

BLUE MUSSELS: AN OPEN AND SHUT CASE

Research has revealed that a long-held belief about closed mussels not being safe to eat is just an old wives' tale

Nick Ruello is a fisheries biologist, not a detective. But his love of seafood has led him to unravel one of the most pervasive urban myths around – that closed mussels are unsafe to eat. Contrary to popular belief and amid the still oft-repeated warnings of the experts to throw away the unopened ones, Nick Ruello says eating mussels that remain closed in the cooking process is perfectly fine. It is a position that could save consumers money and prevent some 370 tonnes of good seafood, worth at least \$3 million, from going to waste each year.

It was when Nick Ruello was undertaking FRDC-funded research, developing a quality-grading index for the mussel industry, that the “penny dropped,” he says. He and his wife Judith Woods, a fellow scientist, had suspected for years that eating closed mussels was safe and took the opportunity of the scientific rigour and sheer number of trials in the project to test the theory.

“It popped up when we were doing our cooking trials,” he says. “We were collecting data on the flesh content of the mussels and obviously we’d notice that some wouldn’t open up. So, being a scientist, curiosity led me to open them and I’d invariably find they were all cooked.”

Nick Ruello undertook 33 formal experiments over 32 months, testing mussels from different regions and at different times of the year. As well, he conducted plenty of informal trials to lend support.

“We’d do a batch of 50 to 100 mussels to do the formal tests, but we ate a hell of a lot more than that,” he says. “That’s one of the benefits of my line of work ... I’ve never been scared of being the guinea pig.”

Nick Ruello found the percentage of mussels that did not open up after typical cooking times ranged from zero to 53 per cent, averaging 11 per cent. At least some mussels remained closed in 90 per cent of cooking tests.



Michael Bacash and mussels: “Whether they are open or closed on cooking is not really relevant.”



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After being cooked for an extra 90 seconds, as many as 13.2 per cent of mussels remained closed, he says, and some would not open even after excessive cooking.

But he found the unopened mussels to be no more dangerous than the open ones. “Hence we see this now-entrenched advice about throwing out unopened mussels as unnecessary and unfounded,” he says. “Rather than being discarded, closed mussels should be opened with a knife to check their condition and cooked a little more if deemed necessary. These could then be regarded as safer to eat, given their greater exposure to heat.”

With the scientific testing under way, Nick Ruello went about uncovering the origins of what he was now sure was a myth. He consulted shellfish and seafood professionals’ chat rooms on the internet, spoke widely with food writers and cookery teachers and checked his own extensive library. He discovered that the spark seemed to be advice in Jane Grigson’s *Fish Book*, her best-selling 1973 cookery book, to “throw away mussels that refuse to open”, written at a time when there were still concerns over some European mussels being dredged from polluted beds.

“This warning was increasingly given in seafood cookery books published in the 1970s and 1980s,” he says. “By 1990, such advice was being repeated in almost all books without question or an explicit explanation why. My enquiries led me to conclude that this now widespread advisory note on mussels is a case of writers and teachers repeating without question what appears to be good advice – albeit well-meaning but unfounded, especially with Australian farmed mussels.”

Phil Lamb, managing director of Spring Bay Seafoods, which farms mussels off Tasmania, advises on his company’s website that mussels that do not open during the cooking process, are “perfectly OK to eat” – a conclusion he has drawn from experience and logic.

He welcomes Nick Ruello’s scientific research as a way to help restore faith in mussels as both value for money and a safe food choice. “It’s important that people’s confidence in the shellfish continues to grow, and I think it’s been detracting from that confidence if they’ve been

suspicious of them unnecessarily,” Phil Lamb says. “What I say to my customers is that some mussels just hang on harder than others.”

Phil Lamb explains that as it is steamed, the mussel opens when the adductor muscle inside the shell breaks. If that adductor muscle does not sever or separate from the shell, then the mussel will not open.

“I suspect it happens more often when the mussels are fresher than it does when the mussels are older, because as they get older they get weaker and the adductor muscle loses strength,” he says. “If they are fresh, some of the muscles can be quite strong and they hang on like hell.”

Renowned Melbourne seafood chef Michael Bacash says checking a mussel’s weight and smell before cooking is the best test consumers can undertake to avoid any nasty surprises on eating. The freshest mussels will be closed and full of water, but fresh mussels that are open will close their shells if tapped, or move if the shell is squeezed.

“Whether they are open or closed on cooking is not really relevant,” he says. “There are a lot of other measures.”

Michael Bacash says he can understand how the myth of the unopened mussel developed; that it was once based on real concerns, when wild mussels were widely eaten and dredged off the seabed under a range of conditions.

“We used to dredge mussels, so therefore they’d be covered in seaweed, they would be full of dirt, full of worms, all sorts of things,” he says. “Now they’re grown in pristine conditions above the sand in water that’s crystal clear.”

Michael Bacash has learnt by experience that eating closed mussels is fine – and he says consumers should have the same confidence, particularly as standards improve along with developments in aquaculture. “The bottom line is that if the mussel is fresh, you cook it and it doesn’t open, but it still smells good, it’s more than fine to eat,” he says.

FOR MORE INFORMATION: Nick Ruello, nick@ruello.com; FRDC/SSA Project Report 2002/418, *Improved post-harvest handling to add value to farmed mussels* by Nick Ruello, Ruello & Associates.