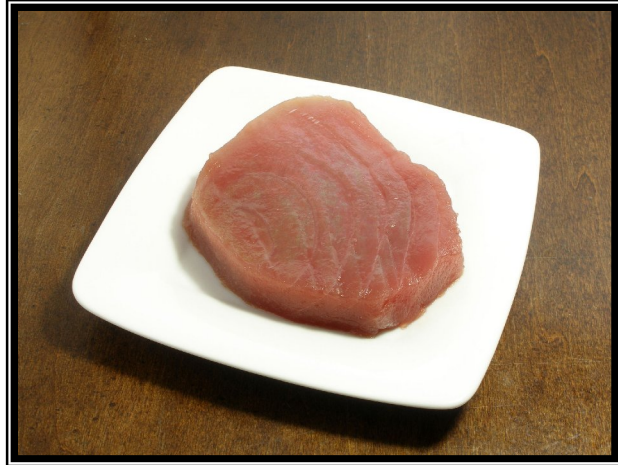




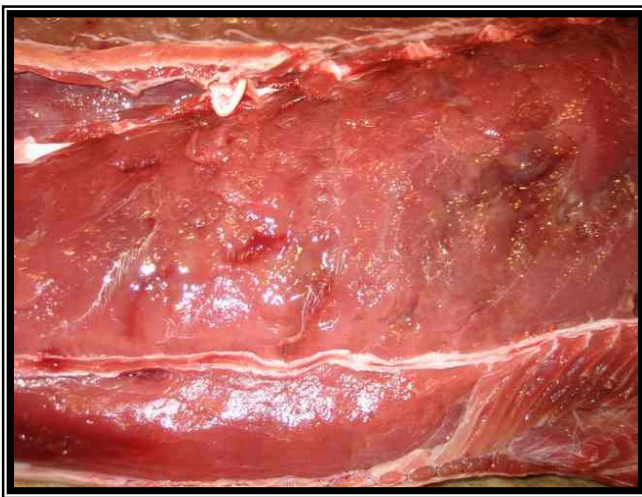
Fishy Fish: Common Tuna Mishaps

The end of summer traditionally marks the beginning of a better tuna market. As the ocean waters cool, the lower temperatures provide an opportunity for better fish quality. However, there are numerous factors that can still negatively affect the quality of fish. These factors can be divided into two general groups – Biological and Handling. In this issue we'll explore different types of problems that market fish can have.



Picture 1: A Portion of Tuna Steak

In this business, you're likely to hear some terms that might not be immediately clear. Terms such as "sashi," "miware," and "yake," might sound familiar. But what exactly do these terms refer to? They are Japanese terms used to describe typical problems that market fish may pose to buyers and sellers alike. It is always helpful to be clear on what the problems are so that viable solutions can be worked out.



Picture 2: Major "sashi" throughout the flesh of the Tuna.

The term "sashi" might get thrown around every now and again. It's used to describe a condition in fish where sections of the flesh seem to have melted away, leaving holes of various sizes. It is nearly impossible to detect unless the problem is so severe that it shows up in tail cuts and plugs. Typical symptoms of sashi appear as if pieces of the flesh are missing, as if there

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Picture 3: "Miware." Notice the "splitting" along the lower right. This case is less severe than typical cases.

are air bubbles (about the circumference of a quarter) where flesh should be. In extreme cases, entire sections of flesh are missing. Unfortunately, the causes of this problem are biological. They are likely caused by parasites that have latched onto their host during some point in the fish's lifetime. There is very little that can be done about this type of problem.

"Miware" is the Japanese term used to describe a condition in fish where the meat is split along the muscle rings. In English, this is typically referred to as "split" or "broken" meat. The causes of this problem can be due to several factors. When fish die, they go through a process called rigor mortis where their bodies stiffen up and turn rigid. During this time, bending or dropping the fish may cause the flesh to separate and tear from the muscle rings, resulting in miware. After rigor mortis the flesh will become soft once again. Another probable cause for split meat in fish could be insufficient chilling. Chilling the tuna quickly and thoroughly delays the onset of rigor mortis so that it has a larger "window" to be handled properly.

In general, it is a problem caused by poor handling. The fish should be handled very carefully after it has gone stiff - especially during unloading and placement into cold storage. Special consideration should be taken not to bend the fish or handle it roughly or carelessly as to accidentally drop it or cause it to impact any hard surfaces. It should also be thoroughly chilled prior to transport to cold storage – ice should be packed tightly so that there are no air pockets around the fish. This is to prevent open spaces where the fish may accidentally bend in the case of movement inside the boxes during transport; the concept is similar to that of using packing peanuts for items shipped in boxes.



Another problem that occurs in some market fish is what is known as "burnt" meat. In Japanese this is referred to as "yake" and, as with any problem, it can degrade the quality of fish greatly. This problem can be either a biological issue or a handling issue. Throughout the fish, the flesh turns opaque and can vary from pale shades of pink to dark grey.



Picture 4: "Burnt" meat, also known as "yake," has turned the flesh opaque.

This symptom generally occurs when the fish struggles and loses oxygen in its muscles, as well as builds up lactic acid and core temperatures during capture. A secondary cause of yake could be insufficient cooling immediately after the fish is killed. This combination of lactic acid, oxygen loss and core temperature build-up is what turns the flesh discolored and looking "burnt." Larger fish or fish with a higher fat content are more prone to this sort of problem than smaller fish because they have ability and energy to quickly raise their body temperature in the midst of a struggle.

Another common sight in problem fish is the appearance of a rainbow-colored sheen on the surface of the meat. This slight discoloration is most obvious when one holds the loin at certain angles to the light. It is generally associated with the first signs of deterioration and aging of the flesh. Though still usable, it often displeases tuna aficionados since it is unable to pass for premium sashimi-quality tuna.



Picture 5: An example of "rainbow" tuna with a bruise in the lower left quadrant.



Sometimes blood spots or "staining" can occur throughout the meat of a tuna specimen. This typically happens when the blood vessels and capillaries inside the fish rupture during strenuous or violent thrashing after the fish has been landed. It may also occur due to poor handling such as dropping the fish during capture or transport. Measures can be taken to prevent this, such as placing mats on the boat to try and prevent the fish from harming itself during capture.



Picture 6: "Stain" along the meat of the fish.

As we have learned, there are many things that can degrade the quality of market tuna. Unfortunately, many of these problems are caused by biological factors. These types of problems are difficult to deal with due to their unpredictability. For the most part, problems with handling can be prepared for. Strict protocols can be enacted so that the fish arrive in the best possible condition. However, the distance from the oceans' waters to the market is vast, and within that distance there are many opportunities for accidents and human error to intervene. In light of the numerous things that can ruin the quality of tuna, it leaves quality tuna something to be truly treasured.

Sincerely Yours,



Trident Marketing Inc.