FFA FISHERIES TRADE NEWS

Volume 2: Issue 10 & 11 October-November 2009

By Elizabeth Havice, Amanda Hamilton and Liam Campling[1]

FFA

CONTENTS

SPECIAL FEATURE

The Global Recession and EU- and US-centred seafood value chains

The global recession has had a wide range of effects on the seafood sector generally, and the tuna industry more specifically.[2] From a demand perspective, consumers in the US and Europe are changing their behaviours to focus on price.[3] In both countries, consumers are substituting seafood products with less expensive sources of protein (i.e. chicken), or buying less expensive seafood or less of the same quality. Price considerations are projected to continue to dominate retail seafood sale choices throughout 2009.[4] To respond, seafood retailers have introduced new species and products that are lower priced, including new ranges of frozen and canned seafood.

However, canned fish is not immune to the effects of the recession. US retail data reveal that canned seafood purchases were down 13.3 percent in the first two months of 2009.[5] US orders for canned tuna products from the Philippines have slowed significantly; export from the Philippines dropped 20 percent in the first half of 200, though fresh whole yellowfin from the Philippines to the US market proved more resilient.[6] Spanish canning firm Pesasur missed sales targets by 20 percent when the recession first took hold in the fall of 2008, but sales have since rebounded.[7] Ecuador's export of tuna steaks and canned tuna dropped by 18 percent in the first half of 2009 compared to the same period a year earlier.[8]

On the other hand, it's not all bad news for seafood firms. FoodVest, the parent company that owns Young's (Britain's leading fish and seafood producer), The Seafood Company and Findus, showed profit growth at a staggering rate of almost 50 percent a year from 2004-2007.[9] Following the announcement of these statistics, FoodVest was named one of the UK's fastest growing firms.[10] In the UK, fish has continued to drive the frozen food market with sales soaring, even in the recession. Sales in the past three years have grown by more than US$ 230 million. Birds Eye and Young's (the two biggest brands in the business) attribute their success to launching an innovative range of products, 'no waste' strategies and competitive pricing.[11] They both made advances at the expense of private label

Consumer purchasing during the recession is focused on value

(supermarket own-brands), who lost one percent of market share in the twelve months May 2008-2009.[12]

High competition in a pinched market stands to push out the weakest brand names and further concentrate the market in favour of big brands and private labels. Furthermore, US consumers have indicated that after trying less expensive private labels, they are likely to continue to purchase them, even after the recession is over.[13] To survive, firms have to target new product development, run successful advertisements and get product pricing just right. [14] In one cost saving strategy, US brand name processors reduced the size of tuna cans from 6oz. to 5oz.[15]

Behind the scenes, global market dynamics – some of which are shaped by the recession, others of which are not – influence the tuna industry. The value of the US dollar (the currency in which tuna are traded) has steadily declined over the past six months. Meanwhile, raw material prices reached new lows in 2008, but began to rebound in 2009 when catches were lower than usual. Tuna raw material prices will continue to be influenced by the value of the US dollar, availability, demand, and the ability of food service and retail buyers to maintain the cash flow they need in order to purchase product, despite the credit crunch.[16]

The recession is also impacting the price of processing inputs, although not always in predictable ways. Steel raw material prices have dropped considerably because of decline in the construction sector. Yet prices for steel plates, the basic material for empty tuna can manufacturing, are expected to rise as steel firms reduce production.[17]

Another pressing question is if sustainability efforts will survive the recession, given that eco-labeled products often carry a price premium.[18] Surveys reveal that consumers' concern with the environment has been displaced with concern over the economy. Despite this, major retailers, such as Marks and Spencer in the UK are maintaining their commitment to sustainability, citing consumer interest in shopping at stores committed to socially and environmentally important issues.[19] On the other hand, some recession-hit processors have stopped buying sustainability certified fish, indicating that they can no longer justify buying fish that carry a price premium, only to put them in products with low margins.[20]

In sum, it is clear that the recession is influencing production and consumption trends in parts of the EU and US seafood sector. However, with so many moving parts – from currency

FFA

Private labels have a price advantage on brand names; to compete, brand names need to target product development, advertise and price competitively

In the last minute, EU publishes rules on implementation of IUU Regulation for 1 January 2010

value to catch levels and from industrial strategy to consumer demand, and everything in between – the only certain thing is that the results for the sector will be mixed. However, producers will likely need to continue to anticipate reduced demand for high end products and find ways to appeal to consumer needs when times are tight.

FISHERIES TRADE-RELATED REGULATION

EU releases Implementation Rules and practical 'Handbook' for IUU Regulation

The European Union has finally published detailed rules for the implementation of its Regulation to prevent, deter and eliminate the import of illegal, unreported and unregulated fishing (IUU).[21] With only two months to go before the Regulation must be enforced by exporters, flag states and authorities in importing EU Member states, the last-minute nature of this process is disturbing. This is especially so for firms exporting product via air freight as all fish caught on 1 January 2010 onwards must comply. To assist exporters, the European Commission has also published a Handbook on the Practical Application of the Regulation.[22] The Implementation Rules and the Handbook are both available here:

http://ec.europa.eu/fisheries/cfp/external_relations/illegal_fishing_en.htm

PNA Office established in Marshall Islands

As reported in the June and August editions of *Fisheries Trade News*,[23] the PNA countries have been working towards the establishment of their own secretariat to enhance the PNA Groups' effort towards better controlling their tuna resources and extracting a much larger proportion of the value of catch than is currently being derived.

On 21 October, the Ministers for Fisheries of the Parties to the Nauru Agreement met in Tarawa, Kiribati to discuss options for securing greater value from their common fisheries wealth. At the conclusion of this meeting, the Ministers released the 'Bikenibeu Declaration' that confirmed their agreement to establish the 'PNA Office' in Majuro, Marshall Islands from 1 January, 2010.

The functions of the PNA Office (amongst others) will be to support the PNA parties to: i) develop strategic fisheries

PNA Fisheries Ministers officially announce the establishment of the PNA Office in the Marshall Islands

conservation and management initiatives; and ii) develop initiatives to maximise the sustained direct and indirect economic benefits to the Parties.[24]

In addition to the establishment of the PNA Office, the PNA also intends to strengthen the institutional arrangements for their cooperation through the establishment of the following additional mechanisms:

- *Closure of additional high seas areas*, as a means of reducing overfishing of bigeye by foreign purse seiners and longliners fishing in the high seas, as well as high seas IUU fishing.
- *PNA Longline Vessel Day Scheme*, which is currently being developed with the aim of being implemented by the end of 2010 as a further measure for reducing overfishing of bigeye and yellow fin by the longline fishery, as well as extracting higher economic returns for PNA members.
- *New PNA Initiatives* to generate increased flow-on benefits for PNA members including refuelling in port, unloading catches in PNA ports and the use of PNA nationals as crew members.

It is possible that the PNA Group may include these additional measures in a Fourth Implementing Agreement of the Nauru Agreement, in an effort to better control fisheries management within EEZs and to put pressure on the WCPFC to put in place compatible measures for the high seas. The Third Implementing Arrangement came into effect in May 2008 and covered the closure of two high seas pockets, a three-month FAD closure, catch retention and purse seine observer coverage measures).

There has been speculation that establishment of the PNA Office will weaken the purpose and focus of FFA. However, the PNA Group have been adamant that the PNA Office's function is intended to enable a more commercial focus to be adopted in the management of the PNA's tuna resources, and as such, will supplement and complement FFA's functions, as a provider of fisheries policy advisory services, as well as technical services to its members.[25] Since the establishment of the PNA Office is now official, it will be critical that the FFA Secretariat and PNA Office engage to determine how best the two organisations can work together to continue to maintain regional solidarity and collectively progress the interests of the PNA Group, as well as the broader FFA membership, in strengthening the management of the region's tuna resources and deriving significantly increased economic benefits.

FFA

The PNA Group has announced a range of new cooperation mechanisms, including a Longline Vessel Day Scheme and closure of additional high seas areas

Fiji's ongoing struggle to regain EU market access

Fiji's struggle to regain EU market access for fisheries products is ongoing, with DG Sanco continuing to find deficiencies in Fiji's ability to ensure that exports of fishery products to the EU can meet strict sanitary and phyto-sanitary standards and regulations (SPS). Fiji was struck from the EC's 'List II' on 21 May 2008 for failing to provide the necessary guarantees that the export of fish products from Fiji is not a risk to EU consumers.[26] In particular, deficiencies were identified in relation to legislation and overall performance of the Competent Authority (CA) and laboratories.

From 2–6 June 2009, two inspectors from DG Sanco's Food and Veterinary Office (FVO) visited Fiji to re-evaluate the ability of the CA (Ministry of Health) to guarantee that fisheries products meet EU standards, as well as verifying the extent to which the recommendations of the previous FVO mission report of 2007 have been implemented and enforced by the CA.[27]

Despite significant efforts of the CA to address deficiencies highlighted in the 2007 FVO mission report, the FVO inspectors concluded overall that the Fijian Competent Authority is still not in a position to ensure fisheries products meet EU standards. While acknowledging that a revised and improved official control system has been implemented by the CA which adequately addresses requirements, all three fishing and processing facilities inspected were considered deficient in meeting hygiene, structural and HACCP requirements set out by the EC.[28]

The results of the June evaluation came as a continued blow to Fiji's tuna fishing industry and the Government, as both parties were confident that Fiji's access to the EU market would be reinstated following the FVO's inspection.

Loss of access to the lucrative EU market since May 2008 has disadvantaged Fijian tuna fishing operators. The EU provides a high value market outlet for non-sashimi grade fresh and frozen tuna (whole and loins), which might otherwise be sold as lower value canning material. In addition, Fiji operators have been keen to further develop exports to the EU market, particularly albacore, in response to strong market demand for sustainably caught tuna. Fiji's fishing operators and the CA are now working to address the recommendations presented by the FVO inspectors following the June evaluation.

Fiji is on the verge of signing off on an interim Economic Partnership Agreement (IEPA) with the European Union, to

FFA

FVO inspectors conclude that Fiji still fails to comply with EU SPS standards

Fiji's fishing and processing operations are considered deficient in meeting EC hygiene, structural and HACCP requirements

maintain duty free market access for a range of products (including tuna) under the Cotonou Agreement. However, until such time as Fiji is granted List 1 status, it will not be able to export to the EU once again, rendering Fiji's preferential market access under an IEPA useless. Fiji's fishing industry has also raised concerns that EU vessels are being granted fishing access in the WCPO, despite local operators not having access to EU markets.[29]

A recent working paper released by the Asian Development Bank (ADB) has revealed that SPS standards being implemented by developed countries tend to become an impediment to trade in the development world, since standards are 'tweaked' by developed countries to be stronger than necessary to protect their own products competing with imports from developing countries.[30] Like Fiji, Malaysia and Ghana have also encountered difficulties in meeting EU SPS standards for fisheries products.[31]

FISHERIES TRADE AND DEVELOPMENT

Local protests over PNG's Pacific Marine Industrial Zone

On 15 October, 2009 over 500 people gathered outside the Madang Provincial Government Headquarters to protest the development of PNG's Pacific Marine Industrial Zone (PMIZ) and present a petition to the Government to halt the project, on environmental and social grounds.

Protests stem from concerns over the environmental and social impacts the PMIZ development will have on the local community. In particular, there are fears that the development will result in the pollution of coastal areas (on which many local people are dependent to sustain their livelihoods), as well as overfishing of tuna resources and an increase in illegal fishing.

From a social perspective concerns have been raised that the development could bring tens of thousands of unskilled Asian workers into PNG, when local unemployment is high.[32] The local community also has concerns that employment opportunities for its people and other PNG nationals may be limited to poorly paid assembly line jobs for women. In addition, there are fears that the sex trade industry will burgeon, with an increasing number of local women trading sex for fish by-catch from offloading vessels.

The World Bank's International Finance Corporation (IFC) involvement in facilitation and investment in the PMIZ's

ABD study reveals that developed countries are using quality standards as a non-tariff barrier to trade with developing countries

Madang locals are protesting about negative environmental and social impacts of PNG's Pacific Marine Industrial Zone

development has also been heavily criticised. Protestors informed the Government that a formal complaint has been lodged with the World Bank/IFC and that legal actions are imminent against all parties involved.[33]

It is not clear if provincial and national authorities and agencies responsible for environmental protection and social issues (i.e. labour, health, youth development) have been engaged to work together closely with the development partners of PMIZ (PNG Government, World Bank/IFC, RD Tuna Canners and foreign interests) to evaluate and effectively manage the environmental and social risks posed by the development.

A ceremony held at the 200 hectare site at Vidar, North Madang on 16 June 2009 marked the formal beginnings of the PMIZ; an estimated US$300 million investment heralded to become 'one of the biggest tuna developments in the Asia-Pacific region'.[34] It is anticipated that up to ten tuna processing facilities will be established at the PMIZ, along with other supporting infrastructure (e.g. cold storage, vessel repair facilities, fish meal plant, can making facility, workers' settlement etc.), creating employment for over 30,000 people.

It remains to be seen if the PMIZ will spur overfishing and increased illegal fishing. According to Mr. Pete Celso (Managing-Director, RD Tuna Canners), there will be no additional catching effort required to support the raw material needs of the PMIZ (i.e. additional licences for vessels). Instead, existing vessels licenced to fish in PNG and throughout the WCPO will be required to shift their offloading priorities to the PMIZ, rather than supplying the bulk of their catch to processing facilities in Southeast Asia.[35]

PNG's National Fisheries Authority (NFA) reports that it is stepping-up its capacity to combat IUU fishing in PNG's waters by upgrading its vessel monitoring system (VMS) and observer program, as well as working with PNG's Defence Force to increase surveillance patrols.[36]

Greenpeace action in the WCPO

International environmental NGO Greenpeace continues to work with and against industry to promote sustainability in the tuna sector in the WCPO. Continuing its efforts to encourage a shift to pole and line fishing,[37] Greenpeace is working closely with Dutch firm Fishes Wholesale BV aiming to rebuild the pole and line industry in Papua New Guinea and the Solomon Islands. Greenpeace indicates that pole and line fishing is

FFA

World Bank/ International Finance Corporation involvement in PMIZ is being heavily criticised

Industry maintains that the PMIZ will not lead to increased catch, instead it will ensure that tuna is processed locally rather being transhipped to canneries in Southeast Asia

PNG is stepping-up its capacity to combat IUU fishing

more sustainable and, by creating jobs, provides a higher rate of return to Pacific island countries, than longline and purse seine fishing.[38] Indications are that there is growing demand for pole and line fisheries products, but international organisations question the feasibility of converting the fishery entirely to pole and line.[39] For example, questions around the sustainability of bait fisheries to supply pole and line operations are open for debate.

In addition to this work, Greenpeace continues to actively campaign against unsustainable fishing practices. In late summer 2009 the organisation went on a press conference tour, calling on major fishing nations, including South Korea, Taiwan and Japan to cut down on their tuna catches and to support 50 percent reduction in tuna catches in the Pacific.[40]

At the same time, Greenpeace ran a campaign to monitor illegal, unreported and unregulated fishing activities in the WCPO, focusing on monitoring pockets of international waters that Pacific island countries seek to close to fishing.[41] Greenpeace also claims to have caught Taiwanese fishing vessels *Her Hae* and *Jia Yu* illegally transferring fish at sea in a pocket of international waters between PNG and the Federated States of Micronesia. The *Esperanza* escorted the *Jia Yu* into FSM waters and reported the illegal activities to relevant authorities.[42] Greenpeace also called for the arrest of the captain of the Japanese ship *Koyo Maru 3* after the *Esperanza* caught the vessel hauling its longline and catching tuna within Cook Islands waters, where the vessel does not have a fishing license.[43] The *Esperanza* also reportedly confiscated gear from the Korean longline vessel *MFV Oryong 717* that was fishing in international waters that are part of a proposed future marine reserve.[44] This vessel is not reported to have been undertaking any illegal activities.

Greenpeace is running campaigns that encourage major fishing nations to cut down their tuna catches and that monitor illegal fishing activities in the WCPO

Greenpeace has reported illegal and/or unsustainable practices of several distant water vessels in the WCPO

IOTC fails to take action on key management measures

A review of the Indian Ocean Tuna Commission (IOTC) released in February 2009 revealed that inadequate data collection and reporting is limiting the scientific advice necessary to manage stocks. The review notes high frequency of member states with inadequate data collection and reporting mechanisms[45] and high levels of artisanal catch – estimated to be over 50 percent of total tuna catch in the IOTC area – without sufficient catch and effort data.[46] Data deficiencies are significant since yellowfin biomass is thought to be smaller than what is necessary to maintain maximum sustainable yield and high juvenile bigeye harvest have reduced long-term maximum sustainable catch and effort.[47]

On the heels of this review, the Indian Ocean Tuna Commission (IOTC) met in Bali, Indonesia in April 2009, but conflicting national interests prevented progress in addressing data collection and/or conservation measures. As a result, only six of sixteen proposed resolutions on data improvement, bycatch reduction and overfishing were passed. Of these, the most politically contested conservation resolutions were rejected, including resolutions on: shark bycatch mitigation; yellowfin catch documentation, and; a ban on tuna discards by purse-seiners.[48] A plan to limit tuna and swordfish fishing capacity was strongly opposed by Indonesia and Australia and ultimately, rejected;[49] the European Commission has support the capacity reduction efforts.[50] Given that the EU owned purse seine fleets dominate this fishery, it is no surprise that it has a deep-rooted vested interest in maintaining this position through a capacity freeze.

Furthermore, a recent study gave special attention to bycatch and discards in the European purse seine tuna fishery in the Indian Ocean, revealing that tuna discards (unused because they are either too small or the wrong species) are over 72 percent of total bycatch. The study estimates that EU purse seines alone discard over 10,000 tonnes of bycatch each year and confirms that fishing on fish aggregating devices (FADs) is the main source of bycatch.[51] There was no action on this issue at the IOTC April meeting.

Those resolutions that did pass were done so with little urgency and granted long or undefined implementation timelines. Management inconsistencies revealed in the IOTC review are to be 'addressed' with a work plan that will then be considered by members. The work plan is not due until 2011. Fishing capacity is to be addressed by collecting data on fleet size and countries' plans for fleet development. No catch or capacity limits were put in place. A new regional observer scheme will require observer coverage on a minimum of 5 percent of the number of operations/sets for each gear type for each fleet. Less coverage is required for vessels under 24 metres. Countries are responsible for implementing the observer programme

FFA

IOTC rejected resolutions on the most politically contested conservation measures, including bycatch mitigation, yellowfin catch documentation and tuna discards

and self-reporting to IOTC. A resolution on prohibition of large-scale drift nets and marine turtle bycatch mitigation does not have a schedule of implementation.[52]

The IOTC also plans to impose a mandatory product certification scheme that requires member countries to certify that their tuna products are not caught using illegal practices. Tuna products that fail to show the certificate will be prohibited from entering other member country markets. Again, there is no timeline for implementation.[53]

Because of these relaxed efforts, the conservation organisation WWF declared the IOTC meeting a failure and indicated that it will work with the seafood industry to demand better management by regional fisheries management organisations.[54]

The WCPFC faces many of the same management issues as those in the IOTC. The WCPFC is also expected to undergo a review,[55] will continue to navigate politically difficult catch and capacity reduction negotiations, and should expect increased intervention from conservation organizations and industry, particularly the International Seafood Sustainability Foundation (ISSF). Strategies for the WCPFC to tackle these issues and achieve its mandate of resource management for sustainable environmental and economic yield are discussed in the following report.

New studies and Nobel Prize winner investigate strategies for fisheries management success

Shortcomings at IOTC (see above) and ICCAT[56] exemplify challenges that government-led fisheries management bodies, including tuna RFMOs, face in meeting their obligations of creating and regulating sustainable fisheries. Two recent studies assess if and how fisheries management bodies have the potential to succeed in their efforts. The first, published in *Science*, presents a cautiously optimistic assessment of modern management's ability to effectively restore stocks and marine environments. It cites evidence of management regimes that have reduced exploitation to levels at or below rates predicted to achieve maximum sustainable yield. The study identifies a need to merge catch restrictions, gear modifications and closed areas in accordance with fishery-specific conditions to generate fishery and conservation objectives. Despite highlighting the potential for success, the authors note that 63 percent of fish stocks worldwide still need rebuilding and even lower exploitation rates are needed to reverse the collapse of

FFA

IOTC's resolutions on management inconsistencies, fishing capacity, observer programmes and bycatch mitigation were passed with little urgency and with long or undefined implementation timelines

vulnerable species.[57] The paper is particularly significant since it represents a change in perspective from one of its authors, Boris Worm, who published an influential (and hotly debated) paper in 2006 suggesting that world fisheries could collapse by 2048.[58]

Industry responded positively to the *Science* study, indicating that it provides grounds for optimism that good scientific information combined with properly enforced fisheries management techniques can create a sustainable fishing industry. Many industry actors vowed to continue to actively support fisheries management programmes where they could.[59]

A second paper, published in *PLoS Biology* (an open access journal available online) assesses the effectiveness of the world's fisheries management regimes. The findings reveal that most fisheries management regimes are lagging far behind standards set by international organisations, despite wide acceptance of broad management principles. The study identifies the conversion of scientific advice into policy, through a participatory and transparent process, as the most critical role in determining the sustainability of fisheries. It reiterates the importance of improving management effectiveness to stabilize food supply and improve environmental conditions.[60]

Both articles note that political-economic conditions stand to frustrate progress in fisheries management. The *Science* article notes that international fleets can have negative impacts on fisheries and be difficult to regulate. Furthermore, it is difficult to reduce capacity in fisheries because of the lack of alternatives. These examples, among others, stand to complicate prospects for rebuilding fisheries. The *PLoS Biology* article notes that management suffers as a result of the effects of corruption in poor countries and political pressures from interest groups in rich countries.

The release of these articles, complements the findings of Elinor Ostrom, who won the 2009 Nobel Prize in Economics (shared with Oliver E. Williamson) for her work on governing commons.[61] Looking at common resources, including fisheries, her work highlights that locally evolved institutional arrangements, governed by stable communities and buffered from outside forces have successfully sustained resources for centuries. Today, however, resources like tuna are produced and consumed on the global scale and their exploitation is influenced by global trends. Addressing more complex problems presented by global and transboundary resource issues requires the use of an array of tools, often all at once.

A new study, published in Science, presents a cautiously optimistic assessment that management bodies can generate sustainable fisheries through the use of catch restrictions, gear modifications and closed areas, among other tools

A second new study identifies conversion of scientific advice into policy as the most important factor influencing sustainability of fisheries

Such tools include: communication among resource users, regulators and scientists; complex, redundant and layered institutions; a mix of institutional types; and designs that facilitate experimentation, learning and change.[62]

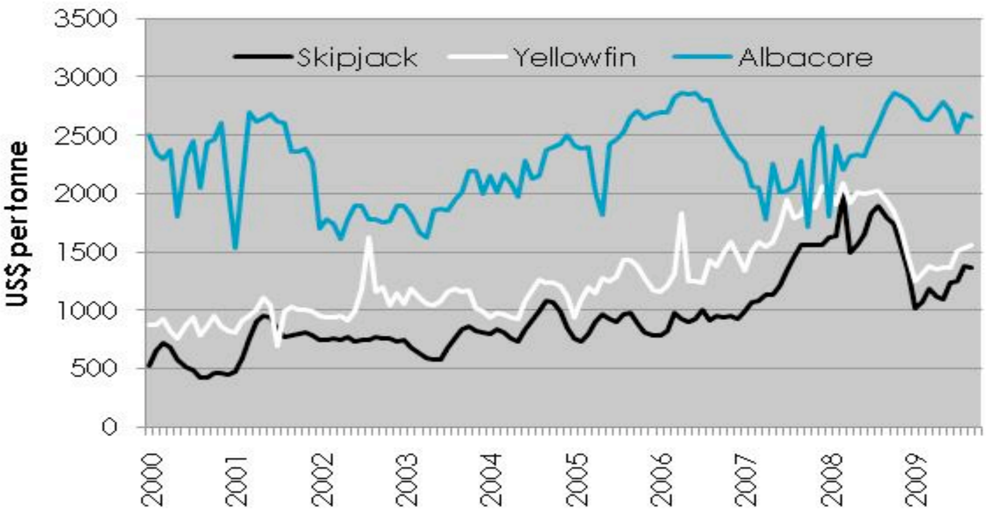
If this is the case, it can be seen as a positive trend that cooperative management among Pacific island countries is operating alongside the WCPFC, UNCLOS and new industry efforts to improve fisheries management in the WCPO.[63] However, creating and implement management terms under such complex conditions makes progress slow, despite that many tuna resources are in need of rapid conservation measures. So far, there is little progress to report. For example, although tuna RFMOs agreed to focus on excess capacity and bycatch – two of the key issues singled out by all of the RFMO scientific committees – at the second Joined Meeting of the Tuna RFMOs in late June 2009,[64] substantive management changes have not emerged.

FFA

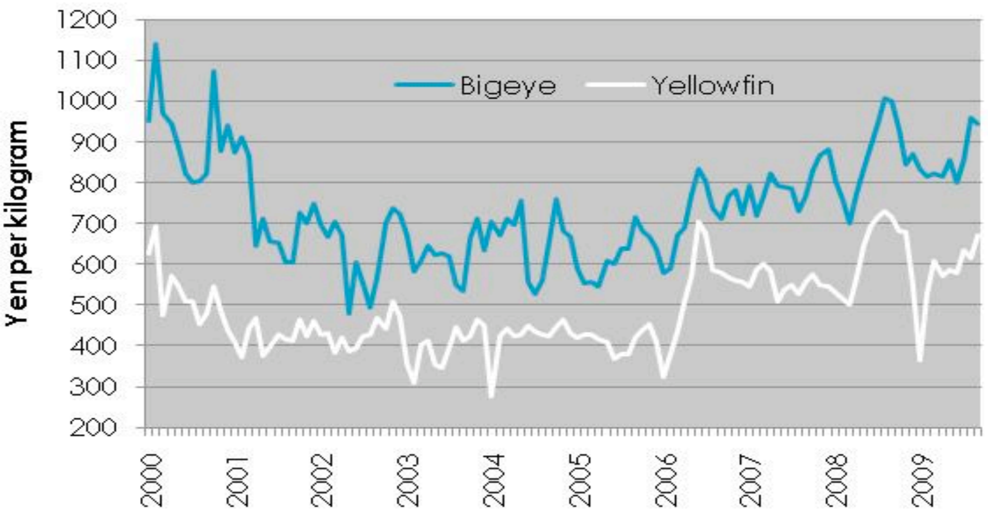
Political and economic factors, such as corruption and pressure from interest groups, frustrate process in fisheries management

Tuna Price Trends

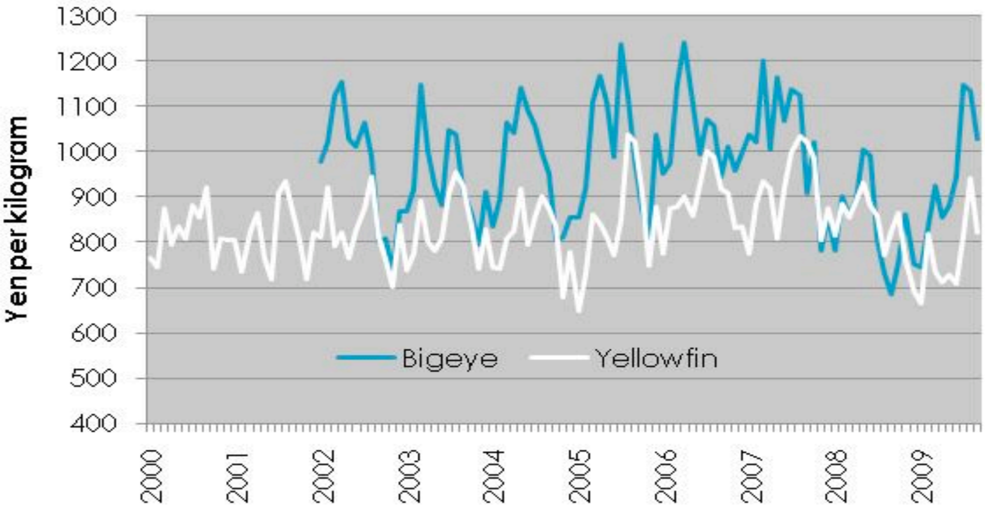
Bangkok canning-grade prices to September 2009[65]



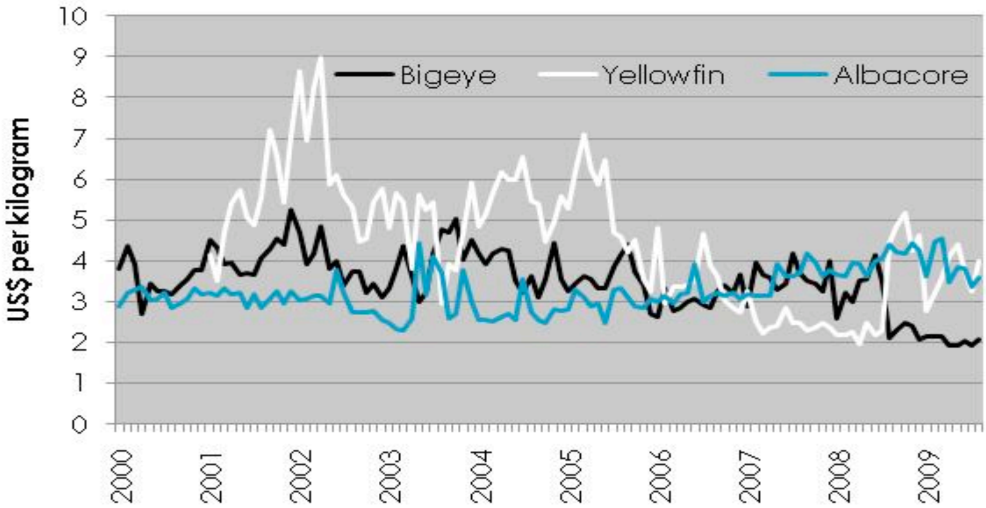
Japan frozen sashimi prices (ex-vessel, Japanese ports) to September 2009[66]



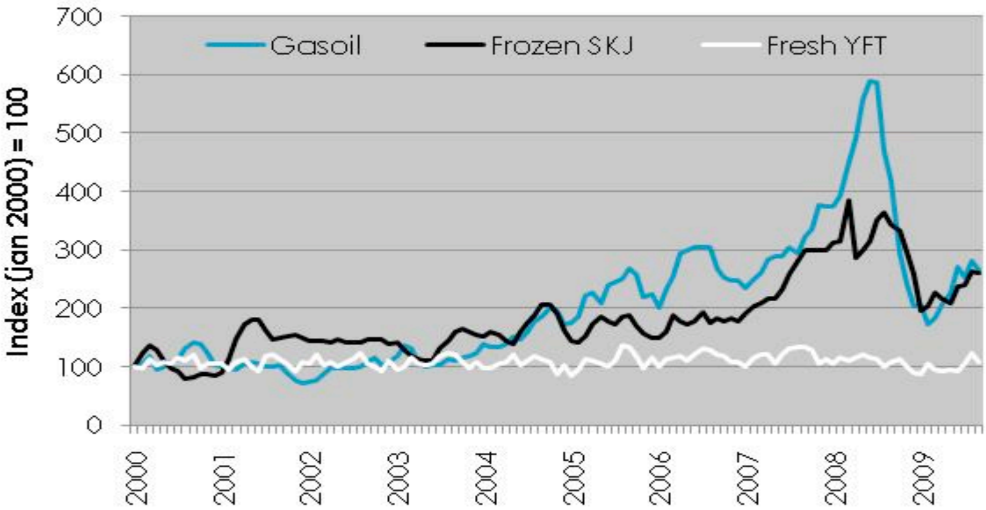
Japan fresh sashimi prices (origin Oceania) to September 2009[67]



US imported fresh sashimi prices to August 2009[68]



Gasoil, canning-grade SKJ and sashimi YFT price index to September 2009[69]



Coming in the next issue (December 2009, Vol. 2: Issue 12)

- Update on fisheries subsidies 'Roadmap' discussions at the WTO
- American Samoan cannery developments

[1] Prepared for the FFA Fisheries Development Division by Elizabeth Havice, Colorado College, Amanda Hamilton, independent consultant, and Liam Campling, Consultant Fisheries Trade Analyst, FFA. Desktop publishing by Antony Price. The contents of this briefing (including all analysis and opinions) are the responsibility of the author and do not necessarily reflect the positions or thinking of the FFA Secretariat or its Members.

[2] For prior special features tracing the impacts of the recession on tuna value chains, see 'Special Feature: The Global economic slowdown and the fish trade', *FFA Fisheries Trade Briefing*, 1(6) May 2008; 'Special feature: The Greening of Canned Tuna in the EU and the Global Economic Downturn', *FFA Fisheries Trade Briefing*, 1(10) September 2008. Both available at: http://www.ffa.int/trade_news

[3] Ben Dipietro. 'Seafood prices rising', *IntraFish Media*, 29 May 2009. Available at: http://www.intrafish.no

[4] Ben DiPietro. 'Retail outlook: Seafood consumers trading down', *IntraFish Media*, 1 April 2009. Available at: http://www.intrafish.no

[5] Sean Gregory. 'What sells in a recession: Canned goods and condoms', *Time*, 11 March 2009. Available at: http://www.time.com

[6] Romer S. Sarmiento. 'Canned tuna exporters see trouble in lack of order from the US', *Business World Online*, 14 October 2008. Available at: http://www.bworldonline.com

[7] Tom Seaman. 'Is canned fish recession proof?', *IntraFish Media*, 8 October 2009. Available at: http://www.intrafish.no

[8] Analia Murias. 'Tuna demand dwindles', *FIS.com*, 13 October 2009. Available at http://www.fis.com

[9] 'Huge profit growth for Foodvest', *Fishupdate.com*, 20 April 2009. Available at: http://www.fishupdate.com

[10] 'FoodVest named one of fastest growing U.K. firms', *IntraFish Media*, 21 April 2009. Available at: http://www.intrafish.no

[11] 'Fish continues to drive UK frozen food market', *Fishupdate.com*, 8 October 2009. Available at: http://ww.fishupdate.com

[12] Tom Seaman. 'Own-label frozen fish sales losing out to brands', *IntraFish Media*, 22 June 2009. Available at: http://www.intrafish.no

[13] 'Poll: Consumers to stick with private-label goods', *IntraFish Media*, 16 June 2009. Available at: http://www.intrafish.no

[14] Steve Robinson. 'Analyst: Economy puts seafood brands at risk', *IntraFish Media*, 13 October 2008. Available at: http://www.intrafish.no

[15] 'Is my tuna can shrinking?', *Wichita Eagle*, 23 March 2009. Available at: http://www.intrafish.no

[16] John Fiorillio. 'How seafood firms can survive the credit crunch', *IntraFish Media*, 15 October 2008. Available at: http://www.intrafish.no

[17] 'Consumers should pay for higher empty can prices in 2009', *Atuna*, 27 November 2008. Available at: http://www.atuna.com

[18] Karen Galloway. 'Contest for value: How shoppers are responding to the recession', *The Longliner*, Issue 3.

[19] Drew Cherry. 'NASF 2009 Blog: Will the recession kill sustainability?', *IntraFish Media*, 9 March 2009. Available at: http://www.intrafish.no

FFA

[20] Tom Seaman. 'Is the MSC recession-proof?', *IntraFish Media*, 17 March 2009. Available at: http://www.intrafish.no

[21] Commission Regulation (EC) No 1010/2009 of 22 October 2009 laying down detailed rules for the implementation of Council Regulation (EC) No 1005/2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing. *Official Journal of the European Union*, L 280/50, 27 October 2009.

[22] DG MARE, 'Handbook on the practical application of Council Regulation (EC) No. 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing (The IUU Regulation)', Mare A4/PS D(2009) A/12880, October 2009.

[23] 'PNA countries demand sustainability and higher access returns from tuna fisheries', FFA Fisheries Trade News, 2(6), June 2009; and 'Pacific island countries seek to reframe relations with distant water fishing nations and fleets', FFA Fisheries Trade News, 2(8), August 2009. Both available at: http://www.ffa.int/trade_news

[24] 'Bikenibeu Declaration By Ministers for Fisheries of the Parties to the Nauru Agreement', 21 October 2009, Bikenibeu, Tarawa, Republic of Kiribati.

[25] Samisoni Pareti (2009) 'A Tuna Cartel? Pacific states borrow OPEC idea to fix tuna price', Islands Business, June 2009. Available at: http://www.islandsbusiness.com/archives/islands_business/index_dynamic/containerNameToReplace=MiddleMiddle/focusModuleID=18728/overideSkinName=issueArticle-full.tpl

[26] 21 May, 2008 (European Commission Regulation No 439/2008)

[27] DG(SANCO) 2007/7305 'Final report of a mission carried out in Fiji from 9 to 13 July 2007 to assess the public health controls and conditions of production of fishery products intended for exported to the EU'. Available at: http://ec.europa.eu/food/fvo/rep_details_en.cfm?rep_id=1881

[28] DG(SANCO) 2009/9188, 'Final Report of a Mission Carried Out in Fiji From 02 June to 06 June 2009 in Order to Evaluate the Control Systems in Place Governing the Production of Fishery Products Intended for Export to the EU. Available at: http://ec.europa.eu/food/fvo/rep_details_en.cfm?rep_id=2269

[29] 'EU defends fleet', Fiji Times Online, August 5, 2009. Available at: http://www.fijitimes.com/story.aspx?id=126767

[30] Jennifer Ng (2009) 'Factors impeding food trade revealed', Trade Law Centre for Southern Africa, 21 April. Available at: http://www.tralac.org/cgi-bin/giga.cgi?cmd=cause_dir_news_item&cause_id=1694&news_id=65079&cat_id=1026.

ADB working paper available for download at: http://www.adb.org/Documents/Working-Papers/2009/Economics-WP154.pdf

[31] Megapesca (2009) Fisheries Policy and Fish Hygiene, Technical Information in Food and Fisheries Policy & Development. February 2009. Available at: http://www.megapesca.com

[32] 'Stop Massive World Bank (IFC) Supported Expansion of PNG Industrial Tuna Fish Harvest', Australia.to, October 2009, Available at: http://www.australia.to

[33] Ecological Internet (2009)

[34] 'New Protest in PNG Against Planned Madang Tuna Park', *Atuna*, 20 October, 2009. Available at: http://www.atuned.biz/public/ViewArticle.

asp?ID=7558 See also, 'Papua New Guineans Protest World Bank's Ill-Conceived Expansion of Pacific Tuna Fish Harvest', Ecological Internet, 20 October, 2009. Available at: http://www.ecoearth.info/blog/2009/10/ei_release_papua_new_guineans.asp

[35] Celso (2008)

[36] NFA (2009) 'PNG to become World Tuna Capital: Fisheries Minister', Available at: http://www.fisheries.gov.pg

[37] 'Greenpeace supermarket campaigns' *FFA Fisheries Trade News*, 2(7) July 2009. Available at: http://www.ffa.int

[38] Developing Sustainable and Equitable Pole and Line Fisheries for Skipjack. April 2009. Greenpeace. Available at: http://www.greenpeace.org

[39] Complete shift to pole and line caught canned tuna is unrealistic. 16 June 2009. World Fishing. Available at http://www.worldfishing.net

[40] 'Greenpeace takes tuna protect tour to Taiwan', *Deutsche Presse-Agentur*, 26 August 2009. Available at: http://www.intrafish.no

[41] 'Urgent action by Japan needed to protect the Pacific tuna', *Greenpeace Press Release*, 11 September 2009.

[42] 'Photo gallery: Green peace catches longliners', *IntraFish Media*, 4 September 2009. Available at: http://www.intrafish.no; 'Taiwanese ships caught illegally transferring tuna at sea', *Greenpeace Press Release*, 2 September 2009.

[43] 'Greenpeace calls for arrest of illegal Japanese fishing ship', *Greenpeace Press Release*, 9 October 2009.

[44] 'Greenpeace confiscates Korean tuna fishing gear', *Greenpeace Press Release*, 14 September 2009.

[45] 'IOTC review panel: Tuna stock assessment not reliable', *Atuna*, 23 February 2009. Available at: http://www.atuna.com

[46] 'IOTC knows little about volumes of artisanal tuna catches', *Atuna*, 19 Februaru 2009. Available at: http://www.atuna.com

[47] 'IOTC review panel: Tuna stock assessment not reliable', *Atuna*, 23 February 2009. Available at: http://www.atuna.com

[48] 'EU and East-Asian Nations Clash in IOTC on Tuna Conservation', *Atuna*, 20 April 2009. Available at: http://www.atuna.com

[49] 'IOTC drops plans to limit tuna fishing', *The Jakarta Post*, 6 April 2009. Available at: http://www.thejakartapost.com

[50] 'European Commission gives guarded reaction to outcome of Indian Ocean Tuna Commission meeting', *European Commission Press Release*, 7 April 2009.

[51] 'Tuna discards in the Indian Ocean – 72% of all by-catch', *Atuna*, 22 January 2009; '55% of tuna by-catch and discards in the Indian Ocean on FADs', *Atuna*, 14 January 2009. Available at: http://www.atuna.com

[52] 'EU and East-Asian Nations Clash in IOTC on Tuna Conservation', *Atuna*, 20 April 2009. Available at: http://www.atuna.com

[53] Ika Krismantari. 'IOTC to impose mandatory certification for tuna products', *The Jakarta Post*, 2 April 2009. Available at: http://www.thejakartapost.com

[54] 'IOTC Bali meeting a complete failure', *WWF Press Release*, 8 April 2009.

[55] Natalia Freitas. 'EU Commission: "We need to reduce the world's tuna fleet"', *Atuna*, 21 March 2009. Available at: http://www.atuna.com

[56] 'Concern over bluefin decline heightens, policy action ensues', *FFA Fisheries Trade News*, 2(9) 2009. Available at http://www.ffa.int

[57] Boris Worm, Ray Hilborn, *et al.* 'Rebuilding global fisheries', *Science*, 325 (5940): 578-585. 31 July 2009.

[58] Boris Worm, Edward B. Barbier, *et al*. 'Impacts of biodiversity loss on ocean ecosystem services', *Science*, 314(5800): 787-90. 3 November 2006.

[59] Steve Robinson. 'Industry buoyed by "optimistic" study', *IntraFish Media*, 4 August 2009. Available at: http://www.intrafish.no; 'Report on fisheries management regimes welcomed', *Fishupdate.com*, 5 August 2009. Available at: http://www.fishupdate.com

[60] Camilo Mora, Ransom A. Myers, *et al.* 'Management effectiveness of the world's marine fisheries', *PLoS Biology*, 7(6): 1-11. June 2009.

[61] Louise Uchitelle. 'Two Americans are awarded novel in economics', *The New York Times*, 12 October 2009. Available at: http://www.nytimes.com

[62] Thomas Dietz, Elinor Ostrom and Paul Stern. 'The Struggle to Govern the Commons', *Science*, 302 (5652):1907-1912. 12 December 2009.

[63] 'Tuna industry leaders launch International Seafood Sustainability Foundation', *FFA Fisheries Trade News*, 2(3&4) 2009. Available at: http://www.ffa.int

[64] 'Tuna RFMOs agree to focus on excess capacity, bycatch', *IntraFish Media*, 6 July 2009. Available at: http://www.intrafish.no

[65] Customs Department, Thailand. http://www.customs.go.th/Statistic/StatisticIndex.jsp

[66] FFA database

[67] Japan Customs. http://www.customs.go.jp/toukei/info/index_e.htm

[68] US National Marine Fisheries Service. http://www.st.nmfs.gov/st1/trade/index.html

[69] US Energy Information Administration. http://tonto.eia.doe.gov/dnav/pet/pet_pri_spt_s1_m.htm