



# Marine Incidents in Queensland 2008

Moving Queensland forward



## Director-General's foreword

As Director-General of the Department of Transport and Main Roads, I am pleased to formally report on Queensland's marine safety performance in 2008, as measured by marine incident numbers and outcomes.

The 2008 report has a great new look and feel, and aims at getting the marine safety message out to more boaties in a more easily understandable format.

Boat registrations continued to climb in 2008 with Queensland now leading the nation in the number of registered vessels using our waterways. Continuing boating growth and associated on-water traffic and congestion is inevitable. It brings with it new challenges for regulators and boaties alike.

2009 is emerging as a tough year, with many boat owners struggling to cope with the impacts of a worldwide economic downturn. While trying to maintain their boating routines, the temptation during these tough times is to skimp on safety equipment. Regrettably, some boaties consider safety gear a luxury item. Skimping on items such as personal flotation devices, EPIRBs, flares and even routine boat and engine maintenance can jeopardise safety and risk lives. If you can't afford to keep your vessel and your safety gear up-to-date and functional, I urge you not to go out on the water.

With more and more people using Queensland's waterways, it is vital that boating safety programs address emerging economic, exposure and safety performance trends to ensure boating continues to be a safe and enjoyable pastime.

The 2008 report contributes to understanding these emerging trends and the safety challenges they present.

Queensland recorded 9 fatalities in 2008, 40% fewer than the 15 recorded fatalities in 2007.

In the context of growth in boating exposure, this is a positive outcome. But any fatality is one too many and every opportunity must be grasped to improve boating safety. Marine incident fatalities are not inevitable!

Our focus is clearly on the future and the challenges it brings. Maritime Safety Queensland is continuing its work of encouraging and fostering safety as a core value and culture within the commercial and recreational sectors of the boating community.

But Maritime Safety Queensland cannot drive and maintain Queensland's marine safety performance on its own. A cooperative approach is required. Government, industry and the boating community alike must work together to ensure that boating is safe, enjoyable and continues to meet Queensland's maritime transport, commerce, tourism and recreational needs.



Dave Stewart  
Director-General  
Department of Transport and Main Roads



## 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.

Maritime Safety Queensland has prepared the following report on incidents reported for the year 2008, in accordance with Section 127 of the *Transport Operations (Marine Safety) Act 1994*.

The aim of the report is to concisely present the major features of marine incidents in Queensland in an accessible manner, to determine what lessons can be learnt from incidents and to further educate the boating community about potential risks and unsafe behaviour.

Section 125 of the Act requires the master or owner of a vessel involved in a marine incident to report that incident to a shipping inspector within 48 hours. For a legal definition of a marine incident visit our web site: [www.msq.qld.gov.au](http://www.msq.qld.gov.au).

The information gathered from marine incident reports and from any ensuing investigation is recorded in a marine incident data management system. Despite the mandatory requirement to report marine incidents, many are not reported, particularly those that are less serious and/or occur in remote locations.

Consequently, the data and analyses in this report are limited by a certain degree of under-reporting of marine incidents. Data used in this report is the best available at the time of production.

Maritime Safety Queensland continues to look for ways to improve incident reporting levels and the integrity of its analysis of incident data. The agency is working closely with the National Marine Safety Committee to identify recreational boating usage rates.

Similarly, at a state level, Maritime Safety Queensland is collating vessel usage information for different types of commercial vessel activity. This data when combined with incident data will enable more accurate future comparisons of the relative safety risk exposure of different types of vessels.

## Marine incidents

### Overview

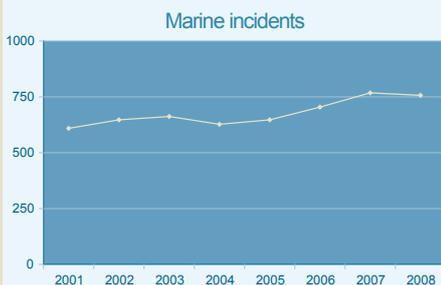
In 2008, there were 757 reported marine incidents that occurred on Queensland waters: on average, two incidents were reported to Maritime Safety Queensland each day.

Incidents ranged from a close call for a commercial passenger vessel near Prince of Wales Island (Cairns) on 1 January to a collision between a commercial fishing trawler and a recreational sailing boat on Deception Bay on 31 December.

Notwithstanding the 9 fatalities and 32 serious injuries reported in 2008, for the most part reported incidents were not major, with most having only a minor safety or environmental impact: 95% involved minor or nil injury, 31% caused no damage and just 2% led to any form of marine pollution.

### Incident trends

While the number of reported marine incidents varies from year to year, the overall numbers of incidents reported have been steadily increasing over time. This trend will be due in part to efforts by Maritime Safety Queensland to improve incident reporting levels and more diligent reporting. Using 2001 as a baseline, 24% more marine incidents were reported in 2008 than in 2001. That said, there were 1% fewer marine incidents reported in 2008 than in 2007, ending a four-year upward trend.



The latter result is all the more impressive given that in recent years Queensland has seen solid growth in both registered vessels and population.

To better understand marine incident data, one must take into account that while reported incidents have been

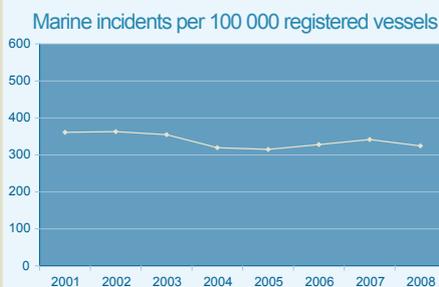
trending upward over the last decade, registered recreational vessel numbers and population, too, have grown steadily over this time.

Since 2001, vessel registrations have experienced an average annual growth rate of 4.8%, with the bulk of this growth in the recreational boating sector. In the same period, Queensland's estimated resident population (Source: Australian Bureau of Statistics) has experienced an average annual growth rate of 2.4%.

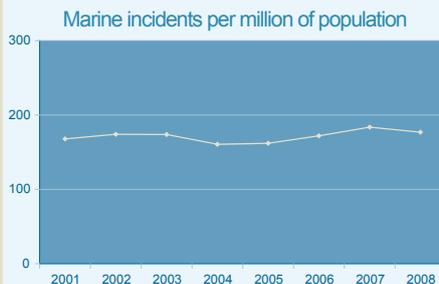
This evidence alone suggests that there are now more boats on the water, and therefore there is a greater likelihood that incidents will occur.

### Rate of marine incidents

Analysis indicates that in 2008 there were 325 marine incidents per 100 000 registered vessels, representing a decline of 5% over 2007, but in line with the previous four-year average of 326. (Using the prior four-year average helps smooth the data, thereby making for a more useful benchmark comparison).



In 2008, the rate of reported marine incidents per million population was 177, a drop of 5% in the 12 month period, but 5% higher than the comparative rate in 2001.



## Vessels involved

At the end of 2008, there were about 228 000 recreational and 5700 commercial registered vessels.

During the year, 927 vessels were involved in reported marine incidents, either primarily or secondarily. Just over half (52%) of the vessels involved were recreational vessels, 42% were commercial and 7% hire and drive.

Recreational vessel involvement in reported marine incidents has been increasing over the past decade. In 2001, recreational vessels were involved in just on a third of reported incidents. By 2008, they were involved in just over half.

The greater involvement of recreational vessels is due in no small part to their presence in increased numbers on the water. However, even while statistically taking into account the growth in recreational vessels, there has been a steady rise in the rate of involvement for recreational vessels since 2001.

### Repeated incident involvement

There are several vessels that appear as involved vessels on more than one occasion in the marine incident database. There could be many reasons why these vessels appear on multiple occasions including an elevated exposure to risk, public visibility of involvement in incidents, insurance implications, a strong safety culture, as well as unsatisfactory vessel maintenance and operations.

Analysis indicates that 22% (166) of the incidents reported in 2008 involved vessels that have been in at least one other reported marine incident since 1999.

Further assessment of the incidents with "repeat involvement" vessels reveals some interesting findings:

- 47% were greater than 15 m in length
- 43% were commercial passenger carrying ships including many larger tourist vessels that operate 365 days a year, in most weather and sea conditions, carrying a large number of passengers
- 10% were commercial fishing vessels.

## Marine incident characteristics

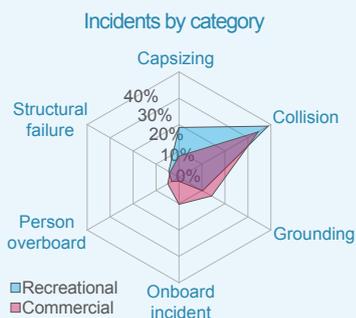
### Background

Recent marine incident data suggests that most reported incidents occur in fairly innocuous circumstances. Investigation of reported incidents in 2008 indicates that 73% occurred on smooth or partially smooth waters and just under 66% occurred in clear weather and good visibility. This is consistent with an analysis of factors contributing to incidents in 2008 which identify environmental contributing factors in about 36% of reported incidents. By contrast, human contributing factors—mainly operational error and inattention—were identified in 60% of reported incidents.

### Incidents by category

In 2008, the most commonly reported marine incident category was collision (34%), followed by capsizing (14%) and grounding (13%). On a proportional basis, these patterns have not varied significantly since 2001.

Analysis of reported incidents by category indicates that the patterns in the data vary according to the type of vessel involved. Based on 2008 data, recreational vessels are somewhat more likely to be involved in a collision and twice as likely to be involved in a capsizing incident, than commercial vessels.



Capsizing and person overboard incidents are significant incident categories, often resulting in serious or fatal injury.

Of the 140 capsizing and person overboard incidents reported in 2008, 6 resulted in fatality and another 4 required hospitalisation.

Inattention and operating error were identified as contributing factors in 25% of the capsizing and 10% of the person overboard incidents.

Commercial vessels are somewhat more likely to be involved in a grounding and far more likely to be involved in an onboard incident than recreational vessels.

Navigational error was identified as a contributing factor in 41% of grounding incidents.

Inattention (30%) was the leading contributing factor in onboard incidents.

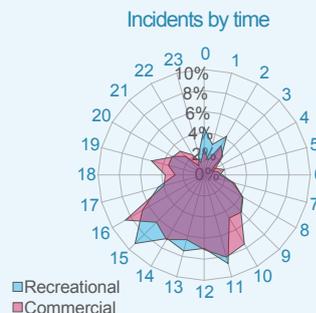
### Time of incident

Breaking down reported incidents in 2008 by time of incident reveals that 28% occurred between 6 am and 12 noon, 41% between midday and 6 pm, 17% between 6 pm and midnight, and 14% between midnight and 6 am.

There is evidence that patterns regarding the time of incidents tend to vary by the type of vessel involved.

When compared with recreational vessels, commercial vessels have a somewhat higher likelihood of involvement in an incident early in the morning (presumably departing port), and early evening (presumably returning to port).

Recreational vessels have a somewhat greater likelihood of involvement in an incident in the mid-afternoon (presumably returning home and possibly travelling into the setting sun) and in the very early morning hours. Fatigue and alcohol may be factors in the very early morning hours.



## Incidents by month

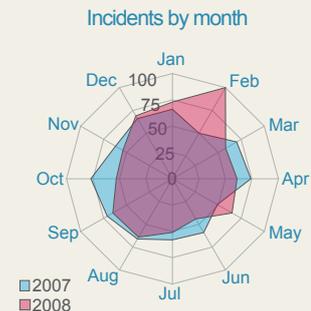
In accord with previous years, there was a good deal of monthly variation in the number of reported incidents in 2008, ranging from a low of 44 in June to a high of 100 in February.

The 100 incidents reported in February 2008 were the most incidents ever reported in any month in the marine incident database.

A low pressure system that moved through the Mackay region on 12 February, directly led to 30 of those incidents.

To put that in context, the 30 incidents from that day represent approximately a quarter of the marine incidents reported in the Mackay region for the entire year.

Fortunately there were no serious or fatal injuries, but the storm did leave a slew of seriously damaged vessels with many dragging anchor and breaking moorings.



It is worth noting that there were considerably fewer marine incidents in the fourth quarter of 2008 compared to the same period in 2007. One interpretation of the data is that as the economy started to contract, there was a corresponding slow-down in marine incidents, possibly because there were fewer vessels out on the water in response to economic downturn.

There were also some second quarter differences between 2007 and 2008 in the level of reported incidents. This may be the result of fuel prices affecting boating activity, especially as world oil prices peaked in July 2008.

## Fatal and serious injury incidents

In 2008, 37 reported incidents resulted in 9 fatalities and 32 serious injuries.

Put differently, there were 5 fatal or serious injury incidents for every 100 reported marine incidents in Queensland in 2008. This ratio has declined steadily over the past decade—down by 34% since 2001—partially in response to safety initiatives and greater safety awareness, but also due to improvements in incident reporting levels, irrespective of their seriousness.

### Fatal injury incidents

There were nine reported fatal incidents in 2008.

These principally involved three recreational motorboats and six commercial vessels. There was one fatal incident that involved a recreational and a commercial hire and drive vessel.

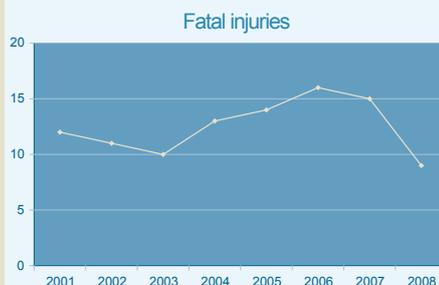
Five of these incidents took place on smooth or partially smooth waters, two took place on inland waters, and two in offshore waters.

Four of the fatal incidents involved a person overboard, two involved a capsizing, and one each involved a collision between ships, a fall within a ship and a person being struck by a vessel's propeller.

### Fatalities

There were nine recorded fatal injuries in 2008, the lowest annual fatality toll since 1998.

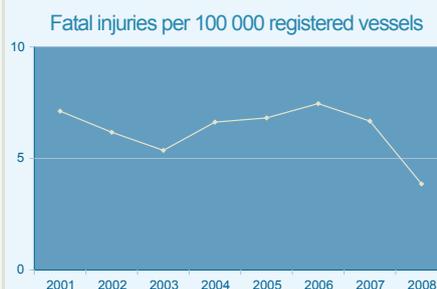
This number represents a significant reduction on both the 2007 toll of 15 (-40%) and the previous four-year average of 14.5 (-38%).



### Fatality rate

In 2008, Queensland recorded four fatal injuries for every 100 000 registered vessels.

Using 2001 as a baseline, the fatality rate has declined, with an improvement in 2008 of 42% and 43% respectively over 2007 and the prior four-year average.



### Serious injury

The number of marine incident-related serious injuries, defined here as those requiring hospital admission, has declined every year since 2005. In 2008, there were 32 serious injuries, a 25% drop when compared to the prior four-year average.

The majority of serious injury incidents reported in 2008 involved a collision (28%) or an onboard incident (24%).

Investigation of hospital admissions data for the period June 2000 to June 2008 (Source: Queensland Health), indicates that serious injuries as a result of marine incidents required hospital stays that averaged (median) two nights.

Approximately three-quarters of the injuries involved males (73%), while about two-thirds involved persons aged under 40 years (68%).

Seven per cent of the serious injuries involved children aged 14 or under, with boys in this age bracket almost twice as likely to be seriously injured than girls.

This data indicates that the most typical (serious but non-fatal) injuries that follow a marine incident include: fractures (47%), followed by open wounds (10%), dislocations (7%) and intra-cranial injury (6%).

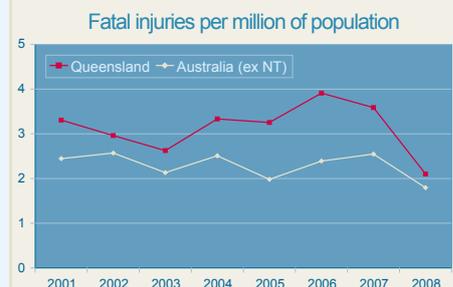
## Queensland v. Australia

### Fatal injuries

At the national level, there was also a significant drop in the number of marine incident fatalities in 2008. Australia—excluding Northern Territory as data is not available—recorded 38 fatalities (2008), approximately 24% fewer fatal injuries than in the previous year (Source: National Marine Safety Committee).



In 2008, Australia (excluding NT) recorded 1.8 fatalities per million population, a somewhat stronger performance than the Queensland rate of 2.1.



The fatality rate in Queensland, however, has declined more sharply than that for the remainder of the country.

Whereas Queensland has attained a 36% drop in fatality rate from 2001 to 2008, the remainder of the country (excluding NT) has experienced a 27% decrease in the corresponding period.

Note that the greater year-to-year variation in Queensland's fatality rate can be attributed to the smaller number of fatalities in the state than that for the rest of the country. A couple more or less fatalities in a year will dramatically alter the Queensland rate but have lesser impact nationally.

## Regional profiles

### Brisbane

In 2008, there was an increase of 3200 registered vessels (+3%), three-quarters of which were new recreational motor boat registrations.

Of the 224 reported incidents in 2008, about a third (34%) occurred in the Sunshine Coast area and just on (50%) involved a recreational vessel.

A little under a quarter of incidents occurred on the Brisbane River where traffic volume on the water appears to have played a contributing role: 71% of these incidents involved collision, typically a collision with another vessel.

### Cairns

Relative to other regions, there has been little registration growth in Cairns in the last year. The region does however account for 20% of the commercially registered vessels in the state, including 30% of commercial vessels that exceed 25 m in length.

Almost two-thirds of the Cairns region's 99 reported marine incidents in 2008 involved a commercial vessel, by far the highest rate of commercial involvement for any region and significantly higher than the overall state average (48%).

Just under a third (30%) of the reported incidents in the region involved commercial passenger vessels, primarily tourist day fleet vessels operating 365 days a year, in most conditions, while carrying a large number of passengers. As expected, there was a large share (39%) of Cairns' incidents that occurred in offshore waters. This compares with 21% for the state as a whole.

### Gladstone

Recreational motor boat numbers showed substantial growth in the Gladstone region in 2008, increasing by just over 1600 (+4%).

The region also had the highest level of recreational involvement in reported incidents in the state (66%).

Just on 40% of the region's reported incidents involved a recreational motor boat, including the region's two fatal incidents. One of the fatal recreational motor boat incidents involved a person overboard and the other a person struck by a vessel's propeller.

### Gold Coast

There has been a moderate increase in recreational motor boats and PWC on the Gold Coast in 2008, with an additional 760 motor boat (+3%) and 450 PWC registrations (+13%).

In 2008, there were 57 reported incidents that involved recreational motor boats and 17 reported incidents that involved recreational PWC. In short, two out of three incidents in the region involved a recreational motor boat or recreational PWC (see the *PWC incidents* feature).

While motor boats make up 85% of the recreational fleet, they were involved in just 40% of the reported marine incidents in 2008.

Just over a third of incidents occurred on the increasingly congested Gold Coast Broadwater, and of those, 57% involved collisions.

### Mackay

While growth rates for registered recreational vessels have slowed on rates experienced between 2001 and 2007, there were still solid gains in the Mackay region in 2008 (motor boats up by 4%, PWC up by 17%).

The February (2008) storm that hit the Mackay region grossly inflated the region's marine incident numbers (see the *Incidents by month* feature).

Mackay, and primarily Airlie Beach, has the largest commercial hire and drive vessel presence in Queensland. Many of these vessels were damaged during this storm. Three-quarters of the reported storm-related incidents occurred in the Airlie Beach area.

### Townsville

In 2008, the region experienced solid growth in recreational vessel registrations, particularly in the recreational motor boat category which grew by approximately 700 vessels (+4%). There was no significant growth in commercial vessel numbers.

While motor boats represent 95% of registered recreational vessels, they made up 28% of the vessels involved in reported incidents.

One third of the reported incidents in 2008 occurred in offshore waters. Two thirds of the ships involved in these incidents were commercial vessels.

## Regional statistics

While the Gladstone region had the largest percentage increase (+4.3%) in registered vessels in 2008, Brisbane had the biggest net gain in actual registered vessel numbers (+3200). Brisbane accounted for 38% of recreational registration growth in the state (2008).

Mackay was the only region to experience any significant change in registered commercial vessel numbers in 2008, with a 5% increase.

Of the 757 marine incidents reported in 2008, by region 30% occurred in Brisbane, 18% in Mackay, 16% in Gladstone, 15% on the Gold Coast, 13% in Cairns and 8% in Townsville.

For most regions, there was an improvement between 2007 and 2008, particularly Cairns which enjoyed a 15% decline in reported incidents. Other regions that realised a decrease in reported incidents included Gladstone (-9%), Brisbane (-3%) and Townsville (-2%). The exceptions were Mackay and the Gold Coast, which experienced 13% and 11% increases, respectively.

Marine incidents by region

	Marine incidents	Incident rate *	Serious injuries	Fatal injuries
BN	224	23	10	2
CN	99	47	3	2
GL	124	30	6	2
GC	114	36	8	1
MK	138	76	4	1
TV	58	27	1	1

\* Reported marine incidents per 10 000 registered vessels in the region.

While Brisbane clearly had the most reported incidents in 2008, it is the best performing region in terms of the incident rate (per 10 000 vessels) when exposure to risk on the water is accounted for.

This measure indicates that there were 23 reported incidents per 10 000 registered vessels in the Brisbane region and is distinctly lower than Queensland's rate of 32.5. Cairns (-19%), Gladstone (-13%), Brisbane (-6%) and Townsville (-5%) all improved in terms of the incident rate over the last year.

In 2008, Mackay, Townsville and Gold Coast regions each recorded a single fatality. Brisbane, Cairns and Gladstone regions each recorded two fatalities.

## PWC incidents—South-East Queensland

### Background

Personal water craft (PWC) are one of the fastest growing segments of the boating market in Queensland, with an average annual growth rate in recreational registrations of 15.5% since 2001.

Coupled with a rising number of users and increased passenger and towing capacity, PWC now have greater engine capacity and speed. A number of PWC on the market today feature 200 hp engines, top speeds that exceed 100 km per hour, and acceleration from 0 to 50 km per hour in about 3 seconds.

Against this backdrop, and not surprisingly, there has been a sharp increase in the number of reported incidents involving PWC in South-East Queensland (SEQ).

Between 2001 and 2008, there were 187 reported incidents that involved PWC on SEQ waters.

PWC incidents—South-East Queensland



### PWC registrations and licenses

As of December 2008, Department of Transport and Main Roads data indicates that there were at least 9727 registered PWC in SEQ.

In the past year there has been a sharp increase in registrations, with an additional 1072 recreational PWC registrations alone: that is, 13% growth from 2007 to 2008.

While other regions throughout the state (namely Cairns, Mackay and Gladstone) have shown stronger gains in PWC registration on a percentage basis, the Gold Coast and Brisbane regions are by far the largest growth areas in terms of raw numbers of PWC registrations.

As of December 2008, there were just over 59 800 PWC licence holders in Queensland, increasing by an average of 800 per month for the year.

About eight out of every ten PWC licence holders are male, and 60% of these are aged 40 and under.

### Incidents

In 2008, there were 36 reported incidents involving PWC in SEQ, representing 11% of all reported incidents in SEQ and 5% of all reported incidents in the state. Put differently, about one in nine reported marine incidents in SEQ involved at least one PWC.

Last year's growth in PWC registrations was accompanied by a significant increase in the number of incidents involving PWC.

Across SEQ, there was a 38% increase in the number of reported PWC incidents. On the Gold Coast, the number of reported PWC incidents more than doubled.

### Incident rates

In the last year in SEQ there were roughly 3.8 reported PWC incidents per 1000 registered PWC. That number is comparable to the overall marine incident rate (all types of vessels) for the state of 3.3 incidents per 1000 registered vessels.

While the rate for recreational PWC (2.9) is marginally under-represented, the involvement rate for commercial PWC (35.4) is clearly over-represented.

These rates should however be treated with caution given the small number of reported incidents and the even smaller number of commercially registered PWC. A couple more, or a couple less, incidents could quickly alter the overall rate of commercial PWC involvement in incidents.

### Fatal and serious injuries

In 2008 in SEQ, there was one reported fatal injury and three reported serious injuries resulting from marine incidents involving PWC.

This represents a 43% decrease over 2007 in the combined number of fatal and serious injuries.

Two of these injuries occurred in two incidents on the Gold Coast, and one on the Sunshine Coast.

One of these injuries resulted from a commercial hire and drive PWC incident.

## Types of incidents

Of the 36 reported incidents involving a PWC in SEQ in 2008, 18 (50%) involved a collision.

Just under 89% of these collision incidents involved a collision with another vessel.

A little over 60% involved a collision between two PWC.

While one can speculate that SEQ's crowded waterways might be a contributing factor in the high number of collisions involving PWC in 2008, the marine incident data indicates that the collision rate for PWC in SEQ (50%) was actually lower than that for the remainder of the state (60%).

It is also noted that the collision rate for PWC in SEQ is declining, down nine percentage points from 2007.

Of the six reported incidents involving commercial hire and drive PWC, three occurred while the hirer was participating in an organised hire PWC tour. The other three involved hire PWC being operated on a course restricted to a hire and drive PWC.

Of the two incidents involving non hire and drive commercial PWC, both involved Surf Life Saving Queensland personnel in a surf patrol setting.

### Prevailing conditions

Only 11% of the reported PWC incidents in SEQ (2008) took place in offshore waters.

It is worth noting, however, that the percentage of reported 'off-shore' incidents was quite a bit higher in 2007 (31%).

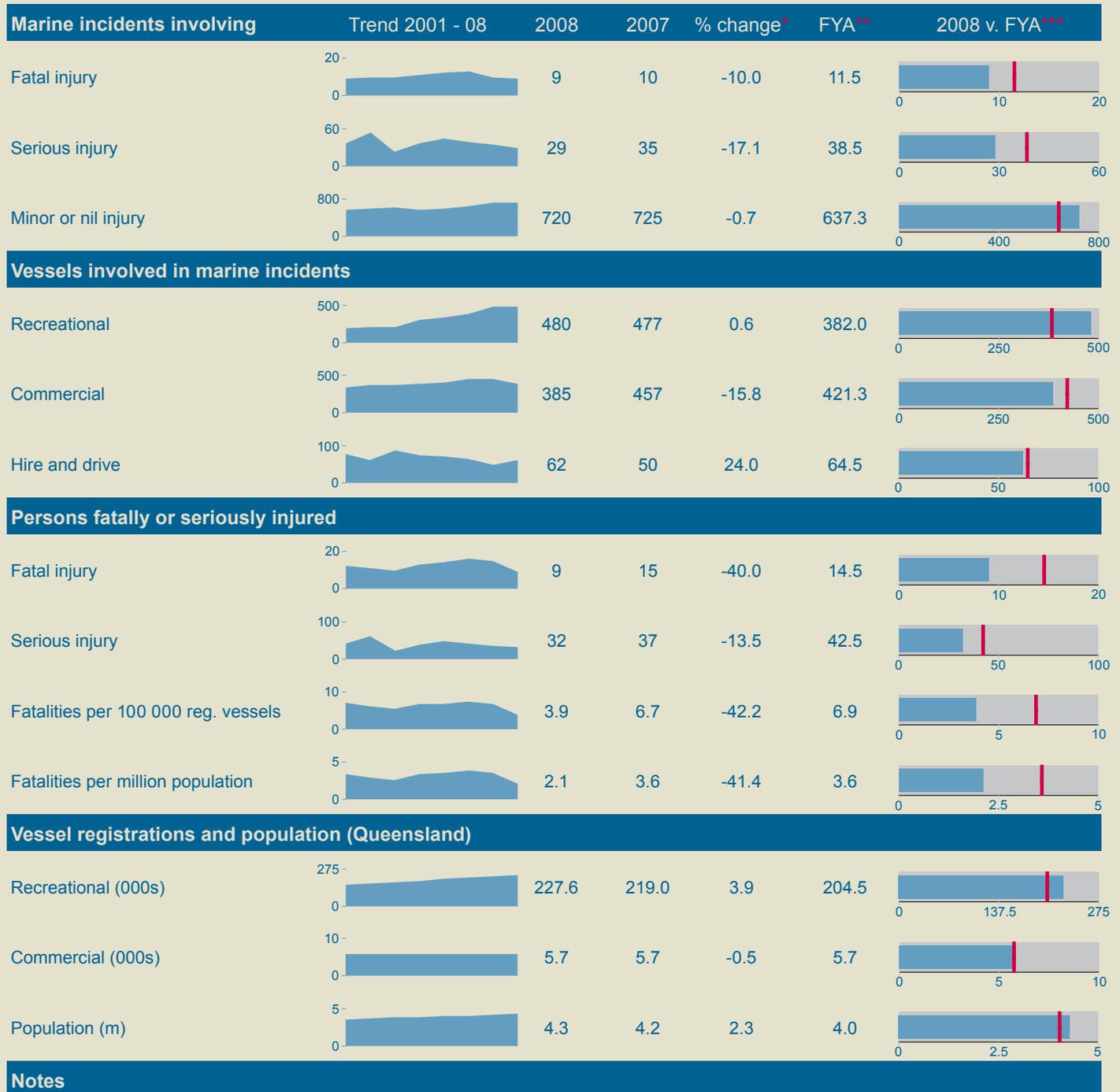
Human contributing factors were identified in roughly two-thirds (64%) of the 36 PWC incidents in 2008. Principal among these, was inattention, which was identified as a contributing factor in 10 (28%) of the reported PWC incidents in SEQ in 2008.

### Tow-in surfing

Between 2004 and 2008, there were no reported marine incidents in SEQ where PWC were involved in tow-in surfing activities.

Tow-in surfing using PWC is increasing in popularity particularly when the swell is significantly increased due to storm or cyclonic influences.

# Marine incidents barometer—2008



## Notes

\* % change represents the percentage difference between 2007 and 2008

\*\* FYA represents the prior four-year average

\*\*\* 2008 data versus the prior four-year average, 2004 to 2007. For example, there were 480 recreational vessels involved in marine incidents in 2008 compared to the prior FYA of 382.

