

How to develop a fatigue management plan

A guide for small fishing vessel owners and operators.



Developing a fatigue management plan

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A well-designed and implemented fatigue management plan reduces accidents and makes people healthier and more productive. This guide is designed to help you to develop and follow an effective plan.

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1. Introduction

1.1 The importance of managing fatigue

Fatigue is a common cause of accidents on fishing vessels. It's a particular problem for small fishing vessels because work demands and small crews make it hard to plan and take rest breaks. That's why fatigue management is such an important part of your safety management system.

1.2 HSWA and fatigue

Under the Health and Safety Act 2015 (HSWA), risks must be managed by both owners and employees. One key risk is fatigue.

As an operator or skipper, you're required to make sure the vessel is safe (so far as is reasonably practicable), which includes minimising the risk of fatigue. Operators are also required to involve employees in managing fatigue.

Crew (both those on wages and those who are self-employed) are responsible for taking sensible safety precautions – like letting you know if they're having sleep problems and ensuring that they get enough sleep during rest periods.

1.3 How much rest is recommended?

A number of things can lead to fatigue, including long or irregular work hours, sleep disruption, extreme environmental conditions, physical and mental work demands, and stress. And without a doubt, the best remedy is sleep.

So how much rest is needed?

The standards set by the International Labour Organisation Convention 180 are:

either a **maximum working limit of 14 hours in any 24-hour period and 72 hours in any seven-day period**,
or a **minimum of 10 hours' rest in any 24-hour period and 77 hours' rest in any seven-day period**.

While these rules apply to international vessels, they give you a good indication of what are thought to be safe levels of rest.

2. Example of a fatigue management plan

About the company

Dave's Seafoods is operated by Dave and his wife Shirley. They own and operate a 14m fishing vessel that trawls in the summer and dredges for oysters in the winter.

They hired a young crewman called Tom. Dave and Tom go to sea, while Shirley does the books on land. Fuel prices are high and they must work long hours to provide a small return on their business.

Dave and Shirley were aware that fatigue must be managed in their operation to prevent incidents and to meet their obligations under HSWA.

How they went about developing their fatigue management plan

Dave, Shirley and Tom read the material on Maritime NZ's website to learn more about fatigue and health and safety. Later they met at Dave and Shirley's house to figure out what would work for them. Shirley wrote the first draft.

Their plan

Dave and Shirley's expectations

Dave and Tom shouldn't work so long as to create dangerous fatigue situations and, consequently, be at risk of poor decisions that cause injury to equipment, people or the environment.

Significant risks

Significant risks are listed in the table below, along with a plan to eliminate or minimise them.

Fatigue risk	Measure to eliminate or minimise	Management action
Long drives to and from the vessel	<ul style="list-style-type: none">• Spend every second night on vessel• Share vehicle, with one person driving while the other one sleeps• Shirley to drive them to work twice a week, so they can sleep on the drive	<ul style="list-style-type: none">• Provide good sleeping quarters• Provide a vehicle• Ensure that one person sleeps during the drive (no stereo on)
Working long hours at sea	<ul style="list-style-type: none">• Breaks for food and drink• Share the watchkeeping time• Make sure watchkeepers know the rules• Dave and Tom to swap jobs for a while	<ul style="list-style-type: none">• Implement breaks• Assist Tom with watchkeeping training• Ensure that there are standing orders• Make sure all training is given to Tom

Working many days in a row (cumulative fatigue)	<ul style="list-style-type: none"> • Have days off to recover, as necessary • Use another crew member 	<ul style="list-style-type: none"> • Shirley to manage time off • Provide time off for Tom • Find another crew member
Dave is fatigued	<ul style="list-style-type: none"> • Dave and Shirley agree that Dave will have a full night at home with a later departure every second trip during the busy season (not necessary if there has been bad weather) • Shirley hides car keys and lets crew know 	<ul style="list-style-type: none"> • Confirm that this is the agreed approach, so Dave does not feel he has to go fishing
Noisy engines create fatigue	<ul style="list-style-type: none"> • Use hearing protection • Ensure good mufflers are used 	<ul style="list-style-type: none"> • Provide hearing protection • Provide muffler
Crew arriving drunk and after being out all night	<ul style="list-style-type: none"> • Have a “no drinking” policy the night before sailing • Delay sailing 	<ul style="list-style-type: none"> • Ensure that employment contract refers to “no drinking” policy • Delay sailing
Crew tired due to young family up all night	<ul style="list-style-type: none"> • Perhaps choose to stay on the boat the night before sailing or sleep in separate quarters • Delay sailing in order to get some rest • Ask crew if slept OK the night before 	<ul style="list-style-type: none"> • Ensure sleeping quarters OK • Delay sailing • Check box in logbook to ask crew about sleep
Standing and sorting at shellfish tray all day	<ul style="list-style-type: none"> • Take breaks • Swap sides of tray with skipper • Wear comfortable footwear 	<ul style="list-style-type: none"> • Allow breaks • Be flexible • Provide footwear
Gutting fish all night	<ul style="list-style-type: none"> • Give regular breaks • Reduce catch 	<ul style="list-style-type: none"> • Allow breaks • Do shorter trawls
Likely to fall asleep at the wheel	<ul style="list-style-type: none"> • Use watch alarm • Get fresh air • Standing orders prohibit use of chair after working long hours and watchkeeper is tired • Match watch times to length of recommended nap times • Know how to recognise fatigue 	<ul style="list-style-type: none"> • Fit watch alarm, have a policy on its use • Open door, minimise the use of heaters • Provide watchkeeping training

3. How to write a fatigue management plan

Depending on your operation, writing a fatigue management plan might be either simple, or “easier said than done”. Regardless of how easy it is to write, chances are it won’t be 100% right the first time. That’s why it is essential to follow these three steps:

- 1. Develop the draft plan.** This should be led by the owner, with assistance from the skipper and crew, and others where needed.
- 2. Trial the plan for several weeks.**
- 3. Revise the plan.** Many operators find it useful to review their plans at the end of each season.

Educate before you start

Start a conversation about fatigue with your staff or work colleagues – visit www.maritimenz.govt.nz/fatigue for useful information and tips on fatigue (download the PDF to hand out to staff).

Your local maritime officer might also be able to take a short session on fatigue. Sharing training with other vessel owners could provide you with additional insights.

Key parts of a fatigue management plan

Listed below are the key parts of a fatigue management plan, including your main legal responsibilities.

Owner expectations	What is important to the owner, the bottom line for safety. This lets the skipper and crew know how to act in both preventing fatigue and managing it when it can't be prevented.
Identify risks	Work with your crew, shore staff, and anyone else who may be able to assist, to identify what results in fatigue in your operation. Include both: <ul style="list-style-type: none">• what causes fatigue on a regular basis• what occasionally causes fatigue.
Managing risks judged to be significant	Your fatigue management plan should cover the significant risks identified. In short, a significant risk is anything that can potentially cause harm to a person (like an injury accident or a vessel grounding which can lead to an injury). For each significant risk, identify how it can be eliminated, or minimised. For actions on the vessel, record both what will happen on the vessel and what management will do to make sure the risk is controlled. (Doing this will also help you when you review your plan.)

Managing risks judged not to be significant	Monitor any risks you identified and judged not to be significant so they don't develop into significant risks.
Assign responsibilities	Document each crew member's responsibilities.
Train anyone who needs training	Record any training.
Trial the draft plan	It's usually not possible to get the fatigue management plan totally right the first time. A 1-2 month trial is useful for fixing any problems.
Monitor, review and revise	<p>Some causes of fatigue may be difficult to manage or may change over time (like crew fitness for duty). These may need to be monitored on a regular basis.</p> <p>Set times when you will review how well the plan worked, such as at the end of a season. If you are in the Maritime Operator Safety System (MOSS), then add all of this into your Maritime Transport Operator Plan (MTOPlan).</p>

4. How to document steps for your internal review

Recording each step demonstrates what steps you've followed and who was involved.

Action	Who was involved	Method used	Signature and date completed
<p>Educate about fatigue:</p> <ul style="list-style-type: none"> • yourself • staff <p>Download the Fatigue PDF at www.maritimenz.govt.nz/fatigue, provide training session with advisor, discuss fatigue together.</p>			
<p>State your expectations</p> <p>What is important, safety-wise, that the crew must know? When does safety take priority over production?</p>			
<p>Identify significant fatigue risks</p> <p>Work with others, especially the crew; consider the effect of different types of seasons and operating conditions; consider limitations of human biology, especially cumulative fatigue; consider what surprises may occur unexpectedly.</p>			
<p>Develop measures to eliminate or minimise these risks</p> <p>Work with others, especially the crew; consider how these measures change for different seasons and operating conditions. Include contingency plans.</p>			
<p>Identify management actions</p> <p>These support measures to eliminate or minimise risks.</p>			
<p>Assign responsibilities and train staff</p> <p>You're legally obliged to provide training where a need exists.</p>			
<p>Trial the draft fatigue management plan during the shakedown phase</p> <p>This is the perfect time to sort out any bugs.</p>			

Monitor and review How are you going to monitor fatigue and operation of your plan? When and how will you review the fatigue management plan?			
Revise the fatigue management plan This is a management action that follows the review.			