



Marine incidents IN QUEENSLAND

2007



**Queensland
Government**

Maritime Safety
Queensland

For enquiries please contact

**Marketing and Education Unit
Maritime Safety Queensland**

Level 22 Mineral House
41 George Street
Brisbane Queensland 4000

GPO Box 2595
Brisbane Queensland 4001

Facsimile: 07 3120 7355

E-mail: maritime.safety@msq.qld.gov.au

Web: www.msq.qld.gov.au

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Queensland, GPO Box 2595, Brisbane, Queensland 4001

or by e-mail at maritime.safety@msq.qld.gov.au

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Director General's Foreword

As Director-General of Queensland Transport, I am pleased to formally report on Queensland's marine safety performance in 2007, as measured by marine incident numbers and outcomes.

In the last year we witnessed the unabated growth of boating in Queensland. Almost one in every 15 Queenslanders aged 16 years or older owns a boat, and incredibly around one in five people of the same age hold a boat licence. During the year we also witnessed one of the worst boating accidents in Queensland's history when four people died and three more were seriously injured in a recreational boating collision at the mouth of the Brisbane River.



Not only are there more boats on the water, but advances in boat building and technology mean that many boats are faster, bigger, and capable of longer trips. The number of boats over 12 metres is growing faster than any other boating market segment. Currently this segment is increasing at more than eleven percent per year compared with overall growth in boat numbers of five percent.

Couple this growth with new people becoming interested in boating, associated on-water traffic and congestion issues, expanding marine and eco-tourism markets in Queensland and the expanding development of waterfront residential precincts. This is the reality we now face on our waterways. Continuing growth is inevitable, and with it comes challenges.

With more and more people using Queensland's waterways, it is important that marine safety programs are current and address emerging trends in boating to ensure a continued high level of marine safety into the future. This report makes a significant contribution to understanding emerging trends and the safety challenges they present.

Despite the quadruple fatality incident, Queensland's overall marine fatality toll fell in 2007 compared with the 17 recorded fatalities in 2006. Queensland recorded 13 marine fatalities in 2007, in line with the rolling four-year average. In the context of growth in boating exposure this could be argued to be a good result. But any fatality is one too many. Marine incident fatalities are not inevitable and every opportunity must be grasped to improve boating safety.

A cooperative, strategic approach is needed and Maritime Safety Queensland is continuing its work of encouraging and fostering safety as a core value and culture within the commercial, fishing and recreational sectors of the boating community.

During 2007, Maritime Safety Queensland worked closely with the commercial fishing industry to trial and assess new types of personal flotation equipment and to enhance crew understanding of safety procedures when trawl gear becomes snagged or trawlers capsize. Happily, there were no recorded commercial fishing fatalities in 2007.

It is not just Maritime Safety Queensland that carries the responsibility for driving and maintaining Queensland's marine safety performance. It's a joint effort between government, industry and the boating community alike, to ensure that boating is both safe and enjoyable and continues to meet Queensland's maritime transport, commerce, tourism and recreational needs.

I want to again extend my thanks to Maritime Safety Queensland's partner agencies, the Queensland Water Police and the Queensland Boating and Fisheries Patrol for their assistance and support in 2007. I look forward in 2008 to continued cooperation between Maritime Safety Queensland, commercial, fishing, and recreational boating communities and our partner agencies to make boating on our waterways both safe and enjoyable.

Bruce Wilson
Director General
Queensland Transport





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Marine incidents in 2007—a snapshot

- 762 marine incidents were reported in Queensland in 2007, an increase of 7.9 percent from 2006 (refer Section 2.1.1).
- 13 people were fatally injured in marine incidents in Queensland in 2007 compared to 17 in 2006, the 13 fatalities occurred in 10 separate marine incidents (refer Section 2.1.1).
- One multiple fatality incident occurred in 2007 claiming four lives (refer Section 3.1).
- Two fatalities occurred in two separate commercial white water rafting incidents (refer Section 3.1).
- 10 fatalities involved recreational vessels and 3 involved commercial vessels (refer Section 3.1).
- Queensland's 13 fatalities represented 25.5 percent of Australian reported marine incident fatalities in 2007 (refer Section 3.2.3).
- The number of fatal incidents in Queensland in 2007 is in line with the long term average of 10.5 fatal incidents per year, (refer Section 2.1.1).
- 35 people were seriously injured in 33 marine incidents. The number of reported serious injury incidents and number of persons reported as seriously injured is continuing to trend downwards (refer Section 3.2.1).
- 41 percent of fatal and serious injury incidents in 2007 occurred in smooth waters, 29 percent in offshore waters and 15 percent in each of partially smooth and inland waters.
- Growth in reported marine incidents is occurring within the recreational fleet. The increase is likely to be due to both increasing incidents and improved reporting.
- The involvement of commercial non-passenger vessels in marine incidents has increased 60 percent from 2006 (refer Section 2.2).
- The involvement of commercial fishing vessels has decreased 30 percent from 2006 (refer Section 2.2).
- Commercial fishing vessels were not involved in any reported fatal or serious injury marine incidents in Queensland in 2007 (refer Section 3.3).
- Recreational vessels over 10 metres have a higher rate of involvement in reported marine incidents than recreational vessels less than 10 metres (refer Section 2.2).
- Collisions between ships and unintentional groundings are the most frequently reported incident types for recreational, commercial and hire and drive vessels (refer Section 2.3).
- Of the 111 reported collisions between ships that involved a recreational vessel, 49 or 44.1 percent involved a moving vessel colliding with a stationary vessel (refer Section 2.3).
- 46 percent of reported marine incidents occurred in smooth waters, 22 percent in partially smooth waters, 20 percent offshore and 10 percent on inland waters (refer Section 2.5.1).



1. Introduction

The number and nature of marine incidents reported throughout the year is one of the measures used to assess Queensland's maritime safety performance. In accordance with section 127 of the *Transport Operations (Marine Safety) Act 1994* (the Act) Maritime Safety Queensland has prepared the following report on incidents reported for the year 2007.

The reporting, investigation, collection and analysis of data about marine incidents is an essential part of the process Maritime Safety Queensland employs to achieve the objectives outlined in section 3(2) of the Act:


- (a) *To allow the Government to have a strategic overview of marine safety and related marine operational issues; and*
- (b) *To establish a system under which:*
 - (i) *Marine safety and related operational issues can be effectively planned and efficiently managed; and*
 - (ii) *Influence can be exercised over marine safety and related marine operational issues in a way that contributes to overall transport efficiency; and*
 - (iii) *Account is taken of the need to provide adequate levels of safety with an appropriate balance between safety and cost.*

The aim in this and future reports is to accurately present the major features of marine incidents in Queensland, to identify areas where strategies and initiatives have had an impact and safety performance has improved, and to pinpoint hotspots for subsequent management.

1.1 Definition of a marine incident

Section 123(1) of the Act defines a marine incident as an event causing or involving -

- (a) *The loss of a person from a ship; or*
- (b) *The death of, or grievous bodily harm to, a person caused by a ship's operations; or*
- (c) *The loss or presumed loss or abandonment of a ship; or*
- (d) *A collision with a ship; or*
- (e) *The stranding of a ship; or*
- (f) *Material damage to a ship; or*
- (g) *Material damage caused by a ship's operations; or*
- (h) *Danger to a person caused by a ship's operations; or*
- (i) *Danger of serious damage to a ship; or*
- (j) *Danger of serious damage to a structure caused by a ship's operations.*



The marine incident definition excludes incidents such as workplace health and safety incidents that are not directly related to the operation of a vessel, collisions involving international trading vessels that are covered for reporting and investigation purposes under the *Navigation Act 1912 (Cwealth)* and incidents on vessels involving death from natural causes.

1.2 Marine incident data collection

Section 125 of the Act requires the master and/or owner of a vessel involved in a marine incident to report that incident to Maritime Safety Queensland, Queensland Water Police or Queensland Boating and Fisheries within 48 hours. All incidents coming to the attention of Maritime Safety Queensland are reviewed with the more serious incidents being investigated by qualified and trained officers. The information gathered from the marine incident report form and from any ensuing investigation is recorded in Maritime Safety Queensland's marine incident data management system (CaseMan).

The marine incident data collection process can only capture those incidents that are reported. Maritime Safety Queensland is aware that there is a level of underreporting of marine incidents. The level of underreporting is considered to be related to factors such as the seriousness of incident, the remoteness of the incident location and the type of vessel involved. Generally data for marine fatalities is considered robust however the data becomes considerably less robust for minor incidents such as groundings that have not resulted in injury or damage.

While every effort has been made to produce consistent, reliable and timely data, under-reporting and the lag effect due to delays in reporting and completing investigations can hamper meaningful analysis.

Maritime Safety Queensland is continuing to look for ways to improve the reporting of incidents by the boating public. The agency is working closely with the marine insurance industry to improve incident reporting levels by requiring marine insurance claimants to provide evidence to the insurers of having lodged a marine incident report. Maritime Safety Queensland is also working closely with volunteer marine rescue organisations to provide education and advice to vessel operators about their marine incident reporting obligations.

In 2007 Maritime Safety Queensland gained access to hospital admission data relating to water transport accidents. The data represents a useful supplementary source of information about boating accidents resulting in serious injury. The hospital admissions data is discussed in Section 3.2.4.

Maritime Safety Queensland, along with other Australian maritime jurisdictions, is working towards full compliance with the National Marine Safety Committee's national marine incident data collection reference guide. Compliance with the reference guide has involved system, process and definitional changes. Uniform reporting across states will enable more accurate identification of national trends and comparisons for marine incident data.

1.3 Report contents

The focus of the report is on reported marine incidents as a measure of public safety in the maritime environment. The report presents the major features of marine incidents reported in Queensland in 2007.



Incident data contains information on both the incident and the number of persons fatally or seriously injured. Section 2 of this report focuses on the incidents themselves. It reviews the type of marine incidents that occurred during the year, the types of vessels involved in these incidents, where the incidents occurred and examines the characteristics of the incidents. Areas of significant change and any emerging trends or patterns are discussed.

Fatal and serious injury incidents carry a high social cost for the people concerned and for the community as a whole and warrant further analysis. Marine incidents that resulted in fatalities and/or serious injuries in 2007 are examined in Section 3. This section considers both the incident and persons injured. It provides a summary of fatal incidents and includes a time series and trend analysis. Details of types of vessels and incidents involved in fatal and serious injury incidents are considered together with contributing factors and incident location. As most fatal incidents occurring in 2007 are still under investigation or subject to legal proceedings incident specific information cannot be provided.

Hospital admissions data, which Maritime Safety Queensland gained access to in 2007, provides a supplementary source of data on serious injuries resulting from water transport accidents. Section 3.2.4 reviews the hospitalization data and its role in improving the understanding of marine incidents.

Section 4, *Persons fatally or seriously injured in marine incidents*, profiles the people fatally or seriously injured in reported marine incidents in 2007. It reports on gender, age, role on vessel and the nature of injuries sustained.

In addition to the brief analysis of incidents by Maritime Safety Queensland region in sections 2.5.2 and 3.5.2, detailed regional incident profiles are provided in Section 5. This section includes regional maps showing the location of all marine incidents occurring in each region since 2004 plotted by highest level of personal injury sustained.

Section 6 profiles two areas of particular interest to Maritime Safety Queensland in 2007 namely commercial white water rafting and boating safety in the Torres Strait.

Interspersed in the report are four case studies. The case studies outline recent marine incidents in Queensland. The case studies have been selected to highlight specific safety issues and to raise general safety awareness and provide learning points for mariners confronted with similar circumstances.

The Appendix contains a series of data tables which provide both time series data and 2007 data by region. The tables provide both a further breakdown of information contained in the body of the reports as well as additional incident characteristics not included elsewhere.

It should be noted that marine incident data is subject to change due to the time lags associated with reporting and investigating marine incidents. As new information becomes available the marine incident database is updated, this may cause previously reported data to change.

When disaggregating incident, fatality and serious injury data the resulting counts are frequently small and random variations can appear large particularly when expressed in percentage terms. To minimise the impact of these fluctuations the data analyses used in this report, where relevant, use the average of the previous four years of data as a basis for comparison with current year's data.



1.4 Marine boards of inquiry

Under section 131 of the Act the Minister may establish or re-establish a board of inquiry about a marine incident.

The board of inquiry must inquire into the circumstances and probable causes of the relevant marine incident. At the completion of the inquiry the board must give the Minister a written report outlining the board's findings. The Minister is required to table a copy of the report in Queensland's Legislative Assembly within 14 days of receiving the report.

In 2007, the Minister for Transport, on the recommendation of the General Manager, Maritime Safety Queensland, convened a board of inquiry into an incident in the Gulf of Carpentaria involving the ore carrying transfer vessel, Wunma. The full report of the Board of Inquiry is available online at:

www.msq.qld.gov.au

1.5 Setting the scene

The Queensland vessel fleet is dynamic; it is growing and changing, influenced by economic fortunes, population growth, demographic profiles, tourism and many other factors. Changes in these broad and diverse factors results in change to both the size and composition of the Queensland vessel fleet as well as the general level of interest and participation in boating.

Each year there are more Queenslanders holding a recreational marine drivers licence or owning a recreational vessel than ever before. The rate of growth in vessel ownership is out stripping the state's population growth. The pattern of vessel ownership and the types of vessels being purchased is also changing. All these factors directly or indirectly influence the trends and changes seen in the number and type of reported marine incidents. This section provides an overview of the key changes in the Queensland vessel fleet.

1.5.1 Recreational vessel fleet

The number of Queensland registered vessels has increased each year since 1997. In 1997 there were 40 registered vessels per 1,000 state residents. At the end of 2007 there were 53 vessels per 1,000 state residents (see Figure 1).

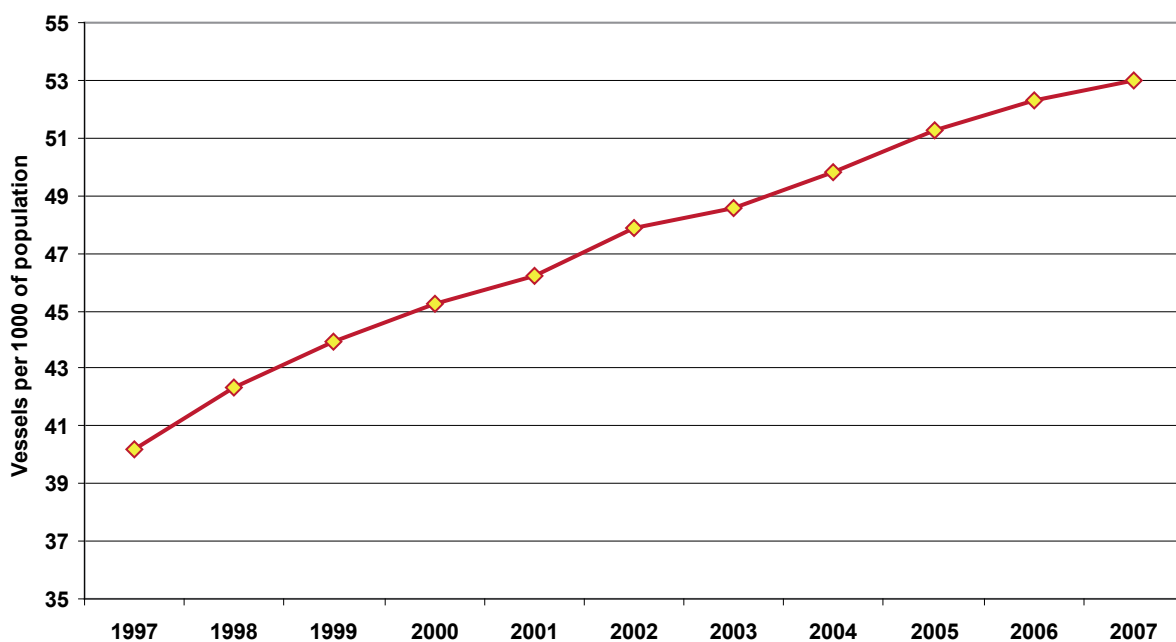


Figure 1: Registered vessels per 1000 of Queensland population

—◆— Vessels per 1000 of population

The growth in registered vessel numbers is occurring predominately in the recreational fleet. Recreational registrations have increased 34.4 percent since 2001. This represents an additional 56,110 vessels or on average an extra 9,350 registered vessels each year. In 2007, 1 in 15 Queenslanders aged 16 years or older owned a registered recreational boat.

Of the additional 56,110 recreational vessels registered in Queensland since 2001 38 percent are in the Brisbane region and 17.2 percent are in the Gold Coast region. Overall the number of vessels in the south east corner of Queensland has increased by 33.7 percent or 30,990 vessels. In 2007 Brisbane and Gold Coast regions contained 56 percent of all registered recreational vessels in Queensland.

Composition of the recreational fleet, on the basis of vessel type, has shown only modest change since 2001 (refer Table 1). The proportion of jet skis has increased from 2.7 percent of the recreational fleet in 2001 to 4.9 percent in 2007, sailing boats have increased 0.1 percentage points to 3.2 percent over the same period. Motorboats (motorised boats not capable of planning) have decreased from 13.5 percent of the fleet in 2001 to 11.8 percent in 2007, speedboats have decreased from 80.6 percent to 80.0 percent.

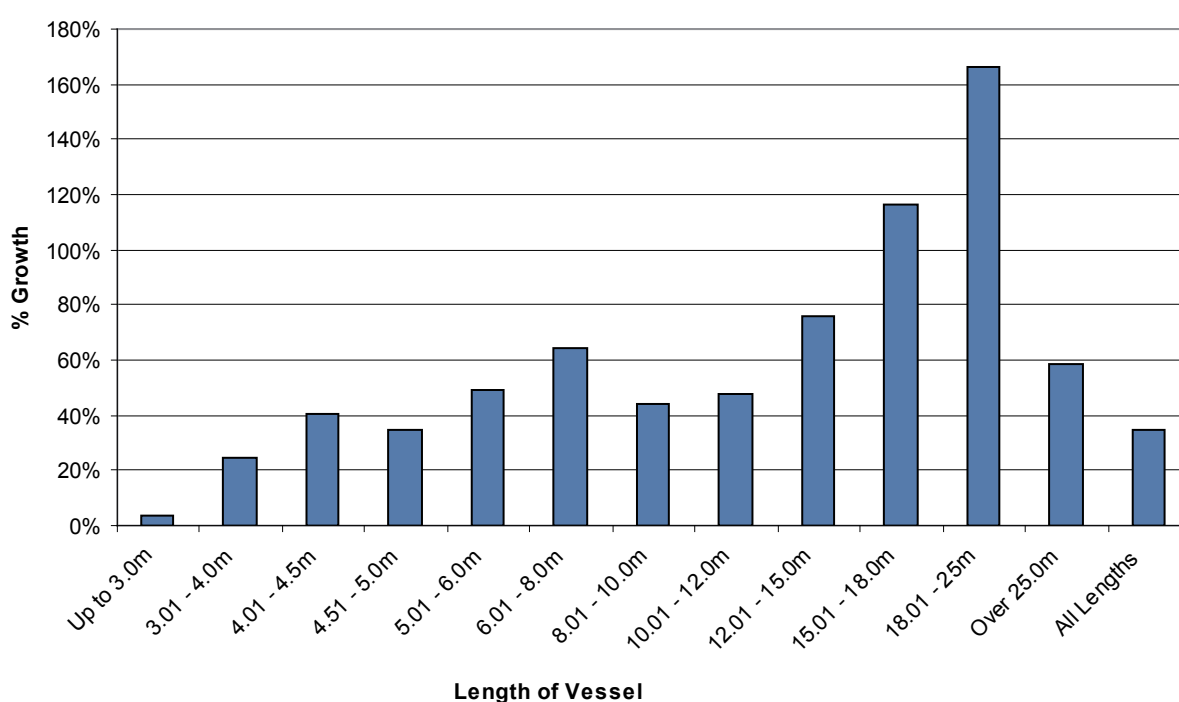
Table 1: Registered recreational fleet by vessel type: 2001 to 2007 comparison

Vessel Type	2001		2007	
	No	%	No	%
Motorboat	21938	13.5	25830	11.8
Speedboat	131391	80.6	175292	80.0
Sailboat	5123	3.1	7103	3.2
PWC (Jetski)	4471	2.7	10808	4.9
Total fleet	162923	100	219033	100

While the composition of the recreational fleet has been relatively constant in terms of vessel type it is changing on basis of vessel length. Since 2001 there has been a 111.9 percent increase in the number of registered recreational vessels over 12 metres and a 121 percent increase in the number of vessels over 15 metres.

At the other end of the spectrum vessels five metres or less (excluding jet skis) are progressively declining as a proportion of the total fleet. In 2001 these vessels comprised 74.9 percent of the registered recreational fleet whereas in 2007 they made up 69.4 percent, a decrease of 5.5 percentage points (refer Table 2). Figure 2 shows the percentage change within each vessel length category from 2001 to 2007

Figure 2: Growth in Queensland recreational vessel registrations by vessel length from 2001 to 2007



While growth in the number of large registered vessels is very high in percentage terms they still represent only a small proportion, 3.4 percent, of the overall registered recreational fleet.

Table 2: Comparative recreational fleet numbers by length, Queensland 2001 to 2007

Length	2001		2007		% Change 2001-2007
	No	%	No	%	
Jet ski	4471	2.7	10808	4.9	141.7
5m or less	122037	74.9	152007	69.4	24.6
5.01 to 8m	28763	17.7	44277	20.2	53.9
8.01 to 10m	3122	1.9	4497	2.1	44.0
10.01 to 15m	4096	2.5	6485	3.0	58.3
Over 15m	434	0.3	959	0.4	121.0
Total fleet	162923	100.0 %	219033	100.0 %	34.4 %



1.5.2 Commercial vessel fleet

The commercial fleet comprises registrable fishing vessels, all hire and drive vessels, passenger vessels (certified to carry more than 12 passengers) and non-passenger vessels (certified to carry 12 passengers or less and all other commercial vessels). In the period 2002 to 2007 the only vessel classification to show growth was non-passenger vessels. Passenger vessels numbers have remained static while commercial fishing vessels and commercial hire and drive vessels numbers have declined.

Table 3: Registered commercial fleet by vessel type: 2002 to 2007 comparison

Commercial Classification	2002		2007	
	No	%	No	%
Passenger	713	12.9	714	12.5
Non-Passenger	2787	50.2	3359	58.8
Fishing*	903	16.3	678	11.9
Commercial Hire & Drive	1146	20.7	959	16.8
Total fleet	5549	100	5710	100

* In addition to the 678 registered fishing vessels there are an estimated 3000 fishing vessels that do not currently require registration. These fishing vessels are typically under 10 metres or bay boats.

In 2007 there were 225 or 25 percent fewer registered commercial fishing vessels than in 2002. Overall commercial fishing vessel numbers have declined from 16.3 percent of the commercial fleet in 2002 to 11.9 percent in 2007. The commercial hire and drive classification has fallen 16.3 percent or 187 vessels over the same period. In contrast the number of non-passenger vessels has increased 20.5 percent and in 2007 represented 58.8 percent of the registered commercial vessel fleet. Passenger vessel registration numbers remain largely unchanged.

1.5.3 Licensing

At the end of 2007, 600,193 people held a Queensland recreational marine drivers licence - an increase of 30,662 from 2006. The ratio of licence holders to registered recreational vessels has remained constant at approx 2.74 licence holders per registered recreational vessel.

Based on eligible population 1 in 5.5 Queenslanders aged 16 years or older and 1 in 3 Queensland males aged 16 years or older hold a recreational marine drivers licence.

At 31 December 2007, 50,264 people held a Queensland PWC (jet ski) licence. This represents a ratio of 4.65 licence holders per registered recreational jet ski. This ratio is steadily increasing.

Of the 600,193 recreational marine drivers licence holders approximately 3.2 percent are aged 20 years or less, 10.2 percent are aged 70 years or more and 14 percent are female.

The number of commercial marine qualification certificates of competency issued in Queensland each year has remained relatively constant over the past seven years. The number of certificates issued has ranged from a high of 1,263 licences in 2001 to a low of 947 in 2004. In 2007 1,080 commercial certificates were issued.

Queensland marine incidents

2. Queensland marine incidents

The marine incident data examined in this report is based on incidents reported to Maritime Safety Queensland. The figures presented and the changes observed from year to year are therefore exposed to the influence of both changes in the number of incidents occurring and changes in the level of reporting. Any increases, decreases or changes to observed trends can be due to changes in the number of incidents occurring and/or changes in the level of incident reporting.

Maritime Safety Queensland is actively seeking to improve the level of marine incident reporting through a range of initiatives (refer Section 1.2). While it is generally considered that the level of reporting is improving it is not possible to discern the extent of this influence on the analysed data. This potential dual source of variation needs to be considered when attempting to drawing conclusions from the data provided.

2.1 Marine incidents in context

This section examines Queensland's 2007 reported marine incidents in the context of past patterns, incident trends, population and vessel registration growth and in comparison to national data. The data in this section is based on all reported marine incidents. For an analysis of incidents involving fatalities or seriously injuries, or persons fatally or seriously injured go to Section 3.

2.1.1 Reported marine incidents time series

In 2007, 762 marine incidents were reported in Queensland. The total number of reported marine incidents is continuing to trend upwards, increasing 37.8 percent since 1999 and 7.9 percent from 2006.

10 marine incidents resulted in fatalities in 2007. One incident was a multiple fatality that claimed four lives. After a sharp increase in the number of fatal incidents in 2006 the total of 10 for 2007 is a return to the level of prior years (refer Table 4) and is in line with the long term average of 10.5 fatal incidents per year.

33 of the marine incidents reported to Maritime Safety Queensland in 2007 resulted in serious injury to 35 persons. A serious injury is defined as an injury that requires admission to hospital. The number of serious injury incidents reported in 2007 is below the previous nine-year average of 44.

Two incidents reported in 2007 resulted in both fatalities and serious injuries.



Table 4: Marine incidents by level of injury

Year	Number of incidents *			Total
	Fatal *	Serious injury *	Other #	
1999	10	58	486	553
2000	12	73	527	612
2001	12	37	565	610
2002	10	54	588	648
2003	7	23	629	659
2004	10	36	581	627
2005	10	44	592	645
2006	14	35	658	706
2007	10	33	721	762

* Incidents that involved both serious injuries and fatalities are recorded in both the serious injury data and the fatalities data. The sum of the incident types may therefore exceed the total number of incidents.

Other incidents count all incidents where no serious injuries or fatalities were recorded.

Figure 3 graphically depicts the data provided in Table 4. It shows the total number of reported marine incidents and a breakdown of these incidents by level of injury. The rate of growth underlying the overall upward trend in total incidents has varied over the past 10 years. During the period 1997 to 2000 the number of reported marine incidents rose sharply increasing 45 percent over the four year period. From 2000 to 2005 the number of reported incidents showed only a small variation oscillating between 588 and 629 per year. Since 2005 the number of reported incidents has risen 18.1 percent, increasing 9.5 percent in 2006 and 7.9 percent in 2007.

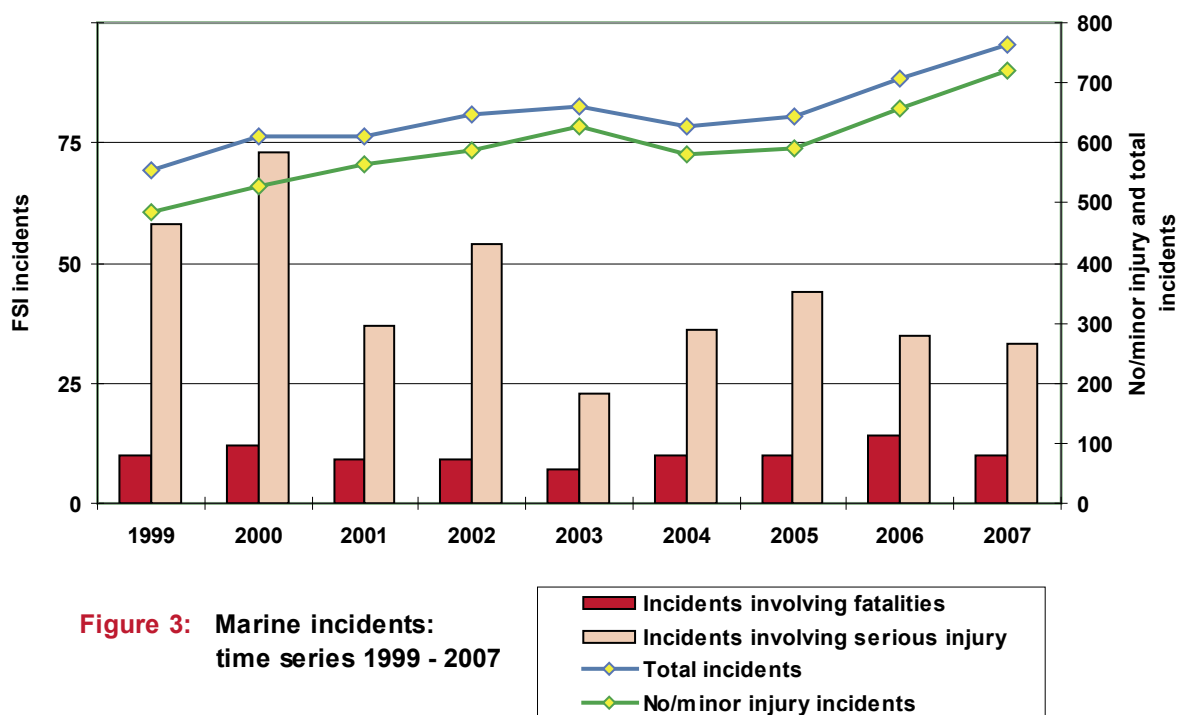


Figure 3: Marine incidents: time series 1999 - 2007



Overall, despite the upward trend in total incidents reported the number of fatal and serious injury incidents has remained relatively constant over the past four years. The noted increase in fatal injury incidents in 2006 appears, based on the 2007 results, to have been a spike rather than an emerging upward trend.

2.1.2 Marine incident trends

Comparing the trend in reported marine incidents with the trends in Queensland population growth and vessel registrations provides an alternative perspective on how marine incidents numbers are changing over time.

Population and vessel registrations are not ideal measures of marine incident risk exposure. There is no doubt that more vessels on the water increases the chances of an incident occurring however it is not the act of owning a vessel that places someone at risk of a marine incident. The level of risk is dependant on how often the vessel is used, where it is used, what time of day or night it is used, how many people are on the vessel, the prevailing conditions and so on. Similarly for population it is not the number of people residing in the state but the number of people participating in boating and the nature and frequency of that participation that is the true measure of risk. Population and vessel registrations are therefore used as surrogate measures of risk exposure in the absence of more definitive exposure data.

A national research project, conducted by the National Marine Safety Committee, is currently in progress to establish a comprehensive measure of marine incident risk exposure, particularly for recreational vessel operators. This project should be completed in 2009.

Figure 4 compares growth in reported marine incidents with growth in vessel registrations and the Queensland population relative to the index base year 1997. From the base period 1997 the numbers of reported marine incidents have generally increased at a greater rate than vessel registrations and

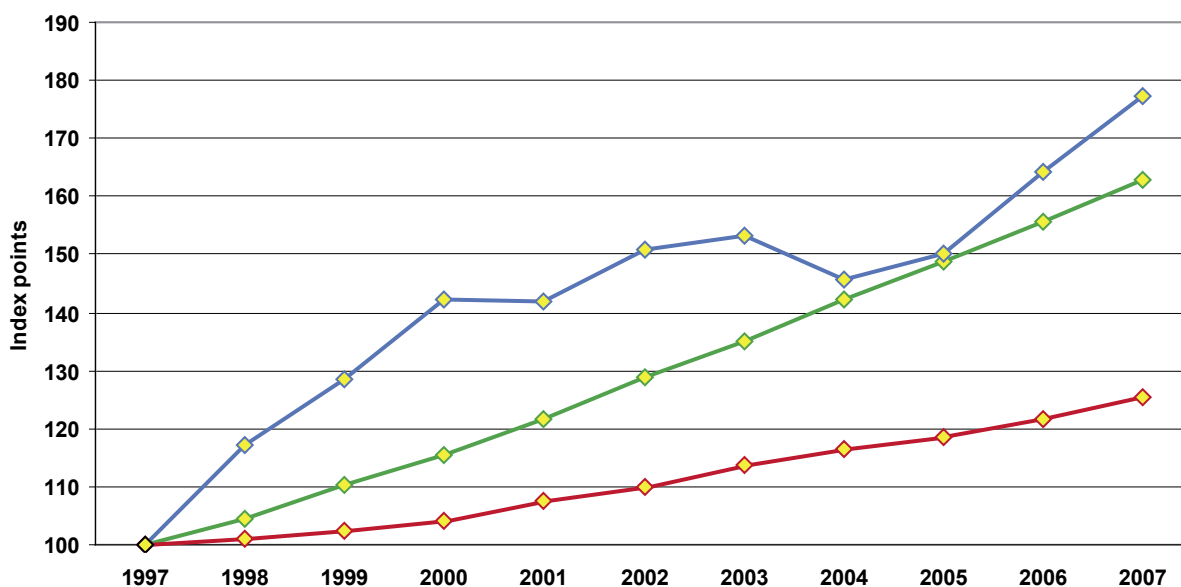
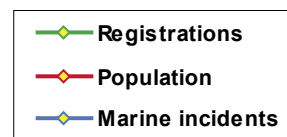


Figure 4: Marine incidents, population and vessel registrations: indexed trends 1997 - 2007

Index 1997 = 100





population. The number of reported marine incidents in 2007 was approx 77 percent higher than in 1997. By comparison in the same period vessel registrations had increased 63 percent and population 26 percent.

2.2 Vessels involved in marine incidents

The vessels involved in marine incidents have been classified as recreational, commercial and hire and drive for the following analysis. All vessels that were involved in an incident have been included. As many incidents involved more than one vessel the number of vessels exceeds the number of incidents.

The recreational category includes both recreationally registered boats and jet skis. The commercial category includes all registered commercial fishing, passenger and non-passenger vessels but excludes hire and drive vessels. The hire and drive category is provided as a separate category and includes all vessels registered as commercial hire and drive vessels including jet skis, speedboats, houseboats and sailboats.

In 1999 recreational vessels accounted for 35 percent of all vessels involved in reported marine incidents. Over time this figure has steadily increased reaching 45.8 percent or 470 vessels in 2007 (refer Table 5). Since 1999 the involvement of recreational vessels has increased 82 percent. 2007 is the first year the number of recreational vessels involved in marine incidents has exceeded the number of commercial vessels (excluding hire and drive). Improved marine incident reporting among recreational boaters will have contributed in part to the increase in recreational vessel involvement.

Table 5: Vessels involved in marine incidents, Queensland, 1999 - 2007

Year	Number of Vessels Involved in Marine Incidents				Total
	Recreational	Commercial*	Hire and Drive	Unknown	
1999	258	415	47	16	736
2000	293	381	64	13	751
2001	239	402	66	42	749
2002	300	450	62	11	823
2003	304	448	86	0	838
2004	311	387	75	2	775
2005	345	401	70	4	820
2006	401	446	63	8	918
2007	470	444	50	6	970

* Excludes hire and drive vessels.

The number of commercial vessels involved in marine incidents has remained relatively steady over time, ranging between 381 and 450 vessels per year for the past nine years. As the number of reported incidents has grown commercial vessel involvement has declined as a proportion of the total.

The involvement of hire and drive vessels in marine incidents, while always a small component, has declined from 10.3 percent of all vessels involved in reported marine incidents in 2003 to 5.2 percent in 2007. This can be attributed in part to revised safety and operational standards and requirements for hire and drive operators in Queensland.

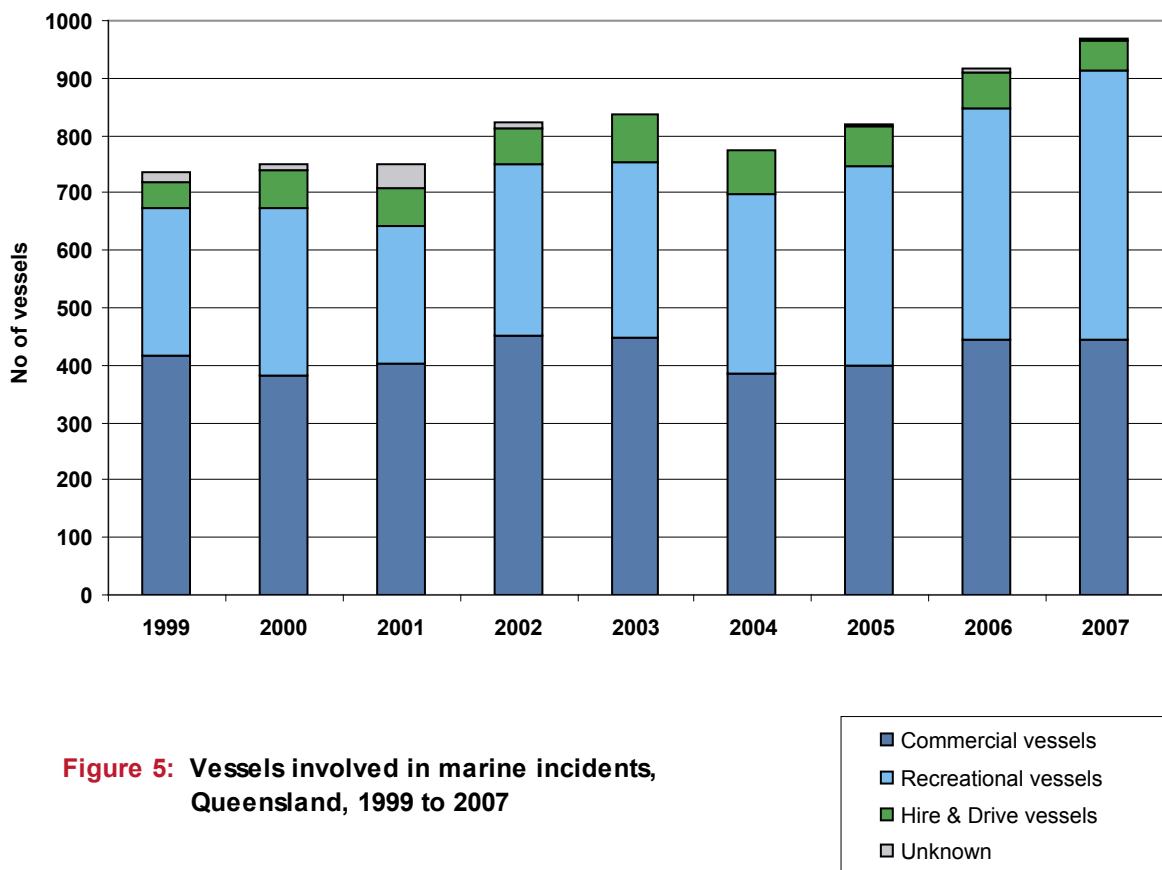


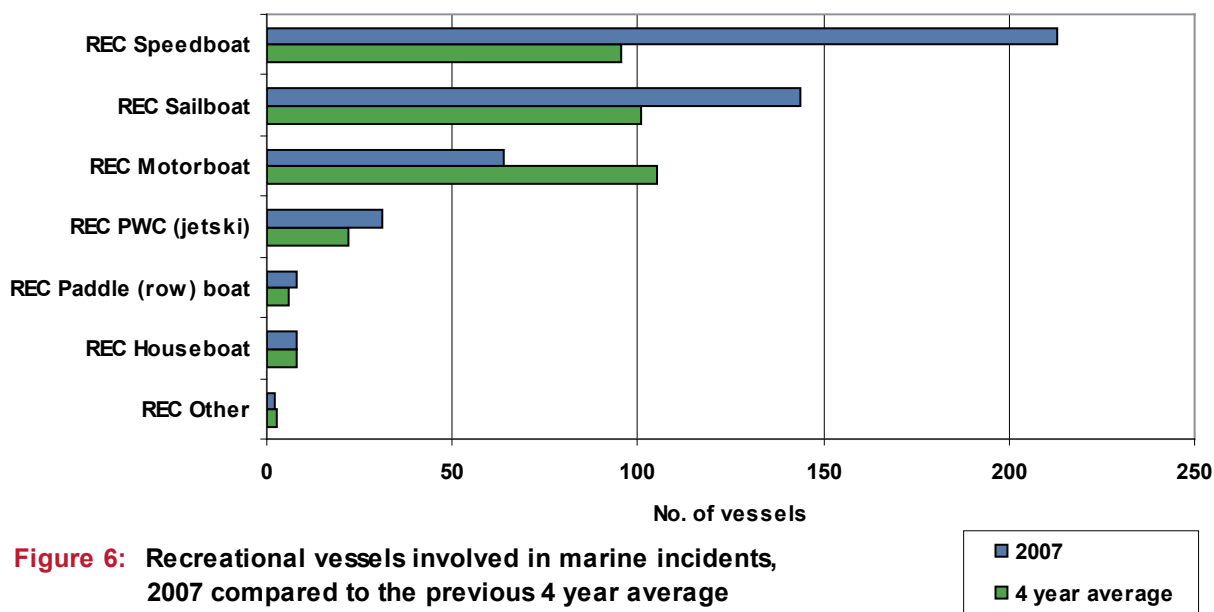
Figure 5: Vessels involved in marine incidents, Queensland, 1999 to 2007

Variations in the rate of involvement in reported marine incidents of the differing registered vessel types can be clearly seen in the following involvement ratios:

- 1 in 466 recreational vessels (comprising 1 in 474 boats and 1 in 349 jet skis);
- 1 in 10.7 commercial vessels (excluding hire and drive and unregistered fishing vessels);
- 1 in 17.5 commercial vessels (including estimated unregistered fishing vessels and excluding hire and drive); and
- 1 in 19.2 hire and drive vessels.

The higher rate of involvement of commercial vessels in reported marine incidents reflects their higher risk exposure (for example, a commercial vessel operating 12 hours per day seven days a week has a much higher risk exposure than a recreational vessel used twice a year). Incidents involving commercial vessels are also considered more likely to be reported than incidents involving just recreational vessels.

Figure 6 provides a breakdown of recreational vessels involved in marine incidents in 2007 by vessel type. The 2007 data is shown together with the average level of involvement over the preceding four years. A refined classification process in 2007 has increased the number of vessels being recorded as speedboat, as opposed to motorboat. This change in methodology will account for a substantial proportion of the increase seen in the recreational speedboat category in 2007 and for the corresponding reduction in motorboat involvement.



The involvement of recreational sailboats in reported marine incidents has been increasing since 2004 and in 2007 their involvement was well above the previous four-year average. From 2006 to 2007 their involvement increased 25 percent.

The number of jet skis involved in reported marine incidents has also increased each year since 2003. Overall, however, they remain a small proportion of the total representing only 6.6 percent of recreational vessels involved in incidents in 2007.

Table 6: Recreational vessel involvement in incidents compared to vessel registrations, 2007.

Recreational vessel type	2007	
	% of registered recreational fleet	% of vessels involved in incidents
Speedboat	80	45.3
Jet ski	4.9	6.6
Sailboat	3.2	30.6
Motorboat (incl. Houseboat)	11.8	15.3
Other / Unregistered	0	2.1
Total fleet	100	100

Looking at commercial vessel involvement (excluding hire and drive), commercial non-passenger is the only vessel type to show a substantial increase in involvement over the previous four-year average. The number of commercial non-passenger vessels involved in marine incidents rose steadily from 2004 through to 2006 then sharply from 2006 to 2007. The increase from 71 in 2006 to 114 in 2007 represents a 60 percent increase in commercial non-passenger vessel involvement in marine incidents. A special profile on commercial non-passenger vessel involvement in marine incidents can be found on page 16.

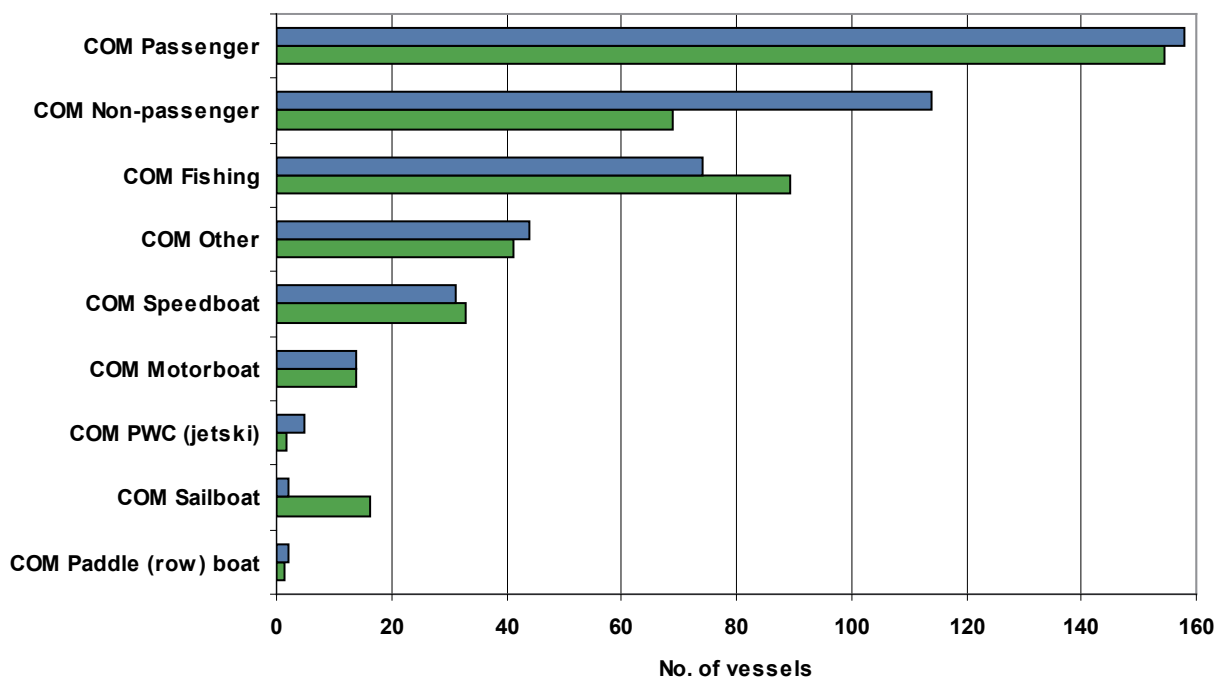


Figure 7: Commercial vessels involved in marine incidents, 2007 compared to the previous 4 year average



The involvement of commercial fishing vessels in marine incidents in 2007 is well below the preceding four-year average—declining from 105 in 2006 to 74 in 2007, a 30 percent reduction.

Of all commercial vessel types, commercial passenger vessels continue to have the highest level of involvement in marine incidents and overall are second only to recreational speedboats.

Commercial hire and drive (sail) vessels have decreased in their level of involvement in reported marine incidents falling from 51 in 2003 to 17 in 2007. Their level of involvement in 2007 is also well below the previous four-year average. Commercial hire and drive (PWC) involvement in 2007 is also below the previous four-year average.

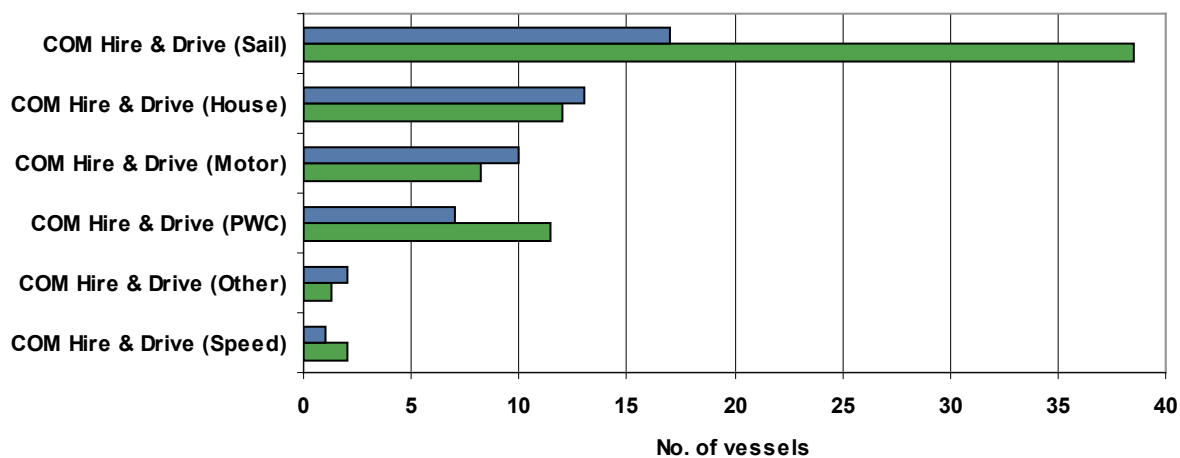
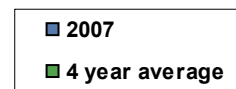


Figure 8: Hire and drive vessels involved in marine incidents, 2007 compared to the previous 4 year average



Other commercial hire and drive vessel types have remained generally consistent with established involvement trends.



Table 25 in the appendix shows the numbers of vessels involved in marine incidents for all vessel types from 2002 to 2007.

Using length as a distinguishing characteristic for recreational vessels reveals that larger recreational vessels have a disproportionately higher rate of involvement in reported marine incidents than smaller vessels. This is shown in Table 7 which provides the number of vessels in each length category that were involved in a marine incident during 2007 as a proportion of vessel registrations.

Table 7: Recreational vessels involved in marine incidents by length*, Queensland, 2007

Length	No. involved in a marine incident 2007	Recreational vessel registrations	% involved in marine incidents
Less than 4.5m	103	137607	0.07
4.6 to 8m	135	69485	0.19
8.01 to 10m	43	4497	0.96
10.01 to 15m	130	6485	2.00
15.01 to 18m	21	657	3.20
18.01 to 25m	11	237	4.64
Over 25m	2	65	3.08
Unknown	24	0	na

* Note: It is likely that a small proportion of recreational vessels involved in reported marine incidents in Queensland waters were not Queensland registered vessels. Queensland vessel registration data has been used as a point of comparison to illustrate a general trend. As such the data may exhibit a small measure of error.

The shortest length category, less than 4.5 metres, contains the majority of registered vessels however only 103 or 0.07 percent were involved in a reported marine incident in 2007. By comparison, of the 237 recreational vessels between 18.01 and 25 metres in length, 11 or 4.64 percent were involved in a reported marine incident in 2007.

Aggregating the data in Table 7 further reveals that of the recreational vessels involved in a reported marine incident in 2007:

- 0.1 percent were 8 metres or less;
- 1.6 percent were between 8.01 and 15 metres; and
- 3.5 percent were over 15 metres.

Increased involvement of commercial non-passenger vessels

The commercial non-passenger vessel classification used in the marine incident database generally includes working vessels such as tugs, barges and dredges. The classification may also include other non-passenger vessels where the vessel type could not be positively identified. As a result vessels such as trading ships can sometimes be included in this classification.

In 2007 114 commercial non-passenger vessels were involved in 106 reported marine incidents. This represents a 60 percent increase from the number of commercial non-passenger vessels involved in marine incidents in Queensland in 2006 and is 65.2 percent above the previous four-year average for commercial non-passenger vessel involvement. An increase of this magnitude raises concerns about what may be driving the higher level of involvement. A review of the available marine incident data has identified two factors as significantly contributing to the increase.

One factor is the unique situation where one particular commercial non-passenger vessel reported 14 close call incidents during 2007. Close calls are reportable marine incidents and in this instance alerted Maritime Safety Queensland to a real safety issue. As a result of the reports Maritime Safety Queensland has engaged with the commercial operator concerned and assisted them with a review of their vessel safety management procedures and provided



recommendations for vessel improvements. Maritime Safety Queensland also implemented a public awareness program and provided additional signage in the area concerned.

The close call incidents however explain only a portion of the observed increased in commercial non-passenger vessel involvement in marine incidents in 2007. The other apparent contributing factor to this higher level of involvement is increased trade-related activity in Queensland ports. The ports of Brisbane, Gladstone and Townsville are all reported as experiencing significant growth; the Port of Brisbane is regarded as the fastest growing container port in Australia; trade through the Port of Gladstone is increasing and it continues to be Queensland largest multi-user port while the Port of Townsville is reportedly one of Queensland fastest growing general cargo ports.

Marine incident data shows that:

- Of the 106 incidents involving commercial non-passenger vessels in 2007 31 related to tugs, line boats or pilot transfers. This is 11 more than in 2006 and 15 more than 2004 and 2005 respectively.
- 27 incidents occurred while a pilot was onboard.
- 50 of the commercial non-passenger vessels involved in incidents were over 25 metres in length, that is, larger work and trade vessels—18 more than in 2006 and double that of 2005.
- 93.5 percent of these incidents involved only commercial vessels (excluding the 14 close call incidents).



While the commercial non-passenger vessel category contains the majority of vessels that operate in Queensland ports, additional trading vessels involved in incidents would be captured in the Commercial—other vessel category. As such the data provided above is likely to understate the extent of increased port traffic and vessel interaction issues.

The nature of incidents involving commercial non-passenger vessels in 2007 also varied from previous years. Most notable was an increase in the number of collisions between ships and the incidence of structural failure.

In 2007 commercial non-passenger vessels were involved in 20 collisions between ships incidents compared to 13 in 2006. Again the nature of the incidents relates primarily to in-port vessel movements. Analysis of the 20 incidents reveals that:

- 18 of the incidents involved only commercial vessels
- 10 of the incidents involved non-passenger vessels over 25 metres.
- 11 incidents occurred while the ship was being manoeuvred into or out of its berth.

Nine collisions between ships occurred in strong winds, that is, a wind speed between 17 and 33 knots. Overall 24 incidents involving commercial non-passenger vessels occurred during strong or gale force winds, 13 of these incidents resulted in a collision with another vessel or other object.

15 incidents in 2007 involved some sort of structural failure. This is well above the previous four-year average involvement in 5.5 incidents. The nature of the failure varied including events such as parting lines and steering, engine or equipment failure. Four incidents resulted from loss of steering

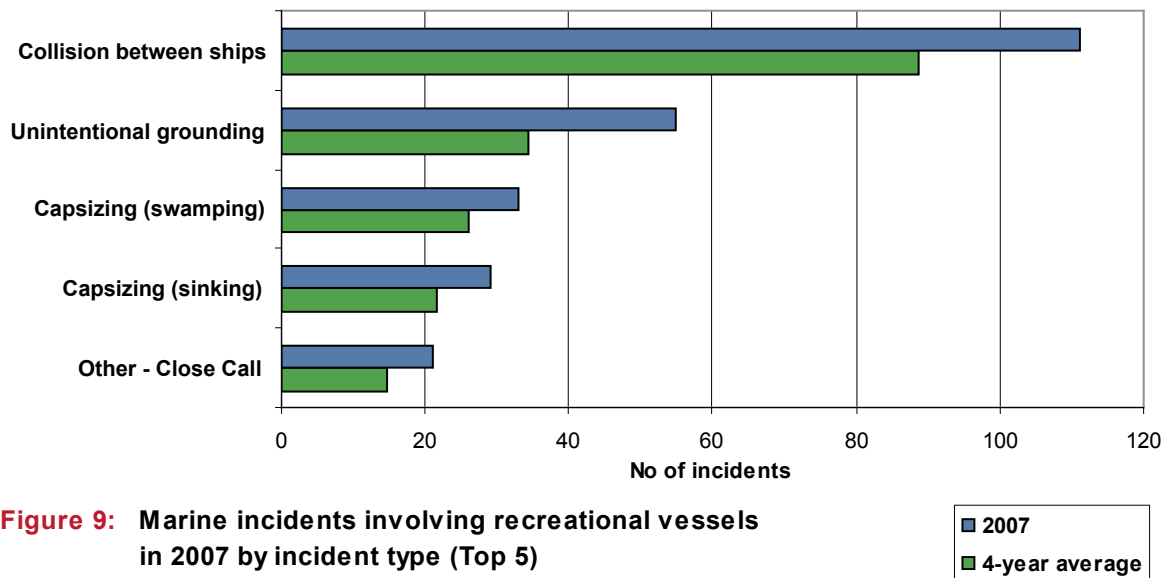
While there were no fatalities recorded for incidents involving commercial non-passenger vessels in 2007, there were two serious injuries, both of which related to onboard activities.



2.3 Types of marine incidents

Figure 9 details the five most frequently occurring types of marine incidents for recreational vessels. The figure shows reported incidents in 2007 together with the preceding four-year average. These five categories account for 65 percent of the 383 incidents that involved a recreational vessel in 2007.

Collision between ships and unintentional groundings are the main incident categories across recreational, commercial and hire and drive vessels. For recreational vessels both of these incident types were over-represented in 2007 compared with their respective four-year averages.



Of the 111 reported collisions between ships that involved a recreational vessel, 49 or 44.1 percent involved a moving vessel colliding with a stationary vessel. 17 of these incidents occurred when vessels dragged anchor and collided with other anchored vessels, 15 occurred while a vessel was attempting to enter or leave its berth, 14 involved an anchored vessel being hit by a vessel underway and three occurred as the vessel was setting or retrieving its anchor.

Capsizing swamping, capsizing sinking and close call incidents were also over-represented when compared to their four-year average. Collision with a fixed object, fire, structural failure and capsizing, while not in the top five incident types, were all above their respective four-year average.

Figure 10 provides the top five incident types for commercial vessels, excluding hire and drive, in 2007. There were 391 incidents in 2007 that involved commercial vessels. The top five incident types account for 53.5 percent these incidents.

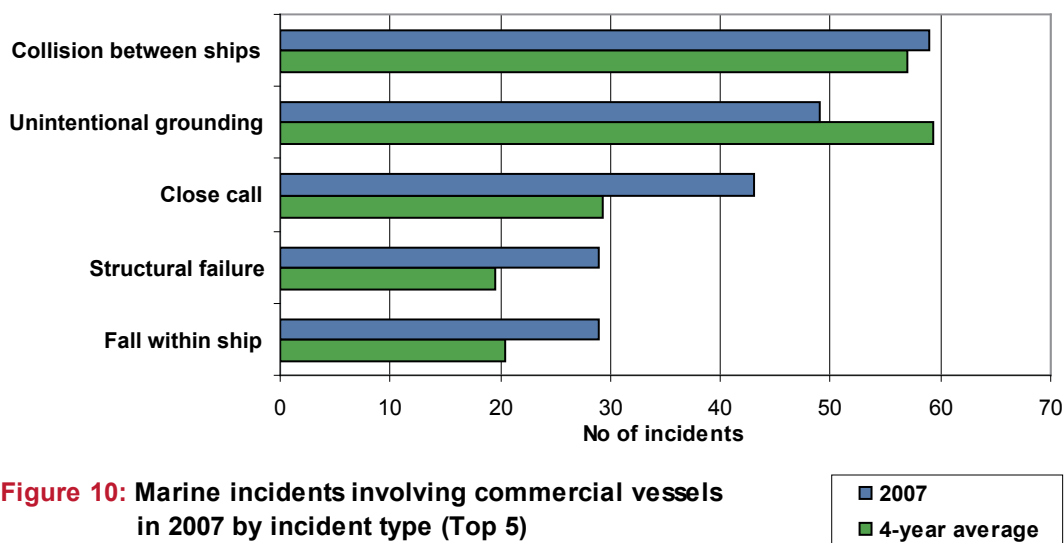


Figure 10: Marine incidents involving commercial vessels in 2007 by incident type (Top 5)

Collision between ships was the predominant incident type for commercial vessels in 2007. The number of collisions involving commercial vessels in 2007 is consistent with the preceding four-year average. The unintentional grounding of commercial vessels, while still a significant incident category in 2007, has shown improvement when compared to the four-year average. Close calls, structural failure and onboard incident falls within ship were over-represented when compared with their respective four-year average involvement.

Unintentional groundings have been the major incident type for hire and drive vessels over the past four years. In 2007 the incidence of unintentional grounding was well below the four-year average and equalled the number of reported collisions between ships. These two incident types account for 66.7 percent of the 48 reported incidents involving a hire and drive vessel.

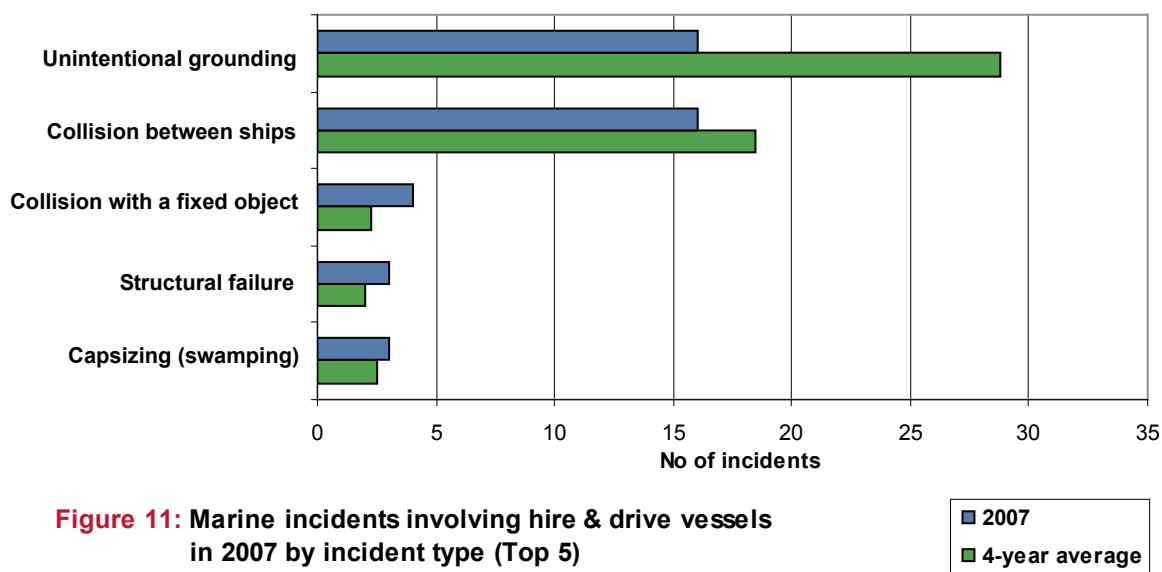


Figure 11: Marine incidents involving hire & drive vessels in 2007 by incident type (Top 5)

Table 19 in the appendix provides data for all incident types for the period 2002 to 2007, including regional counts for 2007.

2.4 Incident characteristics

In 2007 there were 1354 factors identified as having contributed to the 762 reported marine incidents. Contributing factors are recorded by Maritime Safety Officers when an incident is investigated. The factor classifications are grouped into environmental, human and material. Table 8 provides a list of all contributing factors recorded in 2007.

60 percent of the identified contributing factors in 2007 relate to human actions. The main human contributing factors were inattention, operational error – other, navigational error – failure to keep a proper lookout and navigation error – lack of knowledge/experience. Alcohol or drugs was identified as a contributing factor in 13 incidents.

Table 8: Contributing factors to incidents

Contributing factors	2007	% of group	% of all contributing factors
Human factors			
Inattention	153	18.8%	11.3%
Operational error-other	143	17.6%	10.6%
Navigation error-failure to keep proper lookout	81	10.0%	6.0%
Navigation error-lack of knowledge/experience	75	9.2%	5.5%
Navigation error-violation of Collision regs	54	6.7%	4.0%
Insufficient planning	53	6.5%	3.9%
Inadequate training of crew	35	4.3%	2.6%
Navigation error-other	33	4.1%	2.4%
Poor communications	28	3.4%	2.1%
Insecure mooring	27	3.3%	2.0%
Excessive speed	26	3.2%	1.9%
Insufficient maintenance	15	1.8%	1.1%
Violation of standard procedures	15	1.8%	1.1%
Alcohol or drugs	13	1.6%	1.0%
Violation of statutory rules or standards	12	1.5%	0.9%
Inappropriate instructions to crew - other	10	1.2%	0.7%
Poor communication of instructions to crew	10	1.2%	0.7%
Commercial pressure	7	0.9%	0.5%
Fatigue	6	0.7%	0.4%
Overloading	6	0.7%	0.4%
Insufficient crew numbers	5	0.6%	0.4%
Insufficient fuel	3	0.4%	0.2%
Inappropriate advice to ship - Pilot	2	0.2%	0.1%
Inappropriate Harbour/Port Authority advice	0	0.0%	0.0%
Inappropriate Vessel Traffic System advice	0	0.0%	0.0%
Poor ship to shore communications	0	0.0%	0.0%
Total human	812	100%	60.0%

Table 8 continued on next page



Contributing factors	2007	% of group	% of all contributing factors
Environmental factors			
Sea state	100	30.7%	7.4%
Wind	95	29.1%	7.0%
Poor visibility	26	8.0%	1.9%
Wash of passing vessel	21	6.4%	1.6%
Other environmental contributing factor	20	6.1%	1.5%
Abnormal tidal conditions	14	4.3%	1.0%
Floating or submerged object	14	4.3%	1.0%
Hazardous waters - coral reefs	10	3.1%	0.7%
Bar conditions	7	2.1%	0.5%
Hazardous waters - uncharted hazards	6	1.8%	0.4%
Hazardous waters - shifting channel	5	1.5%	0.4%
Heavy traffic area	5	1.5%	0.4%
Hazardous waters - lack navigation aids	2	0.6%	0.1%
Hazardous season (cyclones etc)	1	0.3%	0.1%
Total environmental	326	100%	24.1%
Material factors			
Machinery failure	69	31.9%	5.1%
Equipment failure - other	40	18.5%	3.0%
Other material contributing factor	34	15.7%	2.5%
Hull failure	21	9.7%	1.6%
Electrical failure	15	6.9%	1.1%
Inappropriate hull or equipment-design fault	11	5.1%	0.8%
Insufficient maintenance of hull or equipment	11	5.1%	0.8%
Inadequate stability - other	3	1.4%	0.2%
Inappropriate hull or equipment-construction fault	3	1.4%	0.2%
Bridge or navigation failure	2	0.9%	0.1%
Fuel or gas leak	2	0.9%	0.1%
Inadequate stability - overloading	2	0.9%	0.1%
Shore structure badly designed/maintained	2	0.9%	0.1%
Inadequate stability - shifting cargo	1	0.5%	0.1%
Insufficient safety equipment	0	0.0%	0.0%
Total material	216	100%	16.0%
Total all contributing factors	1354	100%	100%

In 2007, 53 incidents had insufficient planning identified as a contributing human factor. This is a pronounced increase from 2006 where this factor was identified in 22 incidents. The 2007 count is 2.9 times higher than the preceding six-year average.

Contributing environmental factors made up 24.1 percent of all identified contributing factors in 2007. The main contributing factors were sea state and wind. Bar conditions as a contributing factor is at its lowest level in six years. In 2006 28 incidents recorded bar conditions as a contributing factor compared to just 7 in 2007. Wash of a passing vessel contributed to 21 incidents.

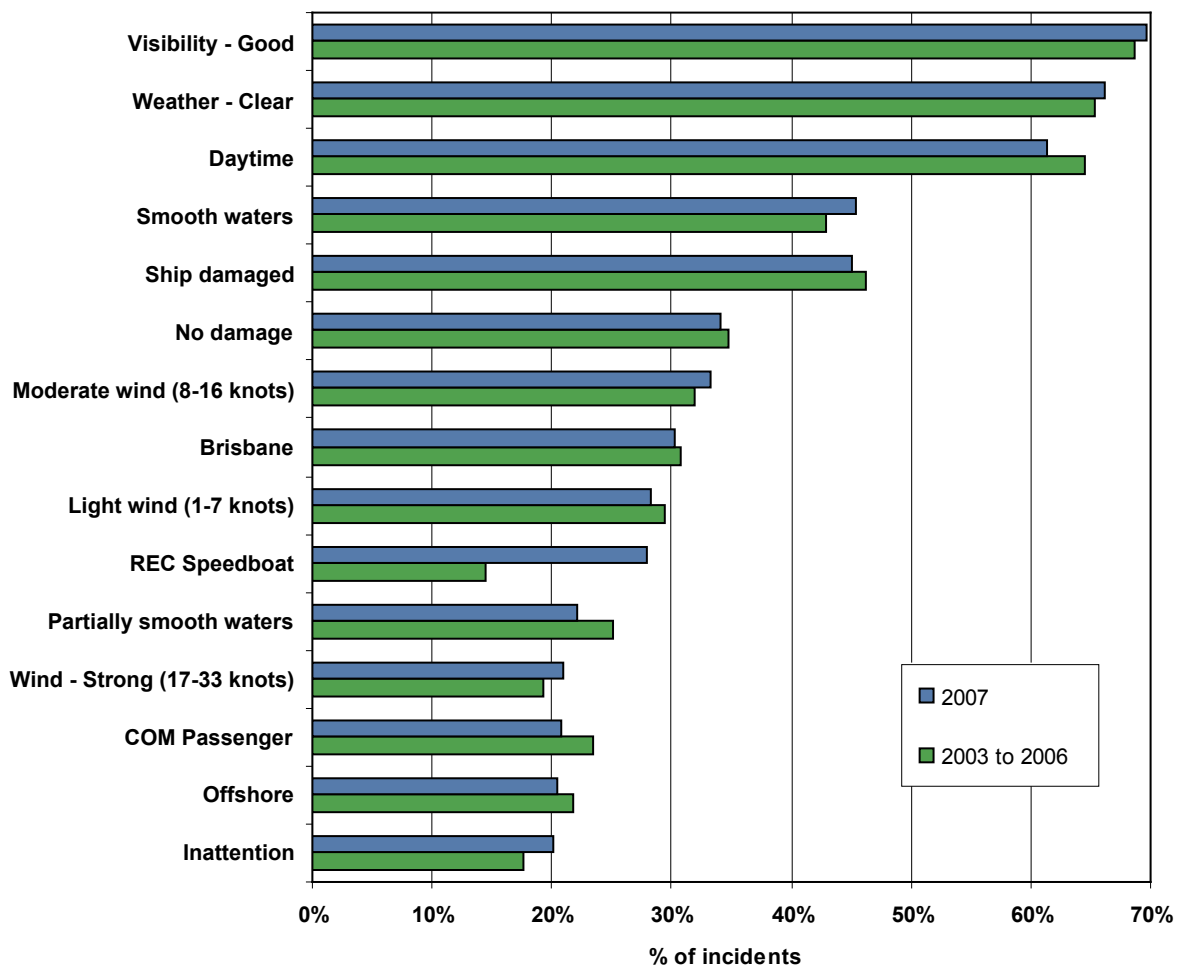
Material contributing factors made up 16 percent of all identified contributing factors. Machinery failure, equipment failure – other and hull failure continue to be the main factors identified.

Overall the most frequent contributing factors identified were inattention (11.3 percent), operational error – other (10.6 percent), sea state (7.4 percent) and wind (7 percent).

Tables 16, 17 and 18 in the appendix provide counts for all three contributing factor categories for the period 2002 to 2007.

Figure 12 expands on the contributing factors discussed above, to include other incident characteristics such as wind strength, ship type, location and region. Combined these characteristics provide a more comprehensive view of the nature of reported marine incidents. The figure details the top 15 characteristics involved in marine incidents in 2007. The proportion for the preceding four-years is provided for comparative purposes.

Figure 12: Proportion of Queensland marine incidents with given characteristics, Queensland, 2007 (Top 15)



The data is based on the proportion of incidents for which the given characteristic was reported or identified during investigation as contributing or prevailing at the time.

A striking feature from Figure 12 is that the majority of incidents, over 60 percent, occur in optimum conditions, that is, there is good visibility, the weather is clear, it is daytime, the winds are light to moderate and the boat is in smooth or partially smooth waters. Strong winds and offshore waters were only involved in 21 percent and 20 percent of incidents respectively.

Vessels were damaged in 45 percent of incidents in 2007 and 20 percent of incidents involved inattention on the part of the skipper.

With the exception of recreational speedboats the top 15 characteristics have remained relatively consistent over time. Only minor differences are observed between the data for 2003 to 2006 and that recorded in 2007.



The increased involvement of recreational speedboats in 2007 can be largely attributed to a refined classification process which has resulted in more vessels being recorded as recreational speedboats instead of recreational motorboats (refer Section 2.2 for more details).

There were no factors in the top 15 that were substantially below their four-year average.

Will your boat make the distance?

Many boat owners take a “jump in and go” approach towards boating. Little time is spent checking equipment, inspecting thru holes, checking the hull for deterioration or testing safety equipment. At sea, poor planning and equipment failure can have catastrophic results.

The new owner of an 11.8 metre sailing trimaran had a frightening and expensive introduction to boating. He had only settled the purchase of his boat the day before he set off to travel from the Gold Coast to Hervey Bay. Having left the Gold Coast early he was about 10 kilometres east of Jumpinpin Bar at 7.15am when he suddenly lost steering, his sail then ripped and the engine broke down. He used his mobile phone to call for help. After making the call he discovered that the boat was taking on water but his mobile phone battery was now flat and he could not notify authorities that his situation had become more serious. He activated his EPIRB and flares.

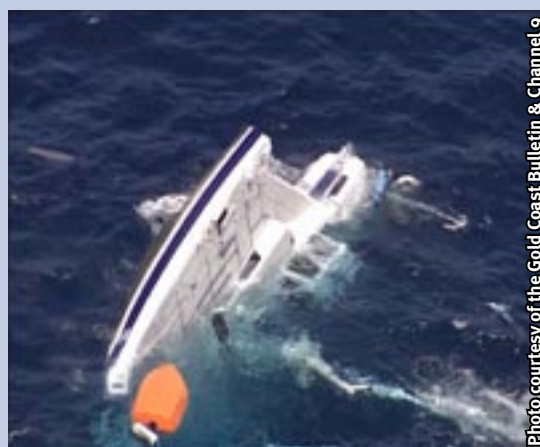


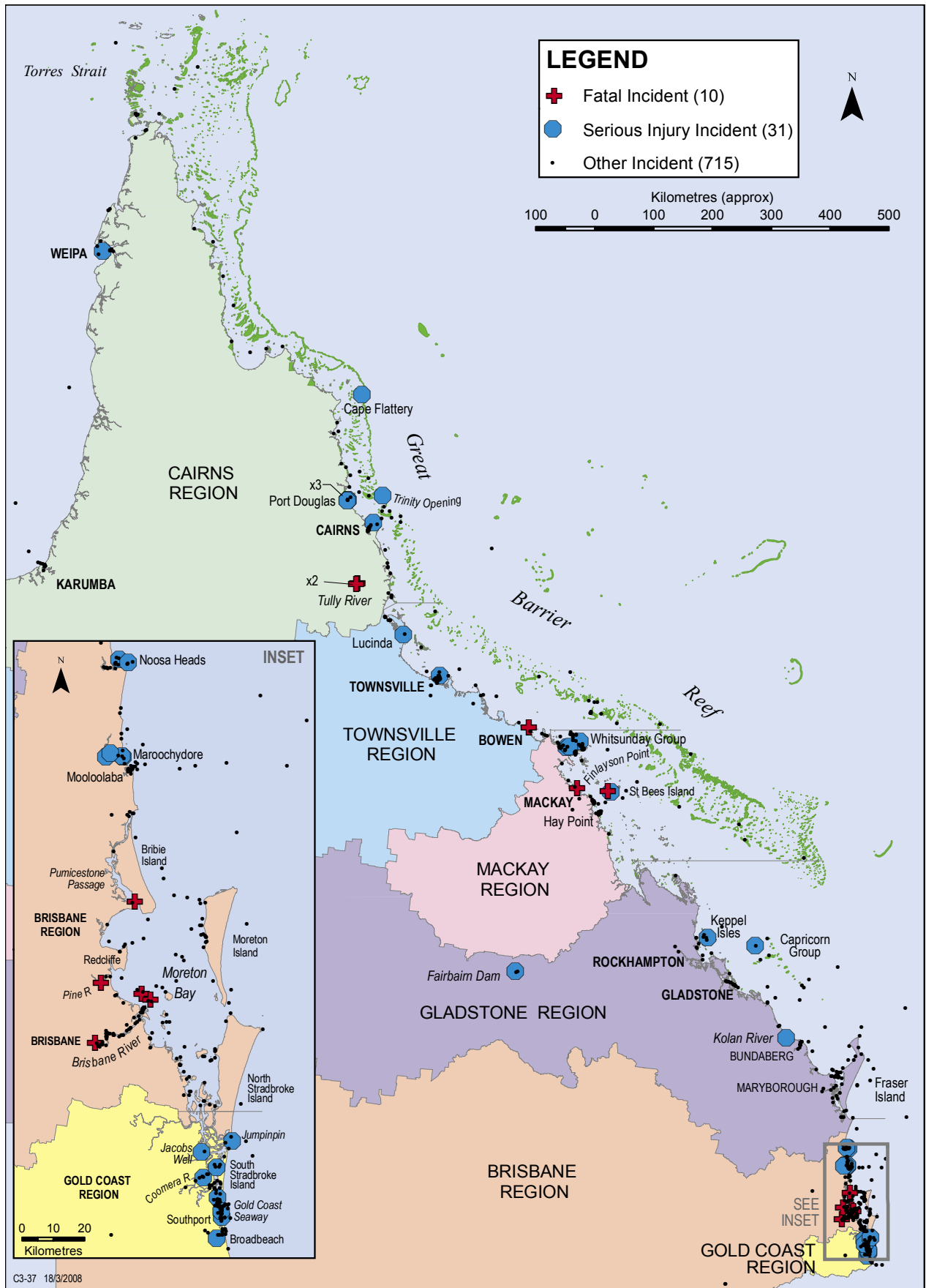
Photo courtesy of the Gold Coast Bulletin & Channel 9

When the water police arrived at 8.50am the owner was in water up to his knees. Until they arrived they had no idea the boat was taking on water. The owner survived his ordeal but the vessel was lost.

In the end the owner’s survival was due to good fortune not good planning. Had the incident occurred farther up the coast the response times and physical task of locating him would have taken much longer and have been much more difficult. There is every chance the boat would have sunk before authorities located it, leaving the owner stranded, alone and unprepared, in the ocean.

Safety insights

- Know your boat and its capabilities.
- Make sure you have the skills and experience necessary to undertake the voyage.
- Regularly check the seaworthiness of your boat, even those things you might otherwise take for granted.
- Make sure you have all the right safety equipment onboard and that it is operational and accessible.
- Don’t go offshore without a working marine radio.
- Make regular radio checks with volunteer marine rescue and coastguard authorities.



Map 1: Marine incidents by highest level of personal injury, Queensland 2007



2.5 Location of marine incidents

Map 1 spatially depicts all reported marine incidents in Queensland in 2007 by the highest level of personal injury, that is, the two incidents that resulted in both fatalities and serious injuries are shown as fatal incidents.

Evident from the map is the clustering of incidents in confined waterways including bays, channels, rivers and harbour entrances. One of the prominent areas in 2007 is along and at the entrance to the Brisbane River. While two fatal recreational incidents near the entrance to the river received significant media coverage, reported marine incidents near and along the river primarily involve commercial trading vessels, commercial passenger vessels, and tugboats. Overall 71 percent of reported incidents in this area involved only commercial vessels in 2007.

Marine incidents continue to feature heavily in the waterways of the Gold Coast. A review of marine incidents in the Gold Coast region is provided in Section 5.1.

In response to initiatives by Maritime Safety Queensland, marine incident reporting in the Torres Strait appears to have improved with eight marine incidents reported in 2007 compared to 16 for the preceding ten years. There were no fatalities and no serious injuries reported in the Torres Strait in 2007. Section 6.2 provides an update on boating safety initiatives in the Torres Strait and discusses the status of maritime rescue activities in the region.

Regional incident maps are provided in the regional summaries in Section 5.

2.5.1 By waters

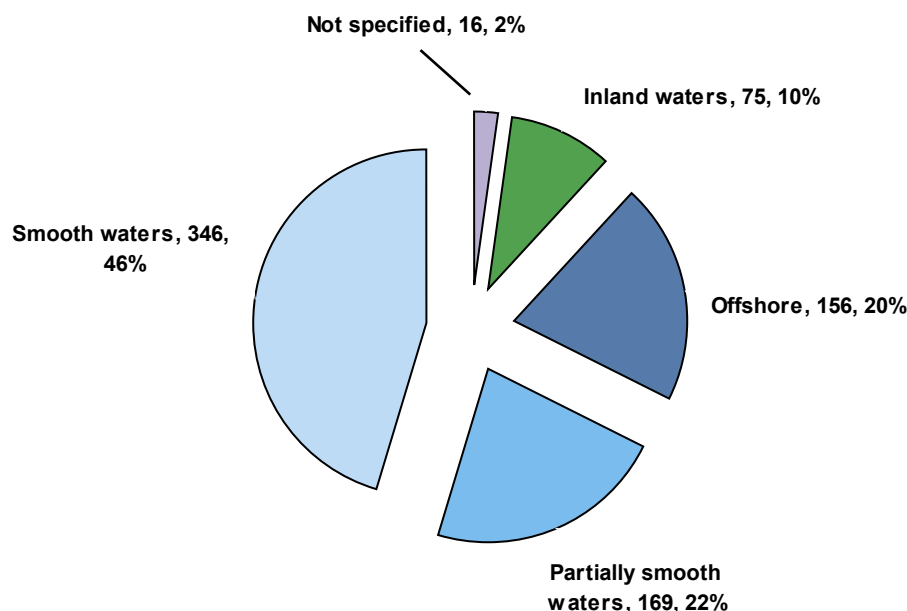


Figure 13: Location of Queensland marine incidents, 2007

As would be expected based on Map 1 the majority (45.5 percent) of marine incidents in 2007 occurred in smooth waters (see Figure 13). Smooth waters include the tidal reaches of rivers and creeks, waters within breakwaters or revetments and within half a nautical mile from land within partially smooth water limits.

22.3 percent of reported marine incidents occurred in partially smooth waters, 20.5 percent in offshore waters and 9.8 percent in inland waters. Inland waters include dams, lakes, creeks, streams and rivers above the tidal reach.

Incidents in offshore waters are 5.1 percentage points lower in 2007 than in 2006.

Table 20 in the appendix provides time series data for the location of reported marine incidents.

In 2008 a closer examination will be made of reported incidents in inland waters as there is some evidence of inappropriate use of the 'inland waters' classification.

2.5.2 By region

In 2007, 29 percent of reported marine incidents occurred in the Brisbane region (see Figure 14). The Gladstone, Mackay, Cairns and Gold Coast regions recorded between 14 percent and 18 percent each. Townsville region recorded 8 percent of Queensland marine incidents.

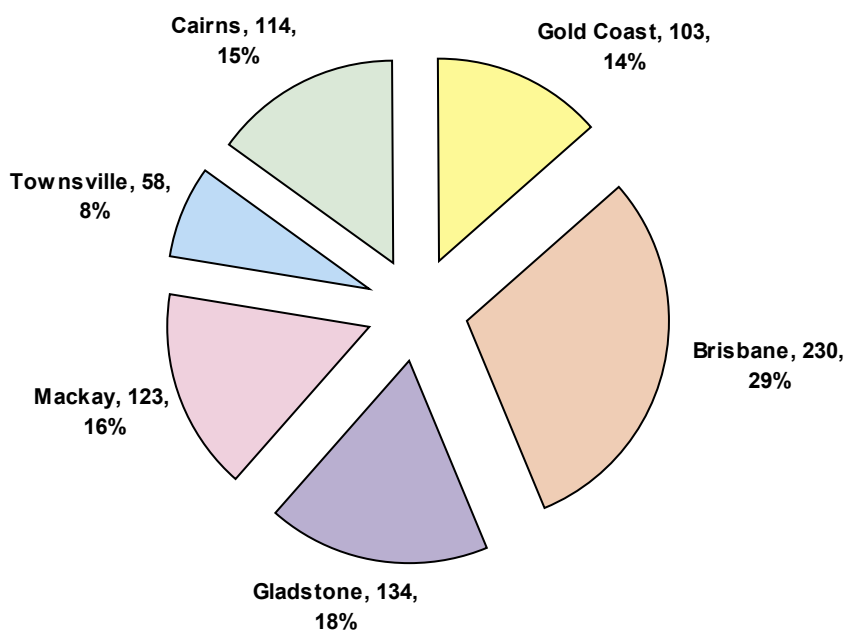


Figure 14: Marine incidents in 2007 by region

Five of the 10 fatal marine incidents in 2007 occurred in Brisbane region, two occurred in each of Cairns and Mackay regions and one occurred in Townsville region.

Reported marine incidents in Townsville region in 2007 have increased 38.1 percent from 2006. Mackay, Gold Coast and Brisbane regions have also increased from 2006 by 18.3 percent, 15.7 percent and 10 percent respectively. Gladstone and Cairns regions each recorded a small decrease in reported incidents.

Section 5 provides a more detailed analysis of marine incidents for each Maritime Safety Queensland region.



Making waves

The wake from fast moving speedboats continues to represent a boating safety challenge. Fast moving speedboats create a sizable wake which can swamp small boats and cause violent motion in boats close by. Each year numerous people are injured in falls caused by the wake of passing speedboats, or worse, fall overboard.

For one family entering a marina in their sailboat the wake from a large Riviera cruiser passing them in the entrance channel at an estimated 20 knots placed their boat in danger, caused injury to the two adults on board and almost knocked a nine year old child into the water.

The Riviera owner was impatient and demonstrated a lack of regard and consideration for the people and boats around him. He was also breaking the law. His subsequent assertion that the sailboat skipper “was obliged to get out of the overtaking vessel’s way” was incorrect and demonstrated inadequate knowledge of the *International Regulations for Preventing Collisions at Sea*. These regulations provide the traffic laws for the sea and all boat operators are bound by them.



Safety insights

- It is the skipper’s responsibility to operate their boat at a safe speed, having regard to the prevailing conditions, circumstances and other waterway users.
- It is the responsibility of a passing boat to do so safely and to keep well clear of the boat they are overtaking.
- Boat operators are responsible for the effect of their boat’s wash on people in the water, other boats and the shoreline.
- Boats must travel at less than six knots when they are within 30 metres of anchored or moored boats, boat ramps, people in the water and in boat harbours and marinas.

Queensland fatal and serious marine incidents

3. Queensland fatal and serious marine incidents

Section 3 analyses reported marine incidents that resulted in fatalities or serious injuries. It provides time series data and examines incident trends, types of vessels involved, types of incidents and other selected incident characteristics. Data is presented for both the number of fatal and serious injury incidents and the number of persons fatally or seriously injured.

Section 3.2.4 provides data on admissions to Queensland hospitals as a result of water transport accidents for the period July 2004 to June 2007. This is the first time hospital admissions data has been available to Maritime Safety Queensland. In addition to providing a summary of the hospital admissions data the section discusses the implications of the data for understanding the causes and consequences of marine incidents.

Section 4 provides a profile of persons fatally or seriously injured.

3.1 Summary of marine fatalities in 2007

In 2007 there were 10 fatal marine incidents which claimed the lives of 13 people, including one incident that resulted in four fatalities. Table 9 provides selected details for each incident. A further 35 people were identified as seriously injured in 33 reported incidents. Two incidents involved both fatalities and serious injuries. An injury is defined as serious when it results in admission to hospital.

Table 9: Fatal marine incidents, Queensland, 2007

Date	Incident Category	Vessel/s Involved	No. of Fatalities	Region	Area
4 Jan 07	Other*	Recreational Sailboat	1	Mackay	St Bees Island
17 Mar 07	Capsizing	Recreational Motorboat	1	Townsville	SE Abbot Point
5 May 07	Person overboard	Recreational Speedboat	1	Mackay	Seaforth
31 July 07	Collision with submerged object	Commercial paddle (row) boat	1	Cairns	Tully River
1 Sept 07	Collision between ships	2 x Recreational Speedboats	4	Brisbane	Nth Moreton Bay
13 Sept 07	Grounding unintentional	Recreational Speedboat	1	Brisbane	Wall of Port
16 Sept 07	Other personal injury (water skiing incident)	Recreational PWC (Jetski)	1	Brisbane	Bribie Island
6 Oct 07	Capsizing	Commercial paddle (row) boat	1	Cairns	Tully River
25 Oct 07	Person overboard	Recreational Speedboat	1	Brisbane	Pine River
13 Dec 07	Other personal injury, hit by propeller or ship	Commercial Passenger	1	Brisbane	Brisbane River

* Skipper disappeared while diving to clear his anchor.



3.2 Fatal and serious injury incidents in context

This section examines reported marine incidents resulting in fatalities or serious injury in 2007 in the context of outcomes from previous years and comparative vessel registration and population growth trends.

3.2.1 Fatal and serious injury incident time series analysis

While total reported marine incidents have been trending upwards the annual number of fatal incidents has remained relatively constant over the past five years. The increase in fatal injury incidents in 2006 appears, based on reported incidents in 2007, to have been a spike rather than the emergence of an upward trend.

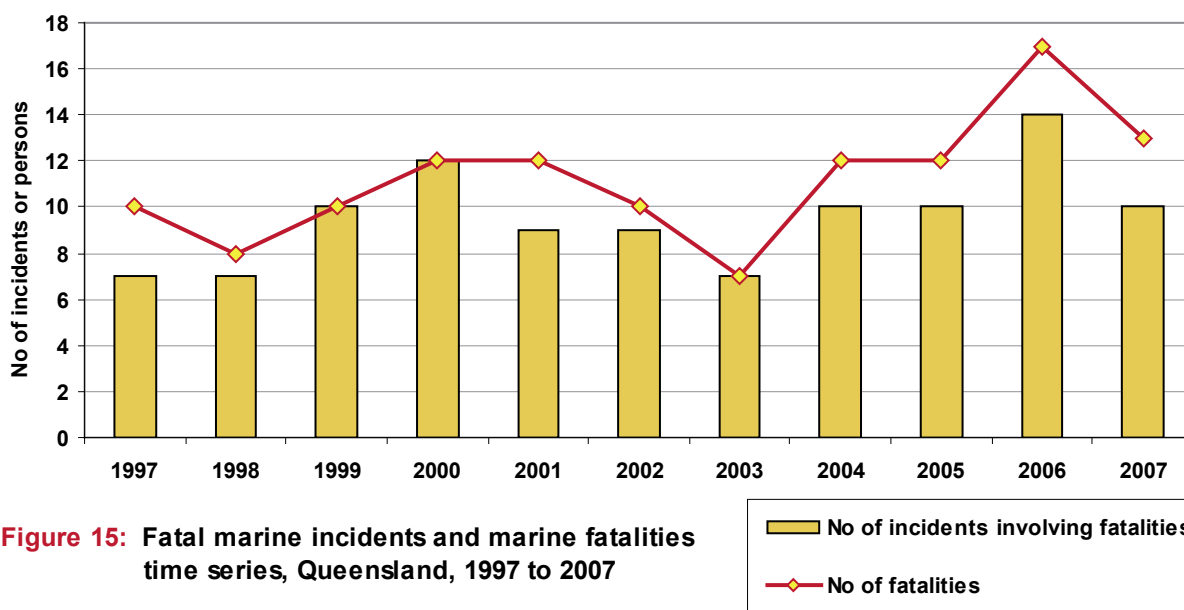


Figure 15: Fatal marine incidents and marine fatalities time series, Queensland, 1997 to 2007

Figure 15 shows the number of reported fatal marine incidents and the number of recorded fatalities for the period 1997 to 2007. In years where multiple fatality incidents have occurred the number of fatalities is higher than the number of fatal incidents.

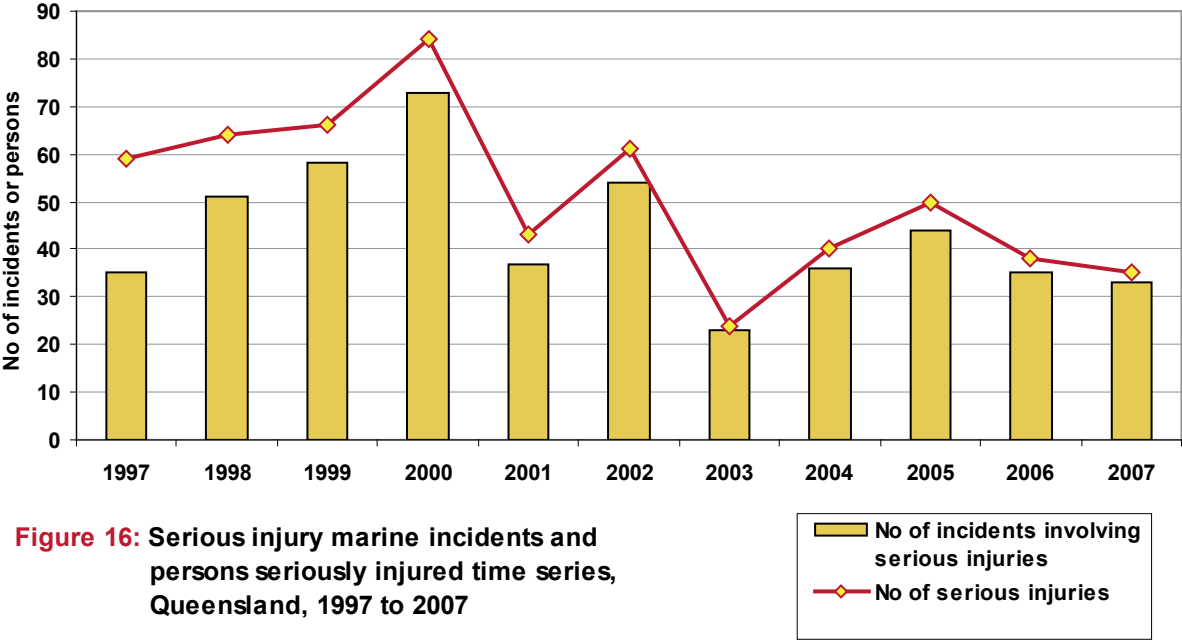
The number of fatal incidents has remained relatively consistent over time however the number of fatalities per incident has increased. From 1997 to 2003 there was an average of 1.13 deaths per fatal incident. Since 2004 the average number of deaths per fatal incident has increased to 1.23.

While only one multiple fatality incident was recorded in 2007 the magnitude of the incident has increased the ratio of deaths per fatal incident for 2007 to 1.3. This is the second highest annual deaths per fatal incident ratio recorded since 1997, the highest being 1.33 in 2001.

Since 1997 there have only been three years, 1999, 2000 and 2003 when no multiple fatality incidents were recorded.



Figure 16 provides a time series profile from 1997 to 2007 for serious injury incidents and persons seriously injured. The number of serious injury incidents and the number of persons seriously injured have been trending downwards since 2000. 2007 was the third consecutive year to show a decline in both reported serious injury incidents and persons seriously injured.



3.2.2 Fatal and serious injury incident trends

Figure 17 shows the fatality rates for both reported incidents and persons fatally injured. The fatal incident data is provided per 100,000 registered ships and the persons fatally injured is provided per 100,000 registered ships and per million of Queensland’s population.

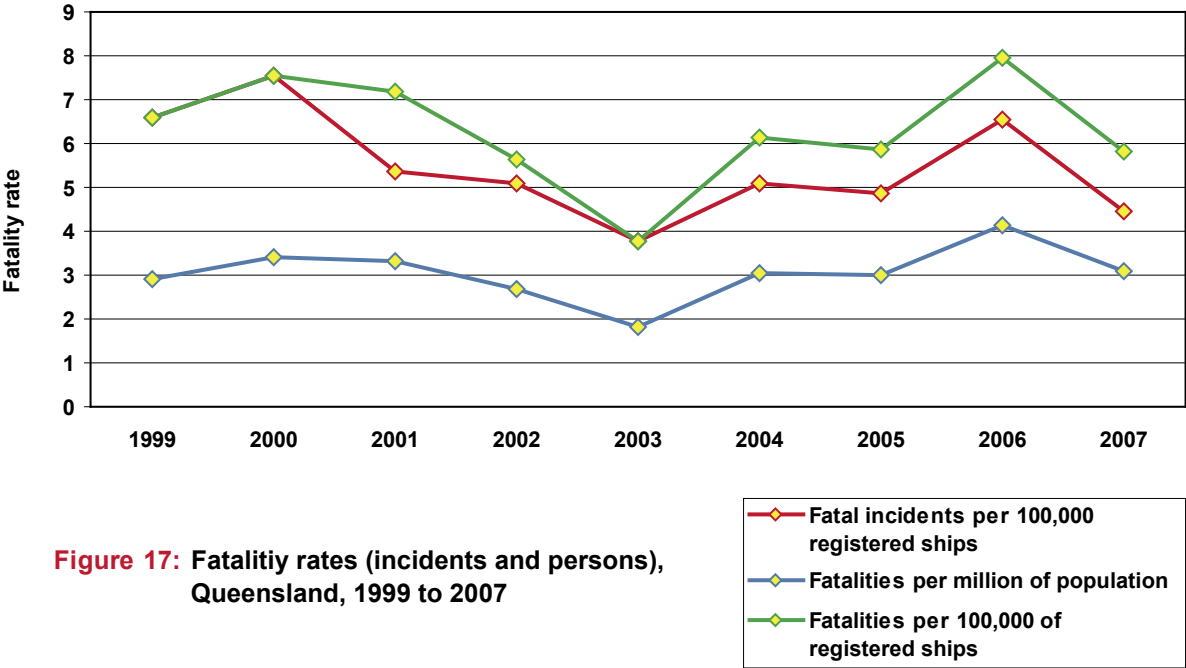


Figure 17: Fatality rates (incidents and persons), Queensland, 1999 to 2007



The number of fatal incidents per 100,000 registered vessels has ranged between 3.8 and 7.6 for the past nine years. What appeared as a possible emerging upward trend in 2006 has returned in 2007 to be within the long term range. In 2007 there were 4.5 deaths per 100,000 registered vessels, below the nine-year average of 5.5.

Looking at persons fatally injured, both deaths per million of population and deaths per 100,000 registered vessels continue to be within the boundaries of the long term range. In 2007 there were 5.8 deaths per 100,000 registered vessels and 3.1 deaths per million of Queensland population.

Figure 18 shows similar comparisons for serious injuries. The number of serious injury incidents per 100,000 registered vessels and the number of persons seriously injured per 100,000 registered ship and per million of population declined significantly between 1999 and 2003. Since 2003 the serious injury rates have remained steady. In 2007 the rates were 14.7, 15.6 and 8.3 respectively.

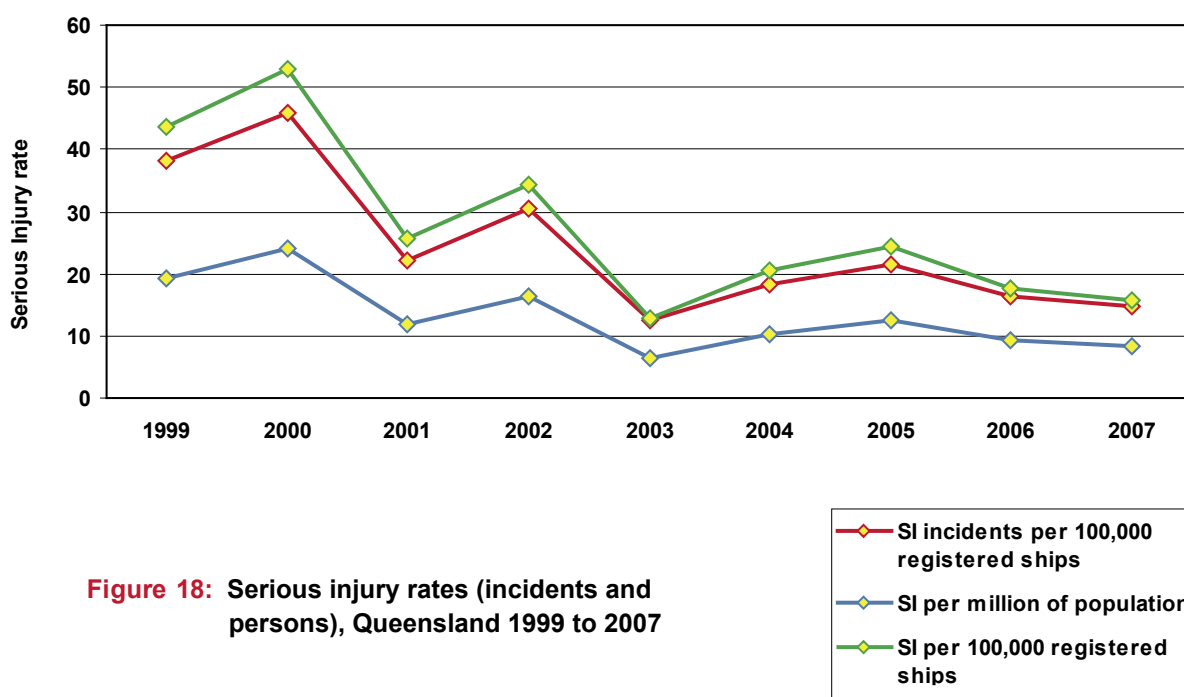


Figure 18: Serious injury rates (incidents and persons), Queensland 1999 to 2007

Fatality rates for incidents involving recreational and commercial vessels are very different. Figure 19 shows recreational fatalities per 100,000 registered recreational vessels. Figure 20 shows commercial fatalities per 1,000 registered commercial vessels. The scales chosen for figures 19 and 20 were selected to show in detail the changes in the fatality rates over time for each vessel type. On a larger scale the rates for commercial vessel fatalities would not appear as erratic.

In 2007 there were 10 recreational fatalities and 3 commercial fatalities. Recreational fatalities per 100,000 registered recreational vessels have ranged between 2 and 5.5 since 1997. The fatality rate in 2007 was 4.58 per 100,000 vessels which is below the rates for both 2005 and 2006.

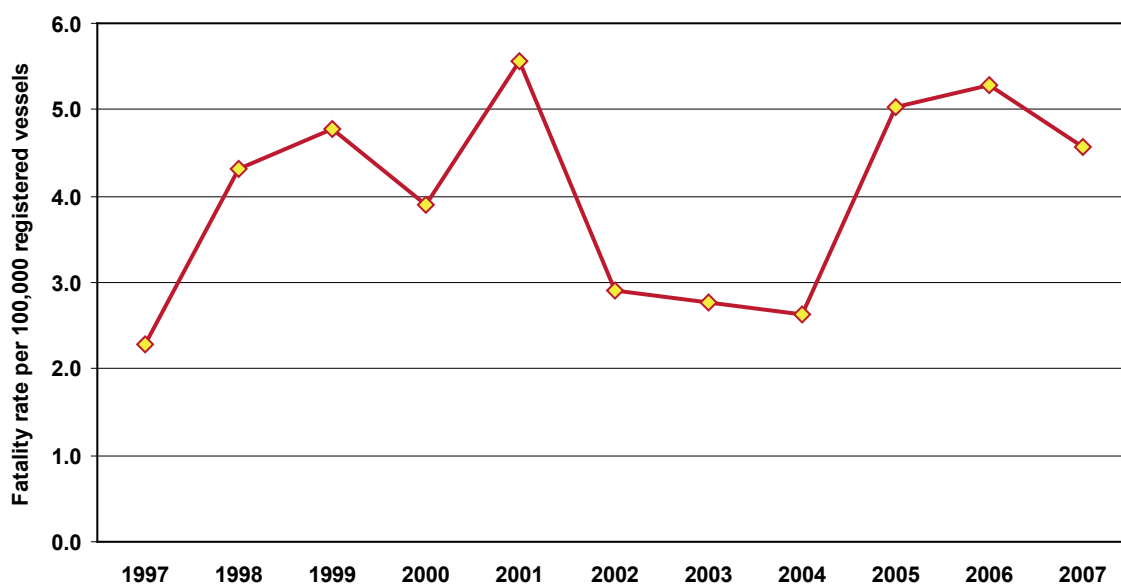


Figure 19: Fatality rates for recreational vessels, Queensland 1997 to 2007

Recreational fatalities per 100,000 registered vessels

Fatalities per 1,000 registered commercial vessels have been consistently between 0.35 and 1.22 since 1997. In 2007 the commercial fatality rate was 0.52 per 1,000 registered commercial vessels. If the estimated 3,000 unregistered fishing vessels (refer Section 1.5.2) are included, the fatality rate per 1,000 commercial vessels decreases from 0.52 to 0.34 per 1,000 vessels.

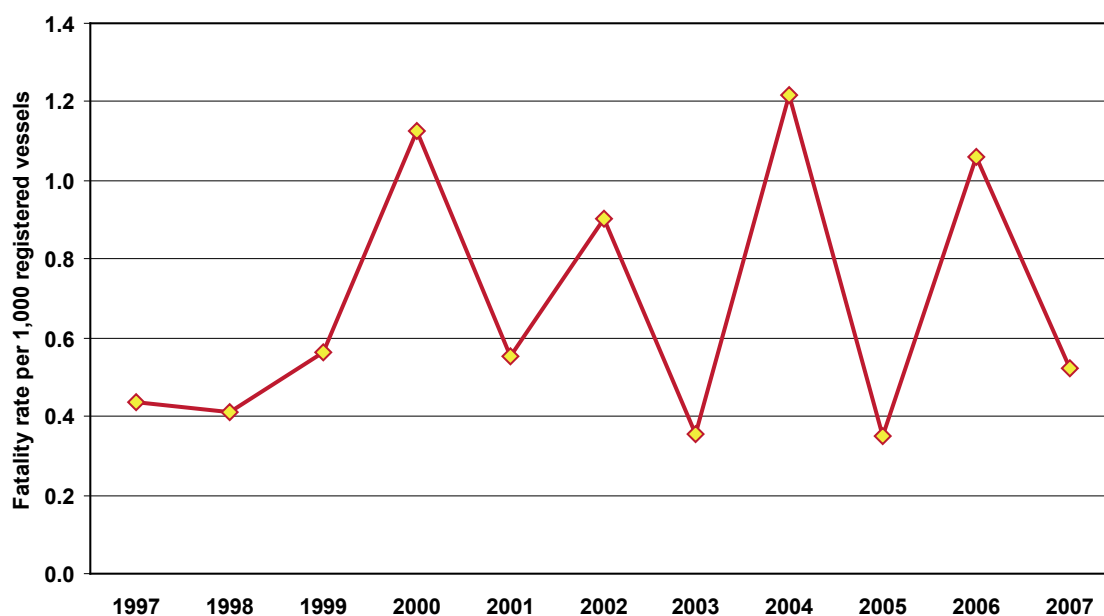


Figure 20: Fatality rates for commercial vessels, Queensland 1997 to 2007

Commercial fatalities per 1,000 registered vessels

Putting this on comparable terms to the recreational vessel analysis the commercial fatality rate per 100,000 registered vessels is 52.4 or 34.4 if unregistered fishing vessels are included.



3.2.3 Queensland in relation to Australia

Based on marine incident data collated by the National Maritime Safety Committee the number of reported marine incident fatalities in Queensland in 2007 has declined in comparison to the increase observed at the national level (see Figure 21). In 2007 there were 51 reported marine incident fatalities in Australia (data excludes the Northern Territory from August 2007), of which 13 were recorded in Queensland.

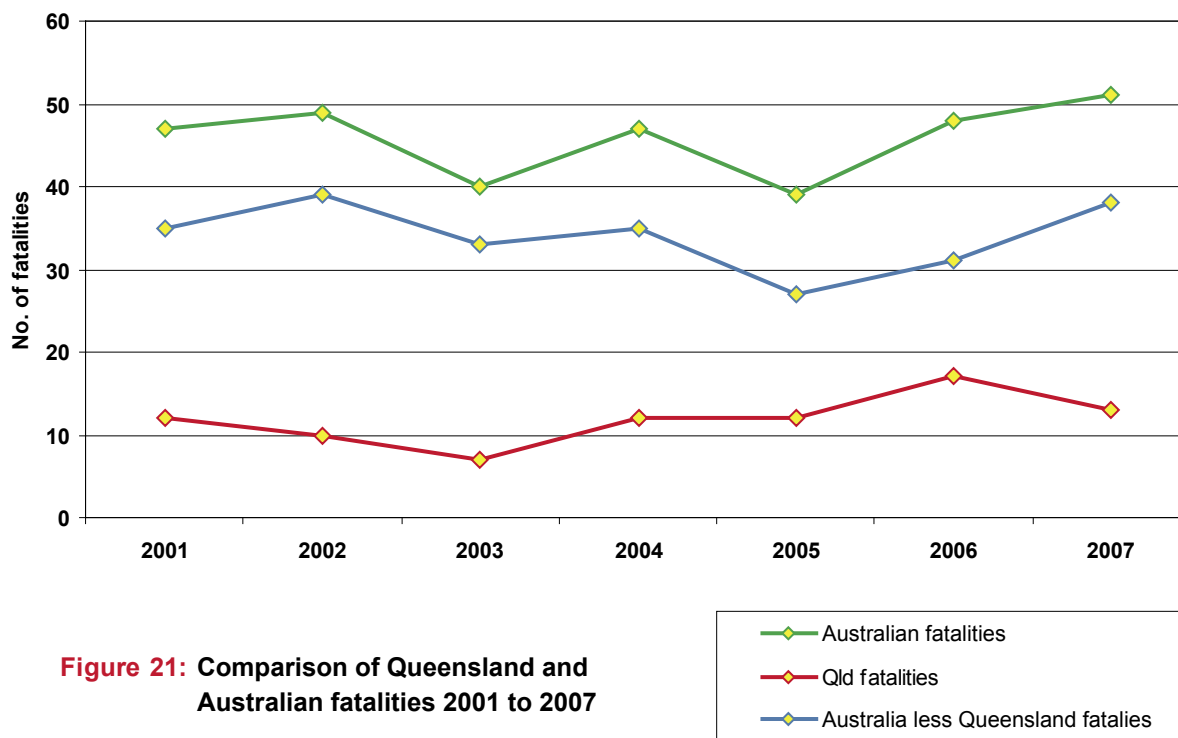


Figure 21: Comparison of Queensland and Australian fatalities 2001 to 2007

NOTE: NMSC data does not include the Northern Territory from August 2007

Since 2001 Queensland’s reported marine incident fatalities, as a proportion of the Australian total, have ranged between 17.5 percent and 35.4 percent, averaging 25.9 percent for the seven-year period. In 2007, Queensland comprised 25.5 percent of Australian reported marine incident fatalities. This comparative data needs to be interpreted in the context of accelerating growth in boat ownership and associated boating activity in Queensland over the past decade.

3.2.4 Hospital admission data

In 2007 Queensland Health provided Maritime Safety Queensland with three years of de-identified unit record data for persons admitted to hospitals in Queensland as a result of water transport accidents. Water transport accidents are defined as accidents that occur on or involve a watercraft while on the water.



The water transport accident definition used by Queensland Health is much broader than the Queensland legislative definition of a marine incident (see Section 1.1). Not all water transport accidents are necessarily marine incidents. Where sufficient details of the incident have been provided in the Queensland Health data to determine that accident does not meet the criteria for a marine incident the data has been removed. In many instances this could not be determined. Queensland Health data is therefore likely to overstate the actual number of people seriously injured in marine incidents. Conversely, Maritime Safety Queensland's data, with the known issues of under-reporting, is believed to understate the number of persons seriously injured in marine incidents.

Maritime Safety Queensland defines serious injury marine incidents as those incidents that result in the admission of a person involved to hospital.

The Queensland Health data identifies 778 people as being admitted to hospital in Queensland from July 2004 to June 2007 as a result of water transport accidents. During this same period, Maritime Safety Queensland's marine incident data identifies 124 persons as being seriously injured in reported marine incidents. The real level of serious injury marine incidents probably lies somewhere in between—and in all likelihood closer to 778 than to 124.

Maritime Safety Queensland is working with Queensland Health, Queensland Emergency Services and the Queensland Police Service to identify options to improve the level of reporting to Maritime Safety Queensland of serious injury marine incidents.

Table 10 shows the number of persons hospitalised as a result of water transport accidents together with the comparative numbers of persons reported to and recorded by Maritime Safety Queensland as seriously injured in marine incidents for the period July 2004 to June 2007.

Table 10: Comparison of reported marine incident serious injuries and water transport accident hospital admissions by region by financial year

MSQ Region	2004/2005		2005/2006		2006/2007		2004/2007 Total	
	MSQ	Qld Health	MSQ	Qld Health	MSQ	Qld Health	MSQ	Qld Health
Gold Coast	13	45	17	57	2	52	32	154
Brisbane	11	100	8	97	6	99	25	296
Gladstone	3	20	3	6	11	26	17	52
Mackay	8	21	7	21	3	23	18	65
Townsville	0	15	0	8	2	17	2	40
Cairns	11	43	8	69	11	59	30	171
All regions	46	244	43	258	35	276	124	778

Privacy legislation presently makes it difficult for Shipping Inspectors investigating marine incidents or media reports about marine incidents to directly access information from hospitals and emergency services about people believed to be involved in those incidents. Despite the differences in the comparative serious injury data, the hospital admissions data provides useful, complementary information about the characteristics and features of water transport accidents and those seriously injured in those accidents.



Figure 22 shows the age and gender distribution of the people hospitalised from water transport accidents. Males make up 76.3 percent of all persons hospitalised as a result of water transport accidents. The involvement of females as a group is relatively uniform across the age groupings—with females representing 23.7 percent of all water transport accident hospital admissions in Queensland.

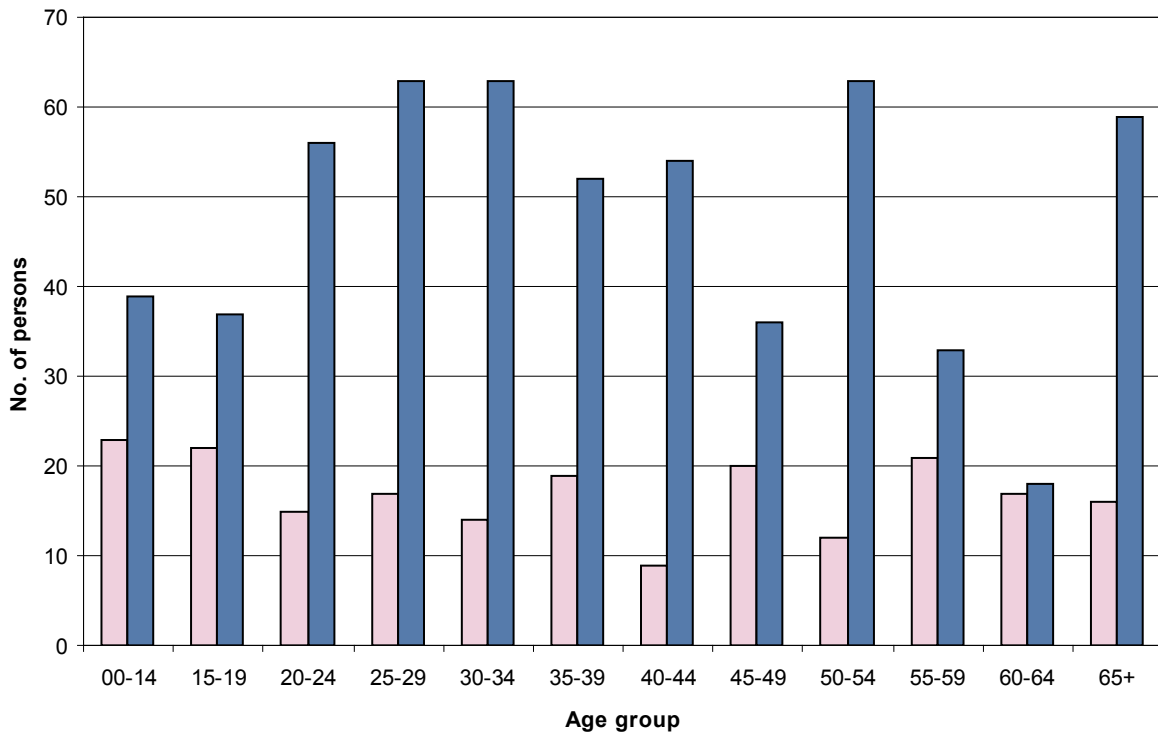


Figure 22: Number of persons hospitalised by age and gender, Queensland, July 2004 to June 2006

□ Female
■ Male

The 25 to 29 year old group are the most involved group with 10.3 percent of all hospital admissions. When compared with their relative proportion of the Queensland population (6.8 percent), the involvement of 25 to 29 year olds is more than 50 percent higher than could be expected. Likewise, 50 to 54 year olds are also over-represented by 50 percent in terms of their expected involvement. The other age group showing a higher level of involvement is the 30 to 34 year old group—43 percent higher than their proportionate representation within the Queensland population.

The hospitalisation data is also revealing in terms of the number of hospital patient bed days. With a total of 3,692 patient bed days (an average of just under five days per patient), the hospitalisation and allied health services cost of these water transport accidents is significant. The all-up *accident social cost* of these accidents is even greater.

The hospitalisation data also reveals that hospital admissions from water transport accidents are elevated during peak holiday periods (Easter, September and Christmas/New Year holidays). Maritime Safety Queensland’s reported marine incident data does not mirror this trend as markedly, suggesting that infrequent recreational (holiday) boating contributes to both increased incident numbers and under-reporting to Maritime Safety Queensland during these periods.

Based on media coverage, Maritime Safety Queensland has long suspected that marine incidents involving personal watercraft (jet skis) are significantly under-reported. The hospitalisation data confirms media reports and gives a clue as to the relative level of under-reporting of jet skiing



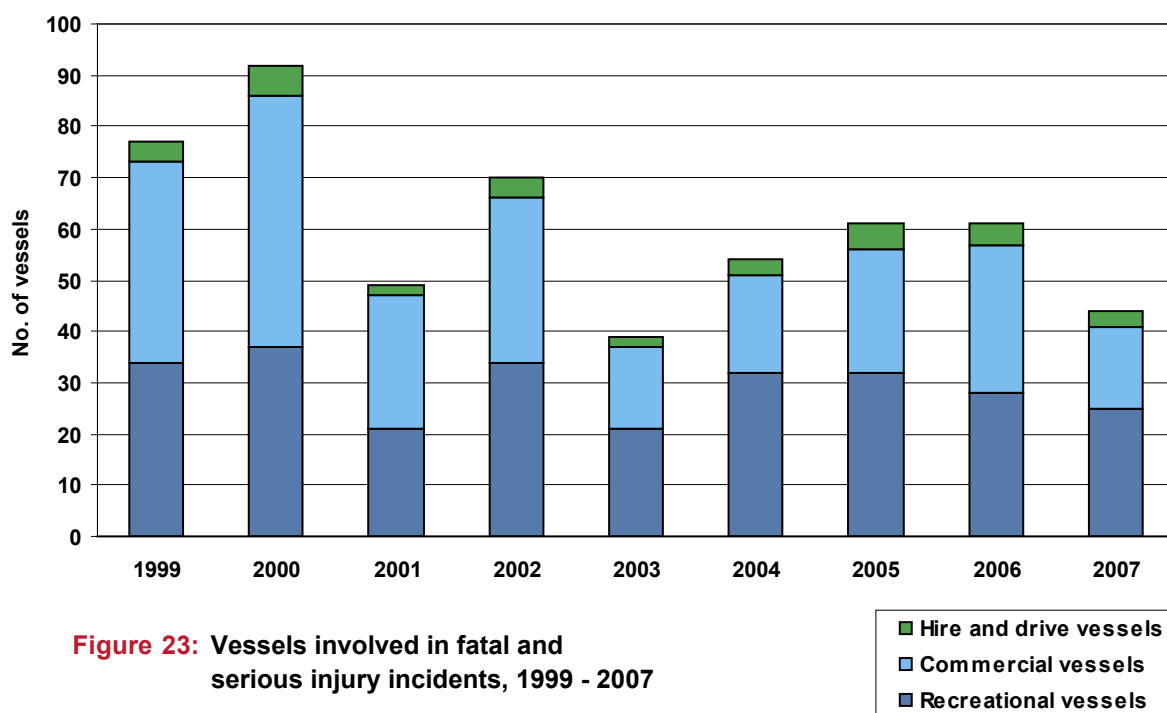
incidents. According to the hospital admission data, 94 people were seriously injured and hospitalised as a result of jet skiing accidents between July 2004 and June 2007. Maritime Safety Queensland's reported marine incident data records only 19 people being seriously injured in incidents involving jet skis in the same period—4.4 times fewer serious injuries than reflected in the hospital admission records.

The 94 persons seriously injured in jet ski incidents spent a total of 538 days in hospital—an average of 5.7 days per person. Hospital stays ranged from one day to 77 days, with three people spending more than 40 days in hospital. The injuries sustained in these jet ski incidents are often serious, with fractures including spinal fractures, sprains and dislocations the most frequently recorded principal diagnoses, and head and facial injuries also prevalent.

Jet skiing is by and large a male dominated activity and this is also reflected in the hospitalisation data. 82 percent of those hospitalised (n=94) were males with 20 to 29 year olds the most involved age grouping (32 percent). Interestingly, this outcome is consistent with the age and gender profile of people seriously injured and killed in motor cycling accidents. There were 17 females seriously injured in jet skiing incidents of which six were in the 15 to 19 year age group.

3.3 Vessels involved in fatal and serious injury incidents

In 2007 there were 44 vessels involved in the 33 reported fatal or serious injury incidents. 25 or 56.8 percent were recreational vessels, 16 or 36.4 percent were commercial vessels and 3 or 6.8 percent were hire and drive vessels (see Figure 23).





While the overall number of vessels involved in fatal and serious injury incidents has ranged widely, the general split between commercial and recreational vessel involvement has not shown the same level of variation particularly over the past four years. Recreational vessels have been between 45.9 percent and 59.3 percent of vessels involved in fatal and serious injury incidents over the last four years. Commercial vessels have comprised between 35.2 percent and 47.5 percent. Hire and drive vessels continue to comprise a small proportion of vessels involved in fatal or serious injury incidents ranging between 5.1 and 8.2 percent.

Recreational speedboats have consistently shown the highest level of involvement by recreational vessels in fatal and serious injury incidents. In the period 1999 to 2007, with the exception of 2001, speedboats represented between 46.9 percent and 64.7 percent of all recreational vessels involved in a fatal or serious injury incident. In 2007 16 or 64 percent of the 25 recreational vessels involved in fatal and serious injury incidents were speedboats (see Figure 24).

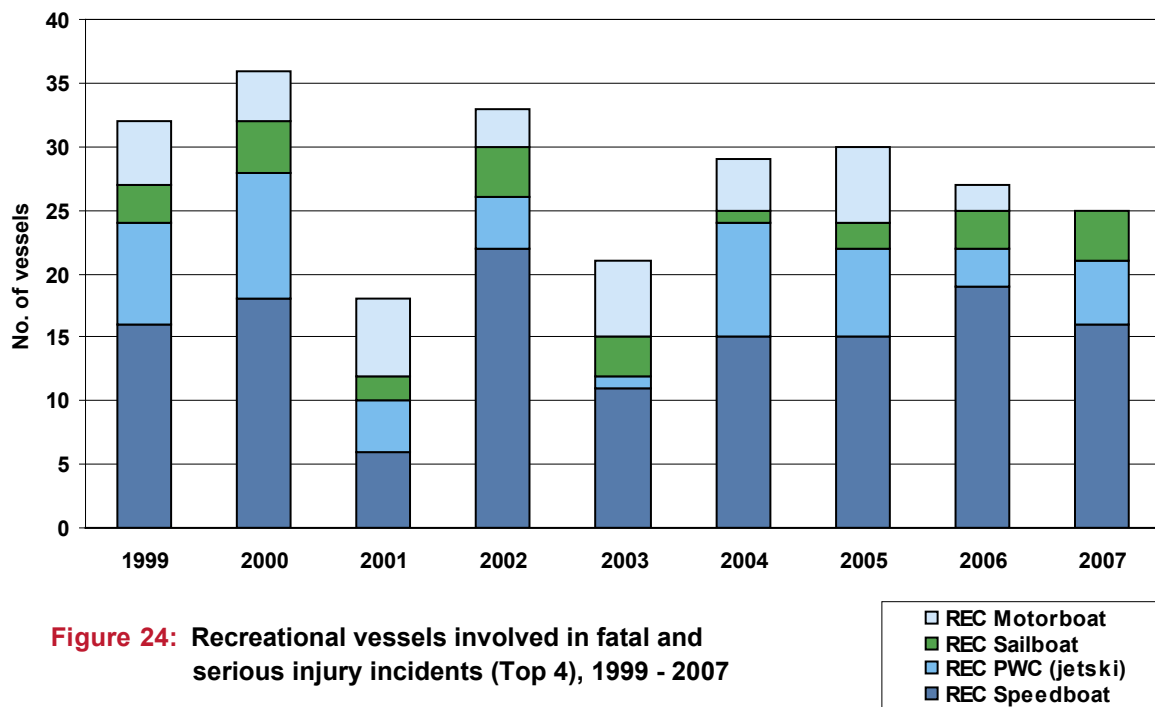
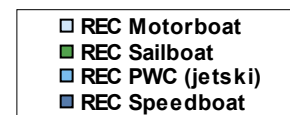


Figure 24: Recreational vessels involved in fatal and serious injury incidents (Top 4), 1999 - 2007



PWC (jet skis) are varied in their level of involvement in fatal and serious injury incidents. Their level of involvement has ranged from 4.8 percent to 28.1 percent since 1999. In 2007 jet skis made up 20 percent of the recreational vessels involved in fatal or serious injury incidents.

There have been between one and four sailboats involved in reported fatal or serious injury incidents each year since 1999. As a proportion they have represented between 3.1 percent and 16.0 percent of recreational vessels involved in fatal and serious injury incidents. In 2007 four sailboats were involved in fatal and serious injury incidents.

Using proportion of the fleet as a basis for comparison reveals recreational speedboats are actually under-represented in reported fatal and serious injury incidents. Speedboats comprise 80 percent of the recreational fleet but make up 64 percent of recreational vessels involved in reported fatal and serious injury incidents. Applying this same basis of comparison to sailboats and jet skis shows that both are over-represented in fatal and serious injury incidents when compared to their proportion of the registered recreational fleet (refer Table 11 on page 40).

Who is going to help you?

Since 2000, 21 people have drowned in Queensland after falling overboard from the vessel in which they were alone, or *effectively* alone. 15 of the fatalities were people who were boating alone, six were people who were either alone on the deck of the vessel or they were out of view of other people on the vessel. These deaths represent 20.4 percent of all marine incident fatalities since 2000. In 2007 there were two boating fatalities involving lone boaties.

While the circumstances that led to these 21 people falling overboard are varied, few would normally be considered dramatic—it was not generally a case of wild weather or seas. Most were situations that would not generally be considered that dangerous:

- one of the deceased was in a tender taking her dog to shore;
- another fell while leaning over doing maintenance on the stern of the boat while it was underway. His absence was not noticed by anyone else onboard for approximately 45 minutes;
- another man, trialling his new tinnie at a dam, turned the boat a little too sharply and fell overboard approximately 200 metres from the bank in full view of numerous people on shore—he drowned before the people on shore could reach him;
- two other men died in almost identical circumstances—they were out alone for a few days camping and fishing on inland rivers. After drinking heavily they took their boats out on the river to fish and somehow they each fell overboard and drowned.

Alcohol played a significant role in the recorded *boating alone* deaths. Six of the 13 people who died between 2000 and 2004 while boating alone had a blood alcohol concentration greater than 0.05 percent. Four of the deceased were more than three times the legal blood alcohol limit, three were more than four times the legal limit.

More significantly, lifejacket wearing or lack, of lifejacket wearing, was an overwhelming characteristic of the recorded boating alone fatalities. Of the 21 people who drowned after falling overboard it appears that none were wearing a lifejacket (PFD) at the time of the incident. In a majority of these cases it is likely that wearing a PFD would have saved the person's life. For the remainder, a PFD would have significantly increased their chances of survival.

Data collected from the PFD section of Maritime Safety Queensland's *Improving recreational boating safety survey 2007* showed that 48.7 percent of respondents believed operating alone was a higher risk situation that should require the boatie to wear a PFD.

In practice however, based on overseas research, only approximately 23 percent of people actually wear a PFD when boating alone. This wearing rate varied depending on the boat type. For example, for cabin motorboats as few as 12 percent of people boating alone indicated they “always” or “most of the time” wore a PFD, whereas for open motorboats this figure increased to 23 percent.





It appears then that people do consider vessel type when assessing their risk of falling overboard. But there are other factors such as boat size, distance from shore, weather conditions, a person's age, the presence of other people on the boat that should also be considered when assessing the likelihood of falling overboard. Risk however is not just about the likelihood of an event occurring—it is also about consequences of that event.

For people boating alone or people who are effectively alone while on deck the consequences of falling overboard are life threatening. The enormity of the potential consequences makes boating alone or effectively alone a high risk activity regardless of how unlikely such an event may be thought to be.

The Queensland fatality data shows that if you fall overboard while boating alone or effectively alone you risk being left behind as your vessel continues on, being injured in the fall and unable to get back in your vessel or keep yourself afloat, being knocked unconscious, being struck by the boat's propeller, becoming quickly exhausted and unable to swim or even hold on to a floating object or becoming incapacitated through exposure and hypothermia.

No-one is a survivor until they are rescued. Boaties can significantly increase their chances of survival by wearing a PFD and by not impairing their abilities through excessive alcohol consumption. There are numerous new inflatable lifejacket products on the market that are comfortable and do not interfere with normal boating activity. Boaties could also consider carrying a personal EPIRB. Even wearing an engine cut off lanyard may increase a person's survivability by making it possible to get back and into their boat after falling overboard. It may be marginally less convenient to wear a PFD and it may cost extra to purchase a personal EPIRB—but if you fall overboard while boating alone who is going to help you?

Here are some more interesting research findings that have implications for your decision about wearing a PFD or carrying a personal EPIRB when boating alone or effectively alone:

- A experiment to test peoples' ability to tread water showed that 18 percent of people could not tread water for as long as they thought they could—54.4 percent found it more difficult than they expected and after the test 47 percent of the participants decreased the length of time they now expected to be able to tread water. This experiment was conducted in a warm swimming pool supervised by lifeguards. There were no waves to buffet the swimmers or currents to swim against and the participants had no cause for panic or concern.
- In the United Kingdom (UK) a study found that as many swimmers drown as do non-swimmers.
- The same UK study determined that 55 percent of open water drownings occurred within three metres of safety.
- A Canadian study found that 41 percent of boating-related drownings occurred within 10 metres of the shore. The figure increased to 63 percent within 15 metres of the shore.
- In water 10 to 15 degrees Celsius a person has a predicted survival time of two hours—the predicted survival time increases to 7 hours if the person is wearing a PFD.

Table 11: Recreational vessel involvement in fatal and serious injury incidents compared to vessel registrations, 2007

Recreational Vessels	2007	
	% of registered recreational fleet	% of vessels involved in fatal and serious injury
Speedboat	80	64
Jet ski	4.9	20
Sailboat	3.2	16
Motorboat	11.8	0
Total fleet	100	100

Motorboats, which comprise 11.8 percent of the recreational vessel fleet, were not involved in any reported fatal or serious marine incidents in 2007.

Commercial vessel types do not show any consistent pattern of involvement in fatal and serious injury incidents. As can be seen in Figure 25 the level of involvement for the top four vessel types has fluctuated widely without any obvious or persistent trend.

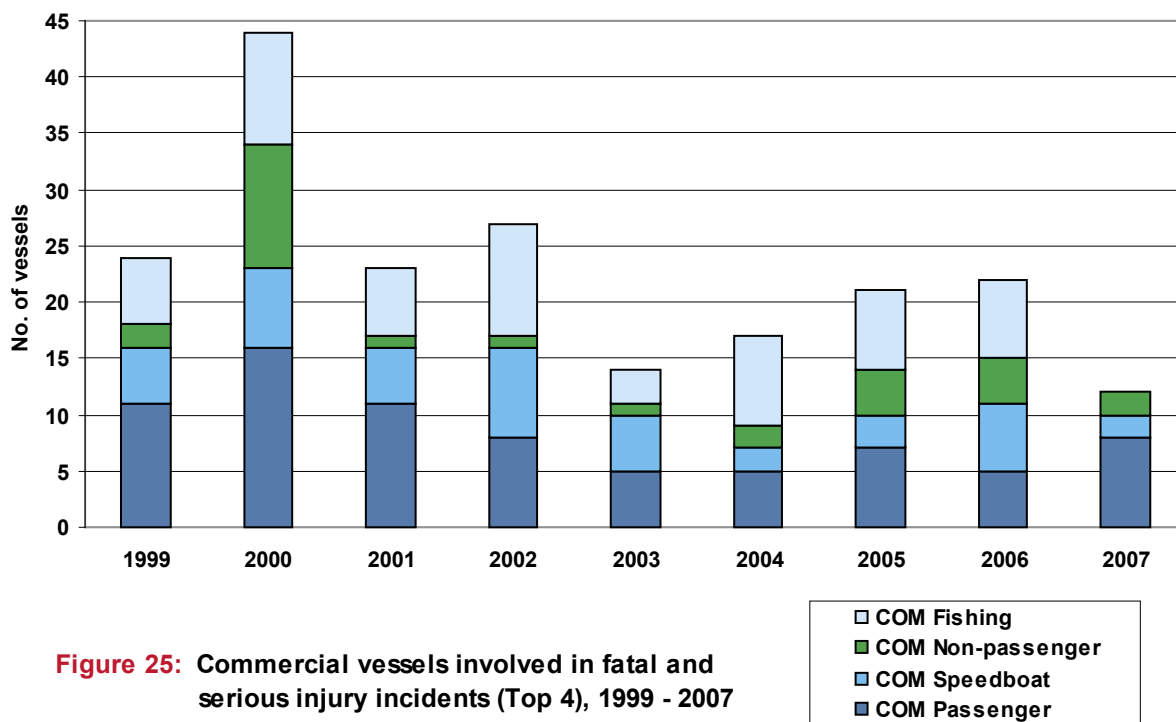


Figure 25: Commercial vessels involved in fatal and serious injury incidents (Top 4), 1999 - 2007

Notable in 2007 is the absence of any commercial fishing vessel involvement in reported fatal or serious injury incidents. Commercial fishing vessels have historically had a high level of involvement in commercial fatal and serious marine incidents. 2007 is the first year in the nine years under review where commercial fishing vessels did not figure in fatal or serious injury incidents.

Maritime Safety Queensland has been trialling and implementing a range of initiatives to improve safety awareness, standards and practices within the Queensland commercial fishing industry. While in the early stages the programs have seen an increase in the number of commercial fishing vessels



carrying life rafts and a general increase in the level of awareness of critical safety issues among fishing vessel owners and their crews.

Commercial passenger vessels had the highest level of involvement in fatal and serious injury incidents within the commercial vessel category in 2007. Eight commercial passenger vessels were involved in such incidents, representing 50 percent of all involved commercial vessels (excluding hire and drive).

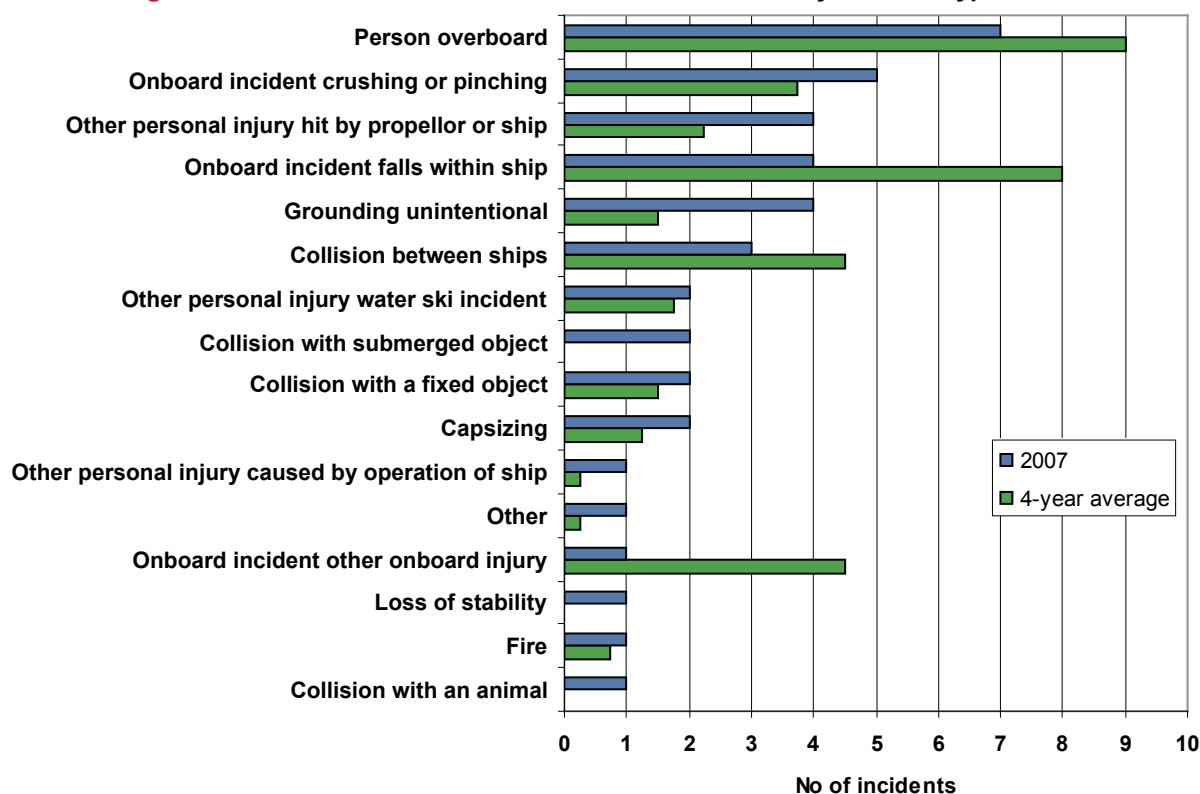
Two commercial hire and drive house boats and one hire and drive jet ski were involved in serious injury incidents in 2007.

Table 11 in the appendix provides data for all vessels involved in reported fatal and serious injury marine incidents for period 2002 to 2007.

3.4 Fatal and serious injury incident types

Figure 26 shows fatal and serious injury incidents in 2007 according to incident type and compares the 2007 results with the previous four-year average.

Figure 26: Fatal and serious marine incidents in 2007 by incident type



Person overboard incidents were the most frequently occurring fatal and serious injury incident type for 2007. Of the seven person overboard incidents in 2007 two resulted in fatalities and five in serious injuries.

Both fatal person overboard incidents were males boating alone and not wearing a personal flotation device (lifejacket) at the time of the incident. In the five serious injury incidents there were either other people in the vessel who provided assistance or the vessel was part of a commercial hire and drive operation that was being monitored from onshore and immediate assistance was available.

The main incidents types over-represented in 2007 when compared to the previous four-year average were:

- onboard incident - crushing or pinching;
- other personal injury - hit by propeller or ship;
- grounding unintentional; and
- collision with a submerged object.

Give yourself a chance

Boating alone involves a greater level of risk than boating with others. What can be simple issues on a boat with two or more people can be disastrous for the solo boater. Two lone boaters died in 2007 when they fell from their small boats—eight have died in similar incidents since 2000.

When boating alone extra care must be taken to ensure you keep yourself as safe as possible. For a 45 year old man out alone in his dinghy for a day's fishing his failure to take some simple safety precautions may have cost him his life.



The solo boater was in his 4.3m dinghy on the Pine River on a weekday morning. At Deep Water Bend he was seen standing in his dinghy while underway. When next seen he was in the water waving his arms for help but by the time help arrived he was face down in the water with his dinghy, motor running, in the mangroves nearby.

It is believed that while standing to steer his boat he may have encountered the wash of a larger vessel and fell overboard when the boat rocked. Though lifejackets were stowed on the boat he was not wearing one. And even though there was a motor safety cut off lanyard, which would have stopped the motor when he fell overboard, he had not attached it.

Had he remained seated in the boat it is unlikely he would have fallen overboard. Having fallen overboard had he been wearing a lifejacket and/or had the lanyard attached there is every chance he would not have drowned.

Safety insights

When boating alone:

- Wear your lifejacket.
- Use your outboard motor safety cut off lanyard if it has one—it could save your life.
- Do not stand up in small boats particularly when underway.
- Be aware of the risks and take additional precautions.

If you regularly go boating alone and your motor does not have a safety cut off lanyard consider having one installed.



Incident types under-represented in 2007 were:

- person overboard;
- onboard incidents falls within ships;
- collision between ships; and
- onboard incident - other onboard injury.

3.5 Fatal and serious injury incident locations

3.5.1 By waters

Figure 27 shows the location of fatal and serious incidents by waters. Consistent with the distribution of all reported marine incidents in 2007 (refer Section 2.5.1), smooth waters were, at 41 percent, the most frequent location for fatal and serious injury incidents. Five of the ten fatal incidents in 2007 occurred in smooth waters.

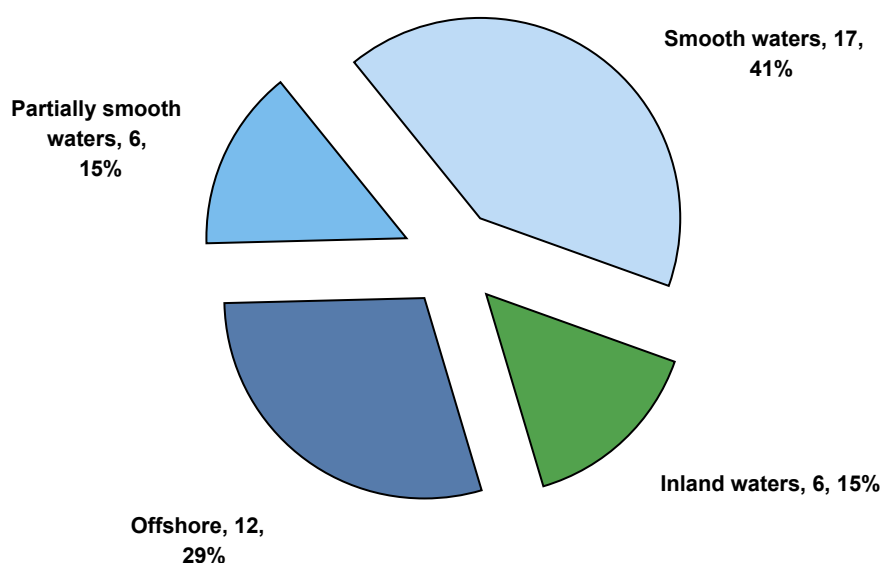


Figure 27: Fatal and serious injury incidents in 2007 - by location

Offshore waters and inland waters were over-represented in fatal and serious injury incident in 2007 when compared to the distribution pattern for all incidents. 20.5 percent of all reported incidents occurred in offshore waters whereas offshore waters account for 29 percent of fatal and serious injury incidents. Likewise inland waters comprised 9.8 percent of all incidents but 15 percent of fatal and serious injury incidents.

Partially smooth waters were under-represented in the fatal and serious injury data in 2007 making up 22.2 percent of all incidents but only 15 percent of fatal and serious injury incidents. Smooth waters were also under-represented to lesser degree making up 45.4 percent of all incidents and 41 percent of fatal and serious injury incidents.

The number of offshore fatal and serious injury incidents reported in 2007 (12) is well below the 2006 level (20).

Table 7 in the appendix provides times series data for the location of fatal and serious injury incidents.

3.5.2 By region

Figure 28 shows the distribution of fatal and serious injury incidents by region. Most fatal and serious injury incidents in 2007 occurred in Brisbane region (26 percent). This included five of the ten fatal incidents. The southeast corner of Queensland, that is Brisbane and Gold Coast regions combined, accounted for 46 percent of all reported fatal and serious injury incidents in 2007. While above the figure for 2006 (36.7 percent) the 2007 result is below the preceding four-year average of 48.3 percent.

Gladstone region, which recorded 18 percent of all incidents recorded only 9.1 percent of fatal and serious injury incidents in Queensland in 2007.

Section 5 of this report provides a map for each region showing the location of all fatal, serious injury and other incidents occurring within each region from 2004 to 2007. The section also provides a more detailed analysis of regional incident outcomes.

Table 9 in the appendix provides fatal and serious injury marine incident data by region for the period 2002 to 2007.

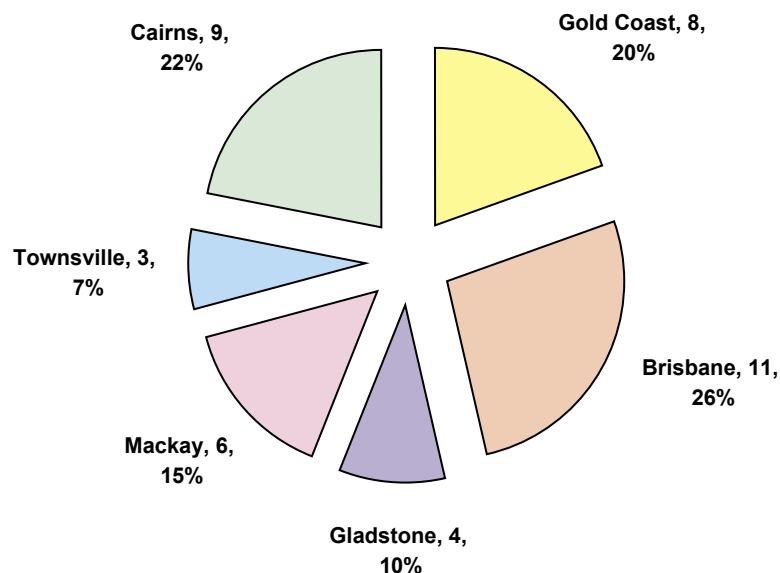


Figure 28: Fatal and serious injury incidents in 2007 - by region



3.6 Characteristics of fatal and serious injury incidents

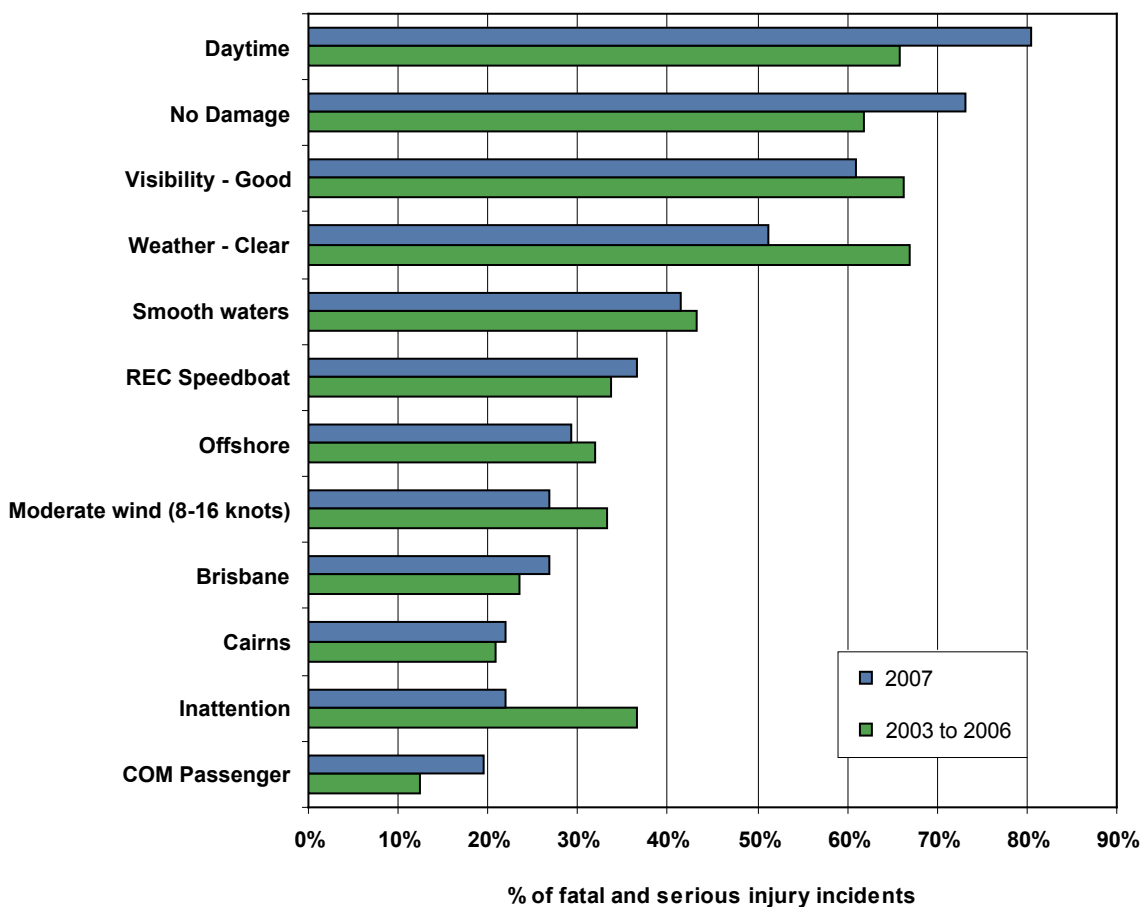
This section examines the extent to which characteristics such as human contributing factors, weather conditions, vessel type and location were involved in fatal and serious injury incidents.

3.6.1 Selected characteristics

Figure 29 shows the 10 most frequently occurring fatal and serious injury incident characteristics in 2007. The data is based on the number of times each characteristic was reported or identified during investigation as having contributed to or as prevailing at the time of the incident.

Clearly evident from Figure 29 is that the majority of fatal and serious injury marine incidents occur in the daytime, with good visibility and clear weather. In 2007, 80.5 percent of fatal or serious marine incidents in Queensland occurred during daytime, 61.8 percent occurred in good visibility and 51.2 percent were in clear weather. 41.5 percent occurred in smooth waters.

Figure 29: Proportion of fatal and serious injury incidents with given characteristics, Queensland, 2007 (Top 12)



The figure also shows that despite the media coverage given to dramatic marine incidents most fatal and serious injury marine incidents occur in innocuous circumstances with 73.2 percent of fatal and serious injury incidents occurring without any damage to the vessel.

In 2007 proportionally more fatal and serious injury incidents occurred during the daytime compared to the period 2003 to 2006. The proportion of vessels undamaged in the incidents was also higher compared to the previous four-years.

Fewer incidents in 2007 recorded clear weather as prevailing at the time of the incident compared to 2003 to 2006. The breakdown of the weather category provided in Table 13 in the appendix shows that for 11 of the 41 fatal and serious injury incidents in 2007 the weather was not specified. It is likely that a number of the fatal and serious injury cases are yet to be finalised and may still be awaiting classification.

Expect the unexpected

Safe boating has as much to do with hazard perception and recognition as it does with seaworthy boats and safety equipment. Mid morning on a fine day, a lone 19 year old man was driving his 4 metre tinnie in a coastal creek in north Queensland. There were other moored vessels nearby and according to witnesses, the tinnie was travelling too fast for the prevailing conditions and the nearby boats.

Without forewarning the driver of the tinnie noticed a saltwater crocodile surface not far ahead of his boat. He was unable to take evasive action and collided with the crocodile at speed. He was thrown from the boat into the creek and was subsequently run over by the now-circling tinnie. An off duty ambulance officer in a nearby boat immediately responded, recovering the driver from the murky waters and providing first aid until emergency services arrived. Luckily, if you can call it luck, the crocodile played no further part in the incident and was not seen again.

The tinnie driver was subsequently hospitalised with serious injuries including a broken back, broken jaw, fractured skull, dislocated shoulder, cuts to temple and severe cuts to throat and jaw caused by the boat's propeller.

Safety insights

- Operate your vessel at a safe speed, having regard to the prevailing conditions and circumstances.
- If your outboard motor has a safety cut off lanyard use it—it could save your life. If it doesn't consider getting one fitted.
- Speeding near moored boats is not only a breach of safety regulations, it is dangerous.
- Do not stand up in small boats when underway.
- Wear a personal flotation device when boating alone.
- Always take additional precautions when boating alone.





3.6.2 Timing of fatal and serious injury incidents

There were 23 incidents involving a recreational vessel that resulted in fatal or serious injury. Of these 23 incidents:

- 11 occurred on the weekend—seven on a Sunday and four on a Saturday;
- nine occurred during school or public holidays;
- 18 occurred either on a weekend or during school or public holidays;
- two occurred at night (both of which were fatal incidents);
- five occurred between 6.30am and 10am, four of which were on a weekend or during school holidays;
- 11 occurred between midday and 6pm;
- six occurred between 2pm and 4pm; and
- five occurred on a Sunday between 1.30pm and 4.45pm.

Of the 18 fatal or serious injury incidents that involved a commercial vessel:

- five occurred during school or public holidays;
- four occurred on a weekend;
- seven occurred on a Tuesday;

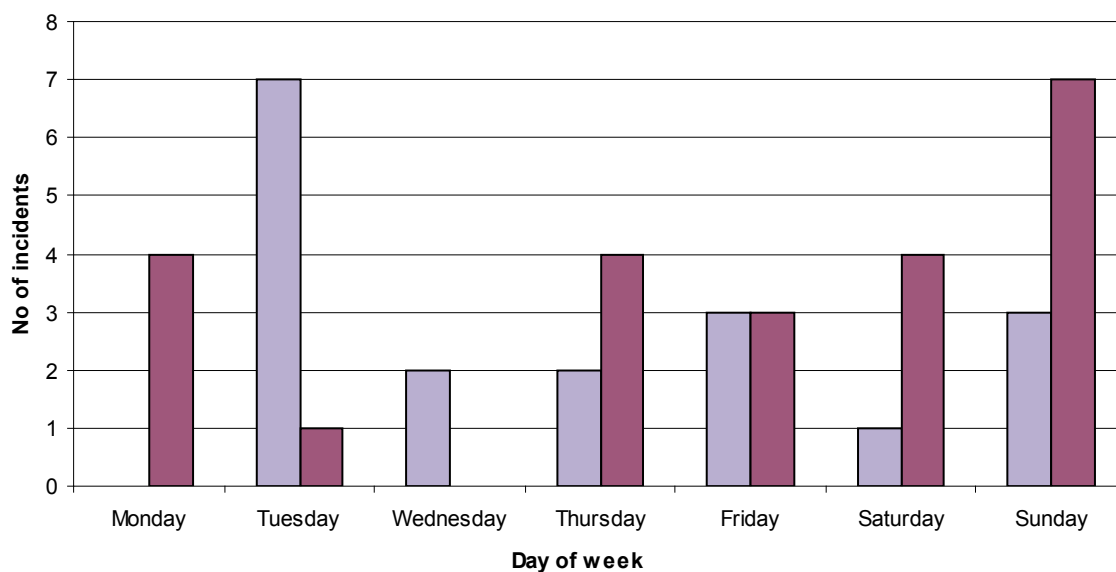
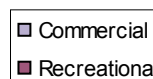


Figure 30: Fatal and serious injury incidents by day of week and vessel type, 2007



Persons fatally or seriously injured

4. Persons fatally or seriously injured in marine incidents

This section provides demographic and injury data for persons fatally or seriously injured in marine incidents in 2007.

4.1 Profile of persons fatally injured

Of the persons fatally injured in reported marine incidents in 2007 nine were male and four were female. Two of the deceased were children under the age of 16 years, five were persons aged between 31 and 45 years, two were over the age of 60 years, and there was one in each of 16-30 years, 45-60 years and age as yet unknown.

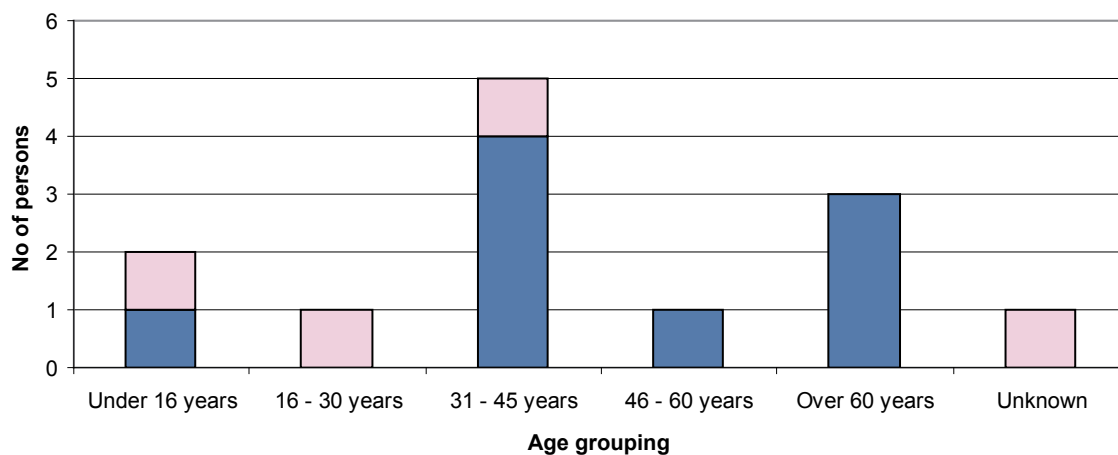
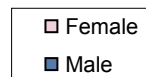


Figure 31: Persons fatally injured in 2007 by age and gender



Four of the deceased were the master of the vessel involved, including two who were alone. Eight were passengers or were being towed by the vessel. One person was not directly associated with the vessel.



4.2 Profile of persons seriously injured

In 2007, 35 persons were seriously injured in reported marine incidents—21 were male and 14 were female. Serious injuries were sustained by five children under the age of 16 years. Most persons seriously injured were between the ages 16 and 45 years.

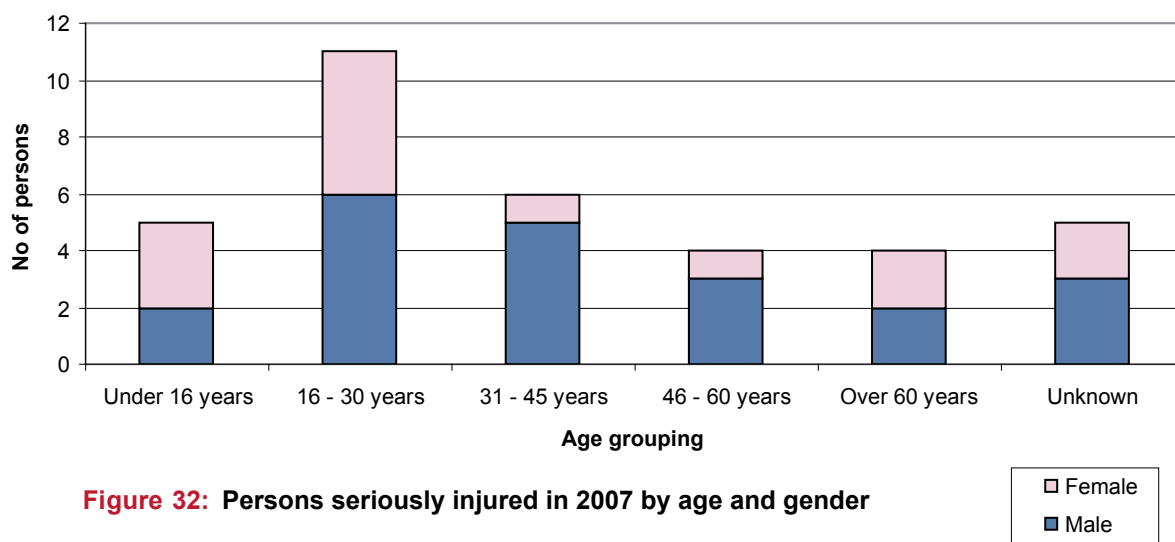


Figure 32: Persons seriously injured in 2007 by age and gender

Two of the five children were injured in two separate towing incidents while being towed on a ski tube or board.

Ten of the seriously injured persons were the master of the vessel involved, eleven were passengers or being towed by the vessel, seven were crew and seven did not have their status specifically identified.

4.3 Nature of injuries sustained

Table 12 provides summary details of the serious injuries sustained. As some persons sustained multiple injuries the total number of injuries exceeds the number of persons seriously injured.



Table 12: Nature of serious injuries, 2007

Nature of injuries	2007
	No
Head, neck or facial	9
Spinal	4
Internal	2
Chest	2
Leg unspecified	1
Hip unspecified	1
Laceration to legs	4
Laceration to arms	1
Lacerations to hands or fingers	4
Lacerations unspecified	4
Severed finger/s	2
Severed arm (partial)	1
Broken leg	1
Unspecified	4
Total	40

In 2007 nine people received head, neck or facial injuries, four persons were in each of the following categories: spinal injuries, laceration to legs, lacerations to hands or fingers, lacerations unspecified and other unspecified.



Regional marine incident summaries

5. Regional marine incident summaries

This section looks at each Maritime Safety Queensland region in terms of its features, geography and recent marine incident history and trends.

A map is included for each region showing spatially where marine incidents occurred in the region since 2004. Incidents are depicted according to their severity.

5.1 Gold Coast region

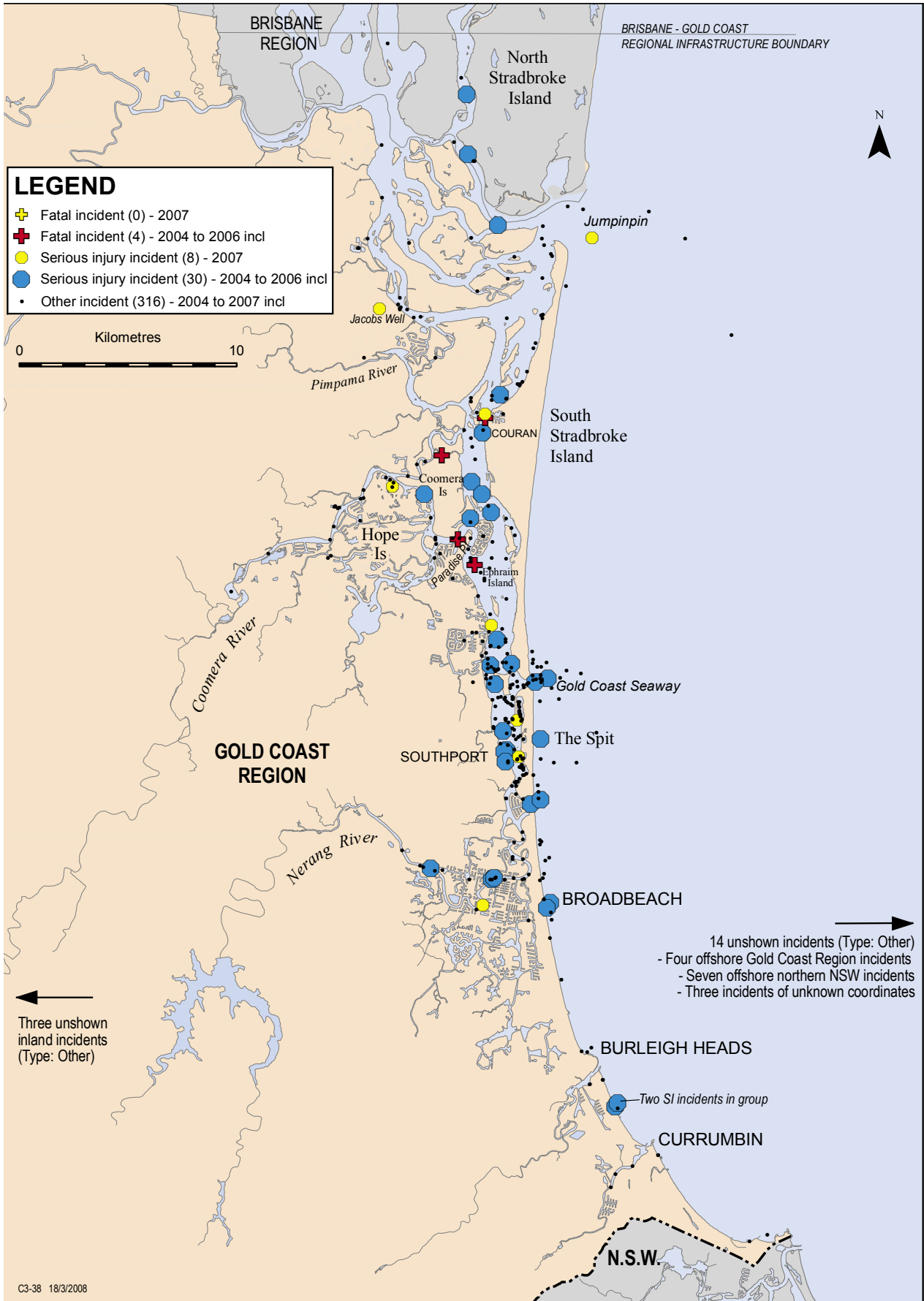
Table 13: Key characteristics—Gold Coast region

Mainland coast	189 km		
Island coast	266 km		
Rivers and creeks	210 km		
Major inland waterways	Tidal limits of the Logan, Pimpama, Coomera and Nerang Rivers, Tallebudgera and Currumbin Creeks		
	Hinze and Maroon Dams		
	Lake Moogerah		
	Residential canal developments		
Offshore waters	Pacific Ocean from Jumpinpin Bar at the northern end of South Stradbroke Island to Point Danger on the Queensland/New South Wales border.		
Major harbours	Southport Broadwater (recreational boating, hire and drive, tourism, jet skis)		
	Gold Coast Seaway		
	Coomera marine precinct (boat building, recreational boating, hire and drive, tourism)		
Registered recreational vessels 2007	29 860	Growth 2006-07	5.5%
Registered commercial vessels 2007	982	Growth 2006-07	5.1%
Reported marine incidents 2007	103	Fatalities	0
		Serious injuries	8

The Gold Coast region experienced a high rate of growth in vessel registrations in 2007 with both commercial and recreational vessel registration increasing by more than five percent. The 5.1 percent increase in commercial vessel registrations on the Gold Coast is noteworthy given a state-wide growth rate of just 1.3 percent.

In 2007 13.6 percent of the registered recreational vessels in Queensland were located in the Gold Coast region.

103 marine incidents were reported in the Gold Coast region in 2007, an increase of 15.7 percent from 2006. The number of reported marine incidents in the region has been gradually increasing over the past five years with the number of incidents in 2007 being the highest number recorded (see Figure 33).



Map 2: Marine incidents by highest level of personal injury, Gold Coast Region 2004 to 2007

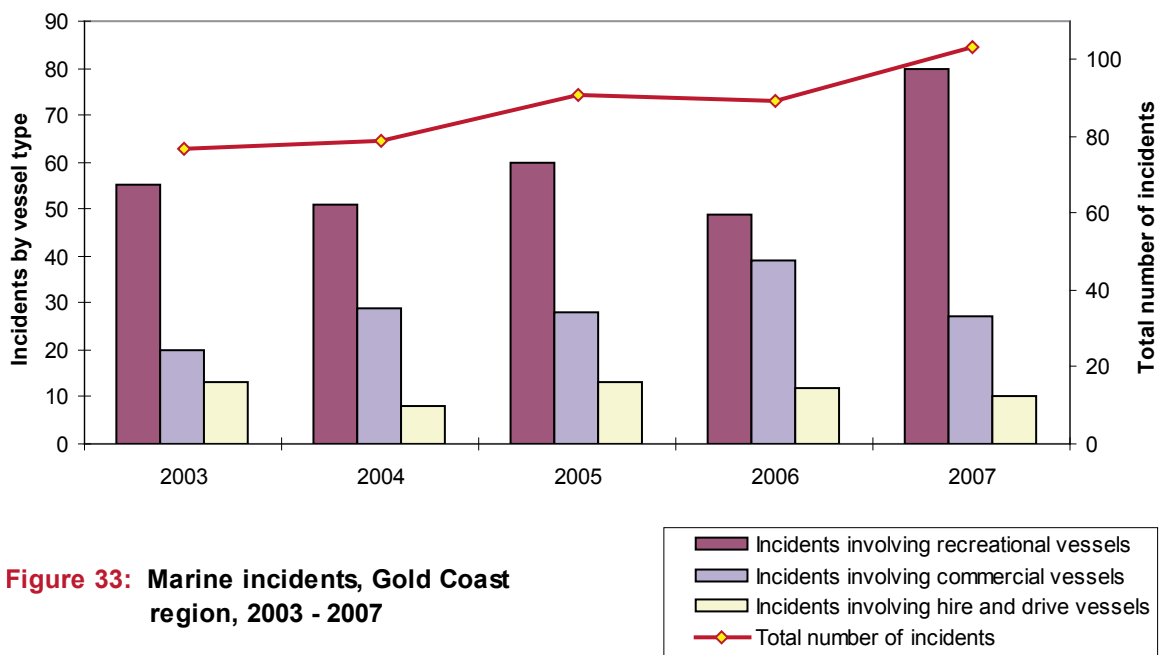


Figure 33: Marine incidents, Gold Coast region, 2003 - 2007

The increase in the overall number of reported marine incidents in 2007 has been driven by a large increase in the number of incidents involving recreational vessels. In 2007 there were 80 reported incidents involving recreational vessels in the Gold Coast region. This represents a 63.3 percent increase from 2006 and is 48.1 percent above the preceding four-year average of 54 incidents per annum.

Recreational speedboats were the most frequently involved vessels in reported marine incidents in the Gold Coast region, representing 42.6 percent of all vessels involved. Commercial vessels were involved in 27 incidents in 2007, a decrease from the 39 incidents recorded in 2006 and marginally below the previous four-year average of 29 incidents. Hire and drive vessels were involved in 10 incidents in 2007, two less than in 2006.

Figure 34 shows the top five reported incident types in the Gold Coast region in 2007. Collision between ships was the most frequent incident type in 2007 accounting for 38.8 percent of all incidents in the region. This is well above the whole of Queensland average of 19.9 percent for this incident type. There were an additional ten incidents involving collisions with fixed objects and collisions with floating objects. In combination, collision incidents represented 48.5 percent of reported incidents in the region for 2007.

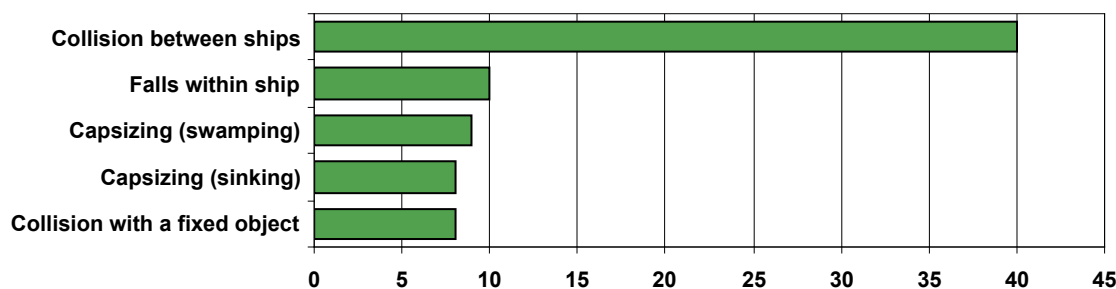
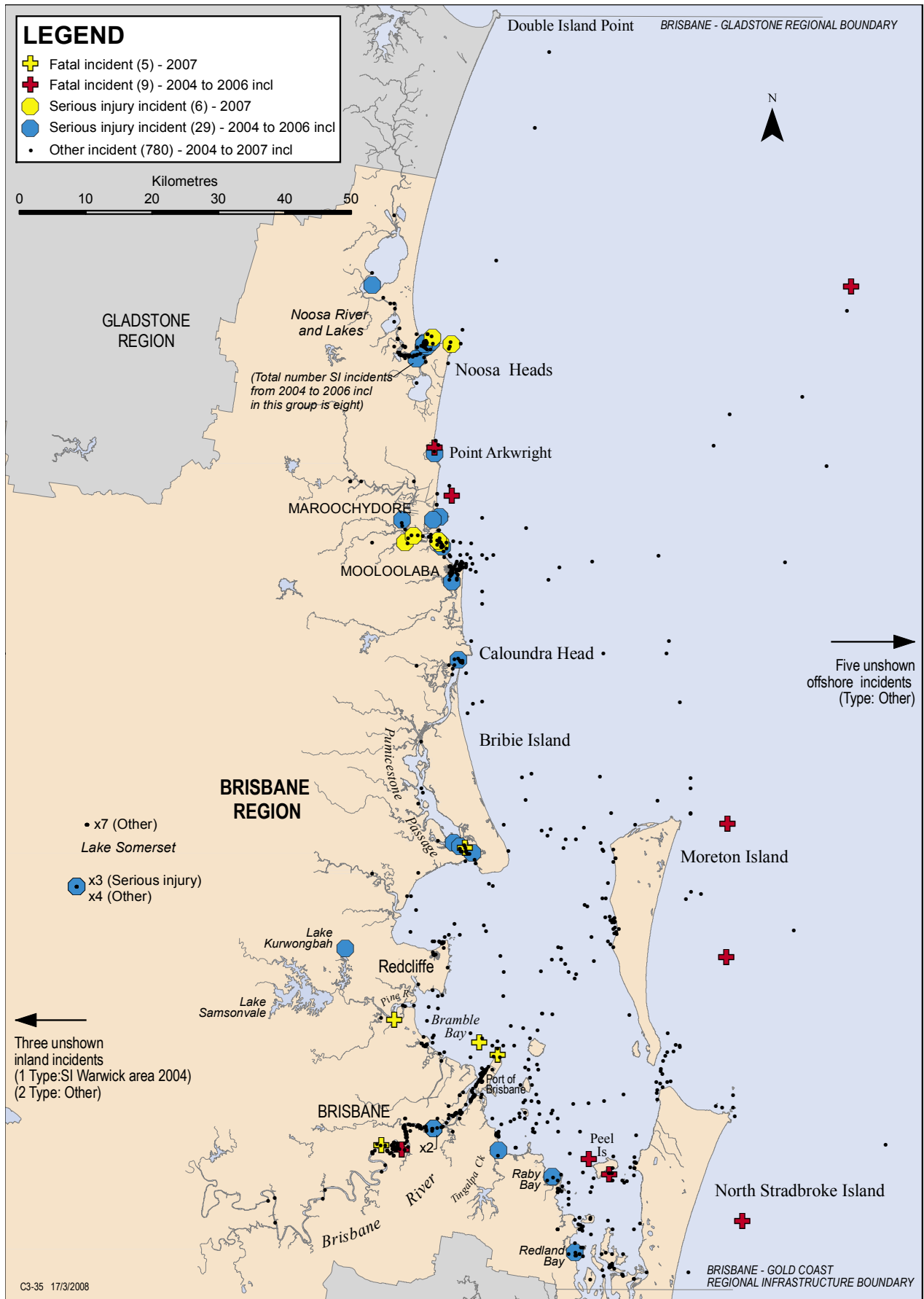


Figure 34: Marine incidents by incident type (Top 5), Gold Coast region, 2007

Eight people were seriously injured in reported incidents in the Gold Coast region in 2007. There were no recorded marine incident fatalities on the Gold Coast in 2007.



Map 3: Marine incidents by highest level of personal injury, Brisbane Region 2004 to 2007



5.2 Brisbane region

Table 14: Key characteristics—Brisbane region

Mainland coast	404km		
Island coast	568km		
Rivers and creeks	417km		
Major inland waterways	Condamine and Balonne Rivers Wivenhoe, Somerset and Beardmore Dams		
Offshore waters	Pacific Ocean from Jumpinpin Bar to Double Island Point		
Major harbours	Manly Boat Harbour Port of Brisbane (approximately 5000 trade ship movements each year) Scarborough Boat Harbour Mooloolaba River (fishing, tourism, recreational boating) Residential canal developments		
Registered recreational vessels 2007	93 142	Growth 2006-07	4.0%
Registered commercial vessels 2007	1 469	Growth 2006-07	2.2%
Reported marine incidents 2007	230	Fatalities	8
		Serious injuries	10

Recreational vessel registrations in Brisbane region increased 4.0 percent in 2007 and overall accounted for 42.5 percent of state's registered recreational fleet. Commercial vessel registrations increased 2.2 percent in the region in 2007 and accounted for 25.7 percent of state's registered commercial fleet. Combined Brisbane region contained 42.1 percent of all Queensland's registered vessels.

During 2007, 230 marine incidents were reported in the region. This represents 30.2 percent of all incidents reported in Queensland in 2007. Based on the region's proportion of the registered fleet the region's proportion of reported marine incidents is under-represented.

In a tragic year for the region eight people died in five separate marine incidents, including one multiple fatality incident that claimed four lives. The eight deaths are double the number of fatalities recorded in 2006. Overall Brisbane region recorded 61.5 percent of the state's marine incident fatalities in 2007.

The number of incidents in Brisbane region involving recreational vessels has been increasing progressively since 2003, growing 51.8 percent over the five year period (see Figure 35). Four of the five fatal incidents in the region in 2007 involved recreational vessels.

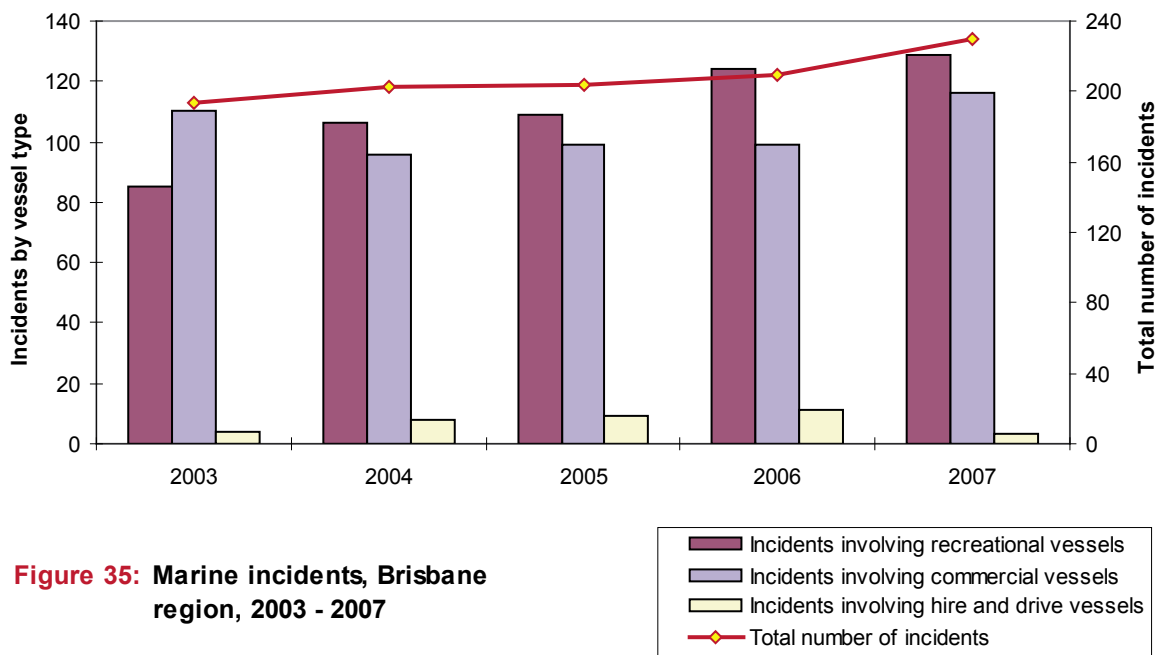


Figure 35: Marine incidents, Brisbane region, 2003 - 2007

Commercial vessel involvement in marine incidents in Brisbane region has increased 17.2 percent—from 99 in 2006 to 116 in 2007. The Port of Brisbane is reported to be the fastest growing container port in Australia with over 2600 commercial vessels visits in 2006-07. In light of the port growth, the increase in marine incidents involving commercial vessels is not unexpected.

As with the Gold Coast region, collisions between ships was the most frequently occurring incident type in 2007 (see Figure 36).

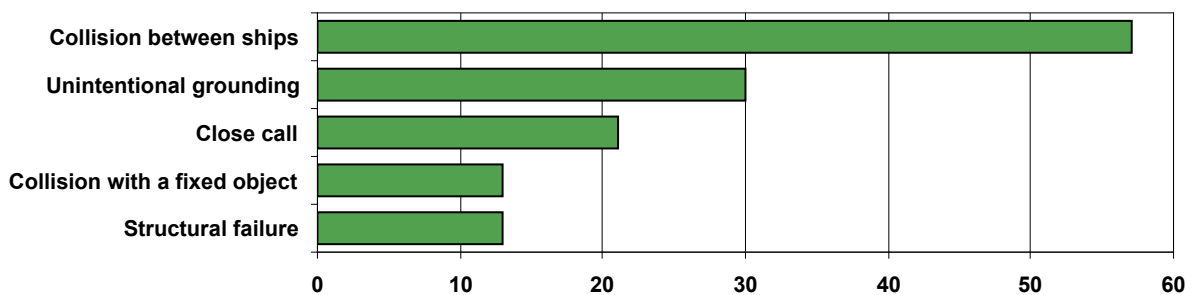


Figure 36: Marine incidents by incident type (Top 5), Brisbane region, 2007

Of the 310 vessels involved in marine incidents in 2007 the most commonly involved vessels were recreational speedboats—21.6 percent of all vessels involved.



Sunshine Coast Management Area

The Sunshine Coast Management Area forms part of the Brisbane region with responsibility for the coastal and inland waters from Caloundra to Noosa.

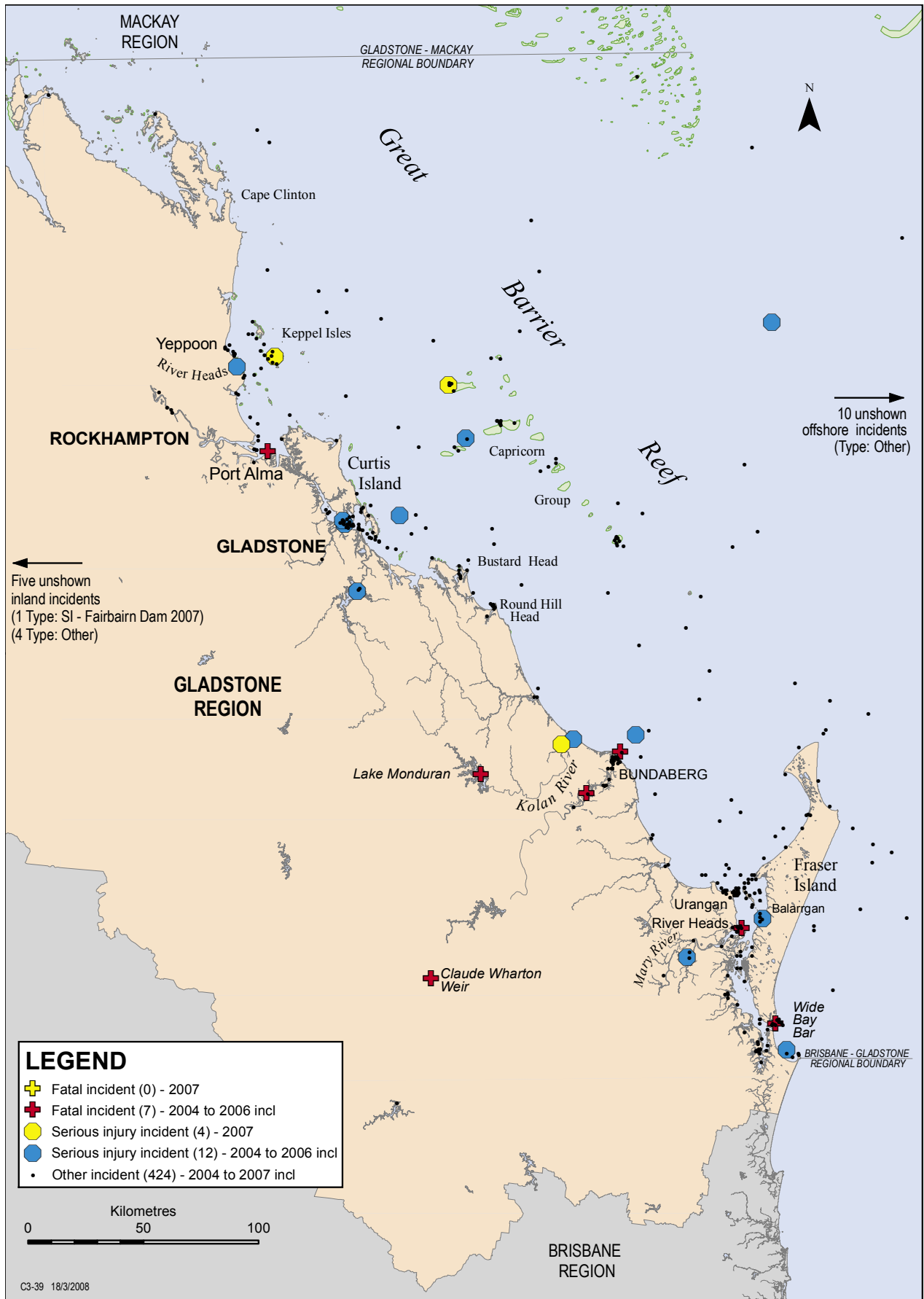
Like south east Queensland generally, the Sunshine Coast Management Area has experienced considerable growth in both recreational and commercial vessel registrations. Recreational vessel registrations in the area increased 5.2 percent in 2007 compared to the state-wide increase of 4.8 percent. Of the recreationally registered vessels within the Brisbane region 17.7 percent were in the Sunshine Coast Management Area. Similarly commercial vessel registrations grew 2.9 percent in the area compared to 1.3 percent growth state-wide.

80 marine incidents were reported in the Sunshine Coast Management Area in 2007, five more than in 2006 and above the four-year average of 66 incidents per year. These 80 incidents represent 34.8 percent of the reported marine incidents in the Brisbane region in 2007 and 10.5 percent of all reported incidents in Queensland. 38.3 percent of Brisbane region's recreational incidents occurred in the Sunshine Coast Management Area in 2007.

Incidents involving commercial vessels in the Sunshine Coast Management Area increased from 23 in 2006 to 33 in 2007.

Of the 100 vessels involved in incidents within the Sunshine Coast Management Area in 2007, 19 were recreational sailboats and 19 were recreational speedboats. Recreational sailboats and speedboats were the most frequent vessel types involved in marine incidents in the area in 2007.

Six of the 10 serious injuries reported in the Brisbane region in 2007 were in the Sunshine Coast Management Area.



Map 4: Marine incidents by highest level of personal injury, Gladstone Region 2004 to 2007



5.3 Gladstone region

Table 15: Key characteristics—Gladstone region

Mainland coast	1 868 km		
Island coast	1 342 km		
Rivers and creeks	1 737 km		
Major inland waterways	Burnett, Fitzroy, Mary and Thompson Rivers		
	Lakes Awoonga and Monduran		
	Bjelke-Petersen, Boondooma, Borumba, Fairbairn and Wuruma Dams		
Offshore waters	St Lawrence to Double Island Point		
	Heron, Lady Elliot and Lady Musgrave Islands		
Major harbours	Port of Gladstone (Queensland's largest multi-user port)		
	Port Alma (ocean port for the city of Rockhampton)		
	Hervey Bay/Urangan (hire and drive, recreational boating, whale watching, Fraser Island ferries)		
	Tin Can Bay (hire and drive, tourism, fishing)		
	Yeppoon (tourism, recreational boating, fishing)		
	Port of Bundaberg (sugar, fishing)		
	Maryborough (recreational boating, fishing)		
Registered recreational vessels 2007	39 291	Growth 2006-07	6.0%
Registered commercial vessels 2007	910	Growth 2006-07	0.8%
Reported marine incidents 2007	134	Fatalities	0
		Serious injuries	4

Gladstone region's recreational vessel registrations grew 6.0 percent in 2007, the highest level of growth of any region in Queensland. Commercial vessel registrations shrunk by 0.8 percent during the year compared to the state-wide growth rate of 1.3 percent.

134 marine incidents were reported in the Gladstone region in 2007, five less than in 2006 but above the four-year average of 106 incidents. Of the 134 marine incidents recorded, 63 involved recreational vessels and 80 involved commercial vessels (including six hire and drive vessels). The higher level of involvement of commercial vessels in marine incidents in Gladstone region contrasts with the Gold Coast and Brisbane regions where recreational vessels were predominant. The high volume of commercial traffic at Gladstone harbour has undoubtedly contributed to this outcome (see Figure 37).

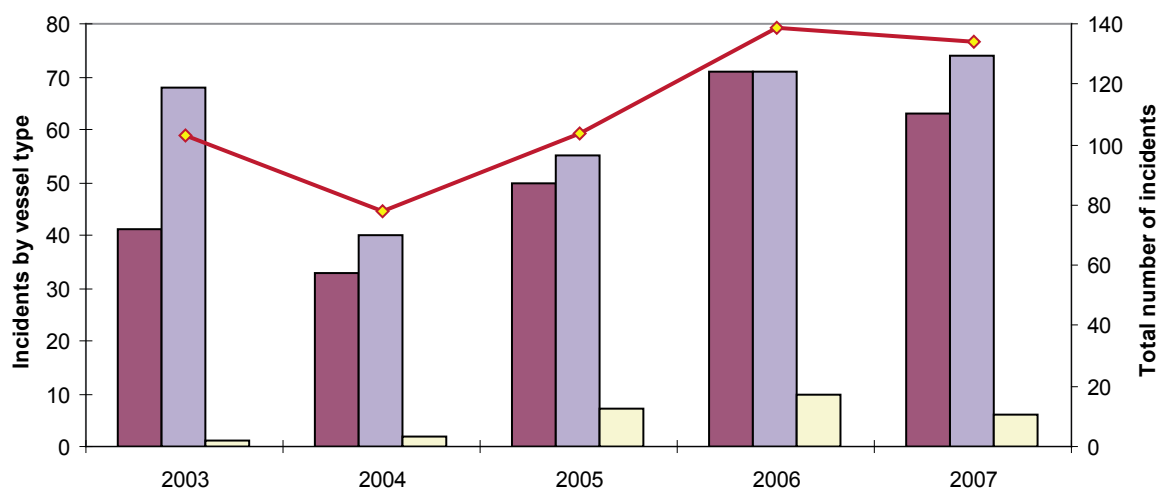
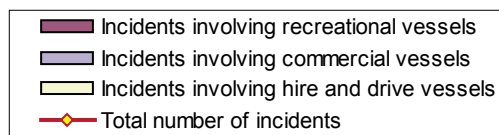


Figure 37: Marine incidents, Gladstone region, 2003 - 2007



Commercial non-passenger vessels comprised 25.6 percent of vessels involved in reported incidents in the region in 2007 and were the most frequently involved vessel type. Of the 35 incidents involving commercial non-passenger vessels 14 were close call incidents reported by the same vessel (see feature profile on page 16).

Unintentional grounding was the most common incident type reported in the Gladstone region in 2007 accounting for 20.2 percent of the region's incidents. Collisions between ships accounted for 8.2 percent of reported incidents (see Figure 38).

The Gladstone region did not record any marine incident fatalities and only four serious injury incidents in 2007. This represents a major improvement from 2006 when ten incidents resulted in the loss of four lives and seven people being hospitalised.

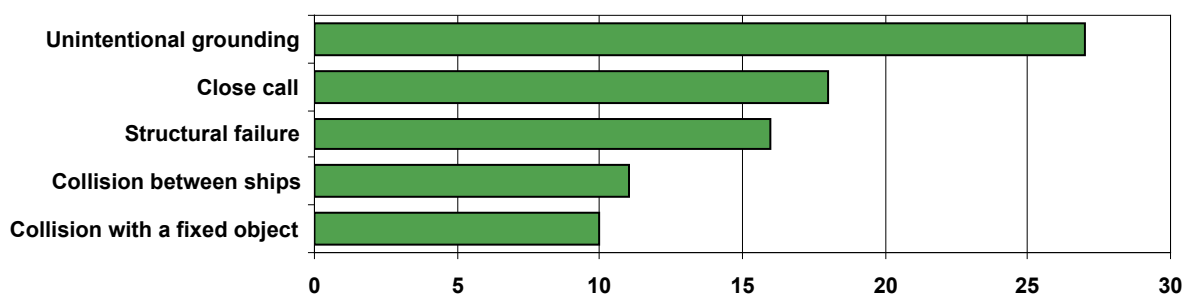


Figure 38: Marine incidents by incident type (Top 5), Gladstone region, 2007



5.4 Mackay region

Table 16: Key characteristics—Mackay region

Mainland coast	800 km		
Island coast	1 341km		
Rivers and creeks	317 km		
Major inland waterways	Pioneer River		
	Kinchant, Teemburra and Peter Faust Dams		
Offshore waters	Georges Point to St Lawrence		
	Gloucester Island to Long Island Sound		
Major harbours	Port of Hay Point (the world's largest coal export port)		
	Mackay Harbour (tourism, recreational boating)		
	Airlie Beach/Whitsundays (tourism, recreational boating, fishing)		
Registered recreational vessels 2007	16 830	Growth 2006-07	4.9%
Registered commercial vessels 2007	728	Growth 2006-07	-1.2%
		Fatalities	2
Reported marine incidents 2007	123	Serious injuries	4

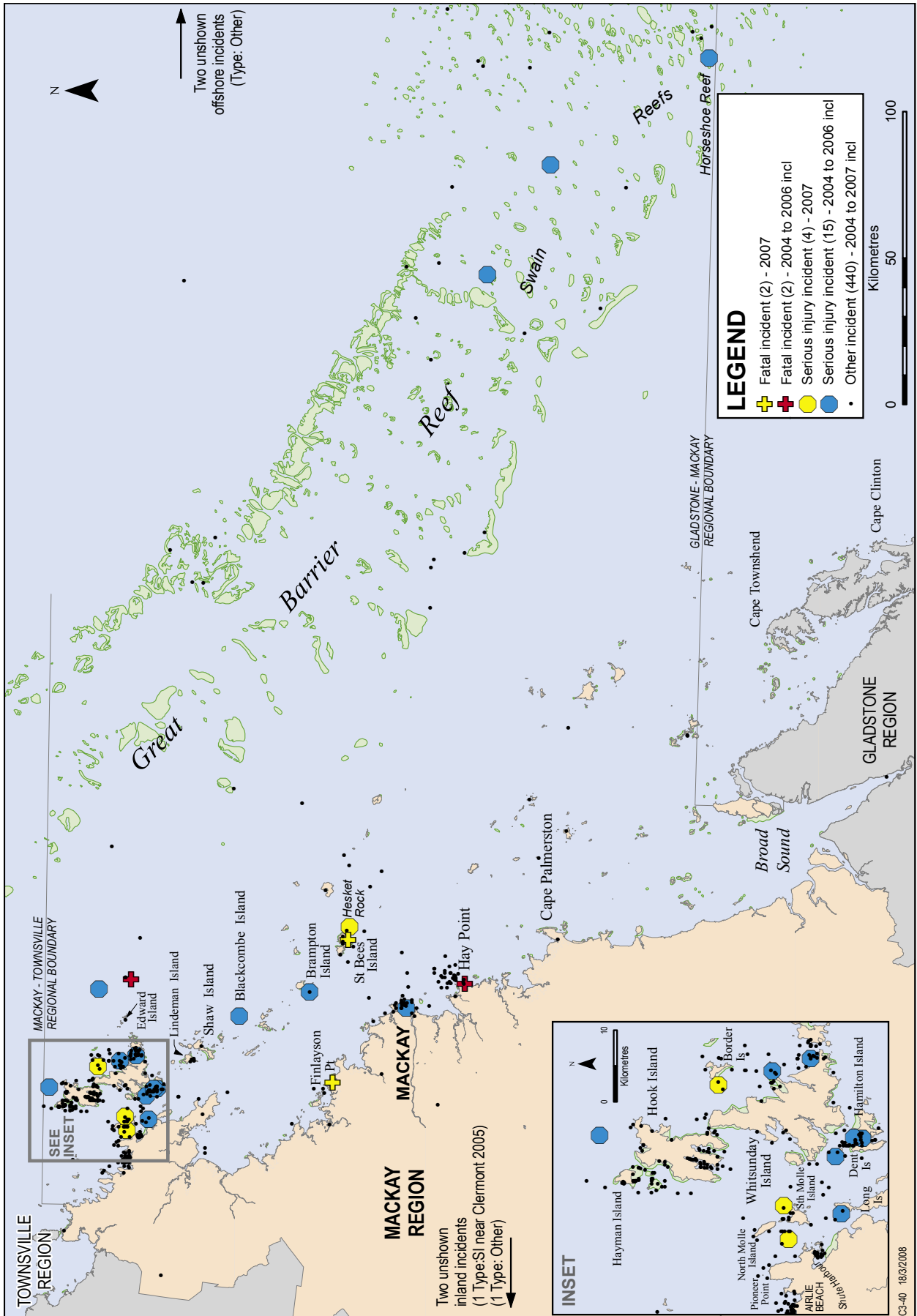
7.7 percent of Queensland's recreational registered vessels and 12.8 percent of the commercial fleet are located in the Mackay region. Recreational registrations in the region grew by 4.9 percent from 2006 while commercial registrations contracted by 1.2 percent.

During 2007 123 marine incidents were reported in the Mackay region, 19 more than in 2006 and in line with the region's four-year average of 122 incidents. The increase in reported marine incidents in 2007 reverses the downward trend apparent since 2003 (see Figure 39).

Historically Mackay region has had a high proportion of commercial vessel involvement in marine incidents (see Figure 39). Of the commercial vessel types, commercial passenger vessels have dominated being involved in 44 or 35.8 percent of reported incidents in 2007. Commercial passenger vessel involvement in incidents was more than double that of recreational speedboats which was the next most frequent vessel type involved.

The number of reported marine incidents involving recreational vessels has increased for the third consecutive year and represented 35 percent of all vessels involved in marine incidents in the region in 2007.

Unintentional groundings were the most frequently reported incident type with 37 reported in 2007—30.1 percent of all incidents. The majority of groundings involved commercial hire and drive vessels. There were two fatalities and four serious injuries recorded in the region in 2007.



Map 5: Marine incidents by highest level of personal injury, Mackay Region 2004 to 2007

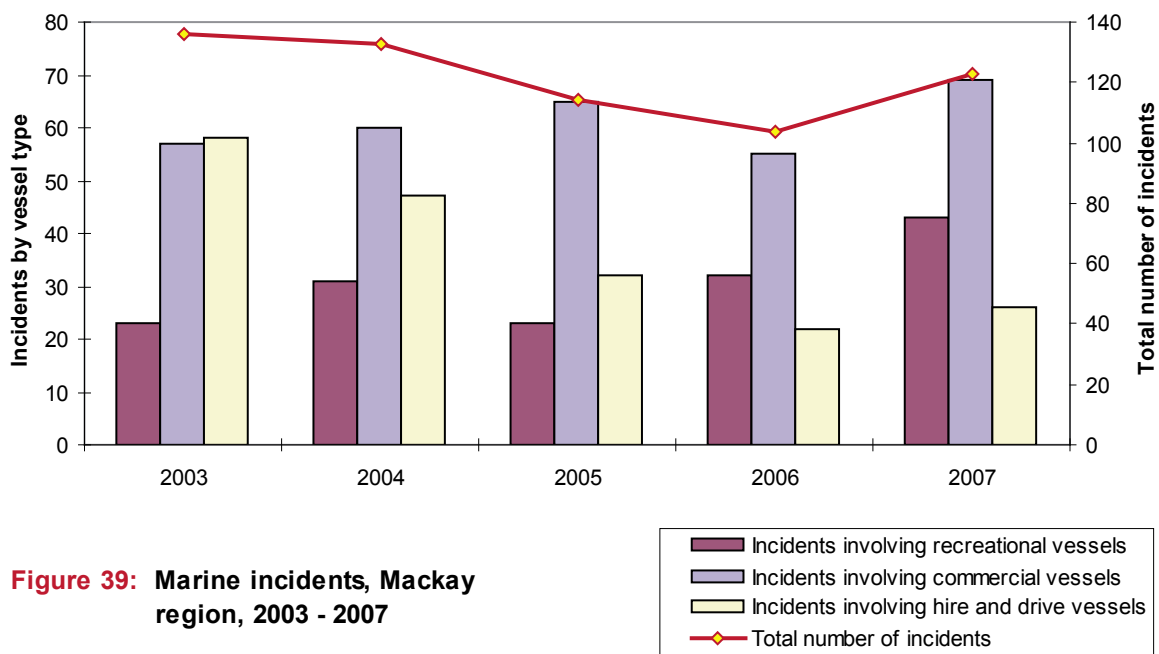


Figure 39: Marine incidents, Mackay region, 2003 - 2007

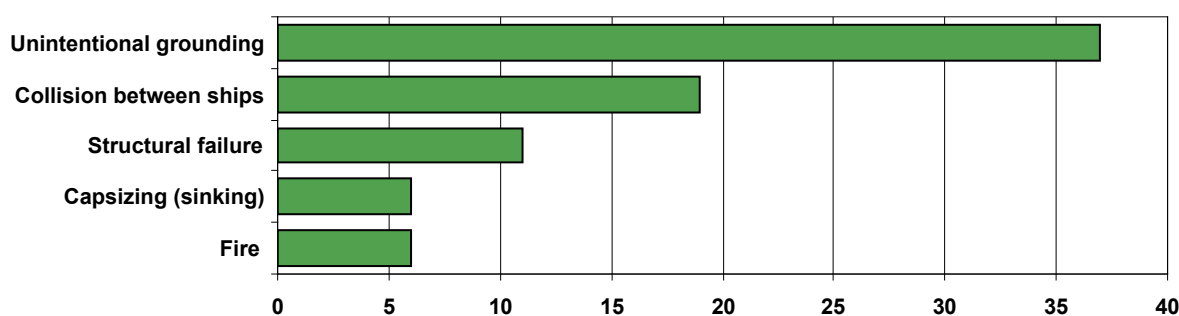


Figure 40: Marine incidents by incident type (Top 5), Mackay region, 2007

Whitsunday Management Area

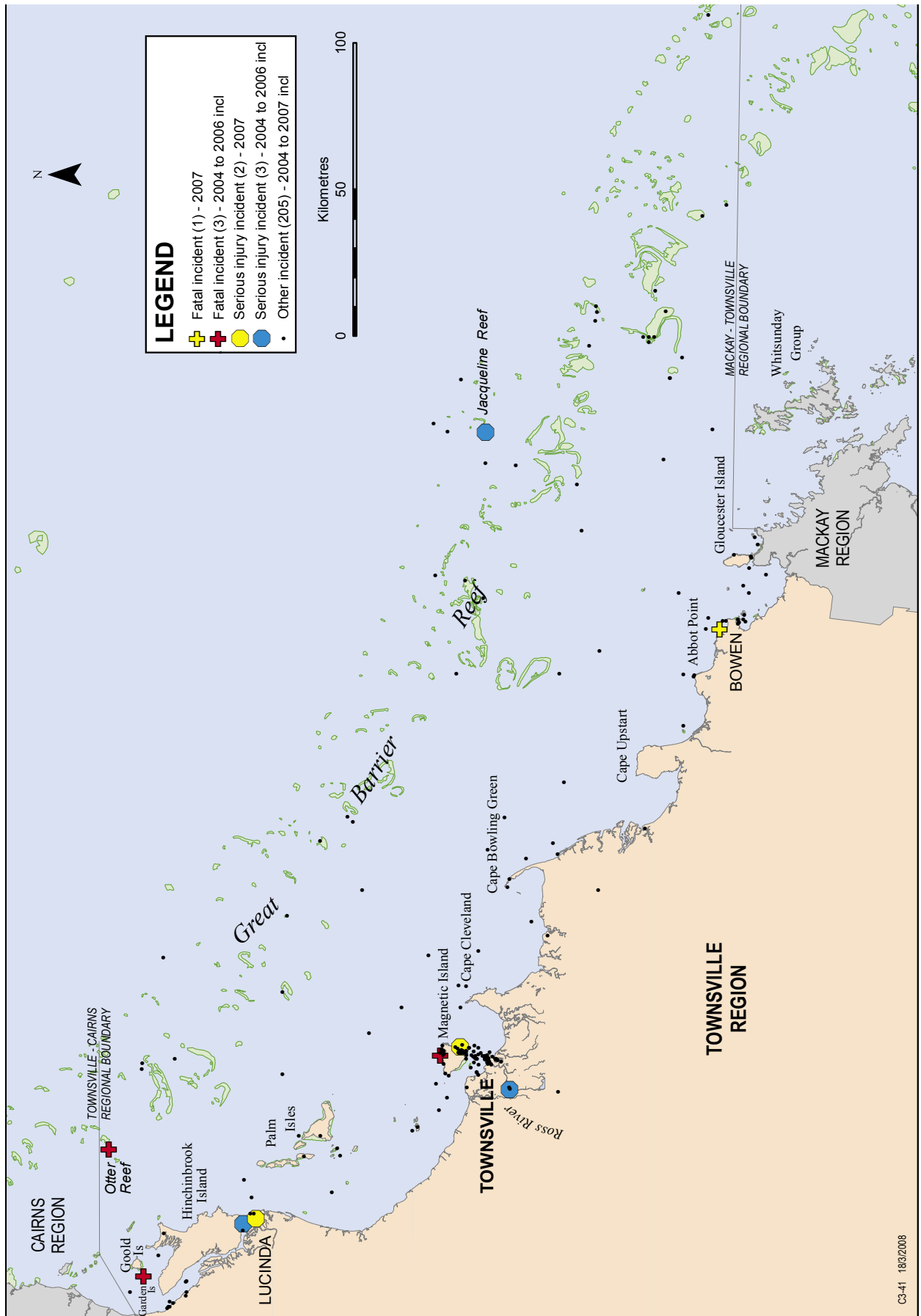
Although small as a proportion of the Mackay region's geographical area, the Whitsunday Management Area, with its significant tourism focus, is a lead contributor to the region's reported marine incidents. The Whitsunday Management Area contains 76.7 percent of the Mackay region's commercially registered fleet and 19.3 percent of the registered recreational fleet.

In 2007 the Whitsunday Management Area recorded 72.5 percent of incidents involving commercial vessels in the Mackay region and 51.2 percent of the incidents involving recreational vessels.

The number of commercial hire and drive incidents in Mackay region has been progressively decreasing since 2003 and the number reported in 2007 is less than half that reported in 2003. Over the past five years there have been 185 reported marine incidents involving hire and drive vessels in the Mackay region, all except two have occurred in the Whitsunday Management Area.

In the same five year period the number of commercial hire and drive vessels has fallen 9.4 percent from 255 vessels in 2003 to 231 vessels in 2007. 96.5 percent (223) of the currently registered hire and drive vessels in the region have their home port in the Whitsunday Management Area.

The reduction in hire and drive incidents may in part be attributed to the Marine Safety Culture Project initiated by Maritime Safety Queensland in the Whitsunday Management Area. This project is a government / industry partnership project that promotes advances in safety awareness and safety practices within the commercial marine industry.



Map 6: Marine incidents by highest level of personal injury, Townsville Region 2004 to 2007



5.5 Townsville region

Table 17: Key characteristics—Townsville region

Mainland coast	827 km		
Island coast	651 km		
Rivers and creeks	769 km		
Major inland waterways	Lake Dalrymple (Burdekin Falls Dam)		
Offshore waters	Gloucester Passage to Meunga Creek (north of Cardwell)		
Major harbours	Port of Townsville (one of Queensland's fastest growing ports used for general cargo shipping, tourism)		
	Port of Lucinda (dedicated to the export of raw sugar)		
	Port of Abbott Point (bulk coal loading facility)		
	Bowen Harbour (recreational. fishing)		
Registered recreational vessels 2007	20 183	Growth 2006-07	4.9%
Registered commercial vessels 2007	504	Growth 2006-07	-2.7%
Reported marine incidents 2007	58	Fatalities	1
		Serious injuries	2

Townsville region had the highest percentage contraction in commercial vessel registration numbers in 2007 of any region in Queensland. Commercial vessel registrations in the region shrunk by 2.7 percent in 2007 compared to 1.3 percent growth for Queensland as a whole. Recreational vessel registrations in the region increased 4.9 percent in 2007 a little over the state growth rate of 4.8 percent.

Townsville region recorded 58 marine incidents in 2007, an increase of 38.1 percent from 2006 and above the four-year average of 43.3 incidents. The increase in incidents in 2007 has occurred in both the recreational and commercial sectors.

Of the 64 vessels involved in reported marine incidents in the Townsville region in 2007, commercial passenger vessels had the highest level of involvement (25 percent).

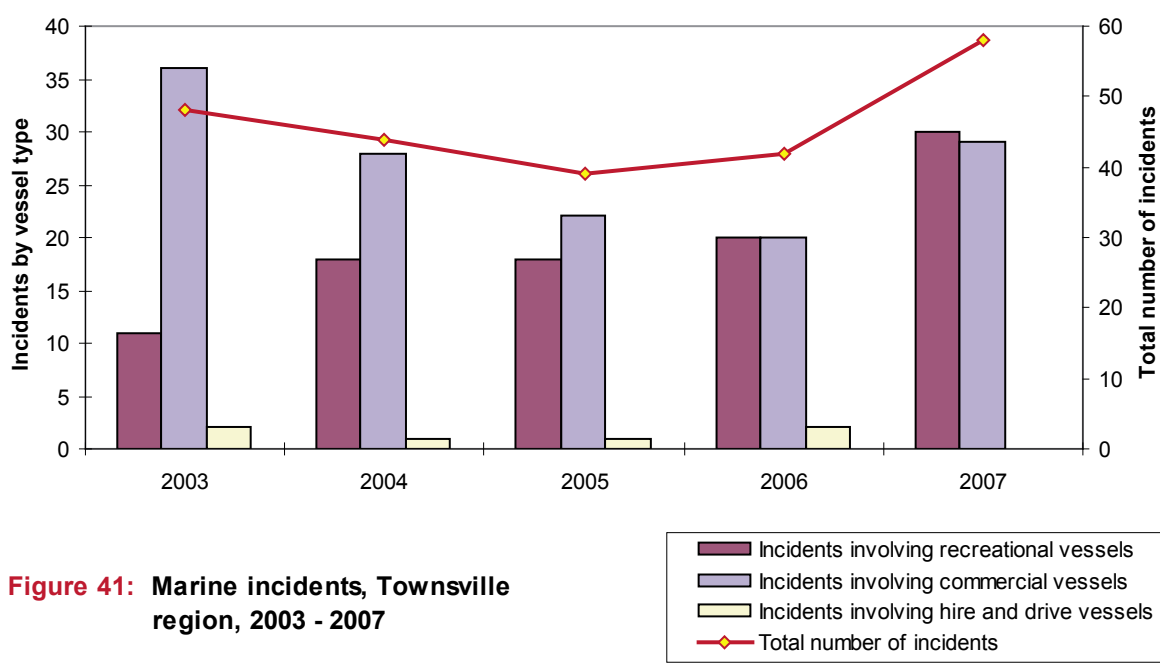


Figure 41: Marine incidents, Townsville region, 2003 - 2007

The most frequent incident type reported in the region in 2007 was collision with a fixed object (10). However on investigation it appears this figure contains a number of incidents that should have been coded to other categories such as collision with a wharf. Five of the 10 recorded collisions with a fixed object involved a vessel colliding with a navigational beacon.

There was one fatal incident recorded in Townville region in 2007 and two serious injury incidents.

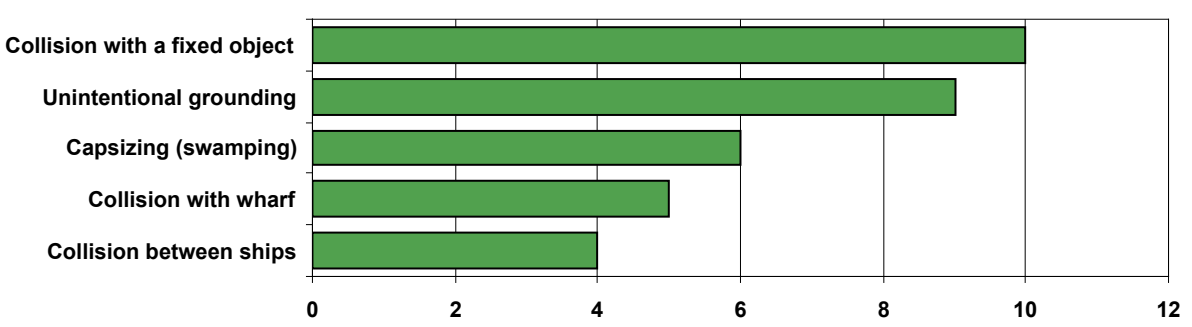


Figure 42: Marine incidents by incident type (Top 5), Townsville region, 2007



5.6 Cairns region

Table 18: Key characteristics—Cairns region

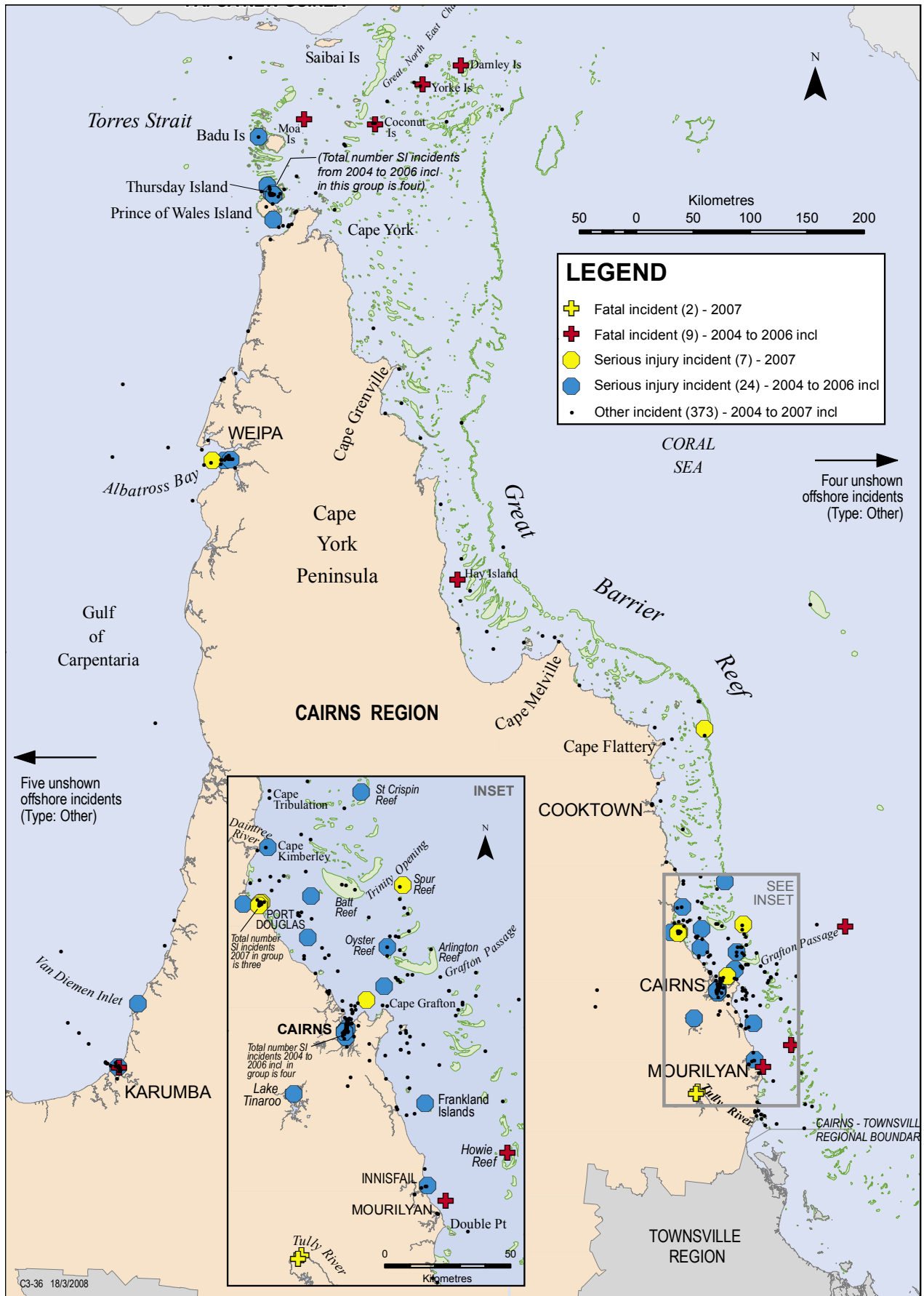
Mainland coast	3 000km		
Island coast	2 267km		
Rivers and creeks	6 434km		
Major inland waterways	Lake Tinaroo		
	Barron and Tully Rivers		
	Koombooloomba Dam		
Major harbours	Mission Beach (tourism)		
	Port of Mourilyan (raw sugar and molasses wharf)		
	Innisfail (fishing)		
	Cairns (sugar loading, tourism, fishing, general shipping)		
	Port Douglas (tourism, fishing)		
	Port of Cape Flattery (silica export)		
	Port of Weipa (cattle and bauxite export)		
	Port of Karumba (zinc export, fishing, tourism)		
Registered recreational vessels 2007	19 030	Growth 2006-07	5.0%
Registered commercial vessels 2007	1 138	Growth 2006-07	0.7%
Reported marine incidents 2007	114	Fatalities	2
		Serious injuries	7

Recreational registrations in the Cairns region grew by 5.0 percent in 2007, marginally higher than the state-wide growth rate of 4.8 percent. Commercial registrations in the region showed only marginal growth, increasing just 0.7 percent compared to the state-wide growth rate of 1.3 percent.

In 2007, 114 marine incidents were reported in the Cairns region, a decrease from the 123 incidents in 2006 but above the previous four-year average of 102 incidents per year.

Of the 134 vessels involved in reported marine incidents in the region in 2007, 39 were recreational vessels. While the involvement of recreational vessels has been steadily increasing since 2004, commercial vessels continue to have the highest level of involvement. The number of commercial vessels involved in reported marine incidents has been more than twice that of recreational vessels for each of the past five years (see Figure 43).

Commercial vessels were involved in 79 marine incidents in the region in 2007, a decrease from 94 in 2006. Commercial passenger ships had the highest level of involvement in reported incidents comprising 25.4 percent of all vessels involved. The involvement of commercial fishing vessels declined from 31 in 2006 to 17 in 2007.



Map 7: Marine incidents by highest level of personal injury, Cairns Region 2004 to 2007

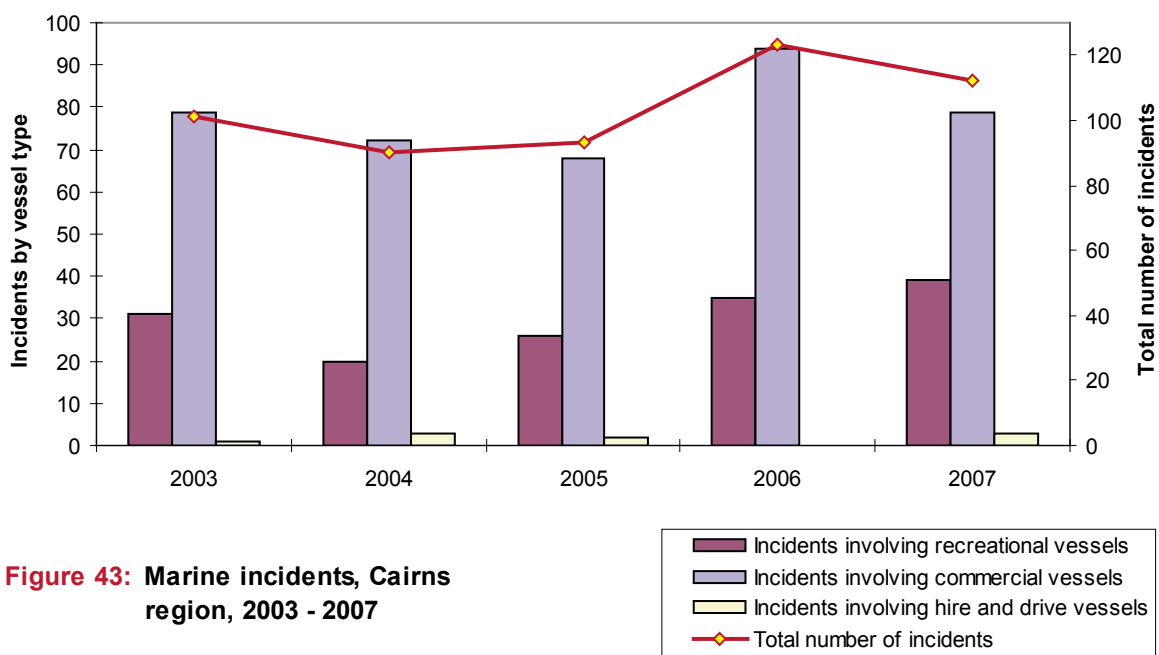


Figure 43: Marine incidents, Cairns region, 2003 - 2007

Collision between ships was the most frequently occurring incident type in the Cairns region in 2007 (see Figure 44).

Fatal and serious injury incidents in the Cairns region declined in 2007. In 2006, 16 incidents in the Cairns region resulted in seven fatalities and 10 people being seriously injured. In 2007, there were nine incidents that resulted in two fatalities and seven people being seriously injured. The two fatalities occurred in separate white water rafting incidents (see Section 6.1).

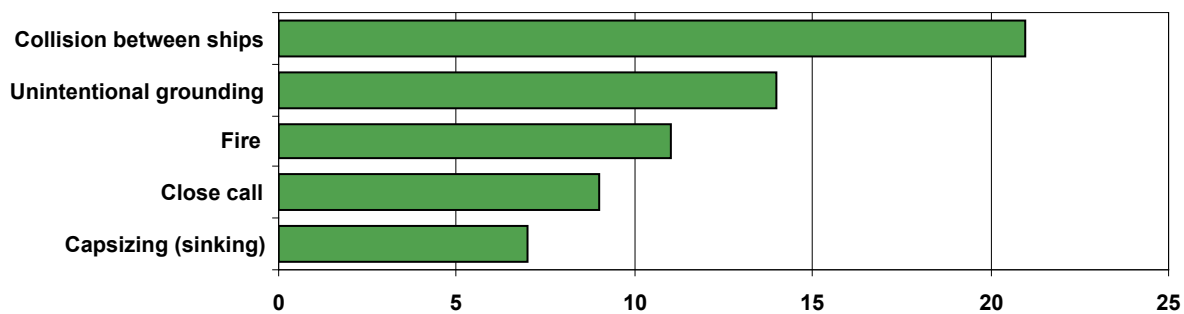


Figure 44: Marine incidents by incident type (Top 5), Cairns region, 2007

Selected marine incident profiles

6. Selected marine incident profiles

6.1 Commercial white water rafting

Commercial white water rafting is one of a number of adventure tourism activities increasing in popularity in Queensland. Rafting has been conducted on the Tully, Barron and North Johnstone Rivers in north Queensland since the late 1980s. The Tully River is the only river in the world to be commercially rafted on 365 days a year.



Photo used by permission

There are three commercial white water rafting companies operating in Queensland, all based in Cairns. No precise data is available on the number of people participating in the activity each year however one company estimates it has 30,000 customers per year on the Tully River alone.

Since 1996 Maritime Safety Queensland has recorded five white water rafting fatalities, two of which occurred in 2007. Over the 12 year period this equates to one death every 2.4 years. While Maritime Safety Queensland data only records one serious injury over the same period, Workplace Health and Safety has recorded 15 serious injuries since 2003, Queensland Health has also recorded 17 hospital admissions from rafting accidents for the period July 2004 to June 2007.

While not diminishing the importance of safety management systems and procedures in white water rafting, it is recognised that the activity is by its very nature a high risk activity and participants enter in knowing and acknowledging the risk of personal injury or even death. In the context of white water rafting,

events such as a person overboard or capsizes are common. The safety challenge for operators is in managing the consequence of these events in a boiling maelstrom of water, rocks and crevices.

Commercial white water rafting operators are largely self-regulated as there is no affiliated professional body representing the industry in Australia or internationally. There is also no formal white water rafting guide qualification available in Australia.

The three commercial operators in Queensland apply their own similar and reasonably stringent standard of operator/guide training and safety management systems and procedures. They liaise with each other informally about safety matters such as unsatisfactory guides, equipment and safety procedures.

All three companies provide their own white water rafting guide training courses. In addition to this training the companies require guides to hold a *Senior First Aid* certificate and they must complete a formal induction process including river familiarisation.

Under the *Transport Operations (Marine Safety) Act 1994*, commercial white water rafts are 'non-registrable ships'. While there are no specific rafting safety requirements stipulated in the Act the operators are bound by the general safety obligation and the safety equipment requirements of the Act and Regulation.



Photo used by permission



Two recent coronial inquests into commercial white water rafting fatalities in Australia, one in the Northern Territory and one in Queensland both noted the lack of documented operational safety standards and recommended government authorities develop safety guidelines/standards for white water rafting.

Currently Victoria, Tasmania, South Australia and Western Australia have adopted an industry-based adventure activity standard for river rafting. This standard, which is advisory in nature and voluntary in terms of compliance, is aimed at organisations, guides and leaders of commercial and not-for-profit rafting operations.

In 2005 the Director-General of the then Queensland Department of Local Government, Planning and Sport, established an inter-departmental committee on which Maritime Safety Queensland is represented, to assess the suitability of implementing Adventure Activity Standards based on existing Victorian standards. White water rafting is one of the standards being considered by the committee. The government has engaged the Queensland Outdoor Recreation Federation to undertake a formal public consultation process on behalf of the government during 2008 to garner community and industry input into this standards setting process.



Photo used by permission

Coronial inquests may be commenced in 2008 into each of the two white water rafting fatalities that occurred on the Tully River in 2007. Maritime Safety Queensland will work with the Coroner and the Police assisting the Coroner to ensure that standards of safety for white water rafting are commensurate with the nature of the activity and the risks involved.



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6.2 Improving boating safety in the Torres Strait

The last two reports on marine incidents in Queensland (2005 and 2006) have highlighted the specific risks experienced by seafarers in the Torres Strait. In the geographically remote island and coastal communities of the Torres Strait there is a strong reliance on boating. Small aluminium and fibreglass dinghies are used across the region to fish, hunt, and transport people and goods long distances between island communities and the mainland. Boating is therefore a way and a fact of life in the Torres Strait.

The Torres Strait Marine Safety Program was developed by Maritime Safety Queensland in 2005 to:

- help seafarers in the region to identify and better manage their risk of becoming lost at sea through training, improved maintenance of vessels and trip planning;
- help lost seafarers survive until rescued by improving the carriage of safety equipment and distress signals;
- foster a community and industry that incorporates high standards of safety in all their marine activities; and
- develop strong trusting partnerships that make communities and the maritime industry safer.



The program is being implemented in partnership with the Australian Maritime Safety Authority and through the support of the Torres Strait Regional Authority, Tropical North Queensland TAFE and Tagai College (Thursday Island). To achieve sustainable changes in boating safety in the Torres Strait, the community and local stakeholders have been involved in shaping the program to ensure that it is focussed, practical, culturally appropriate and recognises local conditions.

To better understand the dispersed Torres Strait vessel fleet Maritime Safety Queensland conducted a vessel census exercise. The census identified general vessel and motor characteristics and condition, and the types of safety equipment most commonly carried. More than 1,700 vessels were observed and inspected. Engagement with the Torres Strait community continues to be vital to the success of the

program and the census provided a unique opportunity to discuss boating safety issues with vessel owners in an informal setting. The data gathered through this research is being analysed and will be used to design training, education and information programs tailored to the needs of the Torres Strait community and fleet.

Local communities highlighted the need for access to local training that addressed the unique environment and conditions faced in the region. The Torres BoatSafe recreational boat licensing course was developed in partnership with Queensland TAFE to respond to these issues and focuses on key areas identified during consultation including motor maintenance, breakdown prevention, carriage and use of safety equipment, emergency procedures at sea, general boating rules and seamanship, and vessel stability. The Torres BoatSafe course was trialled on Hammond Island and eight courses have been delivered by Tropical North Queensland TAFE across the Torres Strait in 2007. The delivery of further Torres BoatSafe courses in the region is planned throughout 2008.

Tagai College on Thursday Island, has also been active in ensuring that high school students model safe boating practices. In 2007 around 120 high school students completed BoatSafe training as part of their marine studies course.



The importance of trip planning, checking the weather before heading out, carrying safety equipment, and avoiding overloading have been targeted in an integrated communication and education campaign. The campaign features boating safety messages in English and Torres Creole and is being aired on local media including *Torres News* and *Imparja*. These important messages have also been supported by the distribution of a Boating Safety Handbook printed in Torres Creole and a sticker which provides guidance for boaters on the amount of fuel required for trips.

Access to safety equipment was another concern raised during consultation with local communities. In response to community concerns and in conjunction with the planned phase out of the 121.5 MHz Emergency Position Indicating Radio Beacons (EPIRBs), Maritime Safety Queensland and the Australian Maritime Safety Authority developed an initiative to improve access to 406 MHz EPIRBs in the region. The initiative assists eligible Torres Strait residents to purchase 406 MHz EPIRBs at a reduced price. As at 31 December 2007, one hundred and sixty-five 121.5 MHz EPIRBs were surrendered in exchange for the purchase of a 406 MHz EPIRB. The new EPIRB technology makes search and rescue activities more efficient through improved accuracy and reducing false alerts. One of the EPIRBs distributed as part of this program has already been activated in a successful search and rescue event near Mabuiaig.

EPIRB change over

Make sure you have changed over to a 406 EPIRB by February 2009 and register it.

STOP - THINK - SURVIVE

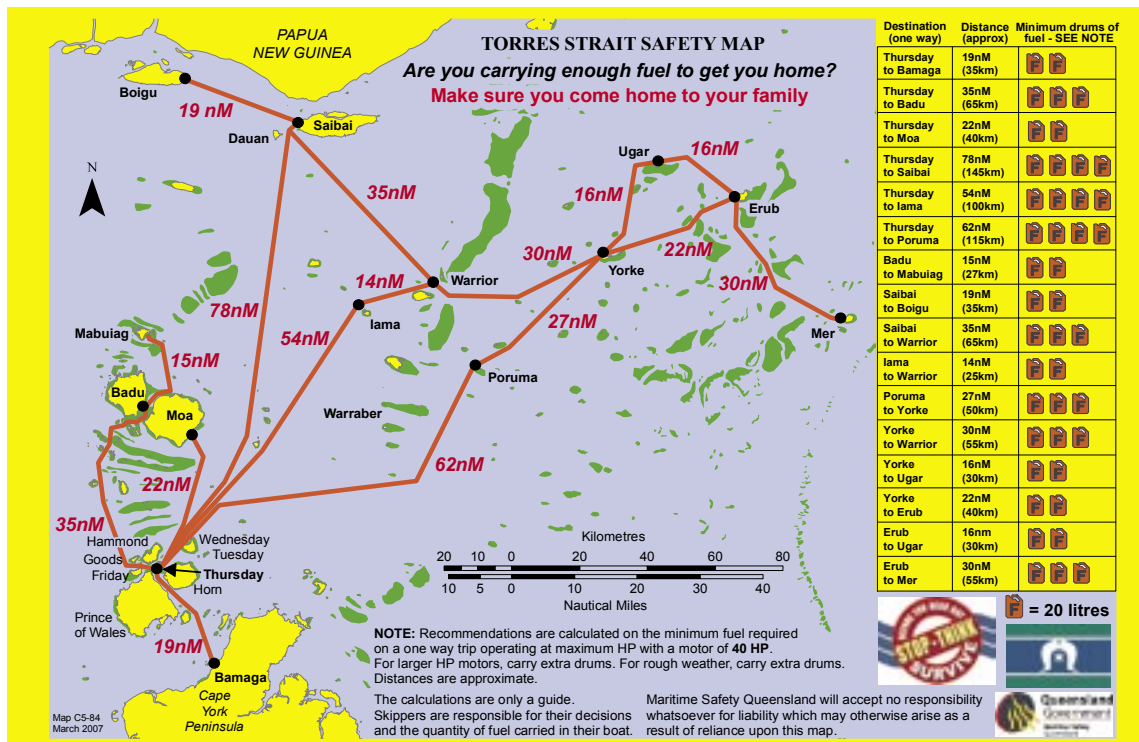
Australian Maritime Safety Authority

Queensland Government Maritime Safety Queensland

Come home safely to your family

No fatal boating incidents were recorded in the Torres Strait in 2007 however the number of search and rescue operations in the region remained high. The reporting of marine incidents in the region is generally considered poor for incidents not involving a fatality.

The implementation of the Torres Strait Marine Safety Program throughout 2008 will continue to deliver maritime safety outcomes for the communities of the Torres Strait.



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Table 1: Incidents involving fatalities and serious injuries 2002 – 2007 and year 2007 by region

Incidents	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
No of incidents involving fatalities	9	7	10	10	14	10	0	5	0	2	1	2
No of incidents involving serious injuries	54	23	36	44	35	33	8	8	4	4	2	7

Table 2: Fatalities and serious injuries 2002 – 2007 and year 2007 by region

Fatalities and serious injuries	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
No of fatalities	10	7	12	12	17	13	0	8	0	2	1	2
No of serious injuries	61	24	40	50	38	35	8	10	4	4	2	7
Total fatalities and serious injuries	71	31	52	62	55	48	8	18	4	6	3	9

Table 3: Environmental factors contributing to fatal and serious injury incidents 2002 – 2007 and year 2007 by region

Environmental factors	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Abnormal tidal conditions	0	0	0	0	0	1	0	0	0	1	0	0
Bar conditions	1	1	1	2	2	1	1	0	0	0	0	0
Floating or submerged object	1	0	0	0	0	2	0	0	1	0	0	1
Hazardous season (cyclones etc)	0	0	1	0	0	1	1	0	0	0	0	0
Hazardous waters - coral reefs	1	0	0	1	1	0	0	0	0	0	0	0
Hazardous waters - lack navigation aids	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous waters - shifting channels	1	0	0	0	0	1	0	0	0	0	0	1
Hazardous waters - uncharted hazards	1	0	0	1	1	3	1	0	0	0	0	2
Heavy traffic area	0	1	0	0	0	0	0	0	0	0	0	0
Other	1	2	3	1	1	1	0	0	0	1	0	0
Poor visibility	1	0	2	0	1	0	0	0	0	0	0	0
Sea state	7	6	7	11	11	7	0	1	0	2	1	3
Wash of passing vessel	2	1	3	2	0	1	1	0	0	0	0	0
Wind	3	1	1	4	2	4	1	0	0	0	1	2
Total environmental factors attribution	19	12	18	22	19	22	5	1	1	4	2	9

Table 4: Human factors contributing to fatal and serious injury incidents 2002 – 2007 and year 2007 by region

Human factors	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Alcohol or drugs	0	2	2	2	7	3	1	1	0	1	0	0
Commercial pressure	0	0	1	1	0	1	0	0	0	0	0	1
Excessive speed	3	3	4	5	5	3	2	0	0	0	1	0
Fatigue	0	1	1	0	0	0	0	0	0	0	0	0
Inadequate training of crew	3	3	2	9	5	4	1	0	0	1	0	2
Inappropriate Harbour/Port Authority advice	0	0	0	0	0	0	0	0	0	0	0	0
Inappropriate advice to ship - Pilot	0	0	0	0	0	0	0	0	0	0	0	0
Inappropriate Vessel Traffic System advice	0	0	0	0	0	0	0	0	0	0	0	0
Inappropriate instructions to crew - other	2	1	0	2	3	1	0	0	0	1	0	0
Poor communication of instructions to crew	1	0	0	0	0	2	1	0	0	0	0	1
Inattention	14	7	19	22	17	9	2	0	1	0	0	6
Insecure mooring	1	0	0	0	0	2	1	0	0	0	0	1
Insufficient crew numbers	0	0	1	0	0	0	0	0	0	0	0	0
Insufficient fuel	0	0	0	0	1	0	0	0	0	0	0	0
Insufficient maintenance	0	0	1	0	0	0	0	0	0	0	0	0
Insufficient planning	0	0	1	1	2	8	1	0	0	3	2	2
Navigation error-failure to keep proper lookout	2	1	3	2	4	4	1	0	1	0	1	1
Navigation error-lack of knowledge/experience	2	0	3	3	3	5	1	0	0	1	2	1
Navigation error-other	0	1	0	1	0	2	1	0	0	0	1	0
Navigation error-violation of Collision regs	0	2	1	1	1	1	0	0	0	0	1	0
Operational error-other	23	11	11	11	13	5	2	0	1	0	0	2
Overloading	0	0	0	1	0	0	0	0	0	0	0	0
Poor communications	1	0	0	1	1	1	0	0	0	0	0	1
Poor ship to shore communications	0	0	0	0	0	0	0	0	0	0	0	0
Violation of standard procedures	6	1	2	0	1	1	0	0	0	1	0	0
Violation of statutory rules or standards	0	1	2	7	0	1	0	0	0	1	0	0
Total human factors attribution	58	34	54	69	63	53	14	1	3	9	8	18

Table 5: Material factors contributing to fatal and serious injury incidents 2002 – 2007 and year 2007 by region

Material factors	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Bridge or navigation failure	0	0	0	1	1	0	0	0	0	0	0	0
Electrical failure	0	0	0	0	0	0	0	0	0	0	0	0
Equipment failure - other	2	0	0	1	2	1	1	0	0	0	0	0
Fuel or gas leak	0	0	1	2	0	0	0	0	0	0	0	0
Hull failure	0	0	0	0	1	0	0	0	0	0	0	0
Inadequate stability - other	0	0	0	0	2	0	0	0	0	0	0	0
Inadequate stability - overloading	0	0	0	1	0	0	0	0	0	0	0	0
Inadequate stability - shifting cargo	1	0	0	0	0	0	0	0	0	0	0	0
Inappropriate hull or equipment-construction fault	1	0	0	1	0	0	0	0	0	0	0	0
Inappropriate hull or equipment-design fault	1	0	1	0	1	0	0	0	0	0	0	0
Insufficient maintenance of hull or equipment	0	0	0	1	0	0	0	0	0	0	0	0
Insufficient safety equipment	0	0	0	0	0	0	0	0	0	0	0	0
Machinery failure	1	1	2	2	0	0	0	0	0	0	0	0
Other	1	2	3	0	2	1	0	0	0	1	0	0
Shore structure badly designed/maintained	0	0	0	0	0	0	0	0	0	0	0	0
Total material factors attribution	7	3	7	9	9	2	1	0	0	1	0	0



Table 6: Fatal and serious injury incident type 2002 – 2007 and year 2007 by region

Incident type classifications	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Capsizing	2	0	1	3	1	2	0	0	0	0	1	1
Capsizing flooding	0	0	0	0	0	0	0	0	0	0	0	0
Capsizing sinking	1	1	4	0	1	0	0	0	0	0	0	0
Capsizing swamping	3	0	3	4	2	0	0	0	0	0	0	0
Collision between ships	10	3	6	4	5	3	2	1	0	0	0	0
Collision with a fixed object	2	0	4	1	1	2	0	1	1	0	0	0
Collision with an animal	0	0	0	0	0	1	0	0	0	0	1	0
Collision with floating object	0	0	2	0	1	0	0	0	0	0	0	0
Collision with overhead obstruction	0	0	0	0	0	0	0	0	0	0	0	0
Collision with submerged object	1	0	0	0	0	2	0	0	1	0	0	1
Collision with a wharf	0	0	0	0	0	0	0	0	0	0	0	0
Explosion	1	0	0	1	0	0	0	0	0	0	0	0
Fire	1	1	1	1	0	1	0	0	0	0	0	1
Grounding intentional	0	0	0	0	0	0	0	0	0	0	0	0
Grounding unintentional	0	1	1	3	1	4	1	2	0	1	0	0
Loss of ship	2	0	0	0	0	0	0	0	0	0	0	0
Loss of stability	0	0	0	0	0	1	0	1	0	0	0	0
Onboard incident crushing or pinching	3	1	5	6	3	5	1	0	1	1	0	2
Onboard incident falls within ship	4	7	5	12	8	4	1	0	0	2	0	1
Onboard incident other onboard injury	5	2	2	7	7	1	0	1	0	0	0	0
Other	0	1	0	0	0	1	0	0	0	1	0	0
Other - Close Call	0	0	0	0	0	0	0	0	0	0	0	0
Other - Crime Issue	0	0	0	0	0	0	0	0	0	0	0	0
Other - Ship Adrift	0	0	0	0	0	0	0	0	0	0	0	0
Other personal injury caused by operation of ship	8	0	0	0	1	1	1	0	0	0	0	0
Other personal injury diving incident	1	0	1	0	0	0	0	0	0	0	0	0
Other personal injury hit by propellor or ship	3	3	1	2	3	4	0	1	1	0	0	2
Other personal injury parasailing incident	0	0	0	0	0	0	0	0	0	0	0	0
Other personal injury water ski incident	4	2	2	1	2	2	0	2	0	0	0	0
Person overboard	9	8	8	7	13	7	2	2	0	1	1	1
Structural failure	0	0	0	1	0	0	0	0	0	0	0	0
Incident types distribution	60	30	46	53	49	41	8	11	4	6	3	9

Table 7: Location of fatal and serious injury incidents 2002 – 2007 and year 2007 by region

Location classifications	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	0	0	0	0	0	0	0	0	0	0	0	0
Inland waters	13	3	5	6	4	6	0	1	1	0	2	2
Offshore	19	6	16	15	20	12	1	3	1	3	1	3
Partially smooth waters	10	6	6	7	7	6	0	1	1	2	0	2
Smooth waters	18	15	19	25	18	17	7	6	1	1	0	2
Distribution by location classifications	60	30	46	53	49	41	8	11	4	6	3	9

* Location data for inland and smooth waters prior to 2007 has not yet been cleansed and may contain classification errors

Table 8: Fatal and serious injury incidents by month 2002 – 2007 and year 2007 by region

Months	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
January	11	3	4	5	9	2	0	1	0	1	0	0
February	4	2	7	1	2	5	1	1	1	1	0	1
March	2	1	2	6	3	4	0	0	0	1	2	1
April	5	1	6	4	4	3	0	0	1	1	0	1
May	5	2	3	5	5	4	0	0	1	1	0	2
June	5	2	2	5	2	3	0	1	1	0	0	1
July	8	3	4	5	5	2	1	0	0	0	0	1
August	3	2	2	6	2	0	0	0	0	0	0	0
September	8	3	2	2	3	5	1	3	0	1	0	0
October	2	4	6	1	4	7	4	2	0	0	0	1
November	1	2	3	4	6	0	0	0	0	0	0	0
December	6	5	5	9	4	6	1	3	0	0	1	1
Fatality/serious injury incidents	60	30	46	53	49	41	8	11	4	6	3	9

Table 9: Fatal and serious injury incidents 2002 – 2007 by region

Region	2002	2003	2004	2005	2006	2007
Gold Coast	14	7	11	15	11	8
Brisbane	20	7	14	14	7	11
Gladstone	4	5	6	6	10	4
Mackay	8	6	2	9	4	6
Townsville	2	3	1	2	1	3
Cairns	12	2	12	7	16	9
Not specified	0	0	0	0	0	0
Fatality/serious injury incidents by regions	60	30	46	53	49	41

Table 10: Fatal and serious injury incidents by time of day 2002 – 2007

Time of day	2002	2003	2004	2005	2006	2007
Not specified	2	2	3	3	2	1
Dawn	0	2	3	0	1	2
Day time	44	20	28	41	28	33
Dusk	5	2	3	3	4	1
Night time	9	4	9	6	14	4
Fatality/serious injury incidents by TOD	60	30	46	53	49	41



Table 11: No. of ships involved in fatal and serious injury incidents 2002 – 2007 by ship type

Ship type	2002	2003	2004	2005	2006	2007
Not specified	0	0	0	0	0	0
COM Fishing	10	3	8	7	7	0
COM Hire & Drive	0	0	0	0	0	0
COM Hire & Drive (House)	0	0	0	2	1	2
COM Hire & Drive (Motor)	2	0	0	1	0	0
COM Hire & Drive (Other)	0	0	1	0	0	0
COM Hire & Drive (PWC)	2	1	0	2	3	1
COM Hire & Drive (Sail)	0	1	1	0	0	0
COM Hire & Drive (Speed)	0	0	1	0	0	0
COM Houseboat	0	0	0	0	0	0
COM Hovercraft	0	0	0	0	0	0
COM Motorboat	1	0	0	1	1	2
COM Non-passenger	1	1	2	4	4	2
COM Other	1	1	1	0	6	0
COM Paddle (row) boat	0	1	0	0	0	1
COM Passenger	8	5	5	7	5	8
COM PWC (jetski)	2	0	0	0	0	1
COM Sailboat	1	0	1	2	0	0
COM Speedboat	8	5	2	3	6	2
REC Houseboat	0	0	1	0	0	0
REC Motorboat	3	6	4	6	2	0
REC Other	0	0	0	0	0	0
REC Paddle (row) boat	1	0	2	2	1	0
REC PWC (jetski)	4	1	9	7	3	5
REC Sailboat	4	3	1	2	3	4
REC Speedboat	22	11	15	15	19	16
No of ships by ship types	70	39	54	61	61	44

Table 12: Visibility in fatal and serious injury incidents 2002 – 2007 and year 2007 by region

Visibility	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	13	6	9	6	9	10	1	3	1	1	0	4
Poor	2	2	2	2	2	3	1	0	1	0	1	0
Fair	2	2	10	5	5	3	0	1	0	2	0	0
Good	43	20	25	40	33	25	6	7	2	3	2	5
Fatality/serious injury incidents	60	30	46	53	49	41	8	11	4	6	3	9

Table 13: Weather in fatal and serious injury incidents 2002 – 2007 and year 2007 by region

Weather	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	9	5	8	5	8	11	1	4	1	1	0	4
Clear	40	21	30	36	32	21	6	5	3	4	1	2
Cloudy	4	3	3	5	6	6	0	2	0	1	0	3
Flood	0	0	0	0	0	0	0	0	0	0	0	0
Hazy	1	0	4	2	1	1	0	0	0	0	1	0
Other	3	1	0	3	1	1	0	0	0	0	1	0
Rain	3	0	1	2	1	1	1	0	0	0	0	0
Fatality/serious injury incidents	60	30	46	53	49	41	8	11	4	6	3	9

Table 14: Wind in fatal and serious injury incidents 2002 – 2007 and year 2007 by region

Wind	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	11	6	8	2	8	14	2	6	1	2	0	3
No wind	9	1	3	6	4	4	1	0	1	0	1	1
Light (up to force 2 / 1-7 knots)	16	8	18	14	16	6	1	2	2	1	0	0
Moderate (force 3-4 / 8-16 knots)	14	13	12	20	14	11	3	3	0	1	1	3
Strong (force 5-7 / 17-33 knots)	10	2	2	8	5	5	0	0	0	2	1	2
Gale (force 8 and above / more than 33 knots)	0	0	3	3	2	1	1	0	0	0	0	0
Fatality/serious injury incidents	60	30	46	53	49	41	8	11	4	6	3	9

Table 15: All marine incidents 2002 – 2007 and year 2007 by region

Incidents	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Reported marine incidents	648	659	627	645	706	762	103	230	134	123	58	114

Table 16: Environmental factors contributing to marine incidents 2002 – 2007 and year 2007 by region

Environmental factors	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Abnormal tidal conditions	5	4	9	19	11	14	1	1	0	2	1	9
Bar conditions	12	19	16	14	28	7	2	3	0	1	0	1
Floating or submerged object	12	12	19	21	20	14	1	4	3	2	1	3
Hazardous season (cyclones etc)	0	3	7	1	9	1	1	0	0	0	0	0
Hazardous waters - coral reefs	24	24	26	21	20	10	0	0	1	7	0	2
Hazardous waters - lack navigation aids	1	2	1	1	3	2	1	1	0	0	0	0
Hazardous waters - shifting channel	5	7	9	2	11	5	0	2	1	0	0	2
Hazardous waters - uncharted hazards	4	4	11	11	10	6	1	0	2	1	0	2
Heavy traffic area	7	2	9	5	6	5	0	2	1	0	0	2
Other environmental contributing factor	26	23	42	19	12	20	0	5	0	4	3	8
Poor visibility	16	12	17	12	24	26	0	13	3	4	2	4
Sea state	76	80	92	117	123	100	8	42	13	17	10	10
Wash of passing vessel	15	11	23	26	17	21	9	5	1	2	2	2
Wind	43	73	78	93	98	95	3	42	9	11	13	17
Total environmental factors attribution	246	276	359	362	392	326	27	120	34	51	32	62



Table 17: Human factors contributing to marine incidents 2002 – 2007 and year 2007 by region

Human factors	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Alcohol or drugs	6	8	8	6	14	13	3	6	0	2	1	1
Commercial pressure	6	5	13	10	8	7	0	0	1	4	0	2
Excessive speed	17	12	24	29	25	26	4	7	1	5	7	2
Fatigue	2	7	5	4	6	6	1	1	2	2	0	0
Inadequate training of crew	14	15	14	34	39	35	3	8	3	11	2	8
Inappropriate Harbour/Port Authority advice	0	0	0	1	1	0	0	0	0	0	0	0
Inappropriate advice to ship - Pilot	2	0	2	0	0	2	0	1	0	1	0	0
Inappropriate Vessel Traffic System advice	1	1	0	1	0	0	0	0	0	0	0	0
Inappropriate instructions to crew - other	6	6	1	5	12	10	0	2	4	4	0	0
Poor communication of instructions to crew	4	2	3	6	5	10	1	1	2	4	1	1
Inattention	65	77	114	131	144	153	16	59	24	16	4	34
Insecure mooring	20	31	30	27	32	27	3	11	4	1	1	7
Insufficient crew numbers	1	1	5	2	6	5	0	1	0	3	1	0
Insufficient fuel	3	1	0	3	4	3	1	1	0	0	1	0
Insufficient maintenance	7	12	17	16	28	15	0	9	3	1	1	1
Insufficient planning	10	20	22	29	26	53	5	10	6	13	7	12
Navigation error-failure to keep proper lookout	25	48	62	54	62	81	7	18	18	19	5	14
Navigation error-lack of knowledge/experience	16	39	45	41	51	75	4	7	24	24	10	6
Navigation error-other	27	25	38	39	53	33	3	13	1	5	4	7
Navigation error-violation of Collision regs	15	27	45	35	40	54	6	17	17	6	3	5
Operational error-other	122	148	134	165	153	143	31	52	13	18	12	17
Overloading	0	2	0	5	5	6	2	1	1	1	0	1
Poor communications	9	3	12	20	27	28	2	18	0	3	0	5
Poor ship to shore communications	2	3	2	2	3	0	0	0	0	0	0	0
Violation of standard procedures	21	28	20	21	16	15	1	8	2	3	0	1
Violation of statutory rules or standards	24	23	35	38	30	12	3	2	3	3	0	1
Total human factors attribution	425	544	651	724	790	812	96	253	129	149	60	125

Table 18: Material factors contributing to marine incidents 2002 – 2007 and year 2007 by region

Material factors	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Bridge or navigation failure	1	4	3	8	6	2	0	1	0	0	0	1
Electrical failure	15	10	12	2	14	15	1	6	0	2	2	4
Equipment failure - other	24	31	35	35	35	40	3	10	4	7	9	7
Fuel or gas leak	3	5	4	5	8	2	0	1	1	0	0	0
Hull failure	17	17	11	9	22	21	2	2	7	4	0	6
Inadequate stability - other	0	1	2	5	12	3	0	1	0	1	0	1
Inadequate stability - overloading	0	1	1	4	4	2	1	0	1	0	0	0
Inadequate stability - shifting cargo	2	2	1	5	1	1	0	0	0	0	0	1
Inappropriate hull or equipment-construction fault	6	4	2	5	10	3	0	1	1	0	1	0
Inappropriate hull or equipment-design fault	5	9	16	8	13	11	0	2	1	3	4	1
Insufficient maintenance of hull or equipment	9	4	8	12	20	11	0	2	2	3	1	3
Insufficient safety equipment	5	3	2	5	3	0	0	0	0	0	0	0
Machinery failure	49	55	51	48	76	69	2	19	20	13	6	9
Other material contributing factor	31	29	45	27	21	34	1	6	8	12	0	7
Shore structure badly designed/maintained	5	3	5	6	2	2	0	0	0	0	1	1
Total material factors attribution	172	178	198	184	247	216	10	51	45	45	24	41

Table 19: Incident type 2002 – 2007 and year 2007 by region

Incident type	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Capsizing	14	12	13	13	21	16	0	4	4	4	2	2
Capsizing flooding	8	10	8	7	15	10	0	3	4	0	2	1
Capsizing sinking	28	25	30	28	55	39	8	10	7	6	1	7
Capsizing swamping	30	41	36	37	39	41	9	12	3	5	6	6
Collision between ships	119	127	128	139	135	152	40	57	11	19	4	21
Collision with a fixed object	42	35	45	48	42	50	8	13	10	3	10	6
Collision with an animal	2	2	2	2	2	3	0	1	0	1	1	0
Collision with floating object	11	8	11	10	9	11	2	4	2	1	1	1
Collision with overhead obstruction	2	0	1	1	3	0	0	0	0	0	0	0
Collision with submerged object	18	25	20	21	17	25	3	3	9	3	0	7
Collision with wharf	19	22	22	14	14	23	3	8	0	2	5	5
Explosion	1	1	2	2	2	1	1	0	0	0	0	0
Fire	17	32	25	15	24	36	1	12	2	6	4	11
Grounding intentional	2	1	0	0	1	4	0	3	0	0	0	1
Grounding unintentional	94	130	122	117	121	120	3	30	27	37	9	14
Loss of ship	7	1	0	0	2	1	0	1	0	0	0	0
Loss of stability	0	1	2	0	1	2	0	1	0	0	0	1
Onboard incident crushing or pinching	5	5	7	12	10	11	1	2	2	4	0	2
Onboard incident falls within ship	18	23	17	28	32	35	10	11	4	3	1	6
Onboard incident other onboard injury	10	14	13	26	21	13	1	3	4	3	1	1
Other	62	23	12	13	11	18	2	4	2	3	2	5
Other - Close Call	50	31	48	39	31	55	1	21	18	4	2	9
Other - Crime Issue	2	1	1	1	2	0	0	0	0	0	0	0
Other - Ship Adrift	10	13	6	5	16	5	0	0	2	2	0	1
Other personal injury caused by operation of ship	18	0	2	3	4	3	1	0	2	0	0	0
Other personal injury diving incident	2	4	3	1	1	1	0	1	0	0	0	0
Other personal injury hit by propellor or ship	6	8	2	3	6	9	1	2	1	2	0	3
Other personal injury parasailing incident	2	1	0	0	0	0	0	0	0	0	0	0
Other personal injury water ski incident	5	5	5	6	3	10	2	4	1	2	1	0
Person overboard	23	25	23	27	37	21	4	7	3	2	3	2
Structural failure	21	33	21	27	29	47	2	13	16	11	3	2
Incident type	648	659	627	645	706	762	103	230	134	123	58	114

Table 20: Locations of incidents 2002 – 2007 and year 2007 by region

Location	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	1	3	0	9	2	16	2	8	2	2	1	1
Inland waters	101	77	72	45	57	75	20	36	3	1	5	10
Offshore	137	134	124	137	181	156	17	44	29	19	13	34
Partially smooth waters	153	194	153	148	169	169	6	38	36	57	18	14
Smooth waters	256	251	278	306	297	346	58	104	64	44	21	55
All incidents	648	659	627	645	706	762	103	230	134	123	58	114

* Location data for inland and smooth waters prior to 2007 has not yet been cleansed and may contain classification errors



Table 21: Incidents by month 2002 – 2007 and year 2007 by region

Month	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
January	60	55	59	60	97	68	11	30	10	9	6	2
February	54	39	52	46	48	50	11	13	13	3	5	5
March	57	57	52	64	58	68	7	20	10	12	7	12
April	57	47	56	36	48	73	9	27	12	7	4	14
May	46	46	48	51	51	49	9	10	5	10	8	7
June	63	60	51	46	49	58	5	11	7	14	6	15
July	37	57	42	56	69	58	3	11	15	14	3	12
August	48	61	48	57	64	67	4	15	19	13	5	11
September	61	45	48	63	48	71	10	28	10	11	2	10
October	58	65	61	53	61	77	12	33	14	6	4	8
November	52	63	52	50	56	60	12	15	7	9	6	11
December	55	64	58	63	57	63	10	17	12	15	2	7
All incidents	648	659	627	645	706	762	103	230	134	123	58	114

Table 22: Incidents 2002 – 2007 by region

Region	2002	2003	2004	2005	2006	2007
Gold Coast	79	77	79	91	89	103
Brisbane	197	194	203	204	209	230
Gladstone	87	103	78	104	139	134
Mackay	123	136	133	114	104	123
Townsville	59	48	44	39	42	58
Cairns	103	101	90	93	123	114
Region not advised	0	0	0	0	0	0
All incidents	648	659	627	645	706	762

Table 23: Damage category 2002 – 2007 and year 2007 by region

Damage	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	2	5	0	6	72	42	9	19	6	0	3	5
Damage to Property Only	67	69	72	60	61	67	8	26	10	6	6	11
No Damage	271	246	210	253	208	260	22	75	64	43	14	42
Ship Damaged	267	301	312	292	315	343	62	99	43	68	29	42
Ship Lost	41	38	33	34	50	50	2	11	11	6	6	14
All incidents	648	659	627	645	706	762	103	230	134	123	58	114

Table 24: Incidents by time of day 2002 – 2007 and year 2007 by region

Time of day	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	41	37	42	48	38	54	0	23	16	6	2	7
Dawn	25	26	21	20	33	27	2	9	4	4	2	6
Day	408	424	399	416	464	468	85	136	71	80	26	70
Dusk	58	55	43	51	50	62	9	16	11	9	7	10
Night	116	117	122	110	121	151	7	46	32	24	21	21
All incidents	648	659	627	645	706	762	103	230	134	123	58	114

Table 25: No. of ships in incidents 2002 – 2007 by ship type

Ship type	2002	2003	2004	2005	2006	2007
COM Fishing	93	99	85	69	105	74
COM Hire & Drive	0	0	0	0	0	0
COM Hire & Drive (House)	12	8	12	12	16	13
COM Hire & Drive (Motor)	10	11	3	10	9	10
COM Hire & Drive (Other)	1	2	2	1	0	2
COM Hire & Drive (PWC)	9	13	6	14	13	7
COM Hire & Drive (Sail)	30	51	49	33	21	17
COM Hire & Drive (Speed)	0	1	3	0	4	1
COM Houseboat	0	0	1	0	0	0
COM Hovercraft	0	0	0	0	0	0
COM Motorboat	8	18	9	18	11	14
COM Non-passenger	66	90	59	56	71	114
COM Other	89	26	40	41	58	44
COM Paddle (row) boat	2	1	0	2	2	2
COM Passenger	144	163	140	164	151	158
COM PWC (jetski)	4	2	0	1	4	5
COM Sailboat	13	15	25	13	12	2
COM Speedboat	31	34	28	37	32	31
REC Houseboat	5	7	8	6	12	8
REC Motorboat	66	80	97	121	123	64
REC Other	7	3	2	1	4	2
REC Paddle (row) boat	4	4	6	6	7	8
REC PWC (jetski)	24	13	23	25	27	31
REC Sailboat	96	105	88	96	114	144
REC Speedboat	98	92	87	90	114	213
Not specified	0	0	0	0	0	5
Unknown ship type	11	0	2	4	8	1
No of ships by ship type	823	838	775	820	918	970

Table 26: Visibility in incidents 2002 – 2007 and year 2007 by region

Visibility	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	89	80	86	76	90	94	11	40	12	8	3	20
Poor	50	58	48	54	53	55	3	15	8	10	8	11
Fair	66	73	74	61	71	82	8	16	17	24	6	11
Good	443	448	419	454	492	531	81	159	97	81	41	72
All incidents	648	659	627	645	706	762	103	230	134	123	58	114

Table 27: Weather in incidents 2002 – 2007 and year 2007 by region

Weather	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	69	63	56	58	63	76	8	31	10	6	3	18
Clear	447	429	430	419	445	504	74	150	99	82	36	63
Cloudy	63	91	68	78	97	104	13	31	15	18	6	21
Flood	0	2	3	6	3	2	0	1	1	0	0	0
Hazy	27	20	18	28	31	18	2	5	4	3	4	0
Other weather	9	7	10	13	16	12	0	3	2	2	2	3
Rain	33	47	42	43	51	46	6	9	3	12	7	9
All incidents	648	659	627	645	706	762	103	230	134	123	58	114



Table 28: Wind in incidents 2002 – 2007 and year 2007 by region

Wind	2002	2003	2004	2005	2006	2007	GC	BN	GL	MK	TV	CN
Not specified	66	56	58	55	65	73	9	30	10	7	2	15
No wind	56	51	43	35	55	45	13	12	7	4	3	6
Light (up to force 2 / 1-7 knots)	196	184	202	181	207	216	33	65	46	35	14	23
Moderate (force 3-4 / 8-16 knots)	209	236	172	218	218	253	36	83	37	40	23	34
Strong (force 5-7 / 17-33 knots)	109	125	128	123	133	160	10	34	33	35	14	34
Gale (force 8 and above / more than 33 knots)	12	7	24	33	28	15	2	6	1	2	2	2
All incidents	648	659	627	645	706	762	103	230	134	123	58	114

Table 29: Commercial and recreational registrations 2002 – 2007 by region

Recreational registrations						
Region	2002	2003	2004	2005	2006	2007
Gold Coast	22052	23813	25641	27184	28300	29860
Brisbane	75514	78798	82634	86332	89468	93142
Gladstone	29270	31018	32980	34771	37148	39291
Mackay	12632	13270	14077	14962	16036	16830
Townsville	16618	17141	17627	18389	19234	20180
Cairns	15829	16264	16874	17500	18115	19033
Interstate and Unknown	569	594	581	575	627	697
Totals	172484	180898	190414	199713	208928	219033

Commercial registrations						
Region	2002	2003	2004	2005	2006	2007
Gold Coast	763	825	891	951	934	982
Brisbane	1580	1636	1654	1504	1437	1469
Gladstone	778	777	790	867	903	910
Mackay	765	776	760	750	737	728
Townsville	485	468	467	485	518	504
Cairns	1178	1165	1186	1177	1130	1138
Totals	5549	5647	5748	5734	5659	5731

Total registrations						
Region	2002	2003	2004	2005	2006	2007
Gold Coast	22815	24638	26532	28135	29234	30842
Brisbane	77094	80434	84288	87836	90905	94611
Gladstone	30048	31795	33770	35638	38051	40201
Mackay	13397	14046	14837	15712	16773	17558
Townsville	17103	17609	18094	18874	19752	20684
Cairns	17007	17429	18060	18677	19245	20171