Strikeback 2 – Food hygiene in the seafood industry

This DVD is only available with an English language sound track.

For non English speakers we have translated the scrip into other languages.

Each section of the script has a number. The same number appears on the screen of the DVD when that part of the script is being spoken.

This is not an ideal solution, but we hope it enables you to have a better understanding of the subject of this DVD.

1. **Onscreen Image** Headlines from newspapers: “Poultry processor forced to close”, “10,000 supermarket ready meals recalled over fears of food poisoning”, “Local restaurant blamed for Salmonella outbreak”

2. For everyone working in the seafood industry headlines like these would be very, very bad news. Should people hear the words poisoning and seafood together they would automatically, and understandably, shy away from eating fish and shellfish for a while. That has a knock on effect for everyone. Less fish being bought, less fish being caught, less work to be done, less money in your pocket. Aside from the financial side there are also legal ramifications. Depending on your role in your organisation you could be suspended, sacked, fined or even imprisoned if you are found responsible for causing illness through avoidable irresponsibility. Remember, it’s your livelihood and your liberty which we’re trying to protect, so watch carefully and take heed.

3. **Onscreen Image** Title: What is hygiene?

4. What is hygiene? Sounds like a daft question but ask anyone and they’ll probably say, “well…..it’s….cleaning and that”. It’s not as simple as that. Cleaning and cleanliness certainly play a big part in hygiene but it actually means, “the science of maintaining health”. It’s a science. And like all sciences it requires study, practice and understanding. So, yes, in practice hygiene means you must keep everything clean – your tools, your workplace, yourself and the product. But first you have to understand *why* you have to keep everything clean.

5. **Onscreen Image** *Microscope shot of a bacterium in a petri dish.*

6. This is the enemy. Bacteria. Actually when there’s only one it’s called a bacterium. But the problem is there is never just one of them. Why? Well watch this.

7. **Onscreen Image** *The bacterium splits in two.*

8. They multiply incredibly quickly. That’s all they do. They divide and multiply, divide and multiply. How fast depends on the conditions. How

much depends on when and how they are stopped. And to make thing worse they spread both through touch and in the air.

9. Bacteria are the foundations of health-threatening illnesses like Salmonella and Listeria, nasty little bacteria we've all heard of. Most types of food poisoning can happen as easily in chicken as in fish or even a vegetarian ready meal. But there are some illnesses that are usually only caused by fish and shellfish. As fish straight from the sea don't usually contain food poisoning bacteria we are starting with a safe raw material. Shellfish is a little different as they have the ability to pick up harmful bacteria and viruses as they grow

10. DSP, ASP and PSP are all forms of shellfish poisoning or illnesses you can get from shellfish. They sound terrible but because we are careful and control the risks they are almost unheard of in the UK.

11. Scrombrotoxin poisoning is another fish only illness associated with poor temperature control of mackerel and tuna but again it's rare because we take care.

12. So now we've met the enemy, let's understand the battle. You have to try and get the seafood from the sea and to the customer without dangerous bacteria getting a stranglehold on the product. Consider everything that the fish and shellfish will come into contact with on this journey and you can imagine how tough a task this is. In an average processing plant the fish will touch various hoppers, conveyor belts, knives and human hands before they reach the packaging stage. Also, anyone working on the production line could contaminate the product through coughs and sneezes. It sounds an impossible task but it can be done.

13. One thing to bear in mind is that we are only talking about *dangerous* bacteria here, the ones that cause food poisoning. The raw seafood will be covered in bacteria right from the start of the process but with proper handling and temperature control most of this stays harmless and we don't need to worry ourselves with it. We have to stay focused on the bad lads, the ones that cause food poisoning.

14. **Onscreen Image** *Title: Contamination.*

15. Bacteria gets onto the fish or shellfish through contamination. And contamination is caused by just one thing – people. Either people doing something they shouldn't or not doing something they should.

16. The product can usually only be contaminated by bacteria because of bacteria from you, your tools, the production line equipment or the working environment. So, *you* must be clean, you must make sure your *tools* are clean, all work areas are clean and the working environment is clean.

17. There are also chemical and physical contamination issues. Chemical contamination could be caused by something like cleaning products not properly rinsed away. Physical contamination covers everything from a bit of wood from a pallet or a metal sliver from a conveyor belt found in the product right through to, and this has happened, an entire dead mouse being found in a sliced, white loaf of bread. Sounds daft – it isn't.

18. A common way of contaminating product is cross-contamination. This is a particular issue where you have cooked and uncooked product. This is why we have different coloured chopping boards for instance. And it's also why cooked seafood, such as hot-smoked mackerel, is kept separate for raw seafood on a fishmonger's display. The bacteria from the raw seafood could contaminate the mackerel with unfortunate results for you and whoever eats it.

19. The handling of any cooked seafood is referred to as "high care". You'll notice that the separation of cooked and uncooked product in places like a crab processing factory is more akin to an operating theatre in a hospital than a food factory.

20. **Onscreen Image** *Title: Cleanliness.*

21. There are two types of clean. Visually clean and bacterially clean. For most of us in everyday life visually clean is fine. Your clothes look clean, your bedding looks clean, your bathroom, your car and so on. But in the food industry visually clean isn't good enough. To avoid contamination everything must be bacterially clean. This doesn't mean getting rid of every single bacteria, or sterilisation as it's called, that would be virtually impossible and certainly impractical. No, it means reducing the number of bacteria to a safe level.

22. There are three main ways of reducing the bacteria level in the work environment. Number one is to remove the food they multiply on. This may sound odd because you are working *with* the food they multiply on, so obviously you can't remove that. But you can remove all waste material like guts or scales and scrub work surfaces on a regular basis to stop the build up of smaller pieces of waste. Number two is to seek them out and destroy them. This means *more* cleaning and more *thorough* cleaning, not just a scrub of a work surface but a proper clean down using things like sanitizers. We'll have a closer look at thorough cleaning in a few minutes.

23. Number three is to stop them moving around. How do they move around? Well on things like tools and your clothes. You use tools to clean down the equipment but the tools themselves then have to be cleaned otherwise you are making the problem worse.

24. And the most common source of contamination is you. Two great phrases to remember are, "The idea is not to protect you from the food

it's to protect the food from you" and "everywhere you go bacteria go with you, but everywhere you've been they stay behind. Good, eh?. Your body is a walking bacteria farm, so first off you have to segregate as much of you as possible from the food. This starts with wearing clean clothing everyday. Then when you get to work you cover your top clothing with clean, hygienic protective clothing. Every workplace varies but this usually means wearing a minimum of overalls, hairnets and boots. These must be worn at all times in the workplace and changed whenever they are dirty. Then there are things like watches, rings and nail varnish. These will either have to be removed or covered with disposable gloves which you'll have to change at regular intervals.

25. Hand washing is also mandatory. You wash your hands thoroughly when you enter the work environment and then several times during the course of the day. You wash your hands before you handle food, if you move between one kind of food and another, after using the lavatory and before leaving the washroom. There's no way out of it. You have to do it. There are food safety laws which govern you when at work and they state that you must keep yourself as clean as possible at all times when at work. So if you do anything which may cause contamination you have to clean yourself before going anywhere near food again.

26. Coughing, sneezing and nose blowing should be avoided. If you have to do any of these then you must use a clean handkerchief or tissue and you must wash your hands again immediately.

27. If you feel unwell with anything like diarrhoea, vomiting, a heavy cold or you have septic cuts, boils or any kind or discharge from your eyes, nose or ears then you must not handle food. Tell your supervisor first and he'll sort it out from there.

28. Another legal requirement is that any cuts and grazes must be covered with clean, brightly coloured waterproof dressings. And smoking is always banned in the workplace, this is because it involves a lot of hand to mouth contact an again increases the risk of contamination by bacteria.

29. By now a lot of you are probably thinking that this is all going too far. That all these precautions are over the top. Well, there was a case of food poisoning not so long ago caused by an employee not washing their hands after leaving the bathroom. Two people died as a result and the company responsible was fined ten million pounds. It does happen, it did happen and next time it could be your fault.

30. **Onscreen Image** *Title: Cleaning agents*

31. There are levels of cleaning which demand different cleaning agents to get the job done. Firstly, cold water. This is used to clean away waste. Bits and bobs of detritus left on boards or belts or suchlike. It's good for

getting rid of fish slime but isn't at all effective on grease…..for which you'll need hot water. In cleaning terms the basic difference between hot and cold water is that dirt that is made of protein like blood and fish slime are best moved with cold water whereas grease stains need hot water to shift them. If you try and clean protein with hot water it will solidify the dirt rather then remove it. So cold water first then hot water, possibly assisted by our next cleaning agent – detergents.

32. Food-safe detergents, which is what you'll be using, are relatively mild and easy dispersed which makes them ideal for general cleaning as they have no residue which could taint the food. But they don't kill bacteria.

33. Then there are sanitizers. These are very similar to detergents except that they also have a disinfectant action which means they actively kill bacteria. There are many different types of sanitizer and we'll explain which are the ones for you in a moment. The downside is that sanitizers can be very expensive, so a lot of the time you'll use a detergent followed by a disinfectant.

34. Disinfectants are bacteria killers – and very good ones. But they don't clean, so in areas where sanitizers are not required but you need to clean and kill bacteria you have to use a detergent first *then* a disinfectant. Also, there are two types of disinfectant – residual, which have strong smells and can taint food so you only use these in areas well away from product. These evaporate slowly so they continue to protect for a good while. The second type is food-safe. This is less residual and, as the name suggests, is safe to use on food contact surfaces.

35. Detergents, sanitizers and disinfectants are used in conjunction with both hot and cold water, depending on the situation and they must be used for the correct length of contact time. Contact time is the amount of time the cleaning agent must be left in place so it can do its job and is clearly stated in your cleaning schedule, along with other instructions for use and health warnings. It goes without saying that you should always follow these instructions to the letter. Some of these cleaning agents will just as happily harm you as they do the bacteria.

Hand washing

1. Hands are constantly touching seafood, equipment, knives – they must be washed regularly to remove dirt and kill bacteria

2. Washing your hands is something that you should be very good at as you have to do it often enough. Here is our simple guide to an effective hand washing process.

3. Firstly wet your hands with water that's hot, but not too hot!

4. Apply the soap – which should be liquid and bactericidal

5. Rub the soap into your hands making sure that you

    - rub palm to palm
    - rub between the fingers palm to palm
    - rub between the fingers palm to back of hands
    - rub the backs of your fingers on the palm of your hand

6. Next rub around the base of your thumbs, this is an area often missed

7. And finally rub your finger nails into the palm of your hands.

8. That's the soap well rubbed in. You may need to use a nail brush as well.

9. Next it's time to rinse off all the soap with more hot water before drying your hands thoroughly. Paper towels are best in a factory like this, but in a fish and chip shop it may be a hand dryer you use.

10. If appropriate you will next apply an alcohol rub making sure you rub it into all parts of your hands until your hands feel dry again.

11. In some companies you would now wear gloves such as these.

12. Being this careful about hand washing ensures that the bacteria on your hands have been reduced to a safe level and you are much less likely to contaminate anything you touch. Not washing your hands before starting work, after breaks and whenever it's necessary can land you in hot water with your employer and the law.

Hairnets, hats and coats

1. Hairnets hats and coats are just some of the protective equipment we have to wear while working with food. They're worn to protect the food from US and not us from the food. What we wear and how we wear it will depend upon who we work for and what we kind of food products we are working with.

2. Whether it's low risk or high care, a fish factory or a fish and chip shop, we should always wear the appropriate kit and dress in the right way, so here's a simple guide to how it can be done.

3. We start with your normal clothes which are worn under your protective clothing.

4. Next put on your hairnet and hat followed by your Wellingtons or other protective footwear.

5. Hats and hairnets should completely cover your hair no-one likes to find hair in their food

6. As you may have now contaminated your hands you will need to wash them or use an alcohol rub to clean them before putting on your outer coat, this is particularly the case with high care operations such as processing cooked crab meat.

7. In addition to your outer coat you may also wear sleeve protectors such as these.

8. Putting your clothing on in this order means that you are less likely to transfer contamination from your outdoor clothing on to your food room clothing.

9. So now you are ready to wash those hands. After washing your hands you might need to wear sterile disposable gloves which protect the food from your hands .

10. One final word. Before going for a break and whenever you leave the food room you should remove your food clothing to avoid bringing contamination back into the food room when you return to work.

Temperature Control

1. Temperatures are critical in the seafood industry and for good food hygiene as well.

2. In the seafood industry we go as low as -80 degrees Centigrade when we use a nitrogen tunnel for freezing and we can get as hot as 200 degrees centigrade when we want to fry a large batch of fish.

3. For food hygiene the important temperatures are somewhere between these two extremes. Usually in food hygiene we talk about the danger zone which is those temperatures above 5 and below 63 degrees centigrade. Let's look at why the danger zone is where it is.

4. Bacteria are living organisms and just like you and me they prefer to be kept warm and if kept at the right temperature, say in a warm room, many of them are capable of multiplying once every 20 minutes. Put those same bacteria in a fridge at 4 centigrade and it takes them 200 minutes to multiply. Put them on ice at 0 degrees and multiplication can take as long as 400 minutes. At freezer temperatures of -18 degrees centigrade or colder dangerous bacteria stop multiplying completely.

5. Now if one of our key weapons against bacteria is to stop them multiplying, you can see that cold temperatures are ideal in this battle.

6. If we take a single food poisoning bacterium and place it in different temperatures this is what will happen after an 8 hour or 480 minute shift at work.

7. In a freezer at -18 we will have a single dormant bacterium. It hasn't multiplied at all, BUT it hasn't died either. Freezing doesn't kill bacteria it preserves them just like your frozen scampi.

8. In a box of ice at 0 degrees we will have 2 bacteria, it's managed to divide just the once after 400 minutes to produce two bacteria.

9. In a fridge at 4 degrees centigrade that single bacterium will now be 4 bacteria. More than in ice but still not enough to get too worried about.

10. In the warm room however things are a little different. 1 has become 2, 2 have become 4, 4 to 8 – well after 8 hours we have 16,777,216. Now that can be something of a problem, particularly if they are all on something you are about to eat.

11. That's enough about low temperatures so lets warm things up a little.

12. If we move up the temperature scale to say 40 degrees centigrade there are some bacteria that are uncomfortable at these temperatures but still many dangerous ones that are just coming into their stride.

Raise the temperature to just over 60 degrees centigrade and all the dangerous bacteria are either dying or incapable of multiplying at all. This is why the danger zone ends at 63 degrees centigrade. If you keep hot food at this temperature or hotter then dangerous bacteria just don't multiply and cannot create any problems until the food cools down again.

13. There's one last important temperature for you to remember and that is 82 degrees centigrade. This is what we call hot water disinfection as at this temperature most bacteria will die within two minutes. This is a critical temperature for cooking and reheating hot food. In a fish and chip shop the chips and fish are easily heated above 82 degrees centigrade, and so must the meat pies be. Once put into the display cabinets they should also be kept above 63 degrees centigrade, not just for food safety but who wants cold fish and chips?

14. So to summarise, keep food and food products out of the danger zone as much as possible and keep them as cold or as hot as is practicable.

Cleaning a fish factory

1. Most modern fish factories are just like this one, clean, spotless and odourless, or at least that's the way they are in the morning before work starts. Many factories are so careful about cleanliness and bacteria that before they start processing any seafood they take swabs to look for bacteria and the food that bacteria might grow on as a check to see that the factory has been clean effectively.

2. But, it doesn't matter how careful you are about cleaning a factory, how much clean as you go you practice, this (CLEAN factory) will over the course of the day turn into this (dirty factory).

3. Let's see how it gets turned back into something clean enough to eat your dinner off.

4. The night hygiene team start work after you have left for the day. They are systematic about how they tackle the problems as they need to be sure that everything is cleaned consistently every day.

5. The first stage is a general tidy up, remove waste fish and wash down work surfaces, equipment, floors and walls to get rid of the main rubbish. Cold water and hard work are the key ingredients at this stage. Equipment will need to be dismantled and moved about to expose all the nooks and crannies that dirt can accumulate in.

6. Some areas may need a little more attention to get them ready for the next stage which is usually a general application of a residual foam detergent or sanitiser. The foaming action of this chemical helps to lift grease and the bits that cling to every available surface. The foam is used to clean the walls, fish boxes, equipment, boards and almost every other thing in the factory.

7. The foam may also have a disinfectant action as well so all the time it is in contact it is killing bacteria.

8. Whether it's a detergent or sanitiser being used there comes a time to rinse it off and rinsing can be gentle or it can be violent, but it must be thorough.

9. In theory you should now have a nice clean factory but the only way to be sure is to inspect it visually and repeat the cleaning process anywhere where you think it hasn't been effective.

10. For some factories that is the end of a simple overnight clean but for many the use of a food safe residual disinfectant is essential. This will coat all of the food contact surfaces and ensure that bacteria are unable to multiply or even survive in the hours between cleaning and the start of your working day.

11. All of the equipment has to be put pack together and back in place, although often that isn’t done until just before they start of the shift.

12. So the next time you come into a nice clean seafood factory just take a look around and appreciate what has been done make it ready for another day’s production.