The Cardiff University Research Programme & Industry Perspectives

Full film transcript

00:13-00:21 (Tony Lane - Seafarers International Research Centre)

In the later nineties, there was a growing awareness of the possibilities of fatigue being a major issue among seafarers.

00:21-00:38 (Andy Smith - Cardiff University)

There were other studies looking at seafarers fatigue and these are summarized in an excellent review by Ivan Brown. However, what’s quite clear from this review is that these are largely anecdotal reports rather than formal pieces of research.

00:39-1:03 (Tony Lane - Seafarers International Research Centre)

Not much was known about fatigue among seafarers. Very well known in highly regulated industries like airlines, for example. We got funding from the Health and Safety Executive, the Maritime & Coastguard Agency and NUMAST which was the trade union. The focus of our research was going to be on merchant seamen and fisherman.

Defining Fatigue

1:06-1:15 (Margareta Lützhöft - Chalmers Technical University)

Fatigue is difficult to define and there are many definitions of it and they also differ between Europe and the US for instance.

1:15-1:28 (Steve Clinch - MAIB)

As well as the obvious manifestation which is falling asleep, you’re so tired you actually fall asleep; the other one is more tricky, it’s where your ability to analyze and make judgment calls is severely impaired through tiredness.

1:28-1:57 (Andy Smith - Cardiff University)

One of the ways we define fatigue is in terms of a fatigue process. This has 3 main stages: first of all the factors that put you at risk of feeling tired - working long hours, working at night, high job demands and so on. Then we think of people’s perceptions of feeling fatigued and then we think of the outcomes of being fatigued, greater
Fatigue in the Maritime Industry

2:00-2:12 (Margareta Lützhöft - Chalmers Technical University)

We have lots of anecdotal evidence that it is a problem and there are many assumptions that it causes accidents and groundings and there’s very little scientific data on it due to the difficulty of collecting.

2:12-2:24 (Andy Smith - Cardiff University)

What you find, for example, in road transport, is up to 20% of motorway accidents are due to fatigue and therefore it’s highly likely that similar things will apply in seafaring.

2:24-2:34 (Michael Grey - Maritime Journalist)

The MAIB for instance has actually been cataloguing fatigue induced accidents for really quite some time now. There are dozens of these accidents.

2:24-2:40 (Tony Lane - Seafarers International Research Centre)

They’re the people like the airlines who do crash investigations, as it were.

2:40-3:10 (Steve Clinch - MAIB)

A couple of years ago we investigated an accident into a coaster called the Antari which grounded off the Northern Irish coast. The ship left Scotland and set a course across the Northern Channel and the chief officer went on watch, the 12 to 6 watch. He sat down in a nice warm comfy chair; he’d been working quite hard beforehand and he just fell asleep. So you had an unguided missile going across the North Channel until the next thing the chief officer was aware of was that he was aground. That’s a very good example of what can happen around our coasts.

3:10-3:25 (Rodger MacDonald - IFSMA)

Recently for example, the Shen Neng 1 in Australia - tremendous damage to the Great Barrier Reef. The navigating officer had had two and a half hours sleep in the previous 37 hours. Well, what do you expect?
Fatigue in the Fishing Industry

3:28-3:41 (Kier Day - SEAFISH)

We have at least two or three vessels I think each year now that are either colliding with each other or running aground or hitting rocks because of guys falling asleep at the wheel.

3:41-3:55 (Jim Hudson - NFFO)

Fatigue is probably in the smaller vessels. The larger vessels have larger crews and they can work round the problems. It’s the other smaller boats that stay out two, three, four days where the problem can arise.

3:55-4:09 (Andy Smith - Cardiff University - Cardiff University)

We only carried out a very small scale survey but the results were quite alarming: 16% had been involved in a fatigue related accident and 44% had worked to the point of exhaustion or collapse.

Seafaring Culture

4:16-4:18 (Kier Day - SEAFISH)

You can’t relax until the work is done and you never know until you pull your nets up how much work there’s going to be.

4:19-4:24 (Michael Grey - Maritime Journalist)

We’ve always had a culture, if you like, in the whole maritime world of the ship coming first.

4:25-4:34 (Steve Clinch - MAIB)

Seafarers tend to be very ‘can-do’ people and therefore they try to do their best to keep the ship running, to accommodate the owner.

4:35-4:45 (Michael Grey - Maritime Journalist)

We don’t have a culture, for instance as they do in aviation, where working times and rest times are strictly regulated. Up until relatively recently it has been totally unregulated and people have done what’s necessary.

4:46-4:56 (David Baily - Retired Master Mariner)

There’s no other industry that I can think of where you can operate machinery or
drive a bus or anything, just indefinitely, I mean without anybody really caring how tired you are.

4:57- 5:04 (Mark Dickinson - Nautilus International)

When you can legally work up to a maximum of 91 or 98 hours per week, you’ve got a problem.

5:06- 5:15 (Roger Towner - MCA)

Truck drivers, train drivers, aviation pilots and what have you, they’re not allowed to work more than 40 or 48 hours a week. Why do seafarers? Why are they expected to work 70 plus hours a week?

5:16-5:24 (Michael Grey - Maritime Journalist)

Now it is being regulated but it’s the problem of trying to adjust to this regulation. You have to adjust the culture.

Measuring Fatigue

5:26-5:33 (Steve Clinch - MAIB)

It’s difficult to be definitive, it’s not an exact science but we use a number of indicators, we have our own analysis tools that we do use.

5:34-6:29 (Andy Smith - Cardiff University)

We don’t have a litmus test that provides a simple indicator of whether fatigue is present or not. One typically uses a variety of different approaches to get a profile which confirms that fatigue is likely or is present. We carry out surveys which ask about risk factors for fatigue, perceptions of fatigue and the outcomes of fatigue. We can then go onboard ship and carry out diary studies, which provide the same information but on a daily basis. And then we can move to more objective measures. We can see whether their working conditions influence their sleep quality and duration. We can take objective measures of their physiology; hormones such as cortisol are a good indicator of fatigue. And we can take objective measures of performance, so we can show for example that when people are fatigued their reaction times will slow down quite considerably.

6:30- 6:49 (Paul Allen - Cardiff University)

In the Cardiff study, we used a mixture of onboard testing and surveys to assess fatigue. In a more recent study, Project Horizon, they’ve used simulators as the basis
of their assessment of fatigue in seafarers. They've used some techniques which are similar to the ones we used in Cardiff, but have also introduced other methods which are more suited to a simulator study.

6:50-7:24 (Margareta Lützhöft - Chalmers Technical University)

Methods that we use are a combination of the subjective and the objective. We have EEG, which is measuring brain activity. As a compliment to that, we measure eye movements. In both cases electrodes are applied to the scalp and around the eyes. We use reaction time tests; we've used diaries where you make your own self-assessment. We’ve used a test called The Karolinska Drowsiness Test. We call it the black dot test because what you do after the watch, you’re just asked to sit and stare at this black dot for a couple of minutes and it gives you a very good indication of how sleepy you are. We are also using expert judgment of performance of the navigators and the engineers.

Changes in the shipping industry

7:27-7:40 (David Patraiko - The Nautical Institute)

To say that the old sailing ships with a dozen men on board sailing around Cape Horn weren't fatigued, I think would be an ill statement. But the type of fatigue has changed. There’s probably less physical strain than there was in the past.

7:40-7:46 (Roger Towner - MCA)

It was much more physically involved. You were lifting chains, lifting blocks, topping derricks, this type of thing.

7:47- 7:53 (Roger McDonald - IFSMA)

There’s been a necessity to reduce the numbers of the crew. But I think perhaps we have seen it go far too far.

7:54-8:17 (David Patraiko - The Nautical Institute)

Ships are bigger now, they’re more complex. They’re travelling at higher speeds in closer proximity to navigational hazards. There’s more of a demand for meeting time schedules and even though the complexity, even though automation has often been brought in to allow reduced manning, quite often you’ll find that the level of automation and the level of the complexity of the systems that people have to deal with can be very fatiguing itself.
8:18-8:26 (Margareta Lützhöft - Chalmers Technical University)

It’s supposed to help us but it gives us a really boring job. People are not really good at monitoring but that’s what we’re increasingly pushed to do is just monitor, instead of actively working.

Comparing Sectors

8:28-8:35 (Andy Smith - Cardiff University)

One of the problems with making generalizations about seafarers fatigue is that there’s considerable diversity across different sectors.

8:36-8:41 (Voice of a Deep Sea Pilot)

I’ve worked as a deep sea pilot on oil tankers and the standards on those ships are much higher.

8:42-8:54 (Bill Hirst - Milford Haven Port Authority)

Tankers are at the high end of safety within the marine industry. They’re regularly vetted by all the companies who use them. They’re regularly port state inspected and that has forced a different culture on them.

8:55-9:03 (Tony Lane - Seafarers International Research Centre)

The part of the industry where fatigue is greatest is in the bulk trades and in the short sea bulk trades. So we’re talking about what we call mini-bulkers.

9:04-9:11 (David Patraiko - The Nautical Institute)

Quite often they have very demanding port calls, where they’re shifting within a port or going to multiple ports in just days.

9:12-9:26 (Tony Lane - Seafarers International Research Centre)

And there is one simple expedient there. Instead of just having a master and a mate where each keep a watch, we need a second mate, like we find in the much better regulated coastal short sea tanker trade.

The Causes of Fatigue at Sea: Ship Design

9:36-9:42 (David Patraiko - The Nautical Institute)

That can certainly start at the very beginning with ship design to make sure that ships are designed to be as habitable as possible and conducive to good rest.
9:43-9:49 (Margareta Lützhöft - Chalmers Technical University)

If there’s lots of movement and noise and vibrations that does have a negative impact on your ability to sleep of course.

9:50-9:58 (Michael Grey - Maritime Journalist)

If you’re in port there’s crashing and banging from containers coming in and out of the ship. There are constant interruptions, people knocking on the door. So the quality of sleep you’re getting is probably going to be rather poor.

9:59-10:09 (Steve Clinch - MAIB)

Nowadays ships bridges are designed with nice comfy seats. Even on a well-run ship, if you’re on the twelve to four at night, at two o’clock in the morning and you sit in the chair, it’s very difficult to stay awake.

The Causes of Fatigue at Sea: Seafarer Training

10:12-10:30 (Mark Dickinson - Nautilus International)

There haven’t been sufficient numbers of seafarers being trained to go to sea. We’ve got shortages and these shortages manifest themselves in a number of ways. You get people promoted maybe beyond their abilities; you get an issue of less experience in post, in rank, that adds pressure and workloads on others who have to pick up.

10:31-10:40 (Bill Hirst - Milford Haven Port Authority)

The officers that were supporting me were less and less experienced and that made a big, big difference. The phone would go more and more often and if could often be for very trivial things.

10:41-10:54 (Roger Macdonald - IFSMA)

I think the reduction of the officers has had a knock-on effect on everybody really because how do we train the younger officers if we haven’t got time to do so because we’re so tired on the ship at the senior officer level.

The Causes of Fatigue at Sea: Watch Systems

10:56- 11:14 (Paul Allen - Cardiff University)

When discussing the issue of watch keeping in seafarers, we’re primarily talking about navigating officers who work on the bridge. This issue is directly related to the
number of crew who are on board. So, for example, if you only have two deck officers they necessarily have to work twelve hours a day, possibly in a six on, six off system. If you have three deck officers they have to work less hours.

11:15- 11:33 (Steve Clinch - MAIB)

I would highlight the smaller vessels that are operating around the north west European coast at the moment where you only have two watchkeepers. They traditionally work six on, six off; they may be working six on, six off for four, six, maybe eight months. And according to the regulations, that’s fine if that’s all they do.

11:34- 11:50 (Roger Towner - MCA)

I worked six on, six off for many years and I know, if you do six on, six off and that’s what you actually do, you can work it, you get used to it. What you can’t do is work a six on, six off system if there’s no extra man there to back it up.

11:51-12:03 (Steve Clinch - MAIB)

But unfortunately these ships also tend to go into port every day or every other day and when they’re in port clearly everybody wants to talk to the mate about cargo issues and the master about ship’s business. So their ability to take their rest becomes interrupted.

12:04-12:26 (David Partraiko - The Nautical Institute)

Just do the simple maths: if a master stands twelve hours a day to comply with the STCW requirements, everything outside of watch standing has to be done with only one hour on average a day. All the cargo work, the maintenance work, everything else on the ship has to be done within an average of one hour. Now how reasonable is that? I think it’s very dubious.

12:27-12:43 (Margareta Lützhöft - Chalmers Technical University)

The evidence that we do have, both from earlier projects and other sleepiness studies is that you need to sleep somewhere around six hours and we know that people on a six on, six off can’t get that, no way. We’ve got various numbers ranging from three and a half to four and a half and in the absolute best case five hours.

12:44-12:55 (Andy Smith - Cardiff University)

One of the projects being carried out at the moment, the Horizon Project, is looking at simulations of watch keeping activities and the extent to which these are influenced by fatigue.
12:56-13:05 (Margareta Lützhöft - Chalmers Technical University)

What we’ve done is about one week long, seven day long runs on two different watch systems: the four on, eight off, and the six on, six off. Analysis is ongoing.

The Causes of Fatigue at Sea: Port Turn-arounds

13:08-13:22 (Tony Lane - Seafarers International Research Centre)

Port time is the killer from the point of view of costs. The ship is cheap to run relatively when it’s at sea. So what we want is the ship at sea and we don’t want it in port. So all of the pressure is to reduce the amount of time a ship’s in port.


In the past general cargo ships were in port for two to three weeks. Now with containerization it’s no more than twenty-four hours. So consequently people are not getting the opportunity to catch up on their rest periods.

13:37-13:42 (David Baily - Retired Master Mariner)

You might have six ports to do in eight days and by the end of that eight days you would be a completely different person.

13:43-13:48 (Margareta Lützhöft - Chalmers Technical University)

We do have lots of interviews where people say things like ‘when we get to sea I can finally get some rest’.


The first people up the gangway are not the agent with the mail or anything like that, no, no, it’s half a dozen port inspection people.

13:55-14:04 (David Partraiko - The Nautical Institute)

You have various inspectors coming on at different times all demanding to see key onboard personnel. Again that can lead to fatigue for the crew because they’re not getting their rest.

14:05-14:16 (David Baily - Retired Master Mariner)

Port state control may be coming on board to check on your fatigue records but half the ship’s company are up to satisfy them and show them these records and by the time they’ve left, everyone is twice as tired as when they came on board in the first place!
14:18-14:30 (Michael Grey - Maritime Journalist)

You for instance wouldn’t dream of going to say an office in the city demanding an instant interview with the managing director, you would make an appointment. Nobody does that. They expect to have instant access to senior officers onboard ship.

14:31-14:40 (David Partraiko - The Nautical Institute)

The way to mitigate that of course is to either harmonize the inspections so they come at the same time and/or bring shore-side personnel like a superintendent.

The Causes of Fatigue at Sea: Piracy & Security

14:42-15:02 (Mark Dickinson - Nautilus International)

What we’ve seen recently with the heightened security arrangements under ISPS, terrorism, piracy, big issue now particularly off the coast of Somalia and the wider Indian Ocean, is that ships are going on higher security levels and having to lock down and do extra patrols and this is impacting on their ability to catch up on those intense periods of operations.

The Causes of Fatigue at Sea: Communication & Administration

15:05-15:21 (Michael Grey - Maritime Journalist)

In the past, the master was more or less sent away for several months with his ship and traded it as well as he could. Nowadays he gets sixty emails a day telling him exactly what to do and demanding answers for those emails regardless of the time zones he gets to port.

15:22-15:28 (David Baily - Retired Master Mariner)

I used to dread going into the email every day, it was going up every voyage the number of emails and every one was a demand to do something.

15:29-15:43 (David Partraiko - The Nautical Institute)

On some ships it’s very well managed. What they might do is they put on an extra administrative officer or they might do some of that administration shore-side and use the flexibility of electronic communication. But on some ships a lot of the administration burden is placed on the crew.
15:44-15:56 (Steve Clinch - MAIB)

Ship operators can pick up a telephone; use their mobile phone to talk to the master at an instant. That didn't happen twenty, thirty years ago, so therefore, the perceived pressure on the master and the ship’s team are much greater.

The Causes of Fatigue at Sea: Weather

15:57-16:11 (Kier Day - SEAFISH)

The more the boat moves around, the more you’ve got to move around to stop yourself falling over. It’s like doing continuous aerobics; you’re going to get tired sooner or later. Obviously, if you do get a chance to get some sleep, if it’s rough, the chances are you’ll get very, very broken sleep.

The Causes of Fatigue at Sea: Travel to the Vessel

16:15-16:21 (Margareta Lützhöft - Chalmers Technical University)

The way people today join a ship, they fly half round the world and they’re expected to go on watch immediately.

16:22-18:38 (Paul Allen - Cardiff University)

In our diary study we asked seafarers about travel to the vessel. Two thirds of seafarers did not have the opportunity to sleep between travelling to the vessel and starting their first shift. Of these seafarers, nearly fifty percent had traveled for six hours or more and nineteen percent had travelled for twelve hours or more.

The Causes of Fatigue at Sea: Hours of work and timesheets

16:41-16:55 (Andy Smith - Cardiff University)

When you look at people with long working hours, their performance will often be as bad as people who’ve consumed a lot of alcohol. Many people on shore would be surprised at the hours and the tours of duty that seafarers work.

16:56- 17:06 (Voice of a deep sea pilot)

I remember one second officer telling me quite proudly that he’d been without sleep for 28 hours and he was just going on watch at that time.
17:06- 17:16 (Jim Hudson - NFFO)

In deep sea fishing days we used to work eighteen on and have six off, but that was
only heavy fishing. There were often periods when the fishing wasn’t so heavy when
we got plenty of extra sleep.

17:17-17:30 (Andy Smith - Cardiff University)

What we found in our initial survey were that nearly fifty percent of the sample were
working eighty-five plus hours a week. Quite often on shore there’s complaints when
they get above thirty-five hours a week.

17:30- 17:49 (Michael Grey - Maritime Journalist)

If you look at the way fatigue was dealt with in other forms of transport, other modes
of transport, you had frightful motorway accidents involving lorries for instance. Right
we must do something about that so you regulate drivers’ hours. You don’t just
regulate drivers’ hours, but you actually monitor drivers’ hours with proper equipment.

17:50-18:05 (David Partraiko - The Nautical Institute)

There are some very strict requirements for hours of work and rest hours and those
will be tightened up even more when the marine labour convention comes into force.
But we know from our confidential reporting that a lot of the crews are not keeping
accurate hourly logs.

18:05-18:27 (Voice of a deep sea pilot)

I freely admit that I have filled in my hours of rest records incorrectly. Quite often you
don’t know until after the event and then you come down at the end of the day or the
next day and you start filling in all the boxes and you realize you’ve exceeded the
STCW requirements. Well, what are you going to do? Are you going to freely admit
you broke the law on that day and didn’t tell anyone? So you just modify the figures.

18:28-18:44 (Paul Allen - Cardiff University)

In our survey, forty percent of seafarers reported at least occasionally underreporting
their working hours. Of more concern is the fact that those seafarers who did admit
to underreporting their working hours were found to be significantly more fatigued
and also less healthy according to self-assessment measures.

18:44-18:55 (Steve Clinch - MAIB)

Because the seafarer is normally someone who is a can-do person, he’s always
trying to be helpful; we quite often have situations where the hours of work records
are filled in for the next month, for example.
18:55-19:08 (David Patraiko - The Nautical Institute)

Mariners probably aren’t doing themselves a lot of favours because the ship owning community can stand up quite accurately and say that they have years and years of rest hour logs that show that there is no over working.

19:08-19:19 (Steve Clinch - MAIB)

The seafarer doesn’t realize that actually recording of hours working is to a degree a protection to him. It’s his safety net in allowing him to record actually the excessive hours he may be asked to work.

19:19-19:35 (Margareta Lützhöft - Chalmers Technical University)

There was a Swedish project a couple of years ago by Fredrik Hjorth at Kalmar Maritime University and he’s recorded snippets of interviews where people will tell their experiences of trying to actually record proper working hours and the master stopping them saying I can’t send this in.

19:35-19:46 (Steve Clinch - MAIB)

Quite often in many cases when we raise this issue with the owner they throw their hands up in horror because they don’t realize that the seafarer is actually ‘flogging the log’. It’s not what the intention is.

19:46-19:56 (Rodger McDonald - IFSMA)

It’s not all companies, but in some companies I think the seafarers themselves feel themselves under pressure not to upset their owners because they might lose their job, I mean, you know, that’s a real fear.

19:56-20:05 (Mark Dickinson - Nautilus International)

This points to the pressure that’s put on seafarers to make sure that they don’t fall foul of the regulations, to make sure that the records at least show that everything is ok.

20:05-20:17 (Michael Grey - Maritime Journalist)

The whole of the maritime industry can always be divided into three parts: there’s the one part which is we always do what’s right; they will follow the regulations to the letter.

20:17-20:29 (Steve Clinch - MAIB)

There are some ships that have brilliant systems for recording hours of work and the
owners scrutinize those and in those cases you tend to find they’re the ones where you don’t have accidents that relate to fatigue.

20:29-20:41 (Michael Grey - Maritime Journalist)

There are those who probably won’t do unless they are forced to by regulators coming on board and bullying them to do it. And the third part which never do anything unless they’re actually prosecuted.

20:41-20:41 (David Partraiko - The Nautical Institute)

It is however, very difficult for a port state control inspector to come down if the log books are not accurate.

20:49-21:06 (Roger Towner - MCA)

Once surveyor was tasked specifically for doing this for the MCA a couple of years ago. He spent seven hours on a ship checking over one set of hours of work papers and during that period he’s supposed to inspect the entire ship of course.

21:06-21:20 (Mark Dickinson - Nautilus International)

They compare the record of hours of work or hours of rest against maybe the desk log or the engine log and they find that seafarers who are supposedly fast asleep are actually hauling up the anchor or preparing to turn the engines over.

21:20-21:35 (Roger Towner - MCA)

Once you have to start casting the net that wide you’ve got to say is it worth it? And can I afford the resources to do it? Then you might say of course, can I afford the resources not to do it?

The Causes of Fatigue at Sea: Manning

21:37-21:44 (Voice of a deep sea pilot)

At the moment we have a minimum manning certificate based upon what’s the least number of people you need to get this ship from A to B.

21:44-21:56 (David Partraiko - The Nautical Institute)

In many cases it should be much more obvious that a ship on a certain trade with a certain manning level really is going to be pushing that limit.
21:56-22:06 (Roger McDonald - IFSMA)

The real study we need to actually look at is what’s actually going on on a ship. Each ship is unique in its operation and we should actually look at that ship, see what the operation is, and make sure it is safely manned.


Cost is another big element that intrudes into all of this. You don’t get changes without putting the costs up.


Responsible companies find themselves having to cut corners simply to stay in business and I think that’s a big part of the problem.

22:19-22:24 (Tony Lane - Seafarers International Research Centre)

The ship owners will say, and correctly, we have to have a level playing field.


You’d have to do it absolutely internationally otherwise you would have one country’s ships enjoying a competitive advantage over another.


Two mates and a master should be considered normal for a ship of more than three thousand tons. Even that, as we thought fairly low level request, was rejected both by Europe and by the IMO.

22:48-22:58 (Rodger McDonald - IFSMA)

We have to come down to the fact that actually there is a shortage of seafarers anyway. How are we going to get the extra seafarers if we need them to fill in the roles that may be needed to prevent fatigue?

The Causes of Fatigue at Sea: Manning - Fishing

23:00-23:13 (Kier Day - SEAFISH)

Due to economic pressure on the fishermen themselves, they can’t afford to take on crew and you find that these days there’s a lot more guys taking the boats single-handedly.
23:13-23:24 (Jim Hudson - NFFO)

A two man vessel, the skipper might decide just to go singlehanded and a vessel with three or four men might just take one man off for economic reasons. So there’s less men doing more work.

The Causes of Fatigue at Sea: Competition between Flags

23:26-23:47 (Steve Clinch - MAIB)

I used to work for a particular flag administration and you would get the situation where, for example, a ship that’d been on the Dutch flag, the owners would come to you and say that we want to change to your flag. The Dutch only operate with seven; we want to operate with six. If we operate with six, we’ll put our ship on your flag and that was a very powerful bargaining chip.

23:47-24:06 (Michael Grey - Maritime Journalist)

Come to my flag and I’ll enable you to operate with only ten men on a very large crude carrier; whereas, they will require you to have fifteen. Without a shadow of a doubt there has been a certain amount of competition among flags to enable ships to be run with the smallest possible crews.

24:06-24:19 (Roger Towner - MCA)

You either have to have a new international requirement that states this is how you man your ship, or you make a unilateral decision that the UK will insist that this is how all its ships are manned.

24:19-24:34 (Michael Grey - Maritime Journalist)

When the UK was thinking of going unilateral on this they were told very firmly that you can’t go in unilateral on this (a) because the EU wouldn’t allow it, but (b) because it would immediately cause an exodus of people from the Red Ensign.

24:34-24:38 (Roger Towner - MCA)

If you’re asking for one or two more men than everybody else in the world, why come to us?

The Causes of Fatigue at Sea: Competition for employment


People are reticent about speaking out about fatigue because quite frankly they’re
afraid of losing their jobs.


Any master that's brave enough to go and anchor his ship because his crew is fatigued will very soon find himself on the next flight home.

**24:55-24:59 (Bill Hirst - Milford Haven Port Authority)**

I can’t remember a case where a master has said I’m not sailing until we’ve all had a sleep.

**24:59-25:10 (David Baily - Retired Master Mariner)**

I know of one incident only in my career when another master refused to sail. We all knew about it, all around the fleet and he had to explain himself very, very carefully as to why he’d done that.

**Combined Effects**


If you examine the causation of almost any marine accident there are a whole range of different factors which actually combine. They may appear to be singularly unimportant but together they actually cause the accident.

**25:28-25:31 (Steve Clinch - MAIB)**

Several barriers have to fail normally for there to be an accident.


And I think fatigue is the same.

**25:36-25:58 (Andy Smith - Cardiff University)**

We talk about different shift patterns, the levels of manning, the nature of the work, port turn-arounds. What we’ve found is that one must look at the combined effects of different factors. So the person who’s most susceptible to fatigue is the person who’s exposed to all of the types of risk factors that I’ve just described.

**25:59-26:05 (Kier Day - SEAFISH)**

The reason why he’s asleep and hitting the rocks is because of several other factors. It’s always a combination of things and it’s that combination that people need to look at.
Addressing Fatigue

26:10-26:17 (Tony Lane - Seafarers International Research Centre)

If regulation can be effective in lots of other areas, and it is, then it could be effective in this one too.

26:17-26:28 (Andy Smith - Cardiff University)

While it's very easy to say this is something for the individual seafarer, or this is something for the individual ship, it clearly has to be something which involves the industry as a whole.

26:28-26:42 (Steve Clinch - MAIB)

The most obvious solution, particularly to the ships I mentioned earlier, the small coasters, is to increase the number of watch keepers on board and it's something that the MAIB have recommended in the past that there should be a minimum of three watch keepers on board any ship.


Secondly, a cultural change where people are prepared to realize, just as they are in aviation, that it's dangerous to go over your working hours.

26:51-27:13 (Steve Clinch - MAIB)

Unfortunately many companies these days employ seafarers on a short-term basis, they work for six months and then they go on to another contract to another shipping company. And there's no way on this earth that that officer or seafarer is going to buy into that safety culture because in a couple of months' time, he'll be on somebody else's ship who wants them to do something completely different. That stability and that buy-in is something which is necessary if it's going to work effectively.


It's crucial that working hours are recorded properly and as well as this formal regulation; we must also improve training and guidance, so that we can prevent and manage fatigue.

27:27-27:37 (Mark Dickinson - Nautilus International)

We need rules that set maximum hours of work at a level that will allow people to have rest and proper recuperation.
27:37-28:06 (Andy Smith - Cardiff University)

One must also look not just at what happens generally, but at those specific rare occurrences when fatigue is likely to be a particular problem, just in the same way that we have regular lifeboat drills, it doesn't imply that everyone’s going into the boats on a regular basis, but we should really know how to deal with these occasional fatigue related risks to these safety critical operations.

Moving Forward

28:09-28:16 (Michael Grey - Maritime Journalist)

The reason why fatigue is not being dealt with properly is because it's not seen to be important by enough people.

28:16-28:20 (David Patraiko - The Nautical Institute)

Fatigue is a very real problem. It does cause deaths, it does cause accidents.

28:20-28:30 (Steve Clinch - MAIB)

It is a complicated issue not least because any solution will incur additional costs to the industry at a time when the industry is hard pressed to make a profit.

28:30-28:43 (Rodger McDonald - IFSMA)

The industry itself is suffering from the effects of fatigue when you get pollution and loss of life and what have you. If it’s caused by fatigue then that is not helping our industry at all.

28:43-29:06 (Andy Smith - Cardiff University)

Although our project on seafarer’s fatigue was very substantial, there’s clearly a need for further research in the area. This is not necessarily fundamental research on fatigue but it’s what I call action research, namely providing the evidence base rather than relying on anecdotal comments and observations.

29:06-29:33 (Michael Grey - Maritime Journalist)

The role of research is really quite important because it's actually producing the armor and the ammunition to go to the IMO and the regulators and say well these things are happening, these are the facts and because of these facts we believe there is a strong case for larger crews, shorter working hours, stronger regulation, but they won’t happen without the actual hard and fast evidence that research can produce.