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In this issue we focus on fatigue, with a safety feature and a double-page spread featuring snippets and photos from past related stories we’ve covered in LOOKOUT! This shows just how common fatigue-related accidents are. We encourage skippers and crew to take a look at their own situation and see what measures can be put in place to stop them happening.

This issue’s cover story, “Despite doing everything right”, is about an accident on a recreational vessel where fatigue was a major factor. It shows how fatigue can build up and that having one good night’s sleep doesn’t mean you are well rested. Fortunately, in this case no one was injured, but the vessel was a write-off. Fatigue was also thought to be a factor in our first story, “Navigation lights confuse skipper”.

The in-depth safety features we’ve run on various topics for the past two years have had great feedback from individuals and organisations. If there are any maritime topics you’d like to see covered, please drop us a line at publications@maritimenz.govt.nz

Instead of the usual guest editorial, this issue takes a look at the Maritime New Zealand (MNZ) investigations team – the people who work behind the scenes investigating maritime incidents and accidents. Many of these events become LOOKOUT! stories and accident reports focusing on lessons that can be extracted to help others. Safety is at the forefront of each of the investigators’ minds and the lessons they’ve learnt on the job have flowed on into what they do when they’re out on the water themselves.

The investigations team was also instrumental in the launching of a new online accident reporting system at the start of this year. This system, developed with input from industry and stakeholders, makes it quicker and easier for people to report accidents. Feedback from people using the system has been very positive and we hope to bring more online services to you in the future.

One of the stories in this issue highlights the dangers of using rigid-hulled inflatable boats (RIBs), especially when bad weather and maintenance are an issue. We’ve also issued a safety bulletin looking at the dangers of using RIBs, which you can find on our website. If you’ve signed up to receive safety bulletins online, you’ll already know about it.

If you want to be added to the safety bulletin subscriber list, visit www.maritimenz.govt.nz or email publications@maritimenz.govt.nz.

Please pass this copy of LOOKOUT! on to friends or family and encourage them to sign up for print and electronic copies.

Catherine Taylor
Director of Maritime New Zealand
Meet the Maritime Investigations Team

Safety motivates every investigation carried out by MNZ’s investigations team. Its six investigators examine all reported accidents and incidents on New Zealand vessels and on foreign vessels in New Zealand’s waters. The team looks at accidents on all vessels, large and small, including rafts, canoes and jet boats. They undertake environmental investigations, target illegal operations, are responsible for maritime health and safety investigations, and assist with coroner’s inquiries. They are led by Investigations Manager Steve van der Splinter.

After 20 years running the business, Steve was drawn to MNZ. “From my years as a private investigator I had worked with MNZ before. I liked the people, and, as a specialist investigator, it doesn’t really matter what the subject is – it’s the ability to apply investigative expertise that matters.”

It is a philosophy that marks Steve’s tenure as manager of the investigations team. His focus has been to broaden its skill base and to manage a diverse team that reflects a diverse maritime sector. “We have expert mariners in our team, and we have people who are not boaties at all – but they are all skilled investigators. We have a useful mix of skills – expertise on big ships may not help you investigate a rafting accident, or vice versa.”

“Investigators don’t necessarily have to have expertise on the subject matter themselves, as we can use other people’s expertise as required. An investigator must know how to do the investigation using robust techniques that are evidentially correct and will stand up to the scrutiny of all interested parties over time. Several of the team have also completed Lloyds Diploma in Marine Investigation.”

Regardless of the wide range of reasons why a maritime investigator might show up at your door, Steve says the team’s professionalism will always be evident. “They are skilled and trained, and will carry out their roles with integrity for the benefit of maritime safety.”

“Safety is always the driver.”

Jo Sweetman-King
For the past 15 years, Jo Sweetman-King has managed the administrative requirements for the Maritime Investigations Team.

Her name will be familiar to many, as it is Jo who creates most of the team’s outgoing correspondence, often on behalf of the investigators. If you telephone the team during office hours, expect to speak to Jo, who will ensure your call gets to the right person. She also responds to emails and manages general queries. Within the team, Jo liaises between the Investigations Manager and investigators working on individual cases, as well as keeping a general oversight on procedural matters.

While she’s not a boatie, Jo says an early childhood event might prove she does have sea legs. “I remember preparing to take a ferry trip from Picton to Wellington. We were told at Picton that it was going to be really rough – and it was. By about halfway across, I looked around me and everybody else was throwing up and there was mess everywhere – but I felt absolutely fine. Who knows what I’d be like now though!”

Domonic Venz
Domonic Venz went to sea at 16. The young cadet deckhanded for several deep-sea fishing and coastal companies, before moving into whale watching at Kaikoura in the late 1980s as a commercial launch master.
He holds a Mate of a Deep Sea Fishing Vessel and a New Zealand Offshore Master ticket.

These days, though, the water Domonic sees is usually being checked by a remote operation vehicle (ROV) or “submarine on a cord”. Domonic returns to one of his former roles working in surveillance, patrol, ROVs and oil field support each summer to “keep an eye in and get reacquainted with that life”.

His day job is as a maritime investigator. Domonic joined MNZ in 1998, and his fields of expertise include fishing and high-speed vessel operations.

He is a former tutor and examiner for the New Zealand School of Marine Studies, and believes in working proactively to improve maritime safety.

“I’d rather put a fence at the top of the cliff and educate people not to go there than stand at the bottom of the cliff and say, ‘Hmm, you shouldn’t have done that’.”

**Ian Howden**

Maritime investigator Ian Howden grew up on boats. He is a former charter boat skipper and spent 13 years in offshore commercial fisheries. He served as mate on an Antarctic expedition vessel and made several voyages as mate on *Spirit of New Zealand*. He has kayaked in Chile and river rafted there and in New Zealand. He ran a dive training vessel charter operation on Great Barrier Reef and has skippered motor and sail yachts in the Mediterranean and West Indies.

Ian hung up his commercial sea legs when his three young children came along. “If you’re at sea all the time, you miss out on too much of the good stuff.” The children are following in Dad’s footsteps though and are frequently found on Auckland’s waterways doing a bit of fishing “out of our little tinny”.

Ian has been with MNZ for 11 years, initially as a maritime inspector, and later as a maritime investigator. If he could wave a magic wand, he says he’d get everybody wearing lifejackets. “It’s the same old story. People are wearing them more now, but there are still a percentage of accidents that happen on a beautiful day, in calm conditions when – why would you wear a life jacket?

“But 10 seconds later, the vessel’s hit a log or someone just falls in, the vessel carries on and we have a drowning.”

On his own boat, everybody wears a lifejacket, all the time. “That’s my rule. I didn’t always do that, but I’m much more safety-aware now and we do, every time.

“I think this job has made me very aware that even experienced people who are well prepared can get into trouble.”

**Paul Fantham**

Paul Fantham is a former detective with the New Zealand Police’s Criminal Investigation Branch, and has served as an acting sergeant and acting detective sergeant. He has been a recreational boatie all his life and joined MNZ as an investigator three years ago.

Paul’s been a rec boatie for as long as he can remember, buying his first boat at 16. He’s had a few boats since then and is a keen fisherman and spear-o (spearfisher). Through his work at MNZ he’s now more safety conscious when he’s out on the water and is keen to get people thinking more about lifejackets. “People think of them as a bit of kit you have to have rather than something that could save your life.”

“So many fatalities have one thing in common – my advice is wear a lifejacket, but make sure it’s the right one for the job.”

He was drawn to the role by the variety it offers. “I’ve had a lot of experience investigating criminal activity, accidents and fatalities in a wide range of environments, and although I’m now specialising in the maritime field, the work...
is still hugely varied – I could be working on anything from a rafting accident to a collision in the Antarctic.”

Paul says his skills and experience as a detective allow him to approach maritime investigations with an open mind. “My real expertise is in investigation. As an ex-detective, I apply investigative techniques and practices to unearth the evidence and learn the real cause of matter, rather than follow my own biases.”

Bruce McLaren

For Bruce McLaren, a fatality on a farm during silage making, an exploding underground fuel tank at a service station, and river boarding, jet boating and parasailing accidents all have one thing in common.

“The way you set about investigating what happened is basically the same. While the technical causes of accidents may be specific to the circumstances, the investigation process is quite similar. The underlying factors are often common, regardless of the industry.

“Systemic and management failures are frequently found to be the root cause of work-related accidents, and they are usually preventable. It doesn’t matter whether it’s an employee falling through a skylight in a warehouse roof or an unguarded hatch in a ship’s deck. The things that can be done to prevent the accidents are often the same.”

Bruce is an experienced investigator with a specialist background in health and safety, and hazardous substances. He joined MNZ in 2008 after 10 years with the Department of Labour and many years running his own construction businesses in New Zealand and the United Kingdom.

“I learned early on that a safe and healthy workplace will increase productivity and profitability.”

For him, MNZ offers the chance to make a positive contribution to reducing accidents and incidents. “A strength I bring to my investigations is the ability to identify and apply transferrable lessons that cut across all sectors.”

Ray McMillan

Ray McMillan’s working life started with the Navy, straight from school. He’d been sailing every summer while at school and says it was either the Navy or trying to get a sail-making apprenticeship.

“I was pretty keen on the free travel around the world, and the Navy seemed a pretty exciting option at 17.”

After 10 years, Ray moved on from the Navy to spend more time with his family. He studied law and psychology, and was admitted to the bar in 2005. He joined MNZ in 2007, initially as a rule writer, but soon transferred to the Maritime Investigations Team, which was looking to broaden its range of skills.

More recently, Ray’s investigations have focused on oil pollution and illegal operators. He says in both the commercial and recreational sectors, he sees cost too often prioritised over safety.

“You have to question some people’s decision making. They’ll focus on putting money into getting a good boat, but not apply that same focus to purchasing good life-saving apparatus. Well, when the boat’s gone, you’re going to want really good life-saving apparatus.”

“I see people getting the focus wrong. Safety has to be the most important thing.”

Andy McQueen

Andy McQueen could sail “before I could walk”. Now he’s teaching his own children. The family owns an International 470 Class small, two-person yacht, which is a token of Andy’s former life as a dedicated sailor. He has delivered yachts around the Pacific and spent the early part of his youth competing in ocean, harbour and coastal races “… and cruising the coast, sailing, fishing and diving”.

For his day job, Andy started out in civil engineering, but was soon drawn to the Police, where he established a 14-year career, culminating in six years in the Criminal Investigation Branch as a detective.

Leaving the Police in 2001, Andy travelled for a while before he joined New Zealand Customs as a Marine Officer in Tauranga, with responsibility for processing international cargo ships, as well as gathering intelligence about contraband coming through New Zealand ports.

After a couple of years, Andy moved to the Department of Labour’s health and safety division, focusing on serious harm investigations, typically involving fatalities.

He joined MNZ in early 2011, bringing with him a depth of knowledge of the investigative process and subsequent legal requirements, combined with safety on the water.

“Everything I’ve done so far has led to this,” Andy says.

And as for teaching the children to sail… “It wasn’t always this way, but now that I’m teaching the kids, everything is safety, safety, safety.”
A water taxi skipper smashed head first into the dashboard after he became confused about the position of navigation lights marking a channel at night. The vessel, making about 18 knots in moderate chop, slammed into a reef after the skipper mistook one navigation light for another. The impact caused a large hole in the bow and the vessel began to sink. Fortunately, there were no passengers on board.

The skipper suffered concussion, fractured his upper jaw, left cheek and eye socket, and broke several ribs. He managed to make a mayday call and release a flare, and was rescued by Coastguard and taken to hospital. The vessel was later towed to shore.

The skipper was navigating by visual means and the vessel was not fitted with radar or GPS. He had been working long days in the preceding period.

“The skipper suffered concussion, fractured his upper jaw, left cheek and eye socket, and broke several ribs.”

Above: The water taxi slammed into a reef, injuring the skipper after he became confused about navigation lights. (Photo taken the following day with vessel recovery crew.)

Inset: The impact forced a hole in the bow.

A notice to mariners noting the outage of one navigation light in the channel was being broadcast on VHF channel 21, but the skipper’s habit was to switch off the radio after the weather forecast, so he did not hear the warning.

It is not clear to what extent the navigation light outage contributed to the accident. In navigating by channel lights alone, the skipper lost situational awareness, which is an essential part of keeping a good lookout.

The skipper had been working since 5am that day, and although he had taken a short nap after his evening meal, he felt that fatigue played a part in this accident.

Since this accident, the skipper has installed radar and a GPS tracker to the vessel, initiated a fatigue management plan that limits all crew to working no more than six consecutive hours, and has instigated night standing orders and a night navigation plan.
A skipper with more than 26,000 nautical miles of offshore experience fell asleep at the helm, despite taking precautions to prevent fatigue.*

The skipper slept on in the wheelhouse, while his luxury launch motored along on autopilot with its watchkeeping alarms sounding. The launch struck rocks, ripping a hole in the hull. The wreckage was unsalvageable.

The vessel had sailed to New Zealand from Fiji. Throughout the journey, the watch had been shared by four crew on a 2-hourly roster. Reaching New Zealand waters, the vessel had cleared Customs and the skipper and crew were joined for dinner by a fresh crewmember before returning to the marina for a full night’s rest.

The next morning, the skipper, one of the existing crew and the new crewmember prepared the vessel for the day’s voyage to its next port. The vessel motored throughout the day, making about 15 knots in excellent weather conditions. That evening, the crew stopped to dive for scallops, then continued towards the port. “It was a warm, calm evening, with about 8 knots of wind,” the skipper said.

After dinner, the skipper went below, had a shower and got changed, then took over the watch. The existing crewmember went to get cleaned up, lay down on his bunk and went straight off to sleep.

The skipper and the new crewmember were sitting together in the wheelhouse.
The vessel was within an hour of port after the long journey, conditions were calm, the men were clean and comfortable, and they soon drifted off to sleep.

“Fatigue must have caught up with us,” the skipper said.

Later reports showed that the vessel had tracked across the path of a container vessel before hitting rocks.

“All the watchkeeping alarms were set, and they were working too. I was woken up by being thrown into the corridor and was knocked out. When I came to, I could hear the alarms blaring.”

The skipper then headed downstairs and met the other crewmember, who said the vessel was taking on water. The skipper made a mayday call and drove the boat towards the beach, where it grounded in 2 metres of water. The three were rescued by a nearby pilot boat.

The vessel could not be winched free of the water and was eventually broken up and removed by diggers.

Left: The skipper made a mayday call and then drove the launch towards the beach, where it grounded in 2 metres of water. Right: The grounded launch attracted a lot of interest from locals.

The skipper and his crew had tried to avoid fatigue. They slept well the night before, consumed no alcohol, set all watchkeeping alarms and were operating the vessel in good conditions.

“We did it all right, but the fatigue still caught up with us. The trouble is, you don’t think you are fatigued. The log is filled in every half an hour all the way from Suva, except for that last entry that’s missing,” the skipper said.

“All I can say, is if you think there’s any chance you’re tired, take 2 nights’ sleep. What’s another day? Nobody wants to go through what we went through. We were just lucky no one was hurt.”

*Special thanks go to the skipper of this vessel for his willingness to share his experiences.

Photos (and cover) Bay of Plenty Times
SAFETY FEATURE

FATIGUE KILLS

We all need enough sleep to function properly. When we don’t get enough sleep, we may make mistakes that have serious or even fatal consequences.

WHAT IS FATIGUE?

Fatigue is a lack of sleep or poor-quality sleep.

It happens when people
- don’t get enough sleep
- work when their body is programmed to sleep
- are unable to sleep when they have the chance
- have poor-quality sleep.

Most people need 7–8 hours of sleep a night to be fully rested. Most, but not all, can function on 6 hours of unbroken sleep, until their need for more sleep increases to dangerous levels.

When you do not get the extra sleep to make up for lost sleep, fatigue builds up.

The answer to overcoming fatigue that builds up over a few nights (cumulative fatigue) is easy—sleep. There is no other answer.

Less than 5 hours sleep in a night is dangerous. When this comes on top of insufficient sleep, it can be very dangerous.

Poor-quality sleep is when your sleep is broken up (by shiftwork or watchkeeping) or disturbed (by light, noise, motion, alcohol or drugs, or being too hot or cold).

Other factors, such as dehydration, cold, heat or hard physical work, can make fatigue caused by lack of sleep worse.

CAUSES OF FATIGUE

Environment
The maritime work environment is stressful for seafarers and can make fatigue worse. Common stressors are:
- cold
- vibration
- heat
- noise
- a ship’s motion
- diet – what is eaten and when
- caffeine, alcohol and drugs.

Job design
Common features that lead to fatigue are:
- a long work day – made worse by working extra hours
- physical work – especially long spells of hard work
- boring or repetitive work, such as watchkeeping at night
- too few or no breaks
- a pay system that encourages long hours
- not allowing enough time for sleep
- unpredictable work schedules
- sleep opportunities during times of natural high alertness
- mentally demanding tasks, such as controlling a fishing vessel when looking for and catching fish.

UNDERSTAND YOUR NEED TO SLEEP

The need to sleep is built in to our bodies in two ways:

1. Your body clock
Your body clock programmes you to be asleep at night. Most people want to go to sleep at about 10pm or 11pm. The time of day with the strongest need for sleep is between 3am and 5am. There is also a natural tendency to be less alert in the middle of the afternoon. It is easy to make mistakes and fall asleep at these times.

At other times, you are programmed to be alert. You’re most alert between mid-morning and early-afternoon and from about 6pm to 9pm. Sleep is difficult at these times because your body clock makes you feel more alert and capable. If you are fatigued, you may think you are okay, but your performance will not be up to scratch.

2. The need for recovery
After being awake for about 16 hours, your body and brain are ready for sleep. You need sleep to recover from all the things you do when you are awake. While you can push it past this point, fatigue will build up quickly.

SEAFARERS’ ACTION POINT
Get sleep when you can. It is your responsibility to be as fresh and rested on the job as you can be.

MANAGEMENT ACTION POINT
Ask your SSM company or MNZ for a copy of MNZ’s fatigue resources. If you want help applying them to your operation, ask your local MSI or phone 0508 22 55 22.

HINT: If a skipper or employee is keen, make that person your company’s fatigue champion.

FATIGUE CAUSES ACCIDENTS

Accidents where fatigue is a factor can happen at any time, but there are times of the day and night and stages of a trip when they are more likely to happen.

Fatigue affects your ability to concentrate, increases your danger level when around or using machinery, and affects your ability to operate a vessel. As well as directly affecting you and your safety, your fatigue can also impact on the safety of others on board your vessel or out on the water, just as their level of fatigue can impact on you.

It’s in everyone’s interest to have a safe and well-rested crew.
**MANAGE YOUR SLEEP**

**Take a nap**

Napping can help when you are short of sleep. Understanding how naps work will help you get the most out of them. About every 90 minutes during sleep, you cycle through lighter sleep, deeper sleep and dreaming. Waking from deep sleep leaves you groggy (sleep inertia). To minimise this effect, allow yourself either 30–40 minutes, or about 2 hours, or about 3.5 hours for a nap. A cellphone or alarm clock can be used to manage the time. The best napping times are mid-afternoon and after 9pm.

**MANAGEMENT ACTION POINT**

Your expectations determine what seafarers can do. Let your seafarers know when napping is and is not okay.

**SEAFARERS’ ACTION POINT**

Plan your naps and take them.

- **Create a good sleep environment**

Where you sleep at work or home affects the quality of your sleep. To ensure the best-quality sleep, try:

- blocking out light or wearing an eye mask
- blocking out noise, wearing ear plugs or using white noise (a radio tuned off-station or a fan)
- asking for something better if your bed is uncomfortable
- keeping your sleep area cool
- turning off alarms and phones and letting people know not to disturb you.

**ACTION POINT FOR ALL**

Get the crew together and brainstorm how to create a better sleeping environment on the boat.

- **Establish a sleep routine**

Stick to a new routine, to give it a chance of working.

Try the following for at least 4 weeks:

- establish a pre-sleep routine – have set activities leading up to sleep time, so you learn to wind down
- go to bed at the same time each day
- make your bed a place for sleep – watch TV, play video games and check emails elsewhere
- avoid large meals before going to bed
- avoid alcohol – it will disturb your sleep, especially in the second part of the night

- avoid caffeine 4 hours before bed
- avoid heavy exercise before bed.

- **Manage your shiftwork**

People vary in how they respond to shiftwork. Some go to sleep easily after a shift, others don’t. Our body clocks are cued to daylight and daily activities, so most people struggle to adjust to shiftwork and will generally sleep 2–3 hours less a night.

The following may help:

- nap during night shift if possible (discuss with your employer)
- during a night shift, light food is better than heavy food
- in the middle of the night avoid dangerous and complex tasks where possible
- social interaction and light exercise help you stay alert if your environment is not stimulating
- after finishing night work, try to sleep as soon as possible
- if you are driving in early morning sunlight, wear dark glasses.

- **Plan your time for sleeping at home**

Balancing family, friends, commuting and working with your need to sleep can be difficult.

**SEAFARERS’ ACTION POINT**

Hold a family conference to work out how to ensure you get enough sleep so you are fit for work.

**MANAGE YOUR FATIGUE**

- **Know your legal obligations**

Under the Health and Safety in Employment Act 1992, fatigue is identified as a hazard that must be managed. Crew, including people who are self-employed, must take all practical steps to ensure that nothing they do at work harms themselves or any other person.

Employers and skippers must take all practical steps to make sure their boat is a safe workplace. Employers must provide employees with information about hazards and their avoidance.

Employees should discuss fatigue with their employer whenever they have specific concerns about themselves or others.

Everyone experiences fatigue differently. Don’t rely on just your own experience – get everyone’s input.

**MANAGEMENT ACTION POINT**

Develop a fatigue management plan. Work through this with the skipper and crew before they go to sea. This is a practical step you can take to meet your health and safety obligations.

- Fatigue signs and symptoms

**Mood**

- irritable
- uncommunicative
- easily frustrated
- doesn’t care

**Alertness/sleepiness**

- looks tired
- yawns a lot
- has micro sleeps
- behaves ‘automatically’
- rubs eyes

**Focus**

- preoccupied with parts of a problem
- loses the big picture
- misses warning signs
- unable to stay on task
- has a fixed gaze
- reports blurred vision
- fails to interpret situations

**Task performance**

- takes unusual risks
- cuts corners

- shows poor judgment of distance, time or speed
- is clumsy
- does things in the wrong order
- doesn’t complete tasks
- forgets recent information
- moves slowly
- reverts to old habits
- responds slowly to situations
- doesn’t think logically
- makes calculation mistakes

MNZ has a number of fatigue publications, including a wheelhouse checklist and booklets for vessel owners, fishing boats, work boats, harbour ferries and charter boats, as well as a fatigue advisor resource. To order any of these, email publications@maritimenz.govt.nz or visit www.maritimenz.govt.nz/fatigue or phone 0508 22 55 22.
Reduce your risk – get your sleep

Some of the fatigue-related stories we’ve covered in LOOKOUT! over the years...

Keep alert on the home stretch  ▶ ISSUE 19, PAGE 19
An inshore launch master grounded on a charted rock while operating the vessel’s radar. The skipper had been at sea for more than 10 hours and approached the coast in the dark. He knew the area and rock hazards well, but lost situational awareness while concentrating on the radar on the home stretch, and hit a rock at about 7 knots.

No anchor watch results in deaths  ▶ ISSUE 17, PAGE 6
The crew of a long-line fishing vessel abandoned ship in violent seas after grounding on rocks. They had turned in soon after midnight and no anchor watch was kept. They were woken by heavy waves battering the vessel. The vessel had dragged its anchor and was almost aground. The skipper gave the call to abandon ship when the vessel hit the rocks. The skipper and one crewmember drowned and two crewmembers spent hours in the water.

Plan to beat fatigue  ▶ ISSUE 18, PAGE 9
Two trawlers from the same fishing company grounded within a fortnight of each other. The first grounded on a beach after trawling for 5 hours while everyone on board slept. The vessel’s watchkeeper had finished his shift and was unable to wake his replacement. He’d intended to wake the skipper in a few minutes, but fell asleep.

The second vessel grounded on an island while returning from 5 days at sea. The skipper, who had just taken over the watch, turned off the watchkeeping alarm to use the toilet and soon fell asleep.

Total loss after watchkeeper sleeps  ▶ ISSUE 14, PAGE 7
A long-line fishing vessel drove itself onto the beach and was smashed to pieces after its watchkeeper headed below to sleep. The crew had fished through the previous night and most of the day when they had to head back to port to repair a winch. The first watchkeeper woke the second watchkeeper up, but the second watchkeeper did not get up and the vessel grounded on the beach about an hour later.

Drifting while crew slept  ▶ ISSUE 16, PAGE 12
The skipper and single crewmember had been fishing off the coast, allowing the vessel to drift at night while the crew slept. On the fourth night the skipper and crewmember went to bed, leaving the vessel to drift while displaying the “not under command” lights. They left the vessel’s radar on standby and did not set the alarms on the echo sounder or GPS. They awoke to the sound of waves breaking on the beach and were stuck on the sand for several days until the vessel could be towed free.

Asleep and preoccupied  ▶ ISSUE 11, PAGE 14
Two wooden offshore fishing vessels collided while one skipper slept and the other was preoccupied with a repair. Both vessels had been at sea for a few days and ended the day in the same area. The first skipper took over the watch in the late evening and slowed the main engine to idle, noting vessel lights ahead. He drifted to sleep listening to the marine forecast and was awoken by the impact of a collision. The other skipper had also taken over the watch, but after noting the speed and position of other vessels had become preoccupied with a repair. Both vessels sustained only minor damage.
Sleeping on the job
ISSUE 6, PAGE 5
A fishing vessel’s designated watchkeeper had been asleep in a chair for at least 2 hours when the vessel grounded on rocks. After having a large meal and two beers, the watchkeeper sat in a comfortable chair with his feet up on the console, where he could cancel the watchkeeping alarm with his toes. If the low-level alarm was not deactivated, an alarm loud enough to wake the whole crew would sound. The watchkeeper must have cancelled the alarm several times with his toes while snoozing on the chair. The vessel was pulled free at first light by another vessel.

Sleep vital ingredient
ISSUE 3, PAGE 19
A fishing vessel ran aground and was smashed to pieces by the sea after its skipper fell asleep about 1 nautical mile from where he intended to anchor. The skipper had been working long days and usually worked alone, so was unable to share watchkeeping duties. However, on this day he had an experienced fisherman on board. After a day out they planned to anchor in the harbour entrance and await the morning tide. The fisherman fell asleep on the wheelhouse day bunk on the way to the anchor point. The skipper fell asleep just short of the anchorage point and both woke up when the vessel ran aground. They abandoned the vessel and it was destroyed by waves.

Beware of fatigue
ISSUE 5, PAGE 16
The skipper of a coastal trawler had been awake for 51 hours before having a 90-minute nap. The vessel was heading back to port and the crew were busy processing the catch, with the skipper returning to the wheelhouse from time to time to check the vessel’s progress. The skipper was using GPS as his sole navigation aid, and there was no radar operating or alarms on the autopilot. Soon after his short break, the trawler grounded. The vessel was towed to port by rescue vessels.

Fatigue, the creeping danger
ISSUE 2, PAGE 20
An 11 metre fibreglass cray-fishing vessel broke up after grounding on rocks while its skipper and two crew slept. The skipper had taken over the watch from one of the crew, but was not fully rested. He set a course following the coastline and then sat on a bench seat in the wheelhouse to keep watch. He was awoken by the sound of the vessel grounding on an island’s rocks. He and the crew made their way to the island in the vessel’s liferaft and were picked up by a rescue boat later.

Crew lucky to be alive
ISSUE 1, PAGE 19
A skipper of a fishing vessel woke shortly after 1am when his vessel collided with a laden oil tanker. The skipper had not had enough sleep in the previous days out fishing and had come on watch a few hours earlier. The last thing the skipper remembered was altering course towards port an hour earlier. The pilot of the oil tanker had been keeping an eye on the vessel’s progress and reduced speed, expecting the fishing vessel to turn away on reaching the fairway. When the vessel did not turn, the pilot sounded a warning blast. After no response, five short blasts were sounded and a searchlight shone on the fishing vessel. The skipper woke only when the vessels collided. No one was injured and the vessels were undamaged. The skipper then grounded twice on entering the port, after losing his bearings.

Get your sleep
Reduce your risk

Some of the fatigue-related stories we’ve covered in LOOKOUT! over the years...
Two men drowned while driving to shelter from heavy seas in a rigid-hulled inflatable boat (RIB). The vessel was being used as a water taxi, delivering crew between a dredging operation and a nearby harbour port. Several vessels were involved in the operation, which was laying a pipe in a trench. The RIB travelled regularly between the vessels, the dredging operation and the port.

On the day of the accident, the weather had been steadily worsening. By late afternoon, the wind was blowing 35 knots with 2 metre maximum wave heights. Because of the conditions, it was decided to bring the fleet into port for shelter. The RIB was lashed to the stern of a dredging vessel at sea, and there was concern that it would be damaged by the rough sea conditions while under tow.

It was too rough to hoist the RIB onto the dredge, so two of the crew decided to take it back to port. Once the RIB had left, the dredge was readied for towing and got underway.

About 15 minutes after the RIB left, the skipper of the dredge received a phone call from one of the crew on board the RIB. The phone signal was poor and was cutting in and out. The skipper of the dredge could make out only wind noises before the signal was completely lost. He tried to call back, and to call the other crewmember on the RIB, but found the crewmember's cellphone had been left behind on the dredge.

About 30 minutes later, the skipper called those on shore to say the RIB was on its way and to organise transport for its crew. Ten minutes later, a staff member arrived at the port to collect the crew of the RIB, but could not find them or the boat.

Over the next 45 minutes, there were searches of all the local wharves, and a quick voyage into the outer harbour to try to spot the RIB, but to no avail. The Coastguard was alerted and it launched a full-scale search by sea and air.

The body of one of the RIB crew was found after 7 hours, about 2.4 nautical miles from land. The other crewmember was found 15 days later in a nearby estuary. Both men were wearing lifejackets, and did not appear to have suffered any significant injuries.

“The skipper of the dredge could make out only wind noises before the signal was completely lost.”
A 12-year-old boy was cut to the bone after he fell from an inflatable biscuit and was run over by the towing vessel, even though it was not under power.

The skipper and three others had spent the day biscuiting and wake boarding in a borrowed runabout. In the afternoon, they switched to fishing and then, after having no luck, decided to make another attempt at an earlier location. The skipper offered to gently tow the boy to the next fishing spot behind the vessel on the biscuit. The boy stripped out of his fishing gear into shorts and a T-shirt and hopped onto the biscuit. Just after they had set off, the skipper realised that in stripping down, the boy had not put his lifejacket back on. He called out to the boy to stay put while he turned the vessel around and dropped the lifejacket off to him.

“As we approached, I cut the motor to idle and planned to come down beside him to grab him and help him put the lifejacket on,” the skipper says. “With the motor back to idle, I had lost all steering and he drifted across the front of the bow instead of bouncing down the starboard side as expected.”

The skipper looked over to the port side but lost sight of the boy. He had somehow tipped into the water unseen. Seconds later, those on board heard banging noises, and then saw the boy pop up a few metres to the stern.

“I called out to him, repeatedly asking if he had hit the propeller. He only said he didn’t know and started swimming back to the boat.”

Seeing the wounds on the boy’s head, back and shoulders, the skipper hauled him into the vessel and started giving first aid. Although he was cut deeply, the boy’s wounds did not bleed extensively and he was taken back to shore and airlifted to hospital. He is expected to make a full recovery.

The boy’s T-shirt was later found wrapped around the propeller.

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An elderly woman fought against centrifugal force to reach the helm of a power boat that was out of control, turning in tight circles.*

The woman crawled along the deck to shut down the 4 metre Stabicraft vessel, which had suddenly accelerated, tossing her husband into the sea. She was not a boatie, but managed to stop the vessel. Looking around, she briefly saw her husband in the water, but had not been taught how to control the vessel and so was unable to motor across to help him.

The woman quickly raised the alarm via VHF radio, and an air and sea search was launched. A Coastguard vessel soon reached her, but was unable to find her husband. After about an hour, his body was spotted by a search helicopter, submerged about 1 metre beneath the water.

“Suddenly in charge”

Neither the woman nor her husband was wearing a lifejacket, although there were three available on board. While it is not known whether the woman’s husband was injured when he fell into the sea, a lifejacket would have helped him to float and keep his face and mouth above water.

Lifejackets should be worn in all situations where there is increased risk, including when a boat is not operating as it should. MNZ recommends lifejackets should be worn at all times, unless a careful assessment shows there is little risk in taking them off.

Boaties who find themselves in the water are extremely vulnerable to an uncontrolled vessel, which will often turn in tight circles when running with an open throttle. The vessel was fitted with a cut-off key attached to a lanyard, but this was at the helm. As the skipper was not at the helm when the accident happened, it was not attached to his body and the motor did not cut out when he fell overboard.

The woman was not an experienced boatie and joined her husband at sea only infrequently. She had not been trained in basic operation of the vessel, and so was unable to operate the boat. However, she was able to make a mayday call to get help.

Skippers should ensure that all crew on board are briefed on the basic operation of the vessel, in case they are suddenly on their own. Coastguard also run a short course, “Suddenly in charge”, designed to give female partners of boaties confidence to operate the vessel in an emergency. Visit www.coastguard.co.nz for more information.

*Many thanks to the family for their willingness to share this story.
A 60 foot motor launch collided with a moored yacht at night, while the skipper was preparing to negotiate a channel.

The impact punched a hole in the launch’s starboard bow on the waterline, just aft of a collision bulkhead. The launch immediately began taking on water and its skipper attempted to reduce the water ingress by reversing, but soon lost power to both engines.

The Coastguard attended the scene and prepared to tow the vessel to safety, but was forced to cut it free as it continued to take on water.

The moored yacht was severely damaged and its rudder pushed sideways. Fortunately, no one was on board the yacht at the time.

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Channel navigation requires full concentration, even from a skipper as experienced as this one. Although he had posted a crewmember to keep lookout on the starboard side of the vessel, the moored yacht was not seen before the impact.

The launch was making about 8 knots, although maritime rules required that it should not exceed 5 knots. At 8 knots, the bow of this type of vessel pitches up, limiting the view from the helm position. There was also a dinghy lashed to the foredeck, which may have further limited the skipper’s view.

Skippers should ensure they have an unobstructed view from the helm position, and should actively keep a lookout for potential hazards, particularly when manoeuvring close to shore. Travelling at the slowest possible manoeuvring speed allows more time to react and reduces damage if an error is made.

The skipper was regularly monitoring the vessel’s GPS and radar. The radar was set to a range of 1.5 nautical miles. A more appropriate range would have been 0.5 nautical miles, to give the skipper a better indication of obstacles and hazards.

GPS-derived data should only be used as an aid to navigation, particularly when operating close to a coastline. A number of accidents have occurred when GPS readouts have provided inaccurate information, resulting in groundings.
A man drowned after being tipped into the sea from an aluminium runabout while on a fishing trip.

The man and his companion set to sea in calm conditions, but a swell soon picked up, which was proving difficult for the 4.5 metre vessel. The boat was at anchor when the men noticed it was taking on water at the stern.

One of the men stood up and moved to the stern to investigate. As he did so, the bow lifted and the vessel capsized, spilling both men into the sea.

Neither man was wearing a lifejacket, but, aware that there were some on board, one of the men swam under the vessel to try to retrieve them. The vessel began to sink, and both men started swimming away to avoid getting tangled in the anchor rope.

After swimming a short distance, one of the men turned around but could no longer see the vessel or the other man. Deciding to swim, he spent the following hour struggling to shore and, once on land, raised the alarm. The other man was found about 20 minutes later, but could not be revived.

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LOOKOUT POINTS

- It is a legal requirement that lifejackets are worn in all situations of heightened risk. Changes in weather conditions and unexplained water in a vessel are situations of heightened risk.

- The men were also aware that the vessel’s bilge pump was not working, which further increased their risk. Repairing and maintaining the bilge pump should have been a priority. Buckets or bailers should always be close at hand.

- Although the weather was calm when the pair set out on the trip, conditions soon worsened. It is essential to check the weather forecast before setting out.

- Water on board can severely affect a vessel’s stability. In shifting his weight to the rear of the vessel, the man caused the water to move to the stern under free surface effect, which exacerbated the bow-up movement and eventual capsize.

- It is not known whether the vessel was fitted with a VHF radio. On small vessels, communications equipment that is waterproof should be carried on your person or in a floating grab bag. A fixed VHF radio is useless in a capsise.

- The chance of survival would have been greatly improved by having a waterproof handheld VHF radio, a distress beacon (EPIRB or PLB), flares or, at the very least, a cellphone protected in a plastic bag.

- In most immersion situations, the best advice is to find a way to float. Air trapped in clothing can provide some help, but it is difficult to float without a lifejacket.

- With no lifejackets, means of communication, or an upturned vessel to climb onto, the options for these men were very limited.

For safety tips and info go to www.maritimenz.govt.nz or 0508 22 55 22

Look after your family, look after your mates, and look after yourself – wear a lifejacket
Fire sparks runaway engine

A tug’s runaway port diesel engine burned through about 60 litres of its own pressurised lubricating oil after an exhaust turbine shaft and seal failed.

Pressurised lube oil was released into the hot exhaust system. The oil ignited, was forced into the cylinder heads and caused the engine to race at very high revolutions.

The crew on board the 20 metre tug saw thick black smoke coming from the engine room and flames from the port exhaust stack. Realising there was a fire, they closed off the stack air vents and shut off diesel to the port engine, but it was by now racing uncontrollably on lube oil.

Smoke, heat and fumes blocked the crew from entering the engine room to set off the CO2 cylinders. In some situations, runaway engines can be shut down, but without specially designed safety controls this can be very risky to attempt.

Realising the fire could not be controlled, the skipper made a mayday call and gave the order to abandon ship.

The crew were rescued by Coastguard within 20 minutes, and crew from a nearby Navy vessel were able to enter the engine room in breathing apparatus to confirm the fire was under control.

Later the same day, the crew were allowed back on board and the vessel was able to return to port on its starboard engine.

Lookout! Points

- This skipper did the right thing in ordering the crew to abandon ship, and the crew were well trained in emergency and fire drills.
- Diesel engine runaway is rare, but any diesel engine is at risk. The engine races out of control, consuming its own lubricating oil and running at ever-higher revolutions per minute (rpm) until it overspeeds to a point where it destroys itself, either due to mechanical failure or seizure. An 1,800 rpm engine can reach revolutions of 4,000–5,000 rpm.
- Common causes are turbo seal leaks, piston ring leaks, overfilled crankcase oil and leaking intake valve guides. The more unregulated fuel entering the combustion chamber, the greater the risk of a runaway engine.
- A diesel engine will burn a wide variety of fuel, especially when at operating temperature. It may not be able to be stopped until it has either exhausted its fuel source and seized, or torn itself apart. Anyone entering the engine room is in serious danger from engine parts such as alternators and belts being flung out of the plant at high speed. This engine chewed through about 60 litres of oil before it stopped.
- Runaway engines are very difficult to shut off. It may be possible in some circumstances to seal the air intake, perhaps with clothing or by an external mechanism, if fitted. The engine could be also be starved by discharging a CO2 fire extinguisher into the air intake, although this should not be attempted in the confined space of an engine room without breathing apparatus. If this cannot be done, the crew should abandon ship.
- The best defences against a runaway engine are regular maintenance and servicing of turbo chargers and piston rings, a clean intake system and air filter, regular oil changes, keeping a log of oil consumption, and watching for excess smoke in the exhaust.
Maritime fatalities 2011

From 1 January to 31 March 2011 there were 8 fatalities – 2 in the commercial sector and 6 in the recreational sector.

This compares with 0 commercial and 5 recreational fatalities for the same period in 2010.