



# SEA SAFETY

INFORMATION BULLETIN

Number 1 - February 2005

## The safety challenge

Welcome to the very first edition of the SPC Sea Safety Special Interest Group. The commencement of this bi-annual publication results from the recommendations of the FAO/SPC Regional Expert Consultation on Sea Safety in Small Fishing Vessels and the 4th SPC Heads of Fisheries Meeting. The recommendations of these meetings are discussed in the SPC section of this bulletin but I would like to use this first editorial to note that one of our challenges in the future development of the bulletin is to monitor progress around the region over time in the development and implementation of national sea safety strategies as proposed by the consultation. Clearly, the first task is the identification of "drivers" in each country. Who is out there that cares enough about sea safety issues to stand up and take on the work of promoting and implementing national strategies.

There is a challenge for all countries to identify the "drivers" and look to the establishment of a sea safety organizational framework. Hopefully, this bulletin will succeed in providing a forum for monitoring progress in addressing the recommendations of the Consultation at the national level. In pursuit of this, we will include a section in each bulletin on "Progress with the Implementation of Consultation Recommendations". This is posed as an especially important section for member and reader contributions, particularly in reporting national sea safety activities.

In consultation with SPC, we have agreed that this bulletin should be published in two parts. The printed and mailed publication will be a shorter version of the more detailed web and email version. The mailed publication will also contain an appended document of sea safety resource material. In this first edition, we have included the text for a radio play on sea safety and the second edition will feature the guidelines for small vessel Safe Operational Plans.

*(Editorial continued on page 3)*

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## ■ The FAO/SPC Regional Expert Consultation on Sea Safety in Small Fishing Vessels

In early 2003, the Food and Agriculture Organization (FAO) of the United Nations undertook a survey on fisheries-related sea safety in Tuvalu, Tonga, Samoa, Fiji Islands and Kiribati. The objective was to consolidate experience gained by selected countries in safety at sea, and to improve future activities in the region. A major conclusion of the survey was that the majority of maritime casualties and loss of life in the Pacific Islands region is associated with small fishing vessels, which usually receive the least attention in terms of legislation, construction standards, enforcement strategies, regional discussions, training on proper use, and other schemes to improve safety. This survey showed that many issues involve law, naval architecture, search and rescue, community awareness, maritime administration, fisheries and other fields. The FAO and the Secretariat of the Pacific Community (SPC) agreed that a meeting attended by motivated, expert people could have a very powerful effect on regional and national sea safety programmes. The FAO/SPC Regional Expert Consultation on Sea Safety in Small Fishing Vessels was held in Suva, Fiji, from 9–13 February 2004.

The purpose of the FAO/SPC expert consultation on sea safety in small fishing vessels was two-fold:

- To work on four important issues in fisheries sea safety from the perspective of several relevant disciplines. These were:

- drafting appropriate sea safety regulations for small fishing vessels
- improving sea safety awareness programmes
- improving the safety of fibreglass

skiffs through better construction standards

- enhancing systems of sea-accident data recording.

- To formulate plans for future sea safety programmes.

Participants included artisanal fishers, a legal specialist, boatbuilders, and personnel from government fisheries and maritime agencies. They participated in their personal capacity, rather than representing their country or organisation. The aim was to compile important considerations on the issues, including lessons learned from recent experience, and to advise national authorities about the appropriate action to take. The findings were compiled into a set of recommendations, which aim at developing and implementing coordinated national sea safety strategies.

### Recommendations

The expert consultation recommended that improved small boat safety would best be achieved by carrying out coordinated national strategies, which should include:

- generating national political will to improve small-vessel sea safety
- supporting (and where necessary establishing) a consultative national stakeholder framework for small-vessel sea safety, and the identification of committed people (e.g. national sea safety coordinating groups)
- continuing ongoing sea safety awareness programmes, with special emphasis on developing ways to effectively distribute updated

- materials, and continuing evaluation of impact of these programmes
- developing sensitive legislation for small fishing vessels, including the carriage of safety equipment, training and certification requirements and construction standards
  - determining minimum mandatory requirements for each class of small fishing vessel, taking full account of the difficulties associated with cost, remote communities, and availability of equipment
  - using existing institutions and community-based structures for increasing compliance, data collection, training and awareness, taking into account the time and resources required
  - developing and maintaining national sea accident databases, possibly using a regional approach to coordinate and assist efforts
  - supporting the establishment of an SPC fishing vessel safety-at-sea special interest group and associated newsletter, and the development of additional sea safety awareness resource materials

*(continued on page 4)*

### **MESSAGE** *from the Director, Marine Resources Division, Dr Tim Adams*

98% of the Pacific Islands region consists of sea. Small boats are still the main form of inter-island transport, and most Pacific Islanders fish. The safety of those at sea touches ALL of us in a way that applies to very few other regions of the world.

Life is precious, and you would think that a life would be the most precious possession of all to the person who owns it. But seafarers take risks if they are left to their own devices. Familiarity breeds contempt (until the day that something unexpected happens). Keeping people safe from harm at sea, like preventing road accidents, requires active effort from governments and communities, and can't just be a self-help exercise.

This SPC bulletin is the result of a renewed regional determination to marshal this effort. To help governments and communities to help their people. To demonstrate how risks can be reduced. And to publicise good things that have happened around the region and around the world. Together, we can save lives.

### **Editorial** *(continued from page 1)*

The e-newsletter will be available by email and on the SPC website. This will contain more detailed articles and website links and is intended as a mechanism to promote a sea safety forum between SIG members, policy makers and sea safety stakeholders.

As with all the SPC Special Interest Groups, members and readers are encouraged to contribute to each bulletin. I would also appreciate feedback as to how we might improve the bulletin or what additional sections could be included.

In publishing this first issue, there is a challenge for sea safety "drivers" to step forward in each Pacific Island country and show their hands. Email me at [waltonz@paradise.net.nz](mailto:waltonz@paradise.net.nz).

Hugh Walton  
Editor

(continued from page 3)

- investigating the advantages and disadvantages of the establishment of small fishing vessel registration and inspection schemes
- directing formal and informal training at fishers, fishing communities, government staff, NGOs, the private sector and other stakeholders
- considering the inclusion of sea safety as an integral part of fisheries management and development initiatives
- developing a phased implementation of appropriate enforcement procedures to ensure compliance.

### Implementation

Most Pacific Island countries have a long way to go before small boat operators can venture safely on the ocean. What is required is the political will to improve small-vessel safety, identification of committed people or drivers, development of long-term coordinated national strategies and, in some instances, well targeted assistance from international organisations. SPC is certainly committed to assisting with the coordination of future activities in this area while continuing with the promotion of safe boating practices in the region.

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### ■ Sea Safety Posters Translated

The Fisheries Training Section regional awareness campaign on sea safety is getting its second wind. The campaign, targeting small vessel operators, started in 1995 with the production of a series of four large-size posters in English and French.

These posters have been a useful vehicle for the wide display of the sea safety message in Pacific Island countries and territories. In line with Mike McCoy's 1991 recommendation that "education through publicity campaigns, repeated and reinforced over a long period of time seems to offer the best chance for improving the safety at sea for artisanal fishermen," the Training Section felt a logical next step was to run a second print of the 1995 posters, this time with captions in local languages.

Using its core operational budget and a contribution from SPC's Executive, the Training Section was in a position to initially cover three countries. Kiribati and Niue were selected in August 2003 after discussions with their respective Heads of Fisheries during the Third Heads of Fisheries meeting. A request for sea safety

education materials from the New Ireland Commercial Fisheries Association prompted the inclusion of Papua New Guinea in the list of countries to be served.

While Training Section staff were liaising with fisheries agencies in Niue, Kiribati and Papua New Guinea to produce poster captions in their respective languages, SPC's graphic artist gave the 1995 posters a new look. Distribution of posters for Kiribati and Papua New Guinea took place early in 2004 (four sets of 500 posters for Kiribati and 5000 for PNG). The Niue posters were distributed in June. Finally, Tokelau made a request at the Fourth Heads of Fisheries meeting and by December 2004 the useful awareness materials had been shipped to the Fisheries Office of Tokelau for a subsequent wide distribution on the three atolls of the country.

A small grant from Taiwan/ROC will enable the coverage of some additional countries in 2005. Interested fisheries agencies should contact the SPC Fisheries Training Section.

## ■ SPC Sea Safety Resource Materials

### Course and workshop materials

- FAD Fishing Skills Workshop, Teaching Modules :
- Module 2 : Safety at Sea and Small Boat FAD Fishing
- Kit of teaching materials for a two-week Pre-Sea Safety and Fishing course (screening of potential crew of longliners and purse-seiners)
- Basic sea Safety Certificate (Learner's Guide, Trainer's Guide, Overhead Transparencies)
- Restricted Class 6 Master/Engineer Certificate (Learner's and Trainer's Guides for modules SPC 021B – Nautical Knowledge-, SPC 022B – Diesel Engineering, and SPC 022C- Outboard Motors)

### Manual for crew members

- Safety Aboard Fishing Vessels (A practical Guide for Crew Members)

### Public awareness materials

- 5 posters
- Logo sticker “Think Safety at Sea”
- A4-size sticker “Small Boat Safety Check-list”
- Laminated card “Small Boat Safety Check-List/Five Minutes Which Can Save Your Life”
- 8 TV clips “Boat Safety Tips”
- Audio-tape programme on sea safety

### Video Tapes (in either PAL, NTSC or SECAM systems)

- ‘Better Safe than Sorry’
- ‘Survival at Sea - A Kiribati Tale’
- ‘Rambo Goes Deep sea’

### Safety Management Systems

- Safety Management Systems for vessels under 500GT (leaflet)
- Getting the best of your Safety Management System (leaflet)
- Model Safe Operational Plan (SMS for small outboard-powered commercial vessel)
- Model Safety Management Manual and Logbook (SMS for medium-to-large size longliner)

Some of the materials listed below can be downloaded from the SPC website at: [http://www.spc.int/coastfish/Sections/training/Training%20material/Training\\_material.htm](http://www.spc.int/coastfish/Sections/training/Training%20material/Training_material.htm)

These materials can also be ordered directly from the Fisheries Training Section (SPC, PO Box D5, 98848 Noumea, New Caledonia).



# Progress on the Implementation of the Consultation Recommendations

## ■ Sea Safety and Fisheries Management in PNG

As the largest country in the region, PNG faces one of the biggest small boat sea safety challenges. The size of the country, the length of the coast line and the lack of well-developed coastal shipping means that for many outer island and rural coastal communities, long and potentially risky trips in small outboard-powered open vessels is a daily reality.

In the absence of established reporting networks and a coordinated search and rescue capacity, the real extent of the problem is not fully known. However, missing small boats are a regular (and often unreported) occurrence. Reliable figures on costs of search and rescue and loss of life are not available, and there is no current national initiative to address the small boat safety issue.

However, small boat safety is being included in various project-based activities

around the country, and this has been assisted by the recent printing of the SPC safety posters in Tok Pisin.

In New Ireland Province, the National Fisheries Authorities Coastal Fisheries Management and Development Project has included sea safety promotion as a component of the project's marine resource management promotional activities. The first project, sea safety activity, has been the production of a radio play on safety at sea. This play has been translated into Tok Pisin and will be broadcast on provincial radio networks throughout PNG.

Tape copies of the play (as produced by the CFMDP) will be made available to SPC for distribution to interested parties.

*For more information,  
contact [waltonz@paradise.net.nz](mailto:waltonz@paradise.net.nz)*

### The Coastal Fisheries Management and Development Project Sea Safety Radio Play

*This extract of the English text of the radio play is reproduced for reader information.*

**Brenda:**

Edwin, I'm really worried, Samuel rushed off to go fishing yesterday morning and he never made it back last night. He has never stayed out fishing overnight before. Maybe his boat capsized in the big waves. It really blew last night.

**Edwin:**

Did he tell you where he was going?

**Brenda:**

No, he was in such a hurry he didn't have time to tell me anything. He has so many different fishing spots, he could be anywhere. I noticed this morning he forgot to take his tool box so if his engine broke down he won't be able to fix it.

**Edwin:**

Did any of the other fishermen see his boat when they were out yesterday?

**Brenda:**

They didn't go out because the weather forecast gave a small craft warning. It said there was a storm coming. Samuel was the only one who went out yesterday. Now the waves are so big that the fishermen can't get out to look for him.

**Edwin:**

I better call Search and Rescue in Kavieng. They will have to send out a boat to search for him. Sound of telephone ringing

**Edwin:**

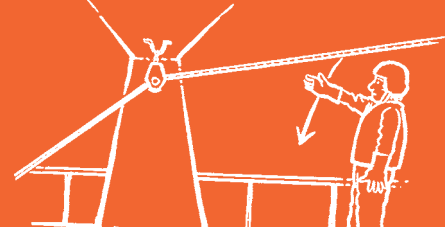
Hello, I'm calling from Lihir Island. One of our fishermen went out early yesterday morning and he hasn't come back. The waves are too big here for our small boats to go out to look for him. We need your help. The man's name is Samuel Tamba. The family is worried that something has happened to his boat in this stormy weather.

**Search and Rescue:**

We need more information. When exactly did he leave and when was he expected back? Do you know where he went fishing? What type of boat is he using? Does he have a spare engine? Does he have a VHF radio or EPIRB?

**Edwin:**

His wife said that he did not tell anyone where he was going to fish, apparently he was in a hurry to get to the fishing grounds. He left sometime before daylight yesterday but he was expected back before dark. He has a white banana boat with a 40 horsepower outboard engine. I know he doesn't have a spare engine. I don't think he has a radio. I've never heard of an E-bird or whatever you call it. What is that?



## ■ New Course Proposed for USP Marine Studies

By Sunia Lavaki

A new course in Marine Skills has been proposed to the Academic Committee of the University of the South Pacific by the Marine Studies Programme (MSP) of the School of Pure and Applied Sciences.

In proposing the semester-long Year 2 course, the MSP notes that working on small vessels at sea is one of the most dangerous of all professions. Safety at sea has been identified as a critical issue in the South Pacific by FAO and SPC. Fisheries divisions in the region who employ USP graduates have been critical of their lack of basic marine skills and have requested courses on occupational health and safety at sea (SPC Fourth Heads of Fisheries Meeting, 2004). This introductory course would provide students intending to work in fisheries and marine science in the South Pacific with a basic competence in small boat operations, safety at sea, position finding, navigation and pilotage. To maintain tertiary standards, this skills-based course is set in an academic framework of geography, cartography, meteorology and oceanography and is related to other courses in the MSP programme.

Because of the importance of international standards in occupational health and safety, the course will be equivalent to the internationally recognised SCTW Basic Certified Seafarers qualification where possible, and specialist subjects given by certified instructors (e.g. St Johns First Aid Course; Occupational Health and Safety by FIT Maritime Training School instructors; PADI Discover SCUBA course by a PADI-certified instructor. The course will also include a range of vessel-operated sampling techniques, including sonar, salinity and temperature profiling, use of

plankton nets, and bottom trawling, dredging and grabs, and dive techniques.

The major questions examined in the course are:

- What are the hazards at sea and how can they be avoided?
- How do we find our positions at sea? (charts, compass, GPS, radar)
- How to operate a small vessel with safety? (seamanship, outboard operation and maintenance, pilotage)
- How do we prevent accidents at sea? (weather forecasting, safety equipment, contingency plans)
- What happens if things go wrong? (emergency procedures, fire-fighting, survival at sea, first aid)
- What are the environmental impacts of shipping, wastes and discharges, and spills?
- How are vessels used in marine research? (ship-based survey techniques)
- How is SCUBA used in marine research, and what are the hazards?

The proposed topics for the new course are:

- Topic 1: Introduction to meteorology and oceanography: weather patterns, winds, waves, tides and currents, and hazards for small vessels at sea.
- Topic 2. Coastal geography: cartography, navigation charts, symbols, beacons and lights.
- Topic 3. Introduction to small vessels, construction, designs, types, power, operations.
- Topic 4. Safety at sea: introduction to seamanship, knots and splices, anchors, safety equipment.
- Topic 5. Finding positions using compass and GPS.

## Training Activities

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- Topic 6. Emergency procedures at sea: man overboard, abandon ship, radio procedures, distress flares (FIT Maritime training School).
- Topic 7. First aid for seafarers (St John Ambulance certificate)
- Topic 8. Environmental best practice at sea; responsibilities under MARPOL.
- Topic 9. Introduction to use of vessel-based marine survey techniques: echosounders, sonar, water sampling, plankton nets, dredges, grabs.
- Topic 10. Introduction to diver survey techniques (PADI Discover SCUBA course)

It is intended that the course will be a core module in the approved SSED programme, BA Marine Affairs (Inshore/Offshore Fisheries Management), the BSc (Marine Science) and proposed BSc in Environmental Science (Marine Emphasis). It would be an elective in the other Marine Affairs Programmes, including the Certificate/Diploma in Ocean Resources Management and the BA in Marine Affairs.

*For more information on this new course, contact  
lavaki\_sb@usp.ac.fj*

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### ■ The PNG Small Fishing Operations Course

In 2001, the PNG National Fisheries College, with technical assistance from the AusAID funded National Fisheries College Strengthening Project (NFCSP) and the SPC Fisheries Development Section, commenced development of a two week transportable training programme in Small Fishing Operations.

The competency-based SFO programme is offered in two parts and has grown to be one of the most popular courses offered by the National Fisheries College. The course targets the operators of small craft and focuses on the principles of the Safe Operational Plan as a guiding tool for the safe and effective planning and undertaking of small boat fishing operations.

Since approval by the PNG Fisheries Training Advisory Committee (FTAC), the course has been variously delivered at the College in Kavieng and in various coastal communities including Alotau, Lae, Madang, Buka, Kimbe and Rabaul. The course has also been adopted as a standard training module for the European Union Funded Coastal Fisheries Development Project.

#### Course outline

These SFO qualifications provide individuals with the skills needed to work in a small fishing operation. This includes basic safety, risk management and hazard control, the practical skills of boat and engine maintenance, and the safe use of various types of fishing gear. Basic resource management and small business management are also included. The course is particularly applicable for people working on small fishing boats and running a small fishing business.

#### Course objectives

1. To give participants basic fishing skills and safety knowledge that will make them capable of confidently and safely undertaking a career on a small fishing boat. Participants are made aware of small boat safety, safe operation and maintenance of gear and equipment, safe food handling, sanitation and hygiene, financial and resource management. The SFO course prepares participants to fully understand the necessity of working



## Training Activities

- according to Safe Operation Plans (SOP) to ensure that they initially organise their vessels to venture on safe fishing trips and to also be able to deal with emergency situations at sea.
2. The participants are taught deepwater bottom fishing and mid-water fishing techniques to enable them to target the offshore pelagic species in demand by the export markets. This involves theoretical understanding of the methods to be employed followed by practical construction of gears and fishing exercises. The main fishing methods to be demonstrated during the course are: Deepwater bottom reel fishing and deepwater bottom vertical longline, trolling, midwater vertical longline, 50-hook horizontal longline, ika-shibi (squid and bait jigging, light attraction methods, pelagic fish jigging) and palu-ahi (chum fishing for pelagic fish).
  3. Proper fish handling, storage on ice and processing techniques are also part of the training that enables the fishers to maximise on their returns.
  4. The participants are made aware of hazards in the workplace and the need to conform to safe working habits.
  5. Environmental issues and controlled fishing practices are stressed for the protection of marine life and coastline preservation to lay a basis for a sustainable fishery.
  6. The course concludes with basic economics understanding and small craft management methods, including maintaining a logbook and the observance of vessel costs and returns details.
  7. The SFO course provides an appropriate and approved programme of certification for fishermen in the PNG fishing Industry and as such, offers a national industry standard recognised as acceptable for operation of small fishing boats and businesses.

## WEBSITES

Even in more rural locations around the Pacific, the use of computers and access to the internet is becoming more common by the day. It is a wonderful thing to sit in an isolated Pacific location and be able to dial up the World Wide Web, and when you do, there is a simply staggering amount of information.

Just go to Google (or any other search engine) and type in Small Fishing Boat Safety; within seconds there is page after page of web sites with an interest in safety at sea. Interestingly, SPC publications and programmes on small fishing vessel safety feature with some prominence, and there is a huge range of sites to visit.

Appreciating that the printed version of the SIG bulletin will not contain full

technical reports and information, the Safety at Sea SIG and the SPC Information Section will offer a reader information service whereby safety-related questions could be followed up with information searches and printed, mailed responses. Reader feedback on the usefulness of such a service would be appreciated.

In preparing this first edition of the sea safety SIG, I have spent some time following up on safety-related websites. Rather than list interesting site addresses here in this first bulletin, I would like to encourage readers and members to let us know areas of interest we can follow up on with web searches. Then we can report back in later bulletins.



## ■ Emergency Position Indicating Radio Beacons – The Fisherman's Friend

One of the interesting debates during the FAO/SPC Expert Consultation on Sea Safety in Small Fishing Vessels was in regard to technology and sea safety — more specifically, the possible role of EPIRBs in small boat safety. The debate was essentially whether it was practical to look at promoting EPIRBs as a principal safety mechanism for small boats in the Pacific Islands. On the negative, the argument says that EPIRBs are too expensive for Pacific Island small boat operators, that Pacific Islanders would not know how to use an EPIRB and there would be too many false alarms.

The positive argument is that it is important to look to the future. EPIRBs are proven life savers and search and rescue money savers. EPIRB use is not difficult and can be simply demonstrated. It could also be argued that the cost of EPIRBs is minimal compared to the costs of a search and rescue operation.

In December, 2003, the Provincial Government of New Ireland Province in Papua New Guinea mobilised a search and rescue operation for two banana boats

reported missing with 19 persons on a trip from Kavieng to Mussau Island. The government chartered two search vessels for five days, but the missing vessels were not found. When they were eventually picked up by a purse-seine vessel, that vessel had to cease fishing and deliver the missing persons to the nearest port, Honiara in the Solomon Islands. The fishing company paid for their travel to PNG and the provincial government undertook another charter to collect the missing 19 and return them to Kavieng. The estimated cost to all parties was well in excess of K100,000 — that would buy a significant number of EPIRBs.

When it comes to safety at sea, it is always useful to consider the question, what is a life worth? Most would agree that you can't put a money value on that. For small boat operators who are concerned to play it safe, there is no doubt that an EPIRB would be a wise investment.

Thanks to BoatSafe.com, the following articles on EPIRBs are reproduced so that readers can make their own judgment on the value of EPIRBs. The prices quoted are in USD.

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## ■ EPIRBs – You Bet Your Life

Most everyone has some sort of life insurance, right? You pay every month or it is deducted from your check. Well, I submit that the policy you pay for is not life insurance at all, it is death insurance. You get no benefit from it until you are no longer alive! Real life insurance comes from the money you spend on things like VHF radios, life rafts, first aid equipment, navigation equipment and, what this

article focuses on, the Emergency Position Indicating Radio Beacon (EPIRB).

An EPIRB is a small battery-powered transmitting device that is carried on board. As the name implies, it is used only in case of emergency and usually only as a last resort, when your marine radio is inoperable or out of range. There

## Technology and Safety

are several types of EPIRBs. If disaster strikes, some float free and automatically activate; others must be activated manually. All EPIRBs float and will send out a continual signal for 48 hours. Since EPIRB signals are primarily detected by satellites, occasionally there may be a delay in detection (perhaps an hour) because there is no satellite currently in the area to pick up the signal. Once activated, the EPIRB should be left on to make sure the signal is available for detection by the satellite and for homing in on your location.

EPIRBs that operate on 121.5/243 MHz (category II) are the least expensive and least capable. They may cost around USD400. These were designed in the 1970s to alert aircraft flying by. They are not well-suited for satellite detection

because of the problem of distinguishing them from other signals on the same frequency. Often, multiple passes of the satellites are required to identify the signal, which can definitely delay the rescue.



### **The one to get is the 406 MHz EPIRB**

(Category I); this includes a 121.5 MHz signal which is mainly used for homing. This one is more expensive, but what is your life worth? Response time to the 406 EPIRB is dramatically reduced, and the position information it provides is much more accurate. Additionally, the 406 EPIRB's signals are coded, allowing non-EPIRB

Category I, 406 MHz model	Category II, 121.5/243 MHz model
Global detection - Regional satellite earth station not needed	Regional earth station needed — not available in many ocean areas. Potential for detection by overflying aircraft.
Reliable beacon with low false alarms and high probability of detection.	Beacons often incompatible with satellites. Designed for detection by aircraft. High number of false alarms is typical.
Beacon signal coding and exclusive international use of the 406 MHz frequency band for distress beacons assures a signal received is from an EPIRB — no problem with false alerts from non-beacon sources	High false alert rate due to alerts generated by other transmitters within the 121.5 MHz
1.5 nautical mile accuracy and a second signal provided to use for homing.	10-20 nautical miles accuracy. Search and rescue forces can home on the primary signal.
Beacon is coded with owners name, address, phone, vessel type etc.	No way to know whether signal is from an EPIRB, similar aviation beacon, or non-beacon source. No coded information with signal.
Good ambiguity resolution, i.e. can promptly launch rescue unit to a known position with an alert from a single satellite pass.	Hard to know which of two separate positions calculated with first satellite pass is the beacon location. Usually must wait for a second satellite pass to resolve.

signals to be filtered out. They also provide other valuable information which will help the search and rescue efforts. At the time of purchase, you can register your EPIRB and the coded signal will include your name, address, phone number, vessel description, and an emergency contact shoreside who will know of your plans and capabilities. Once the satellite picks up the signal and transmits it back, the search and rescue team knows where you are and who you are.

The 406 EPIRB is carried on all US-flag merchant vessels and is required on commercial fishing vessels operating beyond three miles from shore (unless they do not have a galley and sleeping facilities). EPIRBs are also required to be licensed by the Federal Communications Commission. They should be listed on your ship's station license. Although EPIRBs are not required on recreational vessels, the USCG strongly recommends them and strongly suggests that the choice be the Category I, 406 MHz model. Its long-reaching, long-lasting signal can make a significant difference in the speed and effectiveness of rescue efforts.

In a recent test of the 406 MHz model, a Naval Academy midshipman found out how effective it was. The test signal was identified within four minutes and pinpointed within 15 minutes. If that is not enough to convince you, the comparison chart below may help you make up your mind whether or not you want to bet your life to save a little money.



### How much is it?

A quick search on Google with the query 'price of EPIRB's' produces a wide range of results. This page from US site Boatersland Marine is a good example.

#### ACR Survival Gear Pouch



Buoyant survival equipment pouch  
**\$29.99**

#### ACR Rapid Ditch Bag



Buoyant Abandon Ship Survival Gear Bag  
**\$99.99**

## ACR Rapid Ditch Express Bag



Bulkhead Mount  
Buoyant Abandon Ship  
Survival Gear Bag  
**\$69.99**

## ACR AquaFix 406 GPS Personal EPIRB



Smallest and most functional P-EPIRB available; can be easily carried in a pack or on a life jacket; small enough to wear on deck by yachting racers, crew, solo cruisers, or any marine enthusiast  
**\$589.99**

## ACR 406 MHz Personal Locator Beacon with GPS Interface



Transmits on 406 MHz via COSPAS-SARSAT satellite system with your registered unique, digitally coded distress signal and 121.5 MHz (SAR homing frequency). Recessed, waterproof GPS/programming interface (NMEA 0183)  
**\$587.99**

## ACR 406 MHz Personal Locator Beacon



Transmits on 406 MHz via COSPAS-SARSAT satellite system with your registered unique, digitally coded distress signal and 121.5 MHz (SAR homing frequency)  
**\$491.99**

## ACR GlobalFix 406 EPIRB



406 MHz EPIRB with Integral GPS Category I Automatic release with Bracket  
Regular Price: \$1,149.99

## ACR GlobalFix 406 EPIRB



406 MHz EPIRB with Integral GPS Category II Manual release  
Regular Price: \$979.99

## ACR Satellite2 406 EPIRB



Category I (automatically deployable) 406 MHz EPIRB  
Regular Price: \$749.99

## ACR Satellite2 406 EPIRB



Category II (manually deployable) 406 MHz EPIRB W/bracket  
Regular Price: \$649.99

## ACR RapidFix 406 EPIRB



406 MHz EPIRB with GPS Interface Category I (Automatically Deployable)  
Regular Price: \$849.99

## ACR RapidFix 406 EPIRB



406 MHz EPIRB with GPS Interface Category II (Manually Deployable) W/Bracket  
Regular Price: \$699.99



# Story Board

*The following summary is extracted from an article published by the International Labour Organization on the risks and dangers of small scale fishing (SAP 3.6/WP.147). The complete article, including references to further research on the topic, is available in the e-version of this newsletter.*

## ■ Risks and Dangers in Small-scale Fisheries: An Overview

### Introduction

Fishing takes place in a natural environment that often becomes hostile to people and their vessels. The attitude of fishermen, as that of other seagoing people, is less than perfect for facing the risks and dangers of their vocation before and during their fishing trips. Death at sea is an integral part of the fishing profession and, therefore, the casualty toll must be accepted as a cost of working in this hazardous environment. Still, this toll can undoubtedly be reduced, if the fishing industry and individual fishermen, national authorities, international organizations and voluntary bodies face this issue with enough thought, consideration, empathy, political will and material means.

In Oceania, during 1989–1990, some 120 deaths in about 640 accidents were reported. This picture becomes still worse when one adds the sometimes massive losses of life and equipment in tropical storms.

The safety and health of the world's 15–20 million male and female small-scale and artisanal fishermen have yet to attract adequate attention from either national authorities or international organizations. Instead, what prevails in many countries is the tragedy of official inertia to initiate action, legislate, enact and implement rules and regulations, and to invest the funds for establishing the services essential for reducing the numbers of casualties among small-scale fishermen. The official, national and international attitude has always been more attentive



when it comes to large and medium-scale fishing fleets, although the rate of accidents at sea and casualties among small-scale fishermen is no doubt higher than that in high-seas fishing. Most of the casualties among small-scale fishermen are not covered by the International Maritime Organization (IMO), and very few records or statistics are available.

### Small-scale and artisanal fisheries

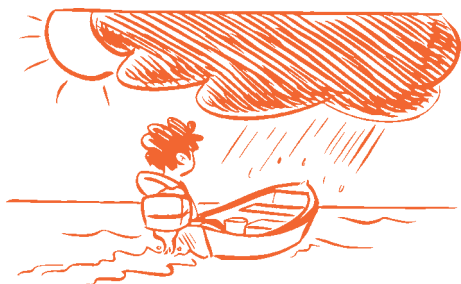
About half the world's seafood is caught or otherwise collected by small-scale fishermen, operating millions of multifarious fishing craft. (Just to give an idea: Portugal alone has over 10,000 fishing boats of less than 10 m in length; there are over 40,000 among the Pacific Islands and even Israel has close to 1,000.) Starting in the last quarter of the twentieth century, small-scale fisheries have been receiving much more attention than at any time before. Several reasons can be given. First, developing countries' governments, as well as various development agencies and international development banks, have increasingly recognised the role that small-scale fisheries play in their countries'

economies. Second, they have made some rather painful reassessments of their frequently unhappy ventures into large-scale fisheries development. Third, owing to technological and economic factors, small-scale fisheries have been gaining in importance in developed countries as well as in developing countries. Finally, and at least in part as a result of the above, more and more boat and equipment designers and manufacturers are producing designs and products aimed in particular at small-scale fisheries.

## Typical risks and dangers

### Bad weather

Sudden gales, major storms and heavy fog are significant causes of small boat accidents often resulting in capsizing, grounding, becoming lost and collisions. Several types of artisanal fishing craft are buoyant and do not sink even when capsized, which increases the survival chances of their crews. Where weather warning systems and radio communication with fishermen at sea are poor or nonexistent, casualties due to bad weather are more frequent.



### Loss of power

This is a major cause of accidents. Many small fishing boats are powered by an outboard motor and do not carry either a spare engine or sailing rig.

### Fire on board

This is less common on board small fishing craft, as most of them are open boats or rafts where fire detection is usually instantaneous. However, fire on board canoes (and pirogues) powered with outboard engines and carrying large amounts of spare fuel is extremely dangerous.



### Inadequate boat construction standards

Many small-scale fishing boats are not designed and constructed to sufficient safety standards. Frequently, also, the boats' design and construction are unsuitable for the conditions they are used in.



### Unsuitable boats

During the last decades of the twentieth century, small fishing craft are sailing farther offshore on prolonged fishing trips. Many of these craft, built for inshore fishing and day trips and often lacking basic safety equipment, are too small and otherwise unsuitable for offshore operations. Consequently, their crews' safety has steadily deteriorated.



## **Fisheries management**

Certain management strategies may motivate fishermen to increase their earnings by taking risks that they would not take otherwise. Such strategies involve, for example, limiting fishing time and area, and transferring and leasing catch quotas.

## **Economic hardship**

Economic hardship, or even transitory financial difficulty, often causes fishermen to take extra risk, when their better judgement might suggest otherwise.

## **Inadequate communication**

Lack of radio contact essentially precludes efficient SAR action. Additional problems may arise where radiotelephone contact exists, but there is no adequate common language between the people at sea and the people who may help them. Consequences may be tragic.

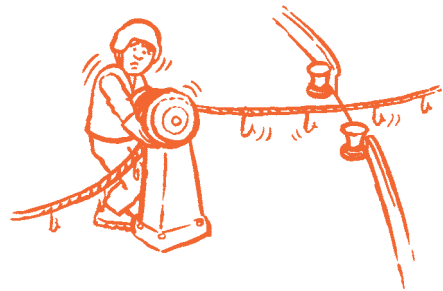


## **Lack of accessible shelter**

In many parts of the world, small-scale and artisanal fishermen are unable to operate from fishing ports or shelters and are forced to cross oceanic or other surf on the way to and from the beach or to enter badly accessible shelters and anchorages. Surf crossing takes a big toll on lives and equipment.

## **Fishing operations**

Trawling vessels of any size may capsize when their gear snags on a fastener (any snaggy obstacle on the sea bottom), while small seiners may capsize under the downward pressure of a large catch of fish sinking during the last stage of net hauling. People can be swept overboard if caught up in nets or because of rope running out while they are setting the gear.



Various injuries may occur during fishing, both from contact with fishing gear and deck mechanisms, and from bites, stings and tail kicks by fish and other marine animals. Wading and diving fishermen are particularly at danger from large predators and various poisonous creatures.





### International and regional efforts

Unfortunately, there are no internationally agreed legal instruments in force either for the construction of small (less than 12 m LOA) fishing vessels and the safety equipment required, or for the training and certification of personnel in small-scale and artisanal fisheries. Even the 1993 Protocol to the Torremolinos International Convention on the Safety of Fishing Vessels, which addresses only fishing vessels of 24 m in length and over, has yet to be ratified by most states.

In the mid-1970s, the Food and Agriculture Organization of the United Nations (FAO), ILO and Intergovernmental Maritime Consultative Organization (IMCO) drew up a code of safety for fishermen and fishing vessels in two parts: Part A for skippers and crews, and Part B for vessel construction and equipment. It is obvious from the contents of Part A that it was not designed for small-scale fishing boats, while Part B is designed explicitly for vessels longer than 24 m. For fishing vessels of 12-24 m there are the 1980 FAO/ILO/IMO *Voluntary guidelines for the design, construction and equipment of small fishing vessels*. But, judging from the contents of some recent revision proposals to the *Guidelines* it is clear that they are not applicable to small-scale and artisanal fishing boats.

Of all the international instruments, only Chapter 5 of the International Convention for the Safety of Life at Sea (SOLAS) makes specific reference to all small- and medium-sized fishing vessels, merely requiring ships of less than 150 tons gross to be fitted with a steering compass. And that seems to be all there is. Governments are reluctant to ratify and enact international standards and conventions concerning fishermen's safety, probably because of the costs to themselves and the industry, and the inconvenience and costs associated with legislating, enacting and enforcing existing ones.

They no doubt shun any involvement in new conventions concerning small-scale fisheries because enforcement is even more difficult and costly. An exception is probably the Nordic Boat Standard for commercial boats, which deals with construction and stability for fishing vessels under 15 m. It is jointly produced by Denmark, Finland, Iceland, Norway and Sweden.

Following a disastrous cyclone, which struck the coast of north-east India in 1996, FAO's Bay of Bengal Programme (BOBP) initiated, along with interested governments and some non-governmental organizations (NGOs), an ongoing activity directed at fishermen's safety. BOBP is trying to bring the governments and the NGOs together in a concerted effort. This proves to be an uphill task for several reasons, one of them being that some junior government staff apparently have problems in working with the NGOs.

Other FAO-sponsored activities include a regional workshop and seminars with participants from Bangladesh, India, Philippines, Thailand and Viet Nam. They are aimed at drafting legislation on small vessel safety, as well as training inspectors and boat builders to ensure their capacity to adopt, inspect, certify and enforce new legislation. FAO is also sponsoring the preparation of reports and guidelines addressing the subject of improving the safety of both decked and non-decked small vessels, but these have yet to reach the regulation stage. Unfortunately, few boat owners are willing to voluntarily bear the costs of implementing FAO's recommendations. In 1993, the BOBP published the pertinent and very good *Safety guide for small offshore fishing boats*, targeted at the fisheries of south and south-east Asia.



# Accidents and Incidents

## ■ Australian Boating Accidents Survey

An analysis of boating deaths between 1992 and 1998 for the Australian National Marine Safety Committee has identified the common elements of boating fatalities for the first time. On average, 80 people a year in Australia die as a result of boating incidents. Those most likely to die in a boating accident on the water are:

- married men between 25-49 years old
- on a fishing trip or leisure cruise
- in a fibreglass or aluminium open-motor boat such as a dinghy
- in a vessel less than 6 m long
- either cruising or drifting at the time of their fatal accident
- operating in calm or smooth sea conditions with light to moderate winds prevailing
- in an overloaded and overpowered boat with inadequate stability or buoyancy
- consuming alcohol at the time of their fatal accident
- involved in a capsise or person overboard event
- not wearing a lifejacket/personal flotation device
- operating on inland or enclosed waters.

The study found that 28% of those who died in a boating accident had a blood alcohol content in excess of 0.05%, which was higher than the number of roads deaths involving drivers over the legal limit (26%, national average). Blood alcohol levels were significantly higher among fatalities in lakes and rivers compared to both inshore and offshore coastal waters. It found that 89% of those who died were not wearing a lifejacket/personal flotation device and that almost all of the deaths were the result of drowning. It was also found that 45% of vessels involved in fatal accidents had insufficient numbers of

PFDs for the number of people on board. The study found that boating accidents and serious injuries cost the Australian community more than \$370 million per year, which was more than rail and air crashes combined. The study was prepared for the National Marine Safety Committee by Dr Peter O'Connor of Flinders Consulting and can be found at <http://www.nmsc.gov.au/>

### The main findings

#### Alcohol and drugs

Among the risk factors studied, alcohol and drugs was one of the most important. It was found that alcohol was involved in at least 35% of fatalities, and other drugs in 9%. The contribution of alcohol to boating deaths



## Accidents and Incidents

(28% in excess of 0.05 gm/100 ml) was similar to its contribution to road deaths (26% in excess of 0.05 gm/100 ml: ATSB, 2001). Relatively few vessel operators (i.e. where the operator survived the incident) were tested for alcohol and drugs, particularly in the case of jet-ski operators.

### Over-powered vessels

Thirty-one per cent of dinghies, other open motorboats and half-cabin motorboats were over-powered when considered against the method for calculating the maximum engine power of existing vessels defined in the Australian Standard (AS 1799.1).

### Vessel stability and buoyancy

The study found that there was a relationship between absolute vessel length in metres and stability/buoyancy for dinghies; other open motorboats; and half-cabin motorboats, which together made up 57% of all vessels involved in fatal incidents. Inadequate stability or buoyancy was a contributing factor in 12% of the fatal incidents involving these vessels when they were less than 6 m in length compared to only 6% when these vessels were 6 m or more. Inadequate stability or buoyancy was an even stronger feature of these vessels when they were less than 4 m in length.



### Overloading of vessels

When considered against the method described in AS 1799.1, it was found that 24% of common vessel types (dinghies,

other open motorboats, half-cabin motorboats and cabin cruisers) were overloaded. Overloading was particularly a feature of dinghies.



### Personal flotation devices (PFDs)

People who survived a fatal boating incident were more than two times more likely to have been wearing a PFD. On this basis if PFD use increased to 50%, 2–3 lives could be saved nationally each year. If PFD use increased to 75%, five lives could be saved, with a cost saving to the Australian community of nearly \$8 million per year. The saving of five lives per year would reduce the annual boating death toll by 13%, based on the current annual toll — a very substantial reduction. The benefit of such an increase would accrue most substantially to recreational boaters who make up the vast majority of those killed. It was also found that 45% of vessels involved in fatal incidents had an insufficient number of PFDs for the number of people on board, suggesting the need for more active monitoring of safety equipment.

### Work-related boating fatalities

The assessment of work-related boating fatalities indicated that there has been a substantial drop in the death rate of fishermen, representing an enormous achievement for an industry reported by the National Occupational Health and Safety Commission as having one of the worst safety records. However, the study indicated that fishermen have a higher level of risk and/or risk taking/acceptance with respect to environmental conditions. Presumably, in order to make a living they must often be prepared to work in less than ideal conditions. In addition, alcohol and drugs was a factor in the deaths of fishermen, and nearly a third of the fishing vessels involved did not have sufficient PFDs for all occupants.



# Safety Notices

## ■ Maritime Safety Notices by Email

Starting in 2004, the Maritime Section of SPC has been coordinating the production of regular Maritime Safety Notices. These bulletins are a compilation of interesting safety related information from various regional sources. Readers can receive the complete notices by sending a requesting email to MeganS@spc.int In this section of the bulletin, we will print selected relevant safety notices as lessons learned from sea safety incidents and accidents. The challenge is then to apply this learning to national sea safety strategies.

### Watertight Integrity of Small Craft

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An investigation into the cause of the capsise of a vessel has highlighted the need for the owners and the builders of all small craft to ensure that all openings on the weather decks of such craft can be securely dogged down at all times to prevent water from entering the hull. It is not good practice to lead ropes through windows or hatches and then attempt to dog them down against the rope. Not only does it deform the rope but it also twists the window frame and puts an asymmetrical loading onto the hinges and catches which may subsequently fail under pressure at a time when it may be essential that the opening remain watertight. The owners and builders of small craft are reminded that single-point securing devices on cabin windows provide no margin for error and that where possible, a four point securing system should be installed.

### Regular Position Reporting

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A recent investigation into the loss of a fishing vessel has brought into question whether the benefits of a mandatory regular ship position reporting system would outweigh the disadvantages. The search for this particular vessel was made more difficult than it might otherwise have been because of a 44-hour delay before she was reported overdue. If a fishing vessel is overwhelmed by a catastrophe so severe as to prevent its sending off a distress call or setting off an Emergency Position Indicating Radio Beacon (EPIRB), there would be some value in its having reported its position, course and speed within the last 24 hours. Carrying a float-off 406 kHz (not a 121.5 kHz) EPIRB is also a wise precaution to alert authorities of a vessel's position in the event of a sudden accident. It activates automatically, is programmed with the ship's unique identity and has a wide coverage area. It is not envisaged that authority will require daily position reporting to be made compulsory for every fishing boat. It is recommended, however, that skippers give serious consideration to voluntarily reporting their positions, courses and speeds at the same time each day to a nominated person. A procedure should also be established for the nominated person to follow should the vessel fail to make contact within a scheduled reporting period.



## Safety Notices

### Emergency Preparedness and Radio Communication

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A recent accident in which a fishing vessel was lost due to flooding has highlighted the need to remind owners and seafarers of the importance of emergency preparedness and early radio communication. In the accident, the vessel started taking on water at what initially appeared to be a rate that could be controlled by its pumps. However, after about 40 minutes, it became clear that the pumps could no longer cope with the rate of ingress of water and that the vessel was sinking. It was at this stage that the crew made radio contact and requested assistance. Owners and seafarers are reminded that, in the early stage of situations such as flooding or fire, it is essential to make radio contact with other vessels in the vicinity and shore stations through at least a PAN call, as soon as possible, regardless of whether actual assistance is required at that time. All vessel operators are also reminded that regular, emergency drills and exercises must be carried in accordance with hazard identification and contingency planning elements of good safety management practices.

### Explosion / Fire caused by the Build up of petrol Fumes

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A recent accident to a pleasure boat has underlined the importance of regular vessel maintenance, pre-trip checks and the need to fit gas detection meters. The inboard petrol engine of a boat was started. It immediately stalled and backfired. This ignited fuel vapour and the resultant explosion lifted the engine cover off, producing a fireball. Fuel was thought to have come from a leaking, corroded breather pipe and collected at the bottom

of the boat. Evaporation produced an explosive mixture which was ignited by a spark when the engine backfired. Fortunately, no lives were lost, but this accident should serve as a warning to those boat owners who use petrol engines. Regular checks for fuel leaks and corrosion as well as the use of gas detection equipment where appropriate, are recommended safety procedures. Operators of outboard-powered vessels with underfloor fuel tanks and fuel lines should assess whether there is any potential for gas vapours to build up and should consider the installation of gas detection monitors.



### Want to find out more on Sea Safety?

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# News from other places and reader contributions

## ■ The Importance of Sea Safety and What to Take to Sea

*By Leslie Farnell*

For the most part a day at sea fishing is uneventful and rewarding with good company and a good catch. However, in the unlikely event of an emergency it is wise to carry safety items on board. You only need to have to use them once to make the extra effort and expense worth the while. Too many times we hear stories about drifting vessels and heroic survivals across expanses of ocean. Stocking the vessel with safety equipment is for the most part common sense and may vary with location and type of sea craft. Here are some of the things you might consider carrying on board.

1. Extra fuel. Assuming the engine(s) are still functional, sometimes weather or other factors make it a longer trip to your destination than you had planned. A small safely stored supply of emergency fuel could make the difference between drifting and reaching port safely.
2. Oars. In the event the fuel supply is exhausted and the current not too swift, oars, paddles or even a board can assist in getting to land. These are also good implements to signal for help as you can raise them higher over the ocean than a man can stand, waving them possibly with some brightly coloured cloth or reflective material for searchers to see.
3. Extra food and water. Even though the trip is planned only for a few hours it is wise to carry emergency sustenance. Drinking water can be stored in clean containers and if not used that day should be discarded or can be used as a quick shower at the end of the trip. Emergency food should also be discarded if not used that day and should be of the type that keeps well over many days. While you should still be able to catch fish if unable to reach shore, a variety of diet might be welcome in time.
4. Shade. If your vessel is of the kind with no cover you will find if you are at sea longer than expected that the elements can wear you down physically. Sun can create sunburn and dehydration. Dehydration can also be caused by salt water, urination, vomiting and ocean breezes. Preventing dehydration is a key element to survival if stuck at sea for a long time. The same canopy used for shade can also be used to collect rain water and dew for drinking water. As well if the canopy is brightly coloured or reflective it can aid rescue personnel. It can also be used as a blanket for warmth or for the sick or injured.
5. Floatation. In the unlikely event you become separated from your vessel some type of floatation will be necessary. Even in warm Pacific waters you can still suffer from hypothermia, as the water is colder than body temperature. Therefore, it is best to stay on the vessel or float above and out of the water if the vessel is destroyed.
6. Communications. If you are in an area where you have access to radios, cell phones, EPIRBs or other electronic communications they should always be carried on board. However many outlying areas in the Pacific are void of these devices. A simple mirror can be of great help in attracting attention of passing planes as well as flares and these items should be obtainable in most areas. Flares most likely won't work if they have gotten wet or if they are expired.
7. A community emergency assistance plan. Regardless of how much safety

gear a crew brings with them it is of little use if no one is looking for them. It is wise to notify someone on land if you are going out to sea and your approximate time of return or arrival at your destination. Someone should also check to see that you have completed your journey safely. If you are delayed longer than would seem reasonable, there should be a plan to organise a local search, and failing that a larger scale plan to organise an air search. Emergency contact information for rescue facilities should be available so this strategy is possible. The faster the search begins the more likely it will be successful.

If the community works together for safety at sea first in prevention and then in rescue skills many of the unfortunate incidents at sea can be prevented. Locally organised workshops to this end would be beneficial. Organised teams with safety and rescue training and guidelines set up for safety at sea would assist people in small fishing vessels throughout the Pacific.

#### Editors Note – the Community Emergency Assistance Plan

Leslie has raised a very relevant point for Pacific Island readers, especially those in more isolated rural coastal communities. The principal point is simply stated:

**If the community works together for safety at sea, first in prevention and then in rescue skills, many of the unfortunate incidents at sea can be prevented.**

This is a simple but effective message for communities to take on board. It is particularly useful as a possible safety mechanism in rural communities. However, as with most safety mechanisms, the establishment of a community emergency assistance plan will require a concerned promotional undertaking at the community level.

Perhaps there is a useful challenge to readers to consider what steps could be taken to establish such plans in local communities. The SIG will continue to monitor developments in relation to community emergency assistance plans.

## ■ Sad Start for 2005 in PNG

A spate of bad weather and strong winds over much of New Guinea in the new year period saw three known SAR operations for small boats in just the first two weeks of the new year. In each case, the banana boats were travelling between offshore islands and mainland urban centres. In the most recent incident in New Ireland province, two boats were missing and one was known to have sunk with only one survivor from 13 passengers.

In this instance the boats were travelling from Lihir Island to the coastal town of Namatanai. Incredible that Lihir, one of the world's richest gold mines, does not have a coastal shipping service, and travellers to the island have no choice but to run the gauntlet in a small banana boat.

Sad to say, the loss of boats on this run is a known annual occurrence. Only three years ago, a passenger vessel licensed to carry 12 persons overturned on this run with a reported 120 persons on board. Thirteen people lost their lives, but this was not enough to prompt an investigation of the incident.

There is certainly a challenge to authorities and stakeholders in this part of the world to take the small boat safety issue seriously and commit to a strategy to save lives.

## What's next?

Watch out for the next bulletin with a technology feature on grab bags and a focus on Safe Operational Plans for Small Vessels and how they can be implemented.

