lecturer Marine Studies B.Ed program QUT
- Phil Smith Conference Convenor MTAQ Wide Bay
- Dr David Tulip, Queensland University of Technology

**Program included**

- Inspection of Junior Marine Studies Facilities and program Hervey Bay SHS
- Matching school programs to Science
- Delegation of duties
- Matching school programs
- Designing units of work in aquaculture
- Project brief to writing consultant

*In August 2002 a Junior Writers workshop held at Hervey Bay laid the foundation for the Coast and Marine Education Syllabus*

## *2003*

### *Term 1*

- Early in 2003 representatives from the committee met Mark Snartt from the newly formed Queensland Studies Authority where we learnt we could submit a syllabus under new legislation. Mark outlined to use what we had to do and Curriculum strategies branch Education Queensland gave us a grant of $4000. A further $5,000 came from Wet Paper, Marine Safety Queensland and QYA.

  So armed with this the committee set about to organise workshops, the first of which was at Mackay. With budget constraints the committee agreed that we would use our money for spartan accommodation, low cost noodles and beg our principals for travel, TRS days. All committee members were then to donate their time for the good of education and the love of the subject!

- A syllabus draft topic on fishing was developed by the committee chairman as well as a procedure for writing outcomes. This was posted on our web site and formed the basis for Workshop 1 planned for Term 2. All schools who were financial members of MTAQ were invited to the Mackay conference.

### *Term 2*

- **Workshop 1**

  Mackay State High School in June (funding from remains of Term 1 funds), where it was voted not to proceed with a competency based approach but to use existing syllabi and organise our workprograms so that we could place them on our new web site: www.marineteachers.org.au

- Ministerial permission was requested for use of the Ag Syllabus as a template and for Ed Qld Employees to put their units of work on our web site.

  This was granted later in the year and Sunshine Coast, Hervey Bay, Clontarf Beach, Mercy and Holy Spirit Colleges are now preparing materials for our first ever Marine Teachers Curriculum Exchange.

  These should be ready for launch at the end of the year and contain worksheets and unit outlines that show teachers how these schools are teaching Junior Marine Studies.

*In 2003 the committee rejected the proposal for competency based syllabus and recommended that the subcommittee go back and draft up a syllabus based on outcomes from levels 4 to 6+. It also recommended that MTAQ write to the Education Minister for approvals to set up a curriculum exchange on our Web Page and use existing syllabi as a base for our syllabus*

***Term 3***

- Workshop 2 was at Sunshine Beach SHS ($1200 - funded from members fees) in August where committee members decided to go for a Level 4 — Beyond Level 6 approach using existing syllabi as a template for design
- Ministerial permission was requested and granted for us to use the Agricultural Syllabus and other syllabus outcomes provided we seek permission to alter existing copyright materials and work closely with the syllabus manager QSA.
- Six syllabus strands were proposed and outcomes and syllabus elaborations were commenced.

*Workshop 2 Sunshine Coast*

Syllabus reference documents were:

SOSE

Technology

Science

Health and PE

Draft Agriculture

Draft strands were:

Safety

Skills

Ecology

Meteorology

Saving the sea

Industry

## *Term 4*

**Workshop 3 : Brisbane**

- This was organised for October 22 - 23 ($1200 - funded from members fees) to coincide out of hours with the Senior Syllabus Conference for trial schools.
- Delegates from 33 schools who do senior marine studies will have the opportunity on the night of October 22 to comment on the following:
- A complete proposal was in an attached file :0562 Junior Syllab.doc
- The template syllabus in the attached file Agriculture 030709.doc (Copyright QSA)
- Meetings with our web designer and contract for $10,000 signed to develop web page and administration functions. (Funds from accumulated members fees ($8,000 and Wet Paper sponsorship $2,000)

**Workshop 4: Amity Point North Stradbroke Island**

- A two day workshop was organised for schools who wish to trial the new syllabus in 2004 ($4,000 - funded from members fees)
- Members also got Snorkelling Instructor qualifications to satisfy DOEM ($1,800 - 2 Examiners funded from members fees)

**The syllabus gets a name —**

Coast and Marine Education Subject Area Syllabus
Levels 4 to beyond level 6


*Please see attached files for further information on the way we are going*

**Proposed strands**

1. Marine safety
2. Marine skills and practices
3. Coastal ecology
4. Coast and marine sustainability
5. Oceanography
6. Coast and marine industries

**Proposed organisation**

Students develop their understandings of the concepts within the strands throughout the later years of compulsory schooling.
Courses of study can be planned using learning outcomes from a single strand or from a number of strands.

*Workshop 4 Amity Point Syllabus Group meeting*

## *2004 activities*

### *Term 1*

- Workshop 5 had to be limited to a committee of 1 (Funding $0. Doom and gloom ... will we ever convince anyone to back this?
- Trial however starts at Kirwan, Sunshine Coast, Mercy College, Holy Spirit College and various other ad hoc schools

Australian Government
Quality Teacher Programme

### *Term 2*

- Workshop 6 We find Quality Teacher Program money $4,000) and with members funds ($2,500) and scrounged around from sponsors QYA we plan a final meeting in Mackay
- End of term sees us all meet thanks to the hospitality of the Goodinghams, Bakers and Mercy College canteen.. as well as $77 air fares thanks Qantas and Virgin for the price war.
- Final touches put forth and we have syllabus

*Workshop 5: Discussion of trials*

*Workshop 6 — The 2004 Team - Trial teachers Martin Taylor, Zoe Hiddins, Sheree Bell, Simone Baker and Kelly Goodingham with outgoing syllabus chairman Bob Moffatt*

## 2004 June Report to members

This report was written to determine the effectiveness of the Coast and Marine Education MTAQ Marine Studies Trial Syllabus 2003-2004 as teachers developed work programs and implemented the course. The MTAQ CME syllabus was developed to:

- allow marine studies teachers to show their school principals a QSA fully accredited Junior Marine Studies Course
- provide for a pathway for students into Senior Marine Studies and Marine and Aquatic Practices.
- offer an new and engaging low cost Year 8-10 program that can be adopted in ANY Queensland school with minimal teaching qualifications
- offer a syllabus that is outcomes based that can be modified into rich tasks or criterion based assessment.
- use existing equipment supplied to industrial arts, science, SOSE or Physical Education subject departments
- use existing curriculum materials involving one text for three years with a MTAQ curriculum exchange available to financial members

This report has concluded that a pathway is possible and that workprograms developed were low cost and did not require additional teaching qualifications. The syllabus does link to many topics in the senior Marine Studies and MAP syllabi.

Further evaluation should provided opportunities for teachers, administrators, parents, students, industry representatives, QSA staff and panel members, and career advisers to make suggestions for improving the syllabus in line with current teaching, learning and vocational developments.

Unfortunately due to budget constrains, this was not possible in this report.

## New MTAQ CME Syllabus chairperson

Sheree Bell Sunshine Coast Rep and Vanuatu Conference trip organiser has offered to take over the final stage of the CME syllabus which involves the ominous task of accreditation with QSA. Sheree has been teaching Junior Marine Studies under a criterion based scheme for over three years now and has been able to adapt the trial syllabus that involves outcomes based assessment. However like many schools who are in the transition to outcomes, she has been able to successfully report in both formats using standards and anticipated evidence statements.

## Continued funding

Thanks to our funds raised through sponsorship and members fees - see industry partners to the right, we now have the $3000 in the bank to begin the accreditation process however the time will all be voluntary. At the end of the day MTAQ own the copyright on the syllabus and will licence school systems to use it. It is hoped to second a secondary teacher from MTAQ to complete this process or we hope that Sunshine Coast will be very generous with their TRS day allocations.

Bob Moffatt

MTAQ CME Chairman

17 June 2004

## Industry partners thanked

Australian Government
Great Barrier Reef Marine Park Authority

YACHTING QUEENSLAND

Wet Paper

Queensland Government

Queensland Government

AMC
AUSTRALIAN MARITIME COLLEGE

Australian Government
Quality Teacher Programme

The project officer supplied to MTAQ has cost its industry sponsor in excess $60,000 alone

We estimate MTAQ has spent over $100,000 in syllabus development so far

***Term 3***

- Final rush to get to QSA for accreditation. All staff very helpful but process is slow.

  Tugan bypass may be complete before we get cover sorted.
- Urgent need to raise funds for printing and CD production.

  Bob lobbies hard and gets AMC on board ($2,200) as well as continuing sponsors ($10,000).
- Date set for QSA meeting and we design a 50 slide power point presentation.

  We try to second a teacher but fail this time. We will never give up however.
- Designer appointed to typeset syllabus and marketing and covers finalised.

  One way to get money back is to sell a licence and we decide to go national.
- Ministerial launch planned - We plan also for a 3 day workshop
- QSA requests cover to be different from existing QSA syllabuses. More money for designer!!

*We hand over our $3,000 cheque*

*Workshop 7: Snorkelling in Junior School discussion*

*Workshop 7: Trial school presentations*

# CME Syllabus Strands

Courses of study can be planned using learning outcomes from a single strand or from a number of strands.

1. The practices and skills strand focuses on the practices and skills that allow people to use marine and coastal environments as well as on marine and coastal situations that are potentially dangerous to humans. The organisers for this strand from which the outcomes are written are:
   - Safe practices involves an understanding of safe and unsafe situations, behaviours and their consequences.
   - Matching approved equipment with desired use is necessary to effect skills and practices.
   - Skills and strategies are required to participate in marine recreational activities.
2. The industry strand focuses on industries that are related to coastal and marine environments. The organisers for this strand from which the outcomes are written are:
   - Marine industries involves technology and design methods that take into account specific features of the coast and marine environments.
   - Marine industries are extremely diverse in their operations, employment requirements, marketing and income streams.
   - Industry involves the establishment and maintenance of systems and subsystems.
3. The oceanography strand focuses on the physical and chemical interactions between the ocean and the coast. The organisers for this strand from which the outcomes are written are:
   - Events on Earth and in the solar system effect natural systems on Earth
   - Advances in scientific research have contributed greatly to our knowledge of the oceans, the climate and coastal geomorphology.
4. The ecology strand focuses on the biological interactions that occur between the ocean and the coast. The organisers for this strand from which the outcomes are written are:
   - An organism needs to survive to the age of reproduction to continue its species.
   - Ecology involves the interaction between the living and non living environment..
5. The conservation strand focuses the sustainability of coastal and marine systems The organisers for this strand from which the outcomes are written are:
   - For 200 years European impact on the Australian coastal zone and marine environment has been significant.
   - Community groups have been working for many years to conserve our coast and marine zones.

"The syllabus is very flexible and can be taught by a first year teacher with equipment normally found in a Science Department store room"

# Coast and Marine Studies Central content

## Relationship with Senior Marine Studies

The syllabus writers have been very aware of the fact that many students will go on to do Senior Marine Studies. With this in mind the content recommended is significantly different from Senior Marine in that:

- General skills and concepts are emphasised eg Students are NOT encouraged to obtain their boat licence or SCUBA ticket
- Navigation and Marine Radio are part of boating and only briefly mentioned. There is no requirement for any skills in these areas.
- Marine conservation is aimed at the practical level and concepts of planning and marine parks are left to Senior Marine.
- There is great emphasis on longer time project work such as building an aquarium, boat hull or fishing rod. In other words, the content explores those projects which are highly engaging that teachers of Senior Marine Studies just do not have the time to do.

## Student engagement with central content

The central learning outcomes are the focus for planning learning activities and assessment tasks. Students will engage with central content when they are provided with opportunities to demonstrate central learning outcomes.

Unit writers are strongly advised that:

- The organisation of content within a strand should not be considered hierarchical.
- Any of the content can be addressed at any appropriate level and not all of the content need be addressed at every level.
- Each list should not be considered exhaustive.
- Central content should be selected to suit students' needs, interests and abilities and to take account of their prior knowledge and experiences.
- In the Coast and Marine Education subject area, there is an overlap of central content across strands. For example, safety is in the central content for the Safety strand, but is also relevant to other strands.

Possible central content of each strand is identified on the following pages.

## Practices and skills content

### *Boating*

- Types of craft, boating terms, equipment, boating skills, boating, the environment and licencing and safe practices
- Knots and ropes, splicing, knot types and uses, rope types and uses
- History of navigation, rules of the road, navigation aids

### *Fishing*

- Amateur fishing, fishing gear, commercial fishing, fishing and conservation, safe practices, ethics and etiquette, water safety

### *Snorkelling*

- Snorkelling skills, equipment, safe practices, certificates, water safety

### *Sailing*

- Types of craft, sailing skills, sailing equipment, safe practices, dingy sailing, yachting skills, cruising and racing
- Knots and lines, knot types and uses, rope types and uses

### *Canoeing*

- Kyacking and rowing, types of craft, skills, equipment, safe practices

### *First Aid*

- The DRABC action plan, Expired air resuscitation (EAR), External cardiac compression (ECC). Cardiopulmonary resuscitation (CPR)
- Burns, cuts and bleeding, marine medical emergencies, accidents with marine organisms, dangerous creatures

### *Surfing*

- Skills, equipment, the environment, how surfboards are made, accreditation, professional surfing, water safety

### *Community organisations*

- Yacht clubs, surf clubs, Coast Guard, DPI – Fisheries, Recreational clubs eg. diving, fishing, sailing, boating

## Industry content

- Aquariums
- Equipment maintenance and repairs
- Education and training
- Tourism and retail
- Mariculture and aquaculture
- Research and manufacturing
- Salvage
- Food from the sea
- Communications
- Shipping, oat building and hull design

## Oceanography content

- Weather lore, temperature, air pressure, rainfall and humidity, weather forecasting, your weather station
- Seawater, properties of sea water, gases in sea water, sea water and corrosion
- Oceans, ocean formation, depth and characteristics, the greenhouse effects, ocean shape, mining ocean resources, power from the sea, ocean management and mapping
- Wave characteristics, types, effects of waves on beaches and marine life, surfing the waves
- Currents, ocean currents, southern oscillation index, coastal currents, local currents, tidal currents
- Tide definitions, the importance of tides, causes of tides, tide height and tidal range, tidal currents, destructive tides
- Topography, coastlines, abyssal, continental shelves, reefs, ridges, sea mounts, catchments

## Ecology content

- Dangerous sea creatures, aggressors, retaliators
- Plankton, temporary plankton, permanent plankton, plankton adaptations
- Energy in the sea and energy relationships
- Plants, marine plants, dune plants, mangroves, conservation
- Animals, classifying and naming living things:
- Animals without backbones, protozoans, sponges jellyfish, corals and anemones, comb jellies, worms, animals with jointed legs, spiny-skinned animals, animals with shells
- Animals with backbones: fish, reptiles, birds and mammals
- Living together, problems with living in the sea, living in habitats, adaptations for coast and marine zones, relationships between individuals
- Sea birds: Adaptations for coast and marine life, migration patterns, different types of seabird, observing birds, significance of seabirds
- Antarctica, marine life, the significance of Antarctica
- Excursions eg: Rocky shore, mangroves, reef, sand dune, estuary

## Conservation content

- Pollution — who causes it? Sources of pollution, the cost of pollution, trashing the coastline, solutions, legislation. Marine pests and threats.
- Water quality. What determines seawater quality? Seawater quality tests. Macro-invertebrate sensitivity tests
- Taking actions to save the sea. Acting locally, thinking globally, repairing the sea
- Roles of Government and Non-Government Organisations - Local, State, Commonwealth, National Oceans Office
- Shipwrecks — importance and significance. Research projects.
- Maritime archaeology , preservation of materials, display, museums, national protected wrecks
- Environmental protection action plans - Seaweek, world environment day
- Education, Raising awareness, Best practices, Ecological sustainability
- GBRMPA Reef Guardians program - practical solutions to saving the sea.

# Kirwan Case Study

Kirwan is a big school with over 2000 students and 150 staff. Zoe Hiddins works in the science department and has a pretty good group of year 9's who trialled the outcomes from the Industry strand in Semester 1. Zoe has a BSc and grad BEd and has been teaching for 4 years and was constrained by the fact she could not report in outcomes.

## Zoe's task to year 9's

*You have been contracted by Ross Haven Marine, a local shipwright company, to investigate different materials with respect to their suitability for shipbuilding. In doing so, you are required to investigate the properties and characteristics associated with the ocean and how they impact on various materials.*

### Conditions of Task:

- Experimentation to be completed in groups of 3 – 4 students
- Written work for submission to be completed individually
- Each student is permitted two drafts only
- Several weeks class time will be allowed for completion of this report
- Report length to be 500 – 600 words.

### Outcomes Assessed:

In 4.1 Students investigate how the properties of materials influence their use.

In 5.1 Students devise tests to show that the properties of materials influence their use.

In 6.1 Students evaluate different commercial products to test if their materials meet specific standards for their use.

### Aspects

- Seawater composition (salinity, gases in seawater, dissolved materials)
- Properties associated with seawater (density, temperature, buoyancy, photic zone, water pressure, viscosity, sound)
- Processes on Earth and their impact (eg the water cycle)
- Predicting Earth processes based on seawater properties

### Possible Learning Experiences

- Excursion to freshwater source (eg Ross River) and saltwater source (eg breakwater) to collect data and water samples for further testing
- Guest speaker from Ross haven marine
- Bronze CREST award
- Experimental reports testing aspects of seawater

### Assessment

Zoe reported in outcomes but had to use a criteria sheet (school requirement) that used the clearly demonstrated, demonstrated and working towards statement.

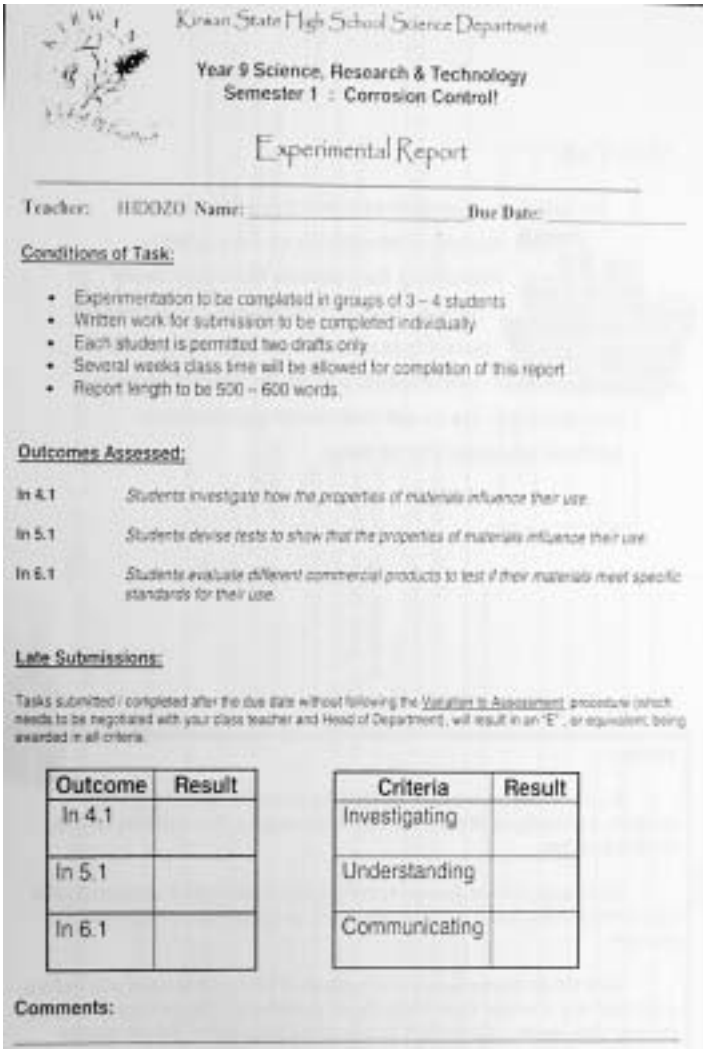
- Bronze CREST Award
- Portfolio Report (including various experimental reports)
- Stimulus Response Task

### Rich tasks, new basics

Zoe's unit could easily be developed into a rich task or as part of a international trade new basics topic

- Utilising real world problems - International trade
- Using links to industry (involving shipwrights, local business etc as source of data)

### Student method and results >>>>>>>>>>>



Kirwan State High School Science Department

Year 9 Science, Research & Technology
Semester 1 : Corrosion Control!

Experimental Report

Teacher: HODZO Name: _____ Due Date: _____

Conditions of Task:

- Experimentation to be completed in groups of 3 – 4 students
- Written work for submission to be completed individually
- Each student is permitted two drafts only
- Several weeks class time will be allowed for completion of this report
- Report length to be 500 – 600 words.

Outcomes Assessed:

In 4.1 Students investigate how the properties of materials influence their use.

In 5.1 Students devise tests to show that the properties of materials influence their use.

In 6.1 Students evaluate different commercial products to test if their materials meet specific standards for their use.

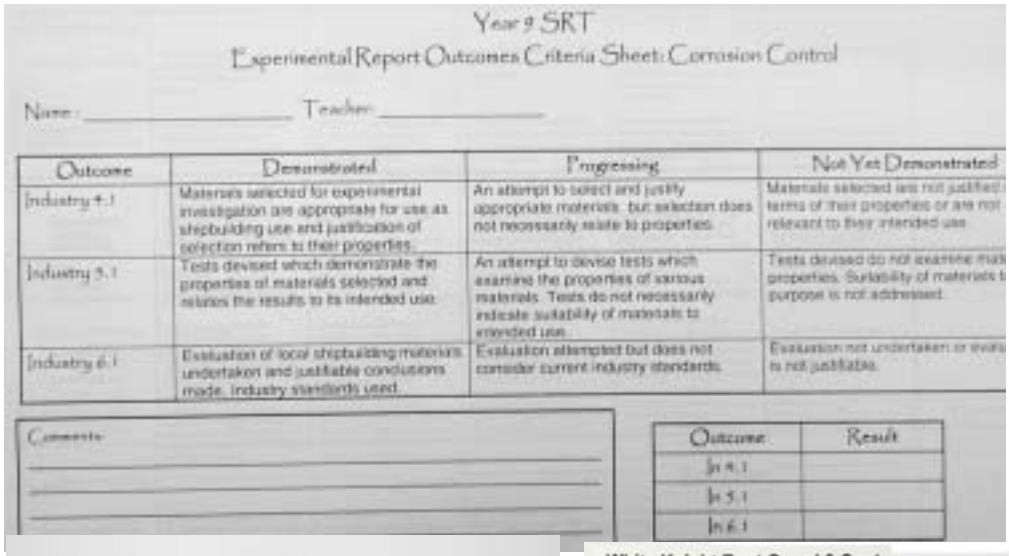
Late Submissions:

Tasks submitted / completed after the due date without following the Variation to Assessment procedure (which needs to be negotiated with your class teacher and Head of Department), will result in an 'E', or equivalent, being awarded in all criteria.

| Outcome | Result |
|---|---|
| In 4.1 | |
| In 5.1 | |
| In 6.1 | |

| Criteria | Result |
|---|---|
| Investigating | |
| Understanding | |
| Communicating | |

Comments:



Year 9 SRT

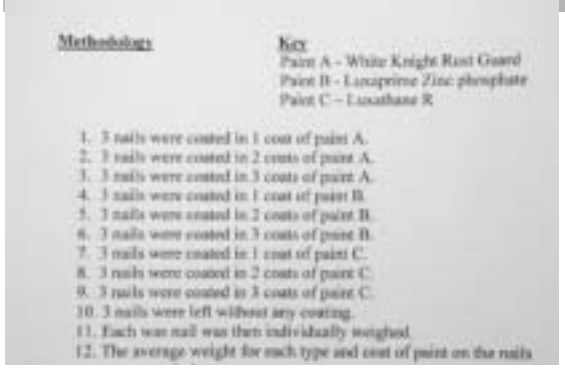
Experimental Report Outcomes Criteria Sheet: Corrosion Control

Name: _____ Teacher: _____

| Outcome | Demonstrated | Progressing | Not Yet Demonstrated |
|---|---|---|---|
| Industry 4.1 | Materials selected for experimental investigation are appropriate for use as shipbuilding use and justification of selection refers to their properties. | An attempt to select and justify appropriate materials, but selection does not necessarily relate to properties. | Materials selected are not justified in terms of their properties or are not relevant to their intended use. |
| Industry 5.1 | Tests devised which demonstrate the properties of materials selected and relates the results to its intended use. | An attempt to devise tests which examine the properties of various materials. Tests do not necessarily indicate suitability of materials to intended use. | Tests devised do not examine material properties. Suitability of materials for purpose is not addressed. |
| Industry 6.1 | Evaluation of local shipbuilding materials undertaken and justifiable conclusions made. Industry standards used. | Evaluation attempted but does not consider current industry standards. | Evaluation not undertaken or evaluation is not justifiable. |

Comments:

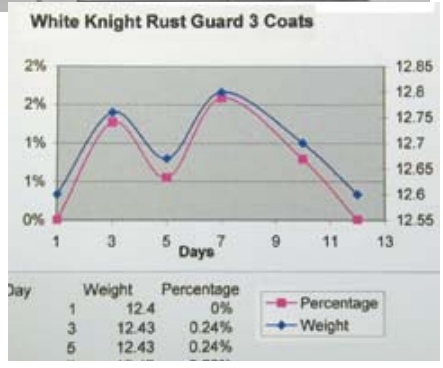
| Outcome | Result |
|---|---|
| In 4.1 | |
| In 5.1 | |
| In 6.1 | |



Methodology

Key
Paint A - White Knight Rust Guard
Paint B - Lusoprime Zinc phosphate
Paint C – Luxathane R

1. 3 nails were coated in 1 coat of paint A.
2. 3 nails were coated in 2 coats of paint A.
3. 3 nails were coated in 3 coats of paint A.
4. 3 nails were coated in 1 coat of paint B.
5. 3 nails were coated in 2 coats of paint B.
6. 3 nails were coated in 3 coats of paint B.
7. 3 nails were coated in 1 coat of paint C.
8. 3 nails were coated in 2 coats of paint C.
9. 3 nails were coated in 3 coats of paint C.
10. 3 nails were left without any coating.
11. Each was nail was then individually weighed.
12. The average weight for each type and coat of paint on the nails



# Sunshine Coast Case study

## CME syllabus trial at Sunshine Beach SHS

Here is a sample of the outcomes based using the MTAQ trial syllabus with a standard Rocky Shore Excursion.

### *MTAQ Syllabus Outcomes*

Ec 4.1 Students identify features of organisms that help them survive and reproduce

Ec 5.1 Students examine the internal and external features of organisms and relate these features to survival and reproduction.

Ec 6.1 Students evaluate the different strategies of organisms in terms of their relative efficiency in survival and reproduction

Ec 4.2 Students make generalisations about the types of interaction which take place between the living and non-living parts of the environment. [Science LL 4.3 ]

Ec 5.2 Students evaluate the consequences of interactions between the living and non-living parts of environments.. [Science LL 5.3 ]

Ec 6.2 Students prepare scenarios to describe the potential long-term effects of changes in biodiversity caused by human action on ecosystems. [Science LL 6.3 ]

### *Sunshine Beach's student outcomes for Ecology 4.1, 5.1, 6.1*

L4. Students identify features of organisms that help them survive and reproduce

L5. Students examine the internal and external features of organisms and relate these features to survival and reproduction

L6. Students evaluate the different strategies of organisms in terms of their relative efficiency in survival and reproduction

### *Sunshine Beach's student outcomes for Ecology 4.2, 5.2, 6.2*

L4. Students make generalisations about the types of interaction which take place between the living and non-living parts of the environment.

L5. Students evaluate the consequences of interactions between the living and non-living parts of environments

L6. Students prepare scenarios to describe the potential long term effects of changes in biodiversity caused by human action on ecosystems.

### *EC .1 Anticipated evidence — Sunshine Coast's interpretation*

L4. Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals

L5. Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals with appendices provided

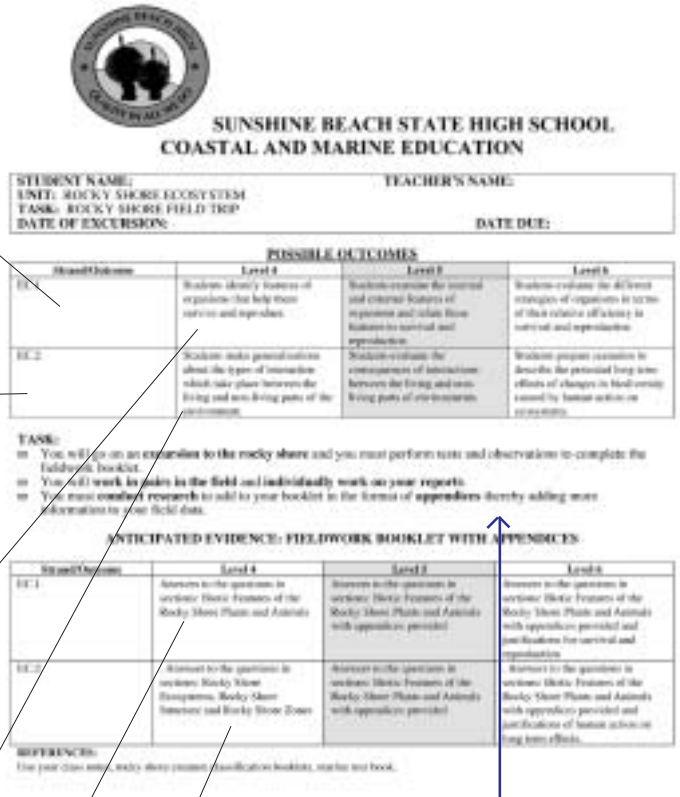
L.6 Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals with appendices provided and justifications for survival and reproduction

### *EC .2 Anticipated evidence — Sunshine Coast's interpretation*

L4. Answers to the questions in sections: Rocky Shore Ecosystems, Rocky Shore Structure and Rocky Shore Zones

L5. Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals with appendices provided

L6. Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals with appendices provided and justifications of human action on long term effects.



SUNSHINE BEACH STATE HIGH SCHOOL
COASTAL AND MARINE EDUCATION

STUDENT NAME: TEACHER'S NAME:
UNIT: ROCKY SHORE ECOSYSTEM
TASK: ROCKY SHORE FIELD TRIP
DATE OF EXCURSION: DATE DUE:

POSSIBLE OUTCOMES

| Strand/Substrand/Outcome | Level 4 | Level 5 | Level 6 |
|---|---|---|---|
| EC 1 | Students identify features of organisms that help them survive and reproduce | Students examine the internal and external features of organisms and relate these features to survival and reproduction | Students evaluate the different strategies of organisms in terms of their relative efficiency in survival and reproduction |
| EC 2 | Students make generalisations about the types of interaction which take place between the living and non-living parts of the environment | Students evaluate the consequences of interactions between the living and non-living parts of environments | Students prepare scenarios to describe the potential long-term effects of changes in biodiversity caused by human action on ecosystems |

TASK:
- You will go on an **excursion to the rocky shore** and you must perform tests and observations to complete the fieldwork booklet.
- You will **work in pairs in the field** and **individually work on your reports**.
- You must **conduct research** to add to your booklet in the format of **appendices** thereby adding more information to your field data.

ANTICIPATED EVIDENCE: FIELDWORK BOOKLET WITH APPENDICES

| Strand/Substrand/Outcome | Level 4 | Level 5 | Level 6 |
|---|---|---|---|
| EC 1 | Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals | Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals with appendices provided | Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals with appendices provided and justifications for survival and reproduction |
| EC 2 | Answers to the questions in sections: Rocky Shore Ecosystems, Rocky Shore Structure and Rocky Shore Zones | Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals with appendices provided | Answers to the questions in sections: Biotic Features of the Rocky Shore Plants and Animals with appendices provided and justifications of human action on long term effects. |

REFERENCES:
Use your class rocky shore resource/classification booklet, marine text book.

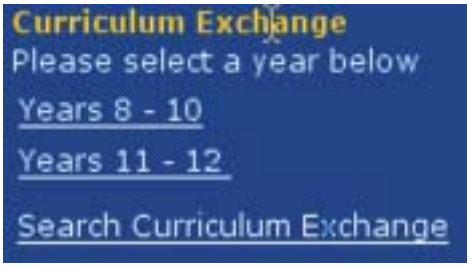
### *Students Task*

- You will go on an excursion to the rocky shore and you must perform tests and observations to complete the fieldwork booklet.
- You will work in pairs in the field and individually work on your reports.
- You must conduct research to add to your booklet in the format of appendices thereby adding more information to your field data.

Use the search function at the bottom of the choice list.

Eg: You are planning a rocky shore excursion. So type into the search function the words:

rocky shore



# Examples of the MTAQ Yr 8-10 curriculum exchange

Posted by: Sheree Bell Sunshine Beach State High School

Last updated: 9/06/2004

## Where: Years 8-10

### 1. Assessment outcomes for 7 units of work

Content area: Course outlines

File Type: Program Outline

3D Model of the coral polyp

Artificial baits – lure construction and written report

Conservation of the sea – Written Report 800 word

Rocky Shore – Field Research Booklet

Marine Plants – Informative Brochure

### 2. Revision Test Coral Polyp

Content area: Animals

File Type: Test

25 Short answer questions on Biology and Ecology or coral polyps Coral Polyps

### 3. Reef Guardians Action Plan Ideas

Content area: Saving the sea

File Type: Task

23 group project or individual student ideas on how to save the sea through the GBRMPA Reef Guardians program

### 4. Year 10 Saving the sea - reef guardians project

Content area: Saving the sea

File Type: Task

Students devise (in groups) a plan to reduce litter waste (calico bags) (reduce, recycle, reuse) in schools and in the neighbourhood Students develop an education program (signs posters, murals, newsletters) about litter and waste reduction for school and community

### 5. Year 8 Saving the Sea - Reef Guardians Project

Content area: Saving the sea

File Type: Task

Students map the catchment area of Burgess Creek, participate in water testing, visit Noosa Wastewater Treatment Plant and devise a plan to better manage the catchment area.

### 6. Fishing - Lure construction assignment

Content area: Fishing

File Type: Task

Recreational Fishing – Lure Construction A task is to design and construct a lure specifically targeted to a specific fish using particular buoyant structural materials.

### 7. Rocky Shore - Criteria and assessment sheets

Content area: Course outlines

File Type: Unit Outline

Rocky Shore Ecology ideas for assessment outlines includes – Coast and Marine Level Outcomes for Ecology, anticipated evidence, tasks, criteria sheets, standards and indicators of achievement.

The purpose of this unit is to give students an understanding of the physical elements of the rocky shore ecosystem including biotic and abiotic factors. Students will be testing abiotic factors and making inferences as to how

Posted by: Martin Taylor Sunshine Beach State High School

Last updated: 9/06/2004

### 1. Parts of an aquarium

Syllabus: Industry

Content area: Aquariums

File Type: Worksheet

Student notes or a good OHP on the nitrogen cycle in an aquarium, the parts of an aquarium and a worksheet.

### 2. Boat hull testing procedures

Syllabus: Industry

Content area: Employment

File Type: Test

Four procedures to test a student designed hull

### Hull Design Testing Procedure (The full worksheet is on the curriculum exchange - just type in hull to the search function

TEST 1 Boat Hull Speed Test (Standard Weight or Motor)

Method:

Place boat at one end of the testing tank. Attach pulley system and record weight used Use a stopwatch to time how long it takes the boat to travel 2 m. Calculate the speed by the formula

Speed = Distance /Time

Record the speed and acceleration using a graphics calculator. Copy the graph curve from calculator Repeat test 3 times and average results

TEST 2 Boat Hull Speed Test (Wind Power)

Method:

Place boat at one end of the testing tank. Turn on Fan and watch boat sail for 2 metres. Use a stopwatch to time how long it take the boat to travel 2 m. Calculate the speed by the formula

Speed = Distance /Time

Record the speed and acceleration using a graphics calculator. Copy the graph curve from calculator

Repeat test 3 times and average results

TEST 3 STABILITY

Method: Place boat in sink and add weights along one side of the boat until the gunnel is under water. Record the weight required

TEST 4 CARRYING CAPACITY

Method: Place boat in sink and add weights along the centre of the boat until the boat takes water over the gunnel. Record the weight required.

## THIS REPORT RECOMMENDS THAT

- the syllabus be submitted to QSA for accreditation subsequent to minor modifications and editorial changes indicated throughout the trial period, Jan 2004- November 2004
- a one day workshop on the syllabus be held at the MTAQ annual state Conference at Noosa in 2004 (see below).
- a teacher be seconded to assist schools (GBRMPA to assist)
  - develop syllabus elaborations for the five syllabus strands for the MTAQ web site
  - assist schools to write workprograms and assess in out-comes
  - develop task sheets and anticipated evidence assessment statements
  - collect workprograms, task sheets etc and place them on MTAQ web site
  - liaise with QSA and Education Queensland on current pedagogy to ensure these are embedded in school workprograms as well as licence and copyright issues
  - liaise with teachers, administrators, parents, students, industry representatives, QSA staff and panel members, and career advisers to make suggestions for improving the syllabus
  - network and run in-service workshops in the ten MTAQ regions with other MTAQ industry partners


*Syllabus sponsorship acknowledgements be given to GBRMPA for assistance with teacher secondment*

### NOOSA HALF DAY CME WORKSHOP

This will be held in conjunction with our State conference

***DATE, TIME AND VENUE***

Wednesday 29 September 9am - 12noon Moana Conference Room, South Pacific Resort, 179 Weyba Rd, Noosaville: Ph: 5473 1200

***PROGRAM***

| | |
|---|---|
| 9.00 am | Welcome and Syllabus presentation - Sheree Bell MTAQ Syllabus Chairperson, Questions on the syllabus design |
| 10.00am | Evaluators report |
| 10.30am | Morning tea |
| 11.00am | Group workshops run by trial school teachers<br>A. Schools with outcomes based assessment<br>B. Schools contemplating CME as part of rich tasks<br>C. Schools using outcomes but reporting in criteria |
| 12.30pm | Lunch and informal networking |

***HANDOUTS INCLUDE***

Workprograms from Sunshine Beach, Kirwin and Mercy College

***COST***

MTAQ and MESA financial members $Nil, Non-financial members $55

# MTAQ DECISIONS AGM SEPT. 2004

- The syllabus be submitted to QSA for accreditation and MTAQ pay $3000 from members funds for this process
- A position called Syllabus Officer (Hon) to be created on the executive to carry the syllabus forward to 2005 and beyond
- To recover the funds MTAQ Syllabus Officer (Hon) to organise:
  - Sale of a annual licence, the licence fee NOT to exceed the School B membership (Present is $66)
  - Advertise the syllabus NATIONALLY
  - Print 3000 copies of the syllabus and distribute to members
  - Press 500 CD's and place syllabus and MTAQ curriculum exchange on the disk
  - Sell add space in the syllabus to AMC, GBRMPA, Wet Paper and Yachting Qld
- To administer the syllabus MTAQ to
  - contract out a administration firm to complete the tasks of the syllabus officer as outlined above
  - that can work with our web designer to create with the admin. from a mechanism to track licences and to make sure they keep up their payments annually and inform them of updates to the syllabus
  - work with the arrange whatever meetings are necessary to
- Approvals need for:
  - Cover on and marketing materials on following pages
  - Selling and administration of the licence
  - Creation of Syllabus Project Officer (Hon)
  - Contracting of admin. firm to assist, printing and managing the resources
  - Selling adds in the syllabus and accepting our sponsors
  - Ratification of the following copyright statement and acknowledgements

*AGM Noosa 2004*

Copyright and licensing details (Bob Moffatt to work out final wording with Ed Qld)



Acknowledgements

The Marine Teachers Association of Queensland acknowledges the assistance of the Queensland Studies Authority, Education Queensland, Australian Maritime College, Yachting Queensland, Great Barrier Reef Marine Park Authority, Wet Paper Publications and Maritime Safety Queensland in the development of this syllabus and their permission to reproduce text, tables and figures from their generic documents.

The Marine Teachers Association of Queensland is also grateful to the following members who participated in syllabus development from 2000 – 2004.

Principal authors

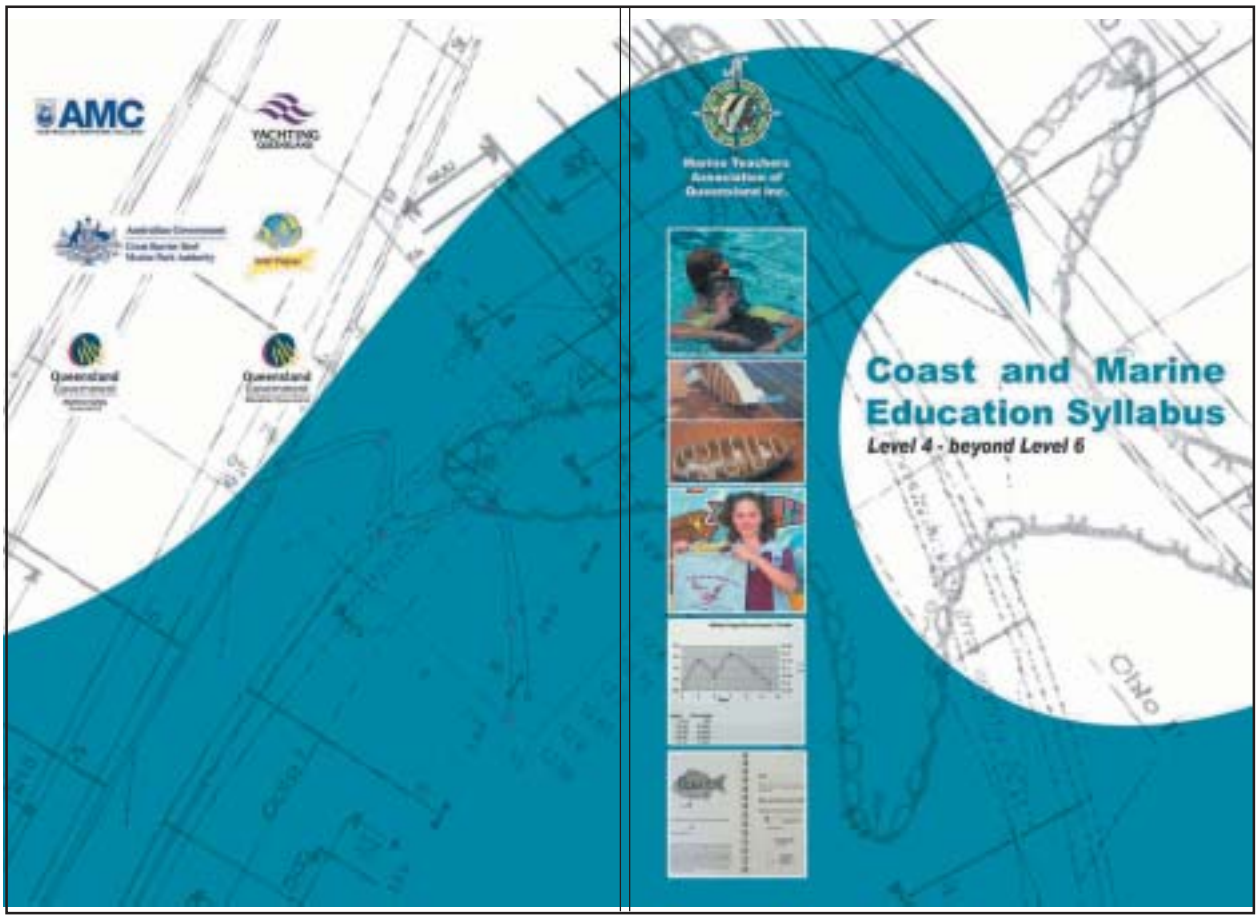
Sheree Bell, Kelly Goodingham and Bob Moffatt

Committee and contributing authors

Rob Armstrong, Simone Baker, Sheree Bell, Karen Beutel, Dr Beth Brook, Dr Terri Burnett, Angela Colliver, Mark Cooper, Brendan Crowley, Karen Domotor, Bryce Goldburg, Kelly Goodingham, Mike Halpin, Paul Hand, Zoe Hiddins, Lloyd Jones, Meg Jones, Peter Kiernan, Kym McKauge, Bob and Paula Moffatt, William Rankine, Craig Reid, Adam Richmond, Stuart Russell, Tim Ryan, Peter Slaughter, Phil Smith, Mark Snartt, Kathy Steggles, Martin Taylor and Jim Townson.

### *Proposed syllabus cover*

- Our designer has come up with the following cover subject to the receipt of sponsors cheques




## *Term 4*

### *Accreditation process*

- The syllabus is now with the QSA committees for accreditation due March 2005.
- Special evaluation committee to be set up and paid for from our $3000

### *Copyright*

- Letter and discussions with Education Queensland reveals that
  - MTAQ owns copyright.
  - Has no objection to MTAQ charging schools to use syllabus by way of membership
  - No warranty or licence required

### *Secure funding for cover and syllabus CD*

- Bob to source funds for printing of syllabus and CD
- Logos and cover to be finalised by January 2005

### *Syllabus Awards presentation*

- Proposed December 3rd
- Bob to hand over to Sheree Bell

**Syllabus Birth - 2005**

## *Birth of the syllabus*

- MTAQ web site news to take over further syllabus reporting and development following the birth in 2005