

SPECIAL ANNOUNCEMENT

**The Tuna Ranching Intelligence Unit
Special November 2005 ICCAT Sevilla-Spain Meeting Edition**





ATRT, SL was honoured by the United States Department of Commerce NOAA, to attend the reception for the delegates to ICCAT's November 15-21, 2004 annual meeting in New Orleans.

ATRT, SL wishes to dedicate this report to the City of New Orleans, hoping it promptly recovers from the destruction caused by hurricane Katrina.

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Note from the authors

ATRT's Tuna Ranching Intelligence Unit (TRIU) 2004 report was indeed intended to be distributed to tuna fishing and ranching operators throughout the Mediterranean Sea.

The 2004 TRIU report has now hit almost every news website worldwide and has enjoyed excellent reviews from many tuna fishing & ranching concerns.

We wish to thank everybody for his or her overwhelming positive reaction and support.

It has also been spinned and criticised by many in the industry.

Our purpose has been served: We have launched a much needed debate among us all, about the future of tuna ranching.

Our email box has been literally flooded with new information related to tuna ranching in the Med.

We believe we had to update our report with such information.

We are therefore honoured to present to you this Pdf-format Special Updated November 2005 ICCAT Meeting Edition of our TRIU report.

Thank you again for your support.

The authors

Madrid, November 25th, 2005.

EDITORIAL

Early 2003, a book by Dr. Yuji Uozumi, a scientist at Japan's National Research Institute of Far Seas Fisheries, entitled "Are Tunas Endangered?" was published by Seizendo Shoten Publishing Co. in Tokyo, Japan.



Author: Dr. Yuji Uozumi, Director of the Western Pacific Tuna and Skipjack Resources Division, the National Research Institute of Far Seas Fisheries.

The book "deserves the attention of foreign readers", according to its author who claims to be neither an advocate of the fisheries industry nor a green campaigner.

this book is to clarify the core of this issue. Specifically, I address the issue with a central emphasis on the criteria to determine the danger of extinction.

I also point out the errors in the criteria and suggest their improvement in the hope that no species unlikely to be endangered may be listed and the conservation of truly endangered species may not be hampered.

On the other hand, we should not be allowed to indulge in the unlimited use of tunas on the pretext that they are not endangered. Efforts should be made to avoid any situation that can lead to creating serious problems to the sustainable use of tunas. The history of fisheries is a history of overexploitation, and tuna fisheries are no exception. At present the optimum utilization of tunas is faced with diverse problems, and great efforts have been expended for solving them.

This book addresses the issues relating to sustainable use and possible measures to be taken. I would only hope that this book would serve to ensuring that tunas will not be exposed to the risk of extinction in the future, to avoiding excessive exploitation, and to achieving sustainable utilization of the resources."

The question is if Dr. Yuji Uozumi and Dr. Jiro Suzuki have had the opportunity to tour the Med and see for themselves what empirical facts and scientific hard-evidence are telling us all: Blue Fin tuna fishing and ranching in the Mediterranean has grown out of proportion.

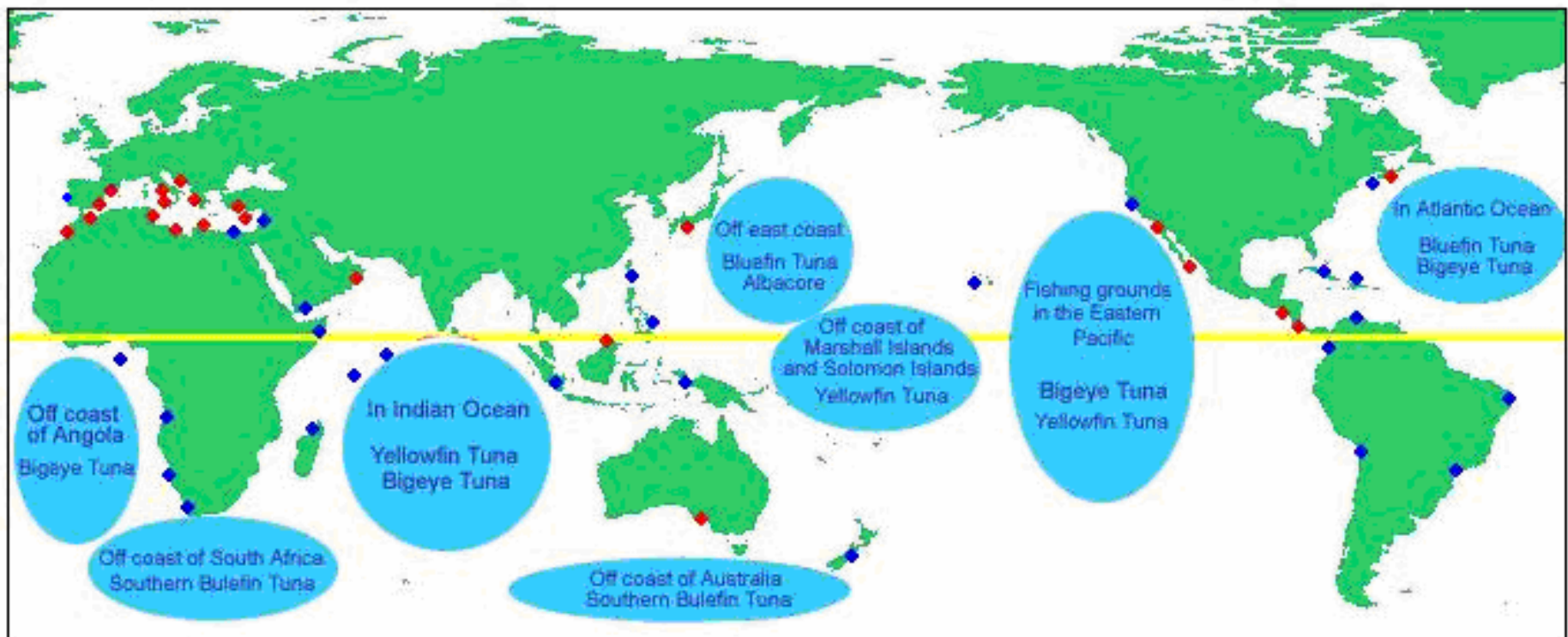
Such a statement should sound more than obvious to those across the *Mare Nostrum* who love this business and would like to continue making an honest living out of it.

For the past five years, sheer greed and business short-sightedness among all of us; have virtually taken our Blue Fin stock to a complete collapse.



Sergi Tudela, WWF's Mediterranean Fisheries Officer

Countries Farming Tuna



- ◆ **Currently farming tuna**
- ◆ **Considering farming tuna**

Unfortunately only the Japanese version is available at the moment.

Yet, Dr. Uozumi is keen to point out to whoever wants to listen that "Tunas are not endangered. This obvious fact is debated heatedly at such forums as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). I would like to question the reason for this situation. Why were tunas listed in the Red List as a species threatened with extinction? What is the merit of listing tunas, which are far removed from the risk of extinction? Will it not only confuse the conservationist movement? One of the objectives of

Dr. Jiro Suzuki, tuna biologist from the National Research Institute of Far Seas Fisheries, seems to agree with his colleague.

The Isaribi July 2005 news letter by the Japan Fisheries Association, publishes an article in which Dr. Suzuki challenges Dr. Boris Worm of Dalhousie University and Dr. Ransom Myers of the same university, recent findings published in Nature Magazine (May 15, 2005).

According to the co-authors, large predatory fish biomass today is only about 10% of levels before commercial fisheries began.

"The current overcapacity of tuna farms around the Mediterranean (41,212 tonnes, to be compared to a total quota of 32,000 tonnes according to ICCAT) results in a real race for the last tuna from the start of the fishing season to the start of the seasonal closure of the purse seine fishery, the 15th July. All evidences point to the widespread violation of ICCAT management rules during this period, including the ban on aerial spotting in June," says The World Wildlife Fund, WWF.

WWF contended in its June 2004 Tuna ranching Report that "the rapid growth of tuna ranching is unsustainable and harming already depleted

Mediterranean wild tuna stocks and is a big threat to the livelihood of fishermen who use sustainable fishing methods."

Sergi Tudela, WWF's Mediterranean Fisheries Officer (Barcelona, Spain), remains convinced that tuna ranching is putting more pressure on wild stocks and is not being properly dealt with by the GFCM/ICCAT working group.

"Tuna ranching is supporting the development of purse seining for catching tuna in the Mediterranean", he says.

He points out that less regulated countries, such as Algeria and Tunisia, are not reporting their activities and are building new fleets that will further exploit wild stocks.

"Nobody can tell you if the quota is being reached or not", he points out, adding that tuna ranching is disrupting the way fisheries biologists collect data.

Japanese customers and some times business partners have been only too happy to pay whatever price for the fish, as long as they could ship it back to Tokyo or Osaka.

Some of the big Sogo Soshas, (Japan's biggest diversified corporations) would even go into multimillion Euro investments, provided Mediterranean operators, would keep on delivering whatever Tsukiji was able to absorb.

The crude reality is that our *Mare Nostrum*, our fish, our know-how and our professional passion for fishing and ranching are nothing else and nothing more than mere financial parameters, indicators or factors in the eyes of those who in Japan dictate fishing and ranching trends throughout the world.

For those of you who know how to read between the lines and as a matter of courtesy to our Japanese friends, we now reproduce the main aspects of an inspiring lecture by Isao Nakasu, President of the Japan Fisheries Association (JFA) in Tokyo on October 22nd 2003, under the theme "Thinking of Fisheries Industry as Food Supplying Industry."



Isao Nakasu, President of the Japan Fisheries Association (JFA)

Nakasu outlined his views on (1) the supply and demand for food in the

world, (2) the supply and demand for food in Japan, and (3) the future outlook of the fisheries industry.

"The world population now exceeds 6 billion, with a prospect to increase to 8.5 billion in 2030. Essential for human existence is food, and food supports population growth. In other words, the supply of food determines the scale of the population.

The world population doubled during the past 40 years, from 3 billion in 1960 to 6 billion in 2000, and the bulk of the food supply during this period came from agricultural and livestock products. Especially, the supply of meat and dairy products saw a visible increase. Those products are produced by feeding cattle with grass and grains. Grain production in the world stands at 2.1 billion tonnes, of which Japan produces about 10 million tonnes. On the other hand, world fishery production is 140 million tonnes, of which Japanese production accounts for 5-6 million tonnes. China produces 50 million tonnes, centring on inland water fisheries.



World grain production, which stood at 90 million tonnes from 650 million hectares of land in 1960, expanded to 2.1 billion tonnes from 670 million hectares in 2000. This resulted from improvement in planting and technological development, which boosted grain production per hectare from 1.4 tonnes to 3.1 tonnes. Since 1990, the fishery catch has remained level at 95 million tonnes, with production from aquaculture supporting the population growth.

In any country, as the level of affluence rises, food culture tends to shift from one centred on starch to one centred on protein (animal-based food), which causes a rapid increase in the production of grains that serve as feed for cattle. In order to consume one kilogram of meat, we have to feed

a cow 3 - 4 kilograms of grains. A drastic change is underway in which grains cannot be obtained unless they are imported from other countries.

About 11% of grains produced worldwide move across national borders. About 30% of soybeans are traded internationally, with 18% of wheat and 5.7% of rice. As for fishery products, 37% are internationally traded, with Japan buying the bulk of them. On the other hand, 30% of the gross domestic production (GDP) of Norway comes from fisheries, with the country striving to foster this industry as an export sector.

Two arguments are put forward about the future of the world's food situation. Optimists say that the market mechanism will work, with prices rising as supply decreases. They also point out that food production increases through technological innovations such as genetic modification. Conversely, pessimists view that environmental restraints will increase and global warming will intensify. It is said that a rise of one degree centigrade in temperature would mean a decrease of 500,000 tonnes in agricultural production.

Japan's food supply and demand

Japan's population in the Heian Period (794-1185) was 6 million with 1 million hectares of arable land. In the Edo Period (1603-1868), the population increased to 12 million with 2 million hectares of arable land, further rising in the Meiji Period (1868-1912) to 34 million with 4 million hectares.

Current arable land stands at 5 million hectares. In the Edo and Meiji Periods, one hectare supported 6-8 persons, meaning that life was very stringent. In 1936, Japan's population exceeded 70 million, prompting the government to give priority to the task of ensuring food. In the post-war years, some millions of Japanese abroad repatriated and mountainous areas were reclaimed. In order to support the present population of Japan of 120 million, 15 million hectares of land would be needed.

After the Second World War, Japan chose the way to support the population by importing food.

Underlying this change were Japan's economic growth and progress in transportation technology. At the same time, higher-level food production in Japan accelerated this trend. Until the Meiji Period, the daily per-capita food consumption had been 350-450 grams, of which rice accounted for about half. At present, rice accounts for one quarter of the per-capita food consumption.

The per-capita rice consumption in 1963 was 315 grams, declining to 170 grams at present. By contrast, the consumption of meat and dairy products rose from 5-10 grams and 6-8 grams, respectively, in the pre-war

years to 14 grams and 60 grams in 1960 and to 80 grams and 250 grams at present. The consumption of fish also increased during the same period from 20-30 grams to 90 grams and 100 grams but never played a mainstay role. As a result, Japan's food self-sufficiency rate dropped drastically, with Japan buying a large part of its grains for cattle feed. It can be said that the age of "produce-and-sell" has changed into that of "compete-and-export."

Future outlook of the fisheries industry

In terms of the "supply power" of animal protein, fish can be said to have its strength and superior position vis-à-vis other foods if the resources are used in a sustainable fashion. However, aquaculture could face a stringent situation like meat. How to supply products meeting consumer needs is crucial. Such products as boneless fish and fish meat sausage not using egg whites seem to be selling well. As a means to boost consumption, the creation of promotional schemes at the stores might be helpful.



Tokyo's Tsukiji Fish Market

It is essential to exert efforts to ensure the safety of food--the top concern among consumers at present. Especially, the issue of mercury and dioxin contamination is crucial and it is important to respond to the concerns of consumers with accurate knowledge and full sincerity. In sum, the greatest task facing us is how we can change the awareness of all those concerned and at the same time strengthen our competitive power from the viewpoint of the fisheries industry as a food supply industry.

I think that, as compared with meat, fish has its strength so that there is no need to be pessimistic about the future of its consumption, and there are quite a number of Japanese people who return to the habit of eating fish. We

can open up a bright outlook if we continue our efforts from a viewpoint of how to bring fish to the taste of consumers. What we in the fisheries industry need are the awareness of our mission and the conviction that we can win in the competition."

What Isao Nakasu forgets to mention is that Blue Fin tuna over-fishing and over-ranching in the Mediterranean is primarily the direct consequence of a new tuna-market trend in Japan, provoked by the main tuna traders in the country spearheaded by Mitsubishi Corporation and Maruha Group through their numerous subsidiaries.

The two tuna trading giants are reconned to control over sixty percent of all tuna imports into Japan. Along with three other tuna *Sogo Soshas* (Sojitz, Itochu, and Mitsui) they are actively involved worldwide in tuna fishing, ranching, processing and distributing.

Mitsubishi Corporation operates directly or through its subsidiaries: Toyo Reizo Co. Ltd. and Sanyo Foods Co. Ltd.

Maruha Group operates directly or through its subsidiaries: Daito Gyorui Co. Ltd, Shinco Gyorui Co. Ltd, Taiyo A&F Co. Ltd. (TAFCO), Westward Seafoods, Inc, or Kingfisher Holdings Ltd. among others.

Tokyo Financial Group Inc. and Mizuho Financial Group Inc. as part of its bail-out plan, the Nihon Keizai newspaper reported on Sept 28, 2004.

Swiss bank UBS AG has said it will provide 10 billion yen in capital and another 10 billion yen in equity finance, likely in the form of convertible bonds.

The rest of Sojitz's 370 billion yen (\$3.34 billion) restructuring plan, or 330 billion yen, will come from Sojitz's main lender, UFJ Holdings Inc.



Yorihiro Kojima, President & CEO of the Mitsubishi Corporation.



Yuji Igarashi, President Maruha Group Inc.



Akio Dobashi, President and CEO Sojitz Corporation

Trading house Sojitz Holdings Corp, the 2003 merger between Nichimen and Nissho Iwai Corporations, imports from a diverse number of countries including Turkey, Australia and Mexico, in an effort to ensure stable supply of high-quality tuna. Sojitz Holding has contracted with TRY, Inc., a wholesaler of tuna in Shimizu City, Shizuoka Prefecture, to process and market raw frozen tuna.

Moreover, Sojitz Holding has established a company in Dalian China, Shuang Ri Food Co., Ltd with a local fishery firm, engaged in the storage, processing and sales of deep-frozen sashimi tuna, to address robust overseas demand.

Sojitz has also receive 10 billion yen (\$90.4 million) each from Mitsubishi

- ATRT Tuna-Ranching Intelligence Unit -

The Itochu Corporation is also active in tuna ranching in Spain and Malta through its subsidiary Itochu Fresh Co.

It also sources tuna from Indonesia through its joint venture with Hagoromo Foods Corp. P.T. Aneka Tuna.



*Uichiro Niwa, Chairman
Itochu Corporation*

Sourcing of Southern Blue Fin from Australia is done through its Australian branch.

Itochu Fresh Co. was closely involved with Spanish-based Atunes de Mazarrón owned by Ginés Méndez.

Itochu is considered to be one of the three worldwide frozen tuna traders along with US Tri-Marine and FCF.

Mitsui & Co., Ltd. operates directly or through its subsidiary Mitsui Food's Inc. tuna ranching joint ventures in Spain (Tuna Graso, SA) and in Italy (New Eurofish srl.)



*Shoei Utsuda, President and CEO
Mitsui & Co., Ltd.*

Coinciding with the rise of retail giants like Aeon Co. Ltd. and Ito-Yokado Co. Ltd. is the wider availability of sushi, once a meal reserved for only special occasions.

In order to remain profitable, discount and conveyor belt sushi shops often buy lower grade fish in bulk and ask wholesalers to prepare ready-made cuts of fish to go with machine-made balls of rice.

Pre-sliced fish and machine-made balls of rice would have been unthinkable decades ago when sushi chefs could

spend up to 20 years learning to prepare the fish and pack the rice into perfect mouthful sizes.

But that was before Japan's prolonged economic downturn wiped out extravagant expense budgets that kept most upscale sushi restaurants in business.

"We're being forced to adjust to the changes in our customers' demands," said Shoya Saito, president of Yomosichi, a large wholesaler that buys nearly 20,000 tuna a year.



*Toshifumi Suzuki, Chairman and CEO
Ito-Yokado Co., Ltd.*



Take-away sushi

In order to adjust to those changes, Saito's company now prepares sushi toppings like negitoro – mashed fatty tuna with chopped green onions – for large supermarket chains along with traditional large cuts of raw fish.

Business from upscale sushi restaurants accounts for less than 10% of Yomosichi's business versus more than 50% nearly 30 years ago.

Japan, as in 2003, is flooded with tuna and the oversupply is again depressing prices. Long gone are the days of consistent US\$20 a pound prices. Recent prices have ranged from US\$2 a pound to US\$14.

According to Harvard University professor Theodore Bestor, the number of wholesalers at the Tsukiji market, the world's biggest with nearly



Daito Gyorui Co., Ltd
www.daitogyorui.co.jp



Chuogyorui Co., Ltd
www.marunaka-net.co.jp



Tohto Suisan Kabushiki Kaisha
<http://edi.tohsui.co.jp>



Tsukiji Uoichiba Co., Ltd
www.tsukiji-uoichiba.co.jp/



Daiichi Suisan Co., Ltd.
www.daiichisuisan.co.jp



Tiyoda Suisan Co., Ltd.
www.marusen.co.jp



Sougou Syokuhin Co., Ltd.

Tsukiji is largely dominated by "The 7 sisters", the seven largest tuna importers and wholesalers.



Sushi-bar in Tokyo

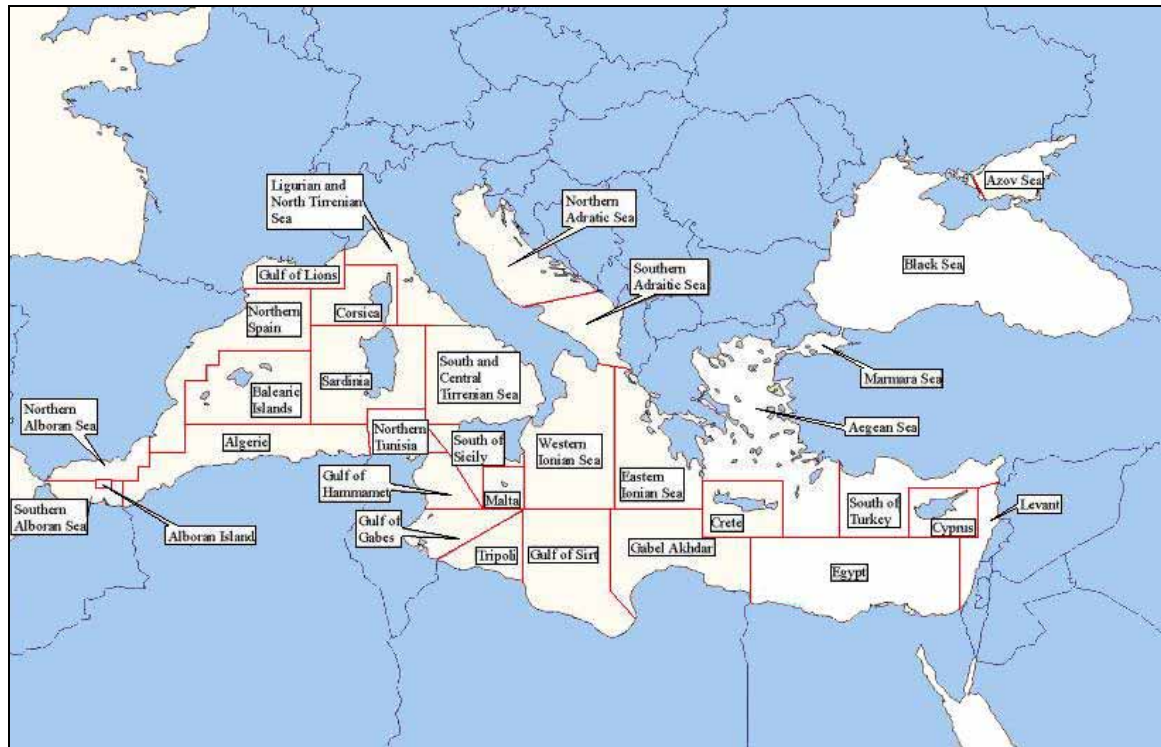
Enough is enough

The medium to long-term viability of the Mediterranean Blue Fin tuna fishing and ranching industry is condemned to virtual biological and commercial extinction after another "one to much" unsustainable 2005 May-July fishing season.

The entire dependence on wild stocks, the extremely limited experience of tuna juvenile production in captivity and the, by now well known weakness in enforcing international fishing regulations cast huge doubts as to the sustainability of the industry in the Northern Hemisphere.

It is vitally important that all concerned endorse and enforce appropriate conservation measures to ensure the sustainability of this fledgling industry and above all to preserve this

they are raised in the cages. But we have little information about what size of tuna was caught and in what amount at the initial stage, as well as how many tuna died in the course of these activities. As a matter of fact, the problem is serious because the actual catch calculated back from the shipment does not match the quotas. In other words, part of ranched tuna is suspected to be produced outside the framework of resource management. That means some people are operating in violation of the regulations. No accurate stock assessment is possible if such a black box exists. In the worst case, it could be that we are seeing this problem too late and the stock could be irreparably damaged."



The total allowable catch of northern Blue Fin tuna has been hovering around 30.000 tonnes per annum in the Mediterranean.

In 2002, roughly 11.500 tonnes out of the allowable catch was ranched. In 2003, some 25.400 tonnes of live-Blue Fin tunas were ranched. According to ATRT, SL estimations, some 25.130 tonnes of Blue Fin were ranched in 2004.

According to ATRT, SL estimations, some 28.450 tonnes of Blue Fin will be ranched in 2005 in the entire Mediterranean Sea.

biologically important and exciting species for future generations."

Dr. Makoto Miyake also expressed his warning against tuna ranching, which has been drastically increasing its production during the past few years.

Asked about whether production of ranched tuna exerts direct pressures on the tuna resources, Dr. Miyake, who has kept a close eye on the developments in the world's tuna resources, has this much to say: "There had been no problem when slim tunas after spawning were ranched on a small scale.

However, as production has increased to the present volume, there won't be sufficient tunas to meet the demand.

Production cannot be continued unless small-size tunas are harvested. Therefore, fishing pressures on small- and medium-size tunas have increased. This creates a serious problem in terms of conservation of the resources. Further, strong concerns have been expressed about the possible impact of tuna ranching on the environment, and environmental groups are calling for a total prohibition of tuna ranching."

The issue isn't just a Mediterranean one...

U.S. Drs. Barbara Block and Molly Lutcavage have provided unchallenged overwhelming evidence of migrations and mixing of Blue Fin tagged in the U.S. to the central Atlantic, northeast Atlantic (e.g. Ireland, Iceland, Norway) and migrations to the Mediterranean Sea (specifically to waters near Sicily and Tunisia).



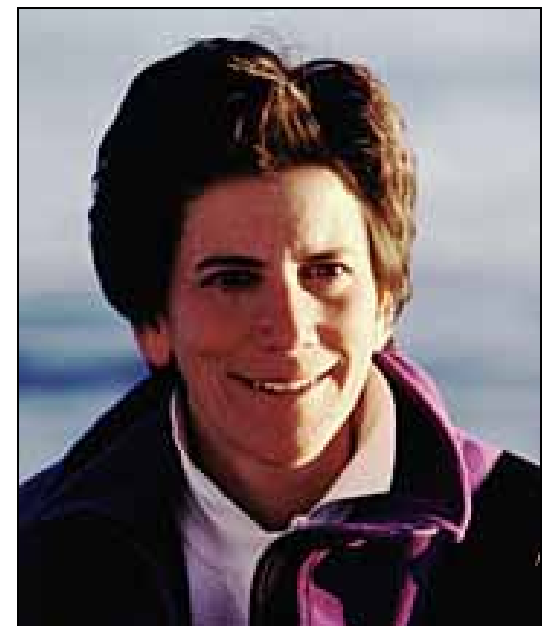
Professor Carmelo Agius

Professor Carmelo Agius, a Malta based tuna-ranching consultant writes: "Clearly the ranching volumes are increasing rapidly with new player countries such as Turkey, Greece and Libya coming on to the scene.



Dr. Makoto Miyake, Former Assistant Executive Secretary of ICCAT

Dr. Peter Makoto Miyake, one of the architects of the present framework of the International Commission for the Conservation of Atlantic Tuna (ICCAT), also expresses his concern about the present situation: "The first problem is that we don't know who caught what amount of those tuna used in ranching or where the catches took place. Of course, we know the amount of tuna shipped from ranching grounds after



Prof. Barbara Block

- ATRT Tuna-Ranching Intelligence Unit -

Satellite tagging of 800 Atlantic Blue Fin has revealed their migratory corridors.



Marine sciences Professor Barbara Block, left, has pioneered the use of electronic tags to study the behavior of large migratory fish, including tuna, sharks and billfish.

"We are recognizing the tunas we see off the coast of the Carolinas in the winter might be at the Flemish Cape off Canada by spring and all the way to the Mediterranean by summer. And then they'll make the journey back by the end of that year to the western Atlantic. What is very clear from the scientific evidence is that rebuilding of the western spawning population is plainly being affected by more than just the fisheries in the west", says Dr. Barbara Block.

Over a thousand fish have now been tagged with electronic tags at a cost likely in excess of \$US6 million.

The tagging results show that 30% of the U.S. implanted archival-tagged fish cross the management boundary and 24% of these tags have been caught in the Mediterranean Sea. For the first time it has been reported that one tagged fish has visited both known spawning grounds, a strong suggestion of one stock.

According to Dr. Jean-Marc Fromentin, French IFREMER tuna specialist "While important uncertainties remain, when the fisheries history is confronted with evidence from biological and stock-assessment studies, results indicate that Atlantic Blue Fin tuna has been undergoing heavy over fishing for a decade."



French IFREMER tuna expert, Dr. Jean-Marc Fromentin.

"The current exploitation of Blue Fin tuna has many biological and economic traits that have led several fish stocks to extreme depletion in the past", says Fromentin.

ICCAT and the EU have nevertheless, failed so far to enforce strict quota policy and legal fishing practices in the Mediterranean. Calls from FAO, the scientific community and environmental NGOs, to cut down tuna catches by at least 30% have been ignored by the tuna fishing and tuna ranching community around the Mediterranean Sea.



European Union subsidies (\$34 million since 1997) coupled with Japanese and Australian heavy investments in Spain, Turkey, Cyprus, Greece and Croatia, have encouraged greater catches (Some 40% of total catches correspond to illegal catches in Libyan waters) leading to the virtual commercial extinction of the northern Blue Fin tuna in the Mediterranean.

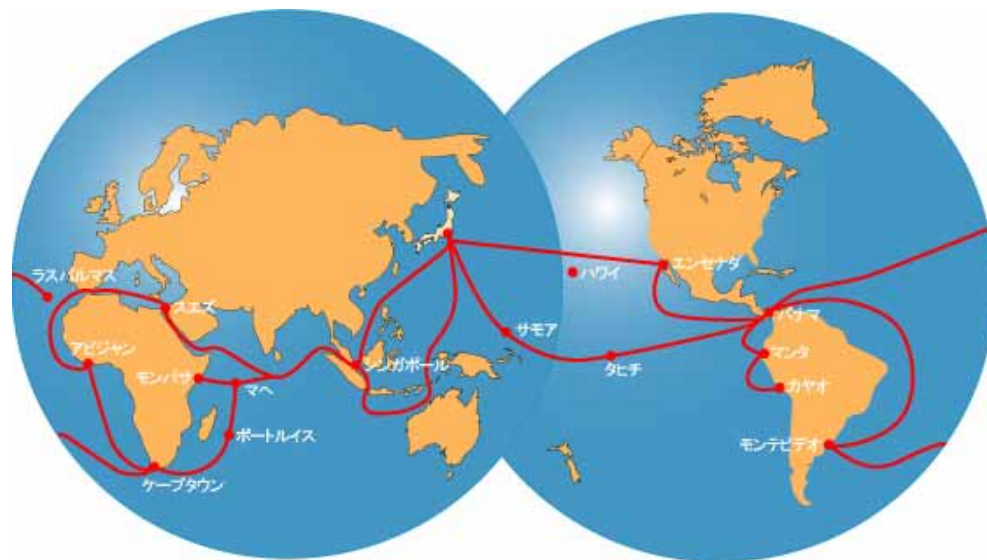
market for ranched Blue Fin tuna for "sashimi" use.

And yet, major catches this year, have again taken place inside new Libyan territorial waters (some 12.800 tonnes according to ATRT, SL estimates), around Cyprus and inside the Antalya Gulf -Turkish territorial waters-, where tunas used to find a safe-heaven breeding ground.

Unconfirmed reports also state that illegal and unreported tuna fishing has again been taking place around Cap Bougaroun (Eastern coast of Algeria) The recent creation in Tunis, of a trans-Mediterranean association of fisheries organisations is an encouraging development in the search for sustainable fisheries in the region.

"Clearly, Mediterranean stakeholders agree on the need for international co-operation to combat illegal fishing practices" commented Franz Fischler, former EU Commissioner responsible for Agriculture, Rural Development and Fisheries.

The European Commission encouraged the creation of such an association in its 2002 proposal on an action plan for



On March 8, 2004, a letter was sent by the Chairman of the International Commission for the Conservation of Atlantic Tuna (ICCAT) to Japanese Foreign Minister Yoriko Kawaguchi, requesting Japan to take appropriate measures not to encourage the expansion of Blue Fin tuna ranching operations in ICCAT non-member countries (Israel, Egypt and other countries).

At the ICCAT meeting held in November 2003, it was noted that such a rapid development of Blue Fin tuna ranching operations by ICCAT non-members in the Mediterranean Sea was supported by the active cooperation of Japanese importers with local operators, as Japan was a large

sustainable fisheries in the Mediterranean as part of the drive to increase stakeholders' involvement in the fisheries management process.



Mourad Kahoul, President of Medisamak

- ATRT Tuna-Ranching Intelligence Unit -

This initiative received the support of the Ministerial Conference, held in Venice in November 2003.

The new association, Medisamak, which has received financial support from the European Union, currently gathers organisations from 11 Mediterranean coastal states: Albania, Algeria, Egypt, France, Greece, Italy, Libya, Malta, Morocco, Spain and Tunisia. Despite its age-old fishing tradition, the Mediterranean is one of the regions where fisheries management has not yet been fully developed. Blue Fin tuna farms in the Med. will be required, for the very first time ever, to be listed with ICCAT to monitor the supply & international trade.

Yet, given the specific characteristics of the region's fisheries, which involve fleets from both Mediterranean and non-Mediterranean countries, international co-operation is needed now more than ever to ensure the long-term future of the Mediterranean fishing industry.



Newly appointed EU Fisheries & Maritime Affairs Director, former Malta's Minister for Foreign Affairs Dr. Joe Borg



ICCAT Executive Secretary, Dr. Driss Meski

Such co-operation should allow for the adoption of a common approach to fisheries management in the Mediterranean at a time Japan is "importing thousands of tonnes of Blue Fin tuna caught by Turkey in the Eastern Mediterranean in violation of international agreements", according to the Japan Times. "Turkey alone caught 3.300 tonnes of Blue Fin tuna in the Eastern Mediterranean in 2003 and exported 1.457 tonnes to Japan. The amount of Turkey's catch in 2004 is unknown, but it is known to have exported more than 3.900 tonnes to Japan that year" says the Japan Times.

Libya, was also criticized by the Japan Times "for not reporting its tuna catch-data to the ICCAT, and exporting more than 1,000 tonnes of Blue Fin tuna to Japan in both 2003 and 2004".

"Libya is a particularly worrying case," said Sergi Tudela, Fisheries Coordinator at WWF's Mediterranean office based in Italy.

"This North African country's annual tuna quota is 1.400 tonnes, but Libya has so far this year taken more than 9.000 tonnes. This illegal catch has been caged in Libya, Tunisia and Spain."

The issue of tuna over fishing in the Mediterranean has become such a pressing issue, that Mrs. Elena Espinosa, Spanish Minister for Agriculture and Fisheries, called on a tuna fishing ban from July 2006 until the end of next year.



Elena Espinosa, Spanish Minister for Agriculture and Fisheries

"This proposal aims at keeping the resources within the medium and long terms, as Spain has done in other fishing grounds and sectors" said Espinosa, during her inaugural speech at the 19th Edition of the International Commission of the Atlantic Tuna (ICCAT) held in Seville, Spain.

"after extreme pressure from France was put on EU representative Mr. Edward-John Spencer", according to one ICCAT 19th Edition meeting participant. "One can only wonder whose' interests is Spencer defending, by playing the ostrich when confronted to all of the scientific evidence put forward" said another ICCAT delegate.

"Surely this is the EU at its worst" he added.

According to José Luis Cort, from the Spanish Oceanographic Institute (IEO) "there will be no tuna left for anybody" should the actual over fishing of the specie continue in the Mediterranean.

"The situation is critical" said Cort, an IEO fisheries expert, also attending the Seville ICCAT meeting.



José Luis Cort, fisheries expert at the Spanish Oceanographic Institute (IEO)

"The abundance of reproductive tunas is very low" and "tuna catches are much higher than what ICCAT's Scientific Committee recommendation".

We have reached a situation "where sustainability breaks and we reach a point of no return" concluded Cort.



"These measures are to guarantee supply; Blue Fin tuna is at a bad moment and needs great effort to surpass this situation", said Espinosa as hundreds of demonstrators from WWF and the Spanish tuna trap producers organization (OPP51) took to the streets of Seville to urge ICCAT members to take action to save Blue Fin tuna from extinction.

"We are demonstrating for the sustainable fishing of the specie because the bread of thousands of families depend on it", said Marta Crespo, General Manager of the Organización de Productores de Almadrabas, as demonstrators paraded a coffined tuna.

Mrs. Espinosa six months fishing ban proposal, though supported by delegations such as Norway, Iceland and Mexico, was nevertheless vetoed by the EU and the Libyan delegations,



Newly appointed ICCAT Chairman Bill Hogarth

"We know the tuna needs some help. It's quite a fish, with a lot of history." says newly appointed ICCAT Chairman and Director of the US National Marine Fisheries Service, Bill Hogarth.

The Japanese Tuna Market



Tuna landings by Japan low

Josupeit points out that "during the last few years, the sashimi tuna market hardly expanded and even showing saturation in some cases. The overall price hike combined with a rather slow recovery of the Japanese economy is expected to lead to lower sashimi tuna consumption in coming months.

Tuna landings in Japan followed the worldwide trend of lower production. Catches from outside the coastal waters declined by nearly 8% to 189 000 MT during the first six months of this year compared to the same period last year.

Overall supply of Blue Fin and albacore fell significantly but marginal increases were observed for the other species namely Bigeye, Yellowfin and skipjack.

From the total supply, 28% entered the market in fresh form the balance was the frozen tuna species."



Difficult situation for tuna industry worldwide

According to a recent survey by Helga Josupeit (Infofish-FAO-Globefish-October 2005) "high fuel costs are reducing the margins of the world tuna catching fleet to the pure minimum. Prices have gone up recently, but the market is reported unwilling to take further increase. In Japan, the world's main market for sashimi tuna, the situation is not bright. The traditional consumption season is about to begin. However, the increasing fuel cost and the anticipated rise in tuna prices are making marketers sceptical about consumption and sales during the Year-end / New Year period and beyond."

The tuna auctions start at 5:30 a.m. To qualify for the job, auctioneers must first work for a wholesaler for three years, then pass an exam set by the Tokyo Metropolitan Government.

According to Josupeit's report, "supplies of fresh Blue Fin and albacore were higher compared to the frozen form."

"Prices of all tuna species have gone up recently."

Japan: Tuna Landings (excluding inland water catches)							
January - June, 2003/2005 (MT)							
		June			January - June		
		2003	2004	2005	2003	2004	2005
Bluefin	Fresh	117	548	1 167	700	2 137	1972
	Frozen	51	25	11	797	510	534
Albacore	Fresh	735	6 917	1 687	13 744	28 103	12 477
	Frozen	1 618	13 380	1 475	2 203	16 263	2 293
Bigeye	Fresh	1 110	1 993	713	45 66	5 771	3 893
	Frozen	1 483	2 259	1 684	10 681	10 274	11 044
Yellowfin	Fresh	1 946	707	1 095	6 995	4 743	5 183
	Frozen	1 166	2 601	1 429	11 855	15 370	13 241
Skipjack	Fresh	13 813	8 702	12 121	13 813	20 516	28 853
	Frozen	14 362	15 272	20 570	121 180	100 252	109 547
Sub total	Fresh	17 721	18 867	16 785	39 818	61 270	523 78
	Frozen	18 680	33 537	25 169	146 716	142 667	136 659
Grand Total Tuna		36 401	52 404	41 952	186 534	203 937	189 037

Japan: Imports of Frozen Tuna,
(whole/dressed) by Species (in MT)

Species	January - June					Annual		
	2005	2004	2003	2002	2001	2004	2003	2002
Bluefin	3 723	5 114	4 166	2 500	1 382	6 626	4 792	3 568
S. bluefin	431	2 392	483	1 136	1 499	8 174	5 156	8 659
Bigeye	55 809	61 738	68 163	72 681	61 545	116 324	127 179	140 638
Yellowfin	64 778	54 581	48 232	53 180	44 779	109 204	102 521	108 561
Skipjack	31 476	46 430	37 372	32 638	26 377	81 158	71 862	73 137
Albacore	1 852	567	673	682	710	6 494	2 804	1 669
Total	158 069	170 822	159 089	162 817	136 292	327 980	314 314	336 232

Josupeit also notes that "Japanese imports of frozen tuna shrunk by 7.50% during the first half of this year compared to the same period last year.

Imports of higher value species namely Blue Fin (-27.19%), southern Blue Fin (-82%), and Bigeye (9.60%) were lower during this period."



Total January-June imports were in line with the imports experienced during 2003."

"However, imports of Yellowfin (+18.68%) increased and albacore imports were three-fold higher than the same period last year."

The main suppliers were: Yellowfin: Taiwan Province of China (35 630 MT), Philippines: (4 346 MT), China (3 127 MT), Seychelles (2 370 MT); Bigeye: Taiwan Province of China (36 732 MT), China (7 583 MT), Republic of Korea (6 082 MT), Seychelles (2 173 MT); Blue Fin: Croatia (2 013 MT), Tunisia (452 MT), Turkey (402 MT), Spain (302 MT)."



Tuna are cut to sizes specified by the client, probably a retail fish store or restaurant. The middlemen use a variety of knives and leave a minimum of waste.

Spot that Tuna!

Tuna aerial spotting is big business during the tuna season in the Mediterranean.

Virtually every single fishing group owns and/or charters a couple of Cessna 337 "Push-Pull" or Partenavia P68.

Again this year, over 50 aircrafts have flown over the waters from Syria to the Balearic Island. During the month of June, a number of illegal tuna-spotting flights inside Libyan airspace were reported.

Antalya	Antalya	LTAI	11100 ft
Sitia	Sitia	LGST	2300 ft
Rodos	Maritsa	LGRD	7800 ft
Benghazi	Benina	HLLB	11800 ft
Tripoli	Mitiga	HLLM	11811 ft
Misratah	Al Ghiran		
Malta	Luqa	LMML	11600 ft
Catania	Fontanarossa	LICC	8100 ft
Palermo	Boccadifalco Mil	LICP	4000 ft
Lampedusa	Lampedusa	LICD	5900 ft
Cagliari	Elmas Mil	LIEE	9200 ft
Ibiza	Ibiza	LEIB	9100 ft
Sabadell	Sabadell	LELL	2900 ft
Murcia	San Javier AB	LELC	7500 ft
Reus	Reus AB	LERS	8000 ft

Airports used by tuna spotting aircrafts



Antalya, Turkey.



Larnaca, Cyprus.



Paphos, Cyprus.

Antalya and Paphos airports have been used to tuna spot the Gulf of Antalya fishing ground. Larnaca airport was used to tuna spot coastal water of Syria.



Luqa, Malta.



Misratah, Libya.



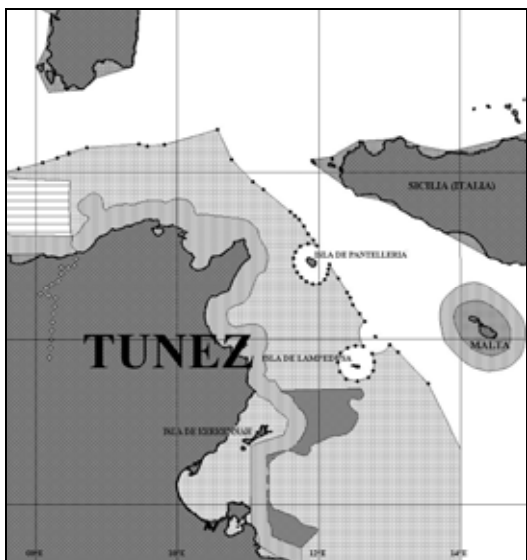
Mitiga, Tripoli, Libya.

Luqa, Misratah and Mitiga airports were used to tuna spot the fishing ground between Tripoli, Sirte and Malta.



Lampedusa Island, Italy.

Lampedusa Island airport was used this year to survey the airspace over Tunisian and Libyan territorial waters.



Tunisian territorial waters



Trapani airport, Italy.

Trapani and Cagliari airports were used by tuna spotting planes covering the fishing grounds West of Sicily, South of Sardinia and North of Tunisia.

Ibiza, Reus, Sabadell and San Javier airports were used this year to cover the entire Balearic Islands tuna fishing area.



Ibiza airport, Spain.



Reus airport, Spain.



Sabadell airport, Spain.



San Javier airport, Spain.

Tuna-Spotters Spotted on the Internet

Aircrafts used for tuna spotting are mainly Cessnas 337 "Push-Pull" and Partenavias P68.

From Ibiza to Paphos, from Malta to Tripoli, most of these aircrafts have been pictured by airplane-spotters and portrayed on the Internet.

Some aircrafts have been spotted landing and/or taking-off in the middle of June when tuna spotting flights are forbidden by ICCAT and the EU.

You may check the whereabouts of all tuna spotting aircrafts in the Mediterranean at (www.jetphotos.net & www.airliners.net).

- Spanish Tuna Spotting Aircrafts*



EC-BVL (cn 0007 / 01236) Seen at Park 2 before departure to Libya. At Malta prior continuing its final destination to Libya-C/n0007-01236. Malta - Luqa (MLA / LMML), Malta, May 14, 2003.



EC-CPG Algiers - Houari Boumediene (Dar-el-Beida) (ALG / DAAG), Algeria, May 29, 2004.



EC-CXC Landing rwy 14 direct from Sicily. Malta-Luqa - LMML Malta, May 18, 2003.

- ATRT Tuna-Ranching Intelligence Unit -



EC-DKD (cn 0007 / 01236) C/n0007 / 01236 is seen at Malta on its way to Libya Malta - Luqa (MLA / LMML) Malta, May 14, 2003.



EC-GPF Seen lined up rwy 24 for departure to Libya. Malta - Luqa (MLA / LMML) Malta, May 20, 2003.



EC-IFR Seen at the general aviation - Park 1 at sunset after landing rwy 14, departed to Libya. Malta - Luqa (MLA / LMML) Malta, May 4, 2003.



EC-DLS while tuna spotting south of Ibiza.



EC-GPQ Seen taxiing at Park 1 for holding point 'kilo', primarily used for tuna spotting Malta - Luqa (MLA / LMML) Malta, June 10, 2004.



EC-IMV Group Air Med, Partenavia P-68, July 04, 2004, Ibiza - LEIB, Spain.



EC-EOV Girona - Costa Brava (GRO / LEGE) Spain, April 5, 2003.



EC-HEQ Ibiza - LEIB Spain.



EC-IOD Air-Med Partenavia P-68 short final to rwy 24. Ibiza - LEIB, Spain, May 27, 2004.



EC-ETU Seen at the general aviation - Park 1 later at sunset. Malta - Luqa (MLA / LMML) Malta, June 24, 2004.



EC-HTK Ibiza - LEIB Spain, May 27, 2004.



EC-IOQ Malta-Luqa (MLA/LMML) Malta, May 23, 2004.



EC-FQA Ramp shot at Park 2 primarily used for tuna spotting. Malta - Luqa (MLA / LMML) Malta, May 14, 2004.



EC-IFL At general aviation apron from Valencia. Alicante (- El Altet) (ALC / LEAL) Spain, June 10, 2002.



EC-IPQ Girona - Costa Brava (GRO / LEGE) Spain, August 24, 2003.

- ATRT Tuna-Ranching Intelligence Unit -



EC-ITV Air-Med Partenavia P-68 short final to rwy 24. Ibiza – LEIB Spain, May 27, 2004.

- French Tuna Spotting Aircrafts*



F-BURE Ibiza – LEIB Spain, July 04, 2004.



F-GKBV Ramp shot at Park 3 in the afternoon. Malta - Luqa (MLA / LMML) Malta, May 22, 2004.



F-GMBE Ramp shot at Park 3 in the afternoon. Malta - Luqa (MLA / LMML) Malta, May 22, 2004.



F-GNHI Ramp shot at Park 3 in a beautiful sunny afternoon, the future parking area for all General Aviation at Malta International Airport instead of

Park 1. Malta - Luqa (MLA / LMML) Malta, May 22, 2004.



F-GURS short final to rwy 06. Ibiza – LEIB, Spain, July 01, 2004.

- Italian Tuna Spotting Aircrafts*



I-OBSR.



*I-ATAT Seen at Park 1, primarily used for Aerial Photography. * Noted having a motif and the following titles "Compagnia Generale Riprese aeree" on the tail. Malta - Luqa (MLA / LMML) Malta, May 11, 2004.*



I-EAA Seen at Malta Luqa airport, summer 2004.



I-GAUS At the Malta International Airport, Park 1, this Partenavia P68, an

aircraft type, that had operated from Malta in Fish spotting activities in the past years Malta - Luqa (MLA / LMML) Malta, April 30, 2004.



I-PARJ Seen at Park 1, primarily used for tuna spotting. Malta - Luqa (MLA / LMML) Malta, May 25, 2004.



I-RRPG At the Malta International Airport, Park 2, tied down, this Partenavia P68, which aircraft type, had operated from Malta in Fish spotting activities in the past years. Malta - Luqa (MLA / LMML) Malta, May 7, 2004.



I-VICC both seen at the general aviation - Park 1, used for tuna spotting. - Luqa (MLA / LMML) Malta, April 30, 2004.

- US Tuna Spotting Aircrafts*



N415D Malta - Luqa (MLA / LMML) Malta, June 28, 2004.



N1284M Air Caroline Inc. Cessna 336/337 Skymaster/Super Skymaster taxiing to rwy 24 for take off, Ibiza - LEIB Spain, May 18, 2003.



N2514S primarily used for tuna spotting. Taxiing at Park 1 to holding point 'K', for departure rwy 14. Malta - Luqa (MLA / LMML) Malta, May 31, 2003.



N72140 Taxiing at Park 1 to holding point 'K', for departure rwy 14. Leased for the summer period (tuna spotting). Malta - Luqa (MLA / LMML) Malta, May 31, 2003.



N86306 Air Caroline Inc. Cessna 336/337 Skymaster/Super Skymaster final approach to rwy 06 returning from a tuna search patrol, Ibiza - LEIB, Spain, July 01, 2004.

Freeze that Tuna!

Most of the frozen Blue Fin tuna caught and ranched in the Mediterranean is frozen and shipped to Japan or other Asian countries, onboard tuna-reefer vessels.



Freezing onboard these vessels takes place during the fishing season itself (May-July) and after the fattening season (October-March)

During the fishing season some of these vessels will follow a given fishing fleet and freeze onboard whatever tuna dies during its transferring into the net-pens.

Some times transport cages are not available on site or the catch is smaller than 50 tonnes.

The reefer vessel, along with a RSW vessel will take over and process the tunas.

Some B grade specimens will be loaded on board the RSW ship and taken to the nearest port to be unloaded and distributed, the rest is frozen on board the Reefer.



Japanese Panamanian flagged tuna-reefers seen at Barbate, Spain

Other tuna reefers will start their loading operations well before the tuna purse-seining season starts.

They will start loading and freezing long line and/or set-net caught tuna and normally complete their cargo with harvested tuna from a farms in the Mediterranean.

The Ports of Valletta in Malta and Barbate in Spain are two of the main reefer sites for this kind of operation.

Whatever the origin of processed tuna, the thawing process is fast and effective.



Tuna reefer operated by Takayama Seafood approaching a tuna ranch off the coast of Malta.

Freezing times do not extend beyond 12h.

Freezing times of up to 24h or even longer, will result in an inferior product and may even result in spoilage by bacterial action before the middle of the stack is sufficiently reduced in temperature.

Since the temperature just below 0°C is the critical zone for spoilage by protein denaturising, tunas are reduced from a temperature of 0°C to -5°C in 2h or less.



Korean tuna freezer vessel seen at Bolonia, southern coast of Spain.



Japanese Tuna Reefer seen entering the port of Tarifa, where it loaded some 200 tonnes of harvested tunas.

The fish is then further reduced in temperature so that its average temperature at the end of the freezing process is equivalent to a storage temperature of -60°C.

Most of these reefer vessels have a daily freezing capacity of up to 60 tonnes and a maximum cargo capacity of up to 4.500 tonnes.

Freezing tunas offshore allows a certain number of operators not to log or register for quotas because the fish isn't landed in the EU. The cargo is then declared at destination, if so, using forged fishing documentation.

The tuna reefer fleet would traditionally service huge super-low temperature

- ATRT Tuna-Ranching Intelligence Unit -

cold storages in Japan such as the one built by Mayekawa Mfg Co Ltd. for Toyo-Reizo Co. Ltd. (10,000 tonnes super-low temperature cold storage plant, in Shimizu) or the one built for Tokyo Marine Product Terminal Co., Ltd (40,000 tonnes cold storage Tokyo)



Port of Yokozuka, Japan

Two other huge cold stores are to be mentioned:

- Nippon Suisan Kaisha, Ltd. Rokko Island Distribution Centre, KOBE-SHI, HYOGO
- Kyowa Reizou Co., Ltd HIROSHIMA-SHI, HIROSHIMA

Japanese high standards for fish traceability forbid IUU captured tuna to be unloaded in Japanese ports. Once the fish has passed all inbound controls, it enters a complex distribution network as shown in the box diagram next page.

Nevertheless it must be said that most of the IUU Blue Fin tuna caught in the Mediterranean, enters Japan via "inspection-friendly" fast-growing Chinese and Southeast Asian countries where tuna meat is processed, packed and shipped under a different denomination product such as ready-to-consume frozen sashimi tuna.

As Arata Izawa of WWF Japan puts it: *"Japanese consumers have no clues to know whether or not the tuna they are eating is illegally caught,"* since companies importing and distributing tuna do normally never disclose all related information to the public.



Port of Kaohsiung, Taiwan



Port of Busan, Korea

Strangely enough, most Japanese tuna related Sogo Soshas have developed their own tuna storage and/or tuna processing plants in Asian countries. Some Japanese tuna concerns are heavily financing tuna freezing and processing facilities for ready to eat sashimi in countries like Spain, Panama and Mexico.

Trading house Nissho Iwai Corp (Sojitz Holding) markets frozen tuna in China since Japanese cuisine such as sushi and sashimi has become increasingly popular with consumers in the country.

In Vietnam a centre for tuna purchase, processing and storing will be built in Tuy Hoa Township, southern coastal Phu Yen province, in early 2005. The centre will be equipped with Japanese technology to process and store tuna for export.

The centre, the first of its kind in the country, will be built on an area of 10,000 m² with a total investment capital of \$US5 million in non-refundable official development assistance (ODA) granted by the Japanese Government.

In Papua New Guinea, Ludwig Kumoru, tuna manager for PNG's National Fisheries Authority says that negotiations are in progress for investment in more tuna processing factories in addition to a Philippines-owned cannery at Madang, a newly opened loinning plant at Wewak, and another loinning plant under construction at Lae.

Itochu Corporation has delocalised its own tuna processing and canning activity to Indonesia through its affiliated company P.T. Aneka Tuna Indonesia.

Korean tuna concerns have also foreseen the potential of a fast-growing niche-market for ready-to-consume frozen sashimi tuna.

Dong Won Fisheries Co. Ltd., (Saha-gu, Busan) a privately-held Korean fishing company with annual sales of about US\$92 million, has also established a joint venture seafood processing plant at the Weihai Economic and Technical Development Zone (WETDZ in China.



Jae-chul Kim, Chairman of Dongwon Group

Dong Won Fisheries Co., Ltd. is one of the leading Deep Sea Fisheries companies in Korea operating over 30 fishing vessels of which, 17 long liners fishing Worldwide Oceans targeting "Tuna".

Dong Won Fisheries Co., Ltd. has two plants in Busan, processing the fish caught by its vessels. They produce among others "Frozen Tuna for Sashimi" Dong Won Fisheries Co., Ltd. sells most of its products to Japanese companies and traders, of which Hokushu Shokuhin Co., Ltd and Katokichi Co., Ltd are among its principal clients.

Katokichi is one of the leading producers of frozen food in Japan. Frozen food accounts for 70% of its total net sales of about US\$1.4 billion. Products sold by Katokichi include frozen food for frying, frozen consumer-ready foods as well as food ingredients.

Hokushu is a privately held food company with annual sales of US\$245 million. Fish products comprise almost 85% of total net sales, while the remaining 15% consists of Japanese delicatessen products.

Sajo Industries Co., Ltd., one of the leading Korean fishery companies, which has the largest tuna fleet in the world, with 67 vessels such as tuna purse seiners, pollock trawlers and jiggers, is also involved in fish ranching and international & domestic trading.

Oyang Fisheries Co. runs a total of 23 vessels including 6 trawlers, 13 long-liners, 3 round haul netters for tuna and a cargo vessels, as well as five processing factories and freezing/cold storages. It has established a seafood processing plant joint venture, "Kangyang Foods Co., Ltd." in Qingdao, China



Reverend Sun Myung Moon, Happy World Inc.

Tongyoung Fisheries Co., Ltd., is involved in advanced production of marine products kinds and runs Korea's largest cold storage and refrigeration factory. Silla Co., Ltd. is one of Korea's leading fishing companies. It was established in 1967 and is listed on the Korea Stock Exchange.

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Ocean Gate Trading Co., Ltd. As a trading company based in Seoul, Korea, Ocean Gate is specialized in trading frozen fish & seafood from the North Pacific Ocean & Far Eastern Russian waters. The company provides management services and financing & technical assistances for fishing companies and plants in Far Eastern Russia on a long-term cooperation, which has placed the company as a major seafood trader in East Asia.

Happy World, Inc. A JFTA member, and part of the Unification Church led by Reverend Sun Myung Moon, owns, among other companies, Hana Chain, Inc. This company owns Hana Seafood Restaurant-Fish Market & Sushi Bar, San Diego, CA; World Fisheries of Hawaii, Inc. with an Initial paid in capital of \$100.000 provided by Happy World, Inc. of Japan; New York Fish House, Inc. with a 2003 reported \$15.750.000 gross sales; Senkai Live Fish Liberty Harbour Marina, Jersey City.

The Unification Church has many other business enterprises: Tong Il Co. Ltd manufactures weapons and machine parts in South Korea, Il Hwa Co. Ltd (S. Korea), Il Shin Stoneworks (S. Korea), Hankook Titanium Co. Ltd. (S. Korea), Unification Church Intl, McLean (a holding company including Intl. Oceanic Enterprises Inc., Intl. Seafood Corp Inc, newspapers, tuna fleets, fish-processing plants, and boat-building, television production, One Up Enterprises, News World Communications and the Washington Times and other enterprises in the United States).

Finally, the Tianjin biggest and most advanced tuna processing plant in China was formally put into use on May 1st 2004. The plant belongs to the Tianshui Group of China. According to Tianshui officials "the group has invested over 4.000 million Yuan to set up a modern and first-class tuna-processing plant at the Tanggu District High-Technology Park." The 30.000m² plant has imported all its equipment from Japan.

It is virtually impossible to ascertain which tuna reefer vessels are involved in this kind of traffic. Some of these reefer vessel operators hide behind Tax-haven country based companies such as Tuna Reefer Ltd., St Helier, Jersey. The real ownership of this company is unknown, and local banking regulations make it impossible to know where the money comes from...

"The problem of Illegal, Unreported and Unregulated Fishing on the high seas has been the subject of much discussion and debate at the regional and global level for the past decade or more. Increasing restrictions have been put into place to attempt to deal with the problem of IUU fishing on the high seas. At the same time, the scope of the restrictions have expanded in recognition of a number of important issues: One, that the infrastructure needed to support IUU fishing on the high seas goes well beyond the IUU fishing fleets themselves; two, unless and until the flag of convenience system is eliminated, port states,

market states and countries of beneficial ownership will need to employ a suite of measures to combat IUU fishing; and three, regional fisheries management organizations may, in some cases, need to be reformed to ensure that all parties agree to and effectively implement the conservation and management measures adopted by the regional organization." Source: AGR/FI/IUU(2004)22

Japan rules the waves...



MV/Benny

Japan outclasses its rivals by far when it comes to transport frozen tuna. An enormous fleet of Panamanian or Japanese flagged reefers insure that the fish is delivered both to Japan and/or processing plants serving the Japanese market with sashimi and sushi. The principal key-players in such traffic are the following Japanese reefer and/or freezing vessel operators:

- Akebono Suisan K.K.
- Ashikagahonten K.K.
- Choei Okado
- Hamako Suisan K.K.
- Hatakeyama Gyogyo K.K
- Hatakeyama Suisan K.K.
- Hisao Kuroda
- Hokai Suisan Yugen Kaisha
- Hoyo Suisan K.K
- Ishigaki Gyogyo K.K
- Iwao Miki
- Junko Gyogyo K.K
- Kaigata Suisan K.K.
- Kairyu Suisan Yugen Kaisha
- Kanedai K.K.
- Kanefuji Gyogyo K.K.
- Kanzaki Suisan
- Koshin Gyogyo K.K.
- Koyama Gyogyo K.K.
- Koyo Suisan K.K
- Kumaei Sangyo K.K.
- Marukichi K.K.
- Mastuei Suisan Yugen Kaisha
- Mimasa Suisan K.K.
- Seiichi Ogino
- Shichigahama Gyogyo K.K
- Shinya Ebisu
- Shotoku Suisan K.K.
- Takebayashi Gyogyo K.K.
- Toei Suisan K.K.
- Tokuei Gyogyo K.K
- Yugen Kaisha Shoei Suisan



Some of the reefers operated by these companies in the Mediterranean (Corona Reefer -seen here at the port of Tarifa- Seiko Maru 16, Astrea...) are old acquaintances of the Blue Fin tuna fishing sector.



120m MV/Tuna Queen operated by Toyo Reizo Co., Ltd.



MV/Nagato Reefer



MV/Chikuma Reefer



MV/Shinano Reefer



Unknown Japanese type tuna reefer

- ATRT Tuna-Ranching Intelligence Unit -

By the end of August, most of the Reefer fleets arrive to the Mediterranean tuna ranches.



Tunas are harvested and directly transhipped onboard the reefer vessels where Japanese tuna technicians will control flesh colour, fat content, weight and general quality, before loining and blast-freezing them.



This year, over 17.000 tonnes of ranched Mediterranean Blue Fin tuna will again be slaughtered and blast frozen onboard these ships.



Tuna Queen, a Torei/Toyo Reizo Co. Ltd. subsidiary belonging to Mitsubishi Corporation, is by far the largest operator of specialized tuna reefers.



Three of Tuna Queen's tuna reefers

AUSTRALIA

Down-under Southern Blue Fin Tuna

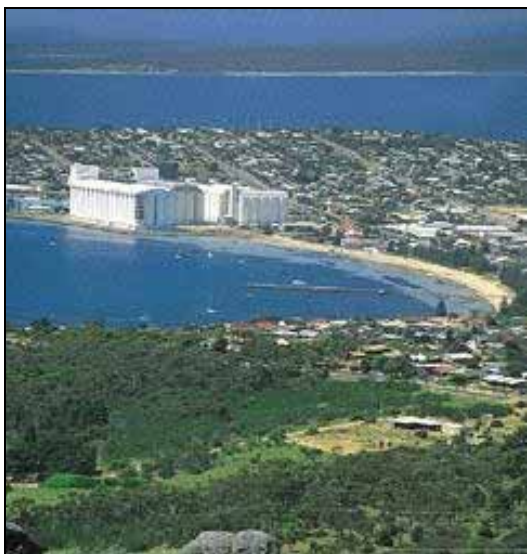


Australian ranched southern Blue Fin tuna

This year's tuna harvest is the biggest to date, as DI Fishing was the last Port Lincoln company finishing its harvest mid October.



Brian Jeffriess, Chairman of Tuna Boat Owners Association, confirmed some 9.000 tonnes, the highest tonnage ever, were produced, against last year's 8.300 tonnes harvest.



Boston Bay Port Lincoln

Port Lincoln's tuna farms produced 9245 tonnes (live weight equivalent) of tuna in 2001-02, valued at \$260.5 million at the ranch gate.

Good grow-out conditions, a longer and warmer summer, as well as tunas being fattened for a full term period of four to five months, instead of the usual two to three months, was attributed by Mr. Jeffriess for such results.



Yet increasing foreign over fishing is hitting the critically endangered southern Blue Fin tuna, according to the Federal Government and industry.

Thousands of tonnes more than the permitted global catch of Blue Fin could be finding its way into fish markets, Fisheries Minister Ian Macdonald said.



Right: Australian Fisheries Minister Ian Macdonald, Right: Tuna Boat Owners Association Chairman Brian Jeffriess.

A rapid expansion by Indonesia into the fishery is alarming the Australian industry, Brian Jeffriess, said "mother boats" were moving into pre-spawning grounds in the Indian Ocean.

Environment groups have urged slashing the total allowable catch at the meeting, saying it is wrong to blame illegal fishing. But Australia will argue for catch levels to continue, with tighter controls.

Mr. Ian Campell Australian Environment Minister has received scientific advice that the Tuna's stocks have fallen to just 3% of their 1960 levels. Despite this the SBFT fishery had been declared "an approved wildlife trade operation". Mr. Campell was also quoted as saying that even an instant cessation of fishing for the species would not guarantee its survival, due to the low stock level.

However, Mr Jeffriess said surveys in the heart of its range, the Australian Bight, showed improvements in numbers and age groups.

Australia will not reduce their own catch levels of SBFT, currently standing

at 5,265 tonnes a year. The worldwide catch stands at 16,000 tonnes.

Any move to cut Australia's quota would limit Australia's ability to influence other countries on the issue was the view of NSW Fisheries Minister Ian Macdonald.

The fishery is worth AUS\$280 million a year to Australia.



Harvesting tuna from pens in Boston Bay, Port Lincoln. Tuna is the largest sector of the State's growing aquaculture industry

Port Lincoln's tuna industry could nevertheless be at risk if the Humane Society International (HSI) is successful in its mission to declare the southern Blue Fin tuna fishery ecologically unsustainable.

HSI has taken the case to the Administrative Appeals Tribunal to appeal a decision made in December last year by Federal Environment Minister Ian Campbell declaring the fishery sustainable for export.

Mr. Campbell rejected a separate application for the species to be listed as endangered under the Environment Protection and Biodiversity Act.

South Australian tuna industry spokesperson Brian Jeffriess said southern Blue Fin tuna was clearly not endangered and there was no need to reduce the quota.

"People have been saying for 25 years that in five years it will be commercially extinct. Up until two years ago I was concerned about that too but this year has changed my mind and allayed those concerns. This is the strongest year we've had for many, many years."

HSI wildlife and habitat program manager Nicola Beynon said scientific committee evidence showed southern Blue Fin tuna was at historically low levels with the spawning biomass between three and 14 per cent of the 1960 and between 14 and 59 per cent of the 1980 level according to the CSIRO.

Mr. Jeffriess said reducing tuna quotas would be devastating for Port Lincoln.

He said the impact of a 10 per cent reduction in the 5.265 tonnes quota would have more like a 30 to 40 per cent impact on the industry.

"Three thousand families would lose their jobs and their living - that's the reality of it," he said.

- ATRT Tuna-Ranching Intelligence Unit -

Mr. Jeffriess said reducing the quota was not a legal option for the tribunal. "It has no power to set quotas."

Federal Fisheries Minister Ian MacDonald said while it was agreed the world quota was too high, the best way to protect the future of the fishery was to continue to retain membership rights to the Commission for the Conservation of Southern Blue Fin Tuna to lobby other countries to reduce the quota.

Southern Blue Fin tuna have been caught in the waters of the Great Australian Bight for several decades, and this fishery has contributed significantly to the economy of Eyre Peninsula, and in particular Port Lincoln.

Tuna have traditionally been caught in their thousands, mostly ending up as canned product.

As quotas for tuna were rapidly reduced through diminishing fish numbers, a strategy of value adding was introduced.



Australian tuna vessels undertaking end of season activities at the Port Lincoln wharf

The first experimental tuna ranch was established at Port Lincoln in 1991, under a tripartite agreement between the Australian Tuna Boat Owners Association (ATBOA), the Japanese Overseas Fisheries Cooperation Foundation and the South Australian Government.



The experimental ranch established that tuna would survive and grow in the sea pontoons. Initial methods of

capturing the fish relied on pole-hand-line, where fish were caught and then transferred to the holding tanks on the catching boats.

It was found that only small numbers of fish could be transported with this method. Methods evolved to tow the pontoons to the fishing grounds.

Far more fish could be transferred, and as stress levels in fish were reduced mortality rates were lowered considerably.



The tuna ranching industry turned over approximately \$6 million in 1992/93, and has grown rapidly to have an estimated ranch-gate value in 1999/00 of approximately \$202 million.



Tuna ranching is almost a sacred ritual to the group of dedicated tuna quota owners in Port Lincoln. Over 97% of the Australian Southern Blue Fin Tuna (SBT) quota of 5,265 tonnes now goes into tuna farms. That's a total of 3,685 tonnes of SBT from the total quota going straight into pens in the ocean.

Between 1981 and 1990, the average price of Australian SBT in Japanese Yen per kilo was 684.4 yen/kilo. Between 1991 and 1999, when tuna ranching had become a significant part of the Port Lincoln industry, the same tuna was now fetching an average of 1462 yen/kilo.



The benefits of ranching have been numerous, not only to the owners but also to regional employment and the spin off industries such as tourism, transport and freight. The total export value of the industry has grown from \$45 million in 1994 to \$252 million in 2001 – an increase of more than 56% in just eight short years. In 2001, the export value of the industry is expected to reach \$300 million (depending on the exchange rate used

by Customs to calculate export values). Not bad going for an industry that not so long ago was on the brink of near total disaster!

By now, most people know the story of the success of tuna ranching in this regional South Australian town where a complete industry, almost on the verge of destruction, was completely turned around by the techniques of fish ranching or sea culture. It's an incredible story of personalities, events and history which perhaps will one day be told in full.

The ranching of Southern Blue Fin Tuna (*Thunnus maccoyii*) is currently the single most valuable sector of South Australia's aquaculture industry. Southern Blue Fin Tuna ranching is unique to South Australia, and its development initially put South Australia aquaculture on the map.

Tuna are caught in the Southern Ocean under a very strict quota system. Tuna farms fatten and condition the tuna in pontoons for a period of between 3 - 5 months depending on market requirements.



The tuna is then prepared for the sashimi market and exported as whole fish, mostly to Japan. Around 30% goes as fresh product by air, and the other 70% as frozen product by sea.



Frozen fish are generally sold at the beginning of the growing season through contracts, whereby lower prices are paid compared to fresh fish but without the uncertainty of market and auction price fluctuations at harvest time.



- ATRT Tuna-Ranching Intelligence Unit -



In 1999/00, Tuna farms based in the Port Lincoln area produced around 7,780 tonnes of tuna valued at over \$202 million. In 2001/02, the value of ranched tuna is in the vicinity of \$320 million, ex Australia.

A Brief History

In 1984 Individual Transferable Quota's (ITQ's) are introduced into the Australian tuna industry. This now means that the allocation of tuna quota is based on a formula calculated on catch history and investment. Of the total Australian SBT quota of 14,500 tonnes NSW (New South Wales) receives 14% (or 2030 tonnes), WA (Western Australia) 20% (2,900 tonnes) and SA (South Australia) 66% (9,570 tonnes). But by 1987 South Australian quota holders have quickly bought up most of the WA and NSW quota to hold a total of 90% of the SBT quota.



Australian 57-metre Tuna Purse Seiner

Two years later, in 1986, the South Australian quota holders begin to inject heavy investment in small sashimi product, despite the fact that most of the catch is still going to the canneries. It was in this year that the Australian SBT industry reaches its first co-operative agreement with the Japanese tuna industry where the ATBOA (Australian Tuna Boat Owners Association) agree not to catch 3,000 of its allocated 14,500 tonnes of quota in return for payment.

Then in 1988 the Australian tuna quota is cut drastically from 14,500 tonnes in total to only 6,250 tonnes. Twelve months later the total quota is again cut — this time to 5,265 tonnes at which it remains today. The tuna industry in Australia tries to offset this quota cut by expanding into the relatively uncharted territory of the Western Pacific Skipjack Tuna Industry using Purse Seining fishing methods. Such a move proves almost disastrous for many of the companies who invest heavily in their Pacific ventures. Their heavy capital investment in the Pacific

and the lack of returns this venture provides drives them close to the verge of financial ruin.

In 1991 the Australian Tuna Boat Owners Association sets up its first experimental tuna ranch — a joint venture with the Japanese Government. Twelve months later, commercial tuna ranching begins in earnest in Port Lincoln although it is limited by the old catching system. In the same year, a new ATBOA/Japanese Industry venture begins. It was the cash flow from this joint venture which provides the impetus for the industry's survival and resurgence.

A new volume catching and towing system is adopted by the industry in 1993 where fish caught by purse seine nets are now towed at extremely slow speeds of one knot per hour (taking about 14 days for the vessels to return to unload their catch in Port Lincoln). In 1995, tuna ranching continues to expand and the Longline joint venture with Japan ends. A year later in April, huge storms hit Port Lincoln effectively wiping out 70% of all the fish held in the farms. This is the second major disaster to wreak great havoc within the industry as a whole. The remaining fish are towed into deep water.

In 1997 the first shipments of super low temperature (SLT) frozen fish (minus 70oC) are flown to Japan and by 2000 SLT systems are responsible for 75% of the marketing of SBT from Port Lincoln. The industry now starts to encounter relatively fierce competition from European countries which have now adopted the Port Lincoln technology. In 2001, quality and prices continue to increase. There is continued improvement in grow-out systems and lower fish mortalities which results in SBT production of over 8000 tonnes.

Today's industry

The industry is open only to those who have access to part of the Australian

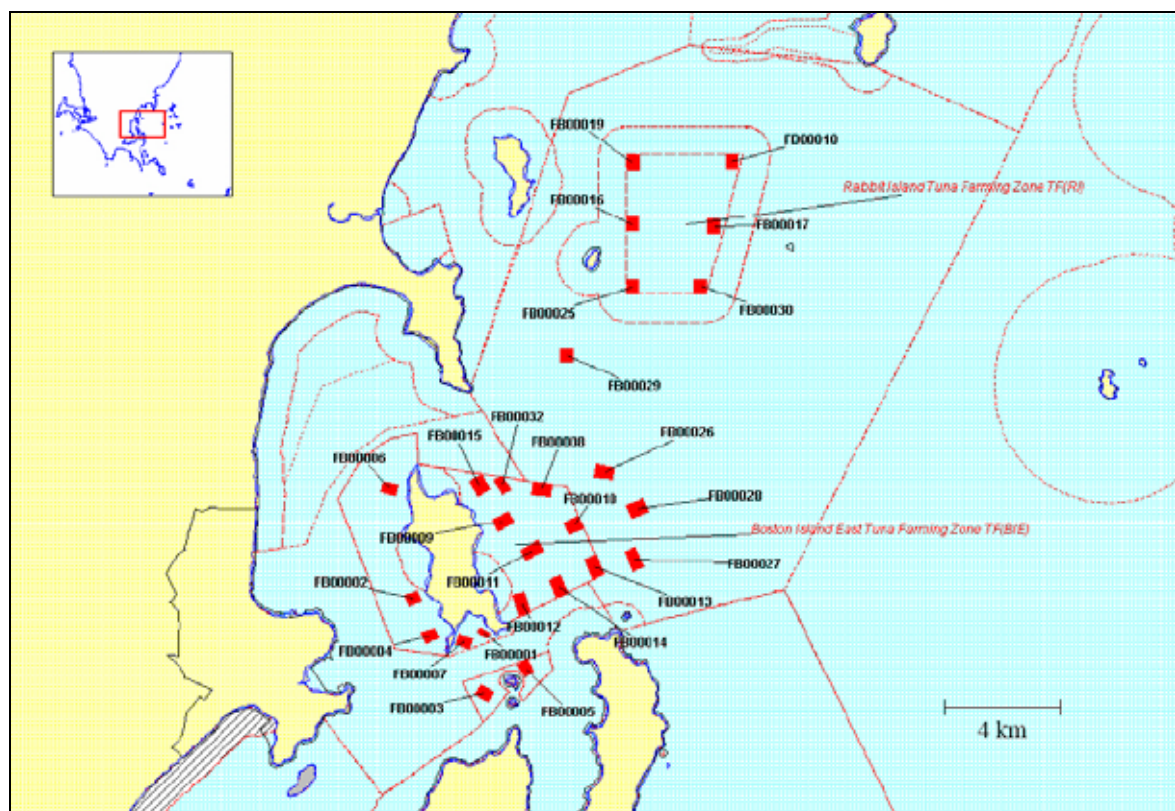
quota and who possess the necessary ranch lease sites, and the equipment and expertise to catch tuna.

In practical terms, the only such people are tuna fishers, and so tuna ranching can be seen as a direct outgrowth and continuation of South Australia's tuna fishing industry.

There are currently some 15 SBT ranches on some 18 sites (between approximately 20 to 30 hectares each site) in two major areas near Port Lincoln — East Boston Island and Rabbit Island. Major Australian tuna ranching players are:

- Ajka Pty Ltd.
- Australian Fishing Enterprises Pty Ltd.
- Tuna Growers Pty Ltd.
- Sarin Marine Ranch Pty Ltd.
- Australian Tuna Fisheries Pty Ltd (Stehr Group)
- Clean Seas Aquaculture Growout Pty Ltd (Stehr Group)
- Dinko Tuna Farmers Pty Ltd.
- S & Z Lukin Pty Ltd.
- MG Kailis Pty Ltd.
- Emily Krstina (Australia) Pty Ltd (Tony's Tuna International Pty Ltd)
- Sea Marine Holdings Pty Ltd (Tony's Tuna International Pty Ltd)
- Tony's Tuna International Pty Ltd.
- Prisman Pty Ltd.
- Di Fishing Co Pty Ltd.
- Boric Fisheries Pty Ltd (Tony's Tuna International Pty Ltd)
- Fina K Fisheries Pty Ltd.
- Lucky S Fishing Pty Ltd (Sekol Ranch Tuna PTY LTD)
- Marnikol Fisheries Pty Ltd.
- SmartAqua.
- Stolt Sea Ranch Pty Ltd.
- Sarunic & Sons Pty Ltd.
- Blaslov Fishing Pty Ltd.
- Shark Bay Tuna Farms Pty Ltd

There are about 130 pontoons of 40 metres in diameter and 12 metres in depth.



Location of finfish ranching licence areas in Pt Lincoln showing the Boston Island East and Rabbit Island tuna ranching zones. Source: South Australian Research and Development Institute, Aquatic Sciences – January 2002.

- ATRT Tuna-Ranching Intelligence Unit -

Each of these pontoons is governed by what many see to be some of the toughest environmental monitoring systems in the finfish ranching world. In fact, one Port Lincoln tuna company has already achieved environmental certification to ISO14001 standard with others now making moves to follow.

Some of the regulations governing the industry include:

- Maximum stocking rate of 4 kg per cubic metre of water (overseas standards are anywhere up to 12 kg per cubic metre)
- Maximum 400 tonnes of fish into a 30 hectare site (where there are no limits overseas)
- Minimum of one kilometre of distance between sites (no such minimum overseas)
- Minimum clearance of 5 metres between the fish net and the sea bed (no minimum limits overseas)
- For the last seven years, the industry has been required to fund a quarterly regional monitoring program by the South Australian Government.
- From 2001, this quarterly regional monitoring program has been expanded to include a more intensive on and near site monitoring program.
- Both programs include intensive water quality and bottom sampling on both ranch and non-ranch sites;
- The new programs aim at pinpointing any differences between farms and whether there is any long term environmental impact.



The tuna ranch industry is represented by the Tuna Boat Owners Association of Australia.



Great white shark carcharodon carcharias South Australia this female found dead net surrounding tuna pen scent bottom enclosure proved fatal attraction

The industry is committed to environmental sustainability through a stringent environmental monitoring program as well as a 'code of practice' the objectives of which are:

To establish industry-wide procedures that ensure that the high quality and reputation of South Australian ranched tuna is maintained.

To ensure that finfish farms are operating in a manner acceptable to the public in order to maintain a good balance with the community, the environment and surrounding farms.

To set effective guidelines for marine farmers regarding non-chemical ranch and health management, waste disposal, predator control, ranch safety and any future issues as they arise.



Southern Blue Fin Tuna Juvenile fish (15-25 kilograms) are caught from December to March off the South Australian coast using purse seine techniques and towed slowly in special purpose built towing cages back to grow out farms near Port Lincoln. During the next three to seven months the tuna are raised in 40-50 metre diameter polar circle type ranch pontoons, fed baitfish to improve both their condition and biomass, then progressively harvested.



Tuna harvesting vessel at a tuna ranch off Port Lincoln

About 45.000 tonnes of bait fish, sourced both locally and overseas, were used in 2000-01. About 60 tonnes of Southern Blue Fin Tuna were also successfully fed a manufactured pellet. Food conversion ratios average 10-15:1. An average size Southern Blue Fin Tuna increases in weight by 10-20 kilograms during the ranching process.

However, Port Lincoln's \$300million tuna ranching industry faced this year a desperate shortage of food for its caged fish after the South Australian Government slapped a ban on the pilchard-fishing fleet for killing dolphins.

Premier Mike Rann said the "drastic but necessary" action was taken after government monitoring revealed 19 dolphins had been trapped and killed in nets over the past five months.

An urgent meeting with the states' 14 pilchards fishery licence holders was called to implement a draft code of practice to prevent further dolphin deaths.

"Practices have to change to protect these protected species," Mr Rann said.

The industry would not reopen until the draft code was implemented.



The situation was resolved within a week because Port Lincoln tuna farmers, who rely on the fresh pilchards to feed their fish, had stocks to last only six days.

The AUS\$ 28 million pilchards industry, which has a quota of 51.000 tonnes a year, has grown rapidly to support tuna ranching in Boston Bay, near Port Lincoln in the state's west. Pilchards are fished year-round in the southern Spencer Gulf and also off South Australia's west coast.

Andrew Wilkinson, the manager of Australia's largest tuna farmer, Port Lincoln-based Tony's Tuna International, criticised the timing of the ban.

"It could have been handled a bit better," Mr Wilkinson said. "They are putting not only the pilchards industry at risk but also the tuna industry."

"If you don't feed the fish they get skinny pretty quickly," he added.

MG Kailis' tuna operations manager John Isle said he had anticipated the downturn in supply of local pilchard that had already occurred and had sourced all his pilchards from Esperance for the remaining two final weeks his cages would be in operation.

Mr Isle said any moves to improve the sustainability and environmental record of the pilchard industry would be a positive for the local tuna industry.

Primary Industries and Resources South Australia director Will Zacharin said he wanted "no pilchard-fishing" zones in areas where dolphins gathered, and independent observers to look for threatened or protected species before fishers "shoot their nets".

A spokesman for the pilchards fishery licensees, Leith Whittaker, said the industry was aware of its responsibilities.



Research has been underway for a number of years into the hatchery production of tuna. Closing the life

- ATRT Tuna-Ranching Intelligence Unit -

cycle of Southern Blue Fin Tuna will enhance the availability of stock for aquaculture, and create the capacity for reseeding into the wild. However, the industry has not included propagation among its research priorities.

In Australia, research is under way to produce pelletised tuna feed that is acceptable by ranched wild caught juveniles. If an acceptable pelletised feed can be found, feed costs may be reduced substantially. The issues of finding a cheaper alternative feed to imported frozen baitfish and closing the tuna life cycle are linked, in that hatchery produced tuna may find such alternative feeds more acceptable than the wild caught juveniles presently caught for ranching.

The new Cooperative Research Centre for the Sustainable Aquaculture of Finfish (Aquafin CRC) funded by the Australian government (2001-08) is the main focus for Australian Southern Blue Fin Tuna research. Projects being undertaken by the Aquafin CRC on Southern Blue Fin Tuna include projects on further diet development, product quality, health and environmental management, and propagation.

The development of a strategic plan for the propagation of Southern Blue Fin Tuna is currently being conducted through the Fisheries Research and Development Corporation.



In July 2002 a Japanese laboratory announced that it had carried out full-cycle breeding of Blue Fin Tuna. The laboratory stated that it had succeeded in producing Northern Blue Fin Tuna artificially raised from eggs, which themselves spawned eggs, hatching a new generation.



The key to the technology to catching SBT remains the ability to find the fish and get in on board while causing minimal amount of stress. This ensures premium quality fish that can be provided to the overseas sashimi market. It is an underrated skill but one in which the Port Lincoln fishermen have become better and better.

The ability to better understand the transfer of fish, the towing of fish, the movement of the pontoons from the

Great Australian Bight into Spencer Gulf and the subsequent transfer into the farms has improved gradually over the years. Having occurred within a "trial and error" environment, the adaptability of the fishermen to understand the entire gamut of what is required in ranching fish has resulted in a very steep learning curve.

Having gone through the process from scratch, the industry is now able to better understand the impact of stress on grow-out mortalities, on growth rates and on vulnerability to water quality deterioration. All of the pre grow-out technology has reduced fish stress and underpinned the basis for improving and maintaining ranch quality.

Having said all of this, the greatest success in Port Lincoln has been the smooth transition from wild fishing to animal husbandry within such a short time. Same people, same region but whole new mentality.

The industry was fortunate to be able to use the old style boats and factories to catch and ranch the tuna which considerably reduced the financial pressure on the industry during the early days of fish ranching. Over the years, the industry has developed dedicated equipment, one example being the onshore freezing plants built by Tony Santic in 1998. This has now been joined by the new nitrogen freezing system which most farmers have now built onto their vessels for processing at sea. Another quota holder in Port Lincoln, Sam Sarin, for example, has introduced two platforms which are highly efficient and work-friendly pontoon-servicing vessels. Other companies now have new multi-purpose vessels which can both tow and service the pontoons.

One of the most important aspects which have most driven tuna ranching in Port Lincoln has been the "bush engineering" skills which are prolific within the industry. With each new technical problem which has arisen, the tuna industry in Port Lincoln has resolved these with both innovation and experience.

Australian ranched tuna is sold almost exclusively to the Japanese sashimi markets. All frozen product, representing around 75 per cent of sales, and around half of fresh chilled product, is now sold direct rather than auctioned.



Japanese customs clearance statistics indicate that total imports of Australian Southern Blue Fin Tuna (fresh chilled and frozen) rose from 6125 tonnes in 1997 to 8222 tonnes in 2002. Over this period, import prices in yen rose, and from 1997 to 2001 the Australian

dollar depreciated against the yen. Consequently, the value of Australian ranched tuna sales to Japan rose significantly in Australian dollar terms in the period 1997 to 2001. Despite some appreciation of the Australian dollar against the yen, Australian dollar prices remained high in 2002 due to the continued high prices in yen for Southern Blue Fin Tuna.



The main issues for the industry in the short to medium term are the price outlook for high value fish in the Japanese market, the increasing production of ranched tuna in the Mediterranean and in North America, and the acceptance of 'pelletised' feed by locally ranched wild caught juveniles.

Some reports indicate that as Japan's economic slowdown reduces Japanese consumer demand generally, consumers are increasingly shunning high priced luxury fish. However, prices for Southern Blue Fin Tuna imported by Japan currently remain high.



World production of ranched tuna has been growing rapidly in the past five years. Global production in 2001 was nearly 20 000 tonnes, compared with some 45.000 tonnes in 2004.



The increased production has come from newly established farms in the Mediterranean (twelve in 2001, which now take around half of the 30 000 tonne Mediterranean Northern Blue Fin Tuna Quota), and in North America,

- ATRT Tuna-Ranching Intelligence Unit -

where an increasing proportion of the 2000 tonne regional quota is taken for Mexican tuna farms. The output of the Spanish tuna farms in 2001 was 8000-9000 tonnes.



Weighing southern Blue Fin tuna after harvesting.

Two tuna ranching centres are already operating in the Mexican state of Baja California, and a number of new concessions have been authorized.

And yet Australian Southern Blue Fin Tuna future looks uncertain. Major Western Australian fishing and aquaculture company MG Kailis is expecting to continue ranching tuna off Port Lincoln for at least another three to five years.

But continued uncertainties in the global tuna market mean the entire tuna industry and all tuna ranching companies could undergo major changes including mergers and consolidation over the next few years, according to an industry spokesperson.

MG Kailis' tuna general manager John Isle said speculation about the company moving its tuna operations back to Western Australia was premature.

Another Western Australian group was meanwhile investigating ranching Yellowfin tuna off Geraldton.

Tuna industry spokesman Brian Jeffriess said while it would be great for Port Lincoln to keep all the companies currently present, the reality was there could be major changes in the future.

"Each company will have some real decisions to make over the next few years because of fluctuations in the tuna market and continued uncertainties," he said.

New markets for Australian Southern Blue Fin are also being sought.

Tuna from Port Lincoln's fish farms could soon be headed to a new and huge potential market thanks to a recent visit from a high-level Chinese aquaculture official.

Professor Li Xiaochuan recently visited Port Lincoln's tuna farms as the guest of local aquaculture researcher David Padula, who coordinates the Food Safety Program for South Australian Research and Development Institute (SARDI).

Mr. Padula said Prof Li's visit would help the South Australian (SA) tuna industry prepare for the Chinese export

market as he was the vice director of China's National Centre for Quality Supervision and Testing of Aquatic Products.



Chinese Government aquaculture official Professor Li Xiaochuan visited Port Lincoln's tuna farms as the guest of SARDI researcher David Padula.

He also is chairman of the National Standards Technical Committee on Fish and Fish Products and as such is responsible for drafting residue standards for seafood set in China for contaminants such as mercury and is also China's representative to the Food and Agriculture Organization (FAO) on Fisheries.

Prof Li said he was impressed with the clean waters of Spencer Gulf and the very efficient harvesting and chilling procedures that ensured a fresh product.

"Chinese people love to eat seafood and tuna is already on the menu in restaurants in Shanghai and Beijing," he said.

He encouraged Australia and organizations such as SARDI to keep working through the official channels to ensure access to the 1.3 billion Chinese consumers.

Prof Li is based at the Yellow Sea Fisheries Research Institute in the city of Qingdao, a city of six million.

Mr. Padula said encouraging links with South Australia were also being considered - the possibility of a joint research program with SA, which might eventually develop specific new products for the Chinese market.

SARDI representatives have been invited to China in November to speak at an international seafood conference on the work being done to help SA exporters comply with varying overseas regulations.

Tuna industry spokesman Brian Jeffriess said even though 97 per cent of Australia's southern Blue Fin tuna was still exported to Japan, new markets such as China were viewed as very important.

The industry however wanted to avoid what had happened in the United States where aggressive marketing had opened the market to ranched tuna but that new market was now being exploited by Mexican ranched fish and not the Australian product.

Mr. Padula is employed as a research scientist in the field of public health epidemiology and sampling.

He is currently working on the development of a market access guide for seafood exporters on international residue standards and is currently undertaking his PhD at the University of Tasmania.

The Tuna Boat Owners Association of Australia



Innovation and care

Australian ranched Southern Blue Fin Tuna (SBT or "Minamihonmaguro") is grown in the pristine ocean waters of southern Australia.

The industry has developed through a large investment in innovation, research and training, with a philosophy of continuous improvement and full traceability.

The Tuna Boat Owners Association of Australia represent this industry and work to maintain this high level of quality and performance.

The tuna are caught live at 15-50kg weight in the southern oceans, then towed carefully to the ranching areas. At all stages of the catching, towing and counting into the farms, the tuna are monitored by scientists and government inspectors.

To ensure full traceability of each tuna, there is continuous liaison between the government officials, each farmer and the Association.

Quality ensured

In the ranches, the fish are fed twice each day for up to 6 months with wild fish such as sardines, anchovies and mackerel.

The aim is to maintain all the wild qualities of the tuna, and add further benefits to product quality from regular feeding. It is nature and science working together.



The tuna are grown under a very strict government environment and stocking regulations. The approach is always set to be world's best practice.

No chemicals or antibiotics of any type are used to maintain the health of the tuna.

The natural mortality level from the capture in the wild to harvest in the ranches (up to 6 months later) is less than 2%.

Food safety guaranteed

Harvest and export of the tuna takes place under strict HACCP rules.

Each fish produced is certified by the Australian Government as meeting all the regulations of Japan, the European Union, the United States and Australia. Australian ranched tuna also meets all international standards, including, CODEX and the World Health Organisation.



Tuna are harvested from pristine ocean waters.

To totally ensure food safety, Australian ranched tuna is continually tested by the Australian Government.

These results are published, and supplied to overseas governments and consumers.

Our commitment to excellence

The Australian ranched tuna industry has a proven commitment to excellence.

This industry invented tuna ranching – and has continually improved the technology.



Quality processes are at the heart of this industry.

The industry has the largest investment in seafood research in the southern hemisphere. It is this research and training which provides the platform for continuous innovation.

The industry's commitment to full traceability for its product involves independent monitoring, and means transparency for the consumer.

Finally, the industry is committed to catching from a sustainable wild stock.

This means it enhances the current strict quota catch controls, and maintaining international cooperation.

Dedicated to meet export needs

The industry works closely with its overseas agents, visits its markets and welcomes buyers to inspect its facilities so that it can deliver to exact customer requirements.



Absolute product quality is the target for customers.

The industry's marine biologists monitor every stage of the process to ensure the benefits of the ranching method result in the ideal product for each market.

Compared with fish caught in the wild, ranched tuna have a richness in meat colour, texture and fat content.

The superior clean ocean growing conditions and the care given to the ranched tuna is matched by outstanding modern processing facilities.

The industry's distribution systems are continually monitoring shipments so that any issues can be swiftly addressed.

In these ways, the Australian tuna ranching industry can deliver to customers the unique taste, texture and quality of this product. The benefits of a pristine ocean growing environment and the very best rearing and handling conditions can be seen, tasted and enjoyed.

CONTACT

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Productivity And Research: An insightful article by the Tuna Boat Owners Association of SA President, Mr Brian Jeffriess

Ten years ago I would have apologised for writing that research serves limited purpose unless it improves the financial viability of a country or company. Today, measuring research by its return on investment (ROI) is the standard approach.

The challenge is, how to apply that approach to a new industry such as tuna ranching. After all, we have only been growing for ten years what has been around for at least 2,000 years. Because it is new, do we have to do more strategic research than we might otherwise do?

Again, because Australia is still the technological leader in tuna ranching, should we target research which can isolate the benefits to Australia only? If the answer is yes, is it practical?

The current substantial reduction in tuna prices focuses our minds even more on these issues. It is not yet clear whether this is a structurally lower price. As best we can judge, the most likely scenario is significant inter-annual fluctuations. In this situation, how does scientific research rate as an industry priority when you wake up each day challenged by prices, currencies, AFMA issues, quota levels - all short and long-term priorities?

My strong view is that the change in industry's situation makes ranch scientific research even more important. The reason is simple. Ranched SBT's future depends on our international competitiveness, and research can play a major role.

This is not rocket science - it is exactly what every other industry in Australia lives with every day. To some extent, tuna ranching has been insulated from it because of reasonable profits in the past.

Obviously the challenge is to ensure research is focused on commercial outcomes as much as possible and isolating the benefits to Australia. Achieving this will require a strong culture, process and discipline. The continual benchmark needs to be whether the project will improve industry's productivity. This is the bottom line of the new national research priorities. Applying it now to the CRC and FRDC process is our task.

How is this progressing? I think, overall, the CRC, FRDC and research agencies such as SARDI, have done a good job in understanding and applying the new requirements. We often compliment industry for making the wild fishing to animal husbandry transition within a generation. This is a magnificent achievement, but there is a long way to go. What needs to be appreciated is that the scientific community has had to cope with a

similar transition in the last decade. Again, overall, it is achieving that change - but there is still a long way to go.

21 April 2005 Tuna Harvest

Industry has been heartened by seeing early tuna prices as high as \$27/kilo, and harvesting has begun - as the Mexican tuna ranch harvest ends. The Mexican ranch industry has expanded in the last year, but is still smaller than Australia's. And Australian product is apparently regarded as of better quality. Another benefit to Australia is that the country's main competitor, the Mediterranean ranching area, is seen to be in decline.

23 September 2004 Tuna Season Closes

With only one company now still harvesting fish, the tuna season is set to end. David Ellis, research manager of the Tuna Boat Owners Association, advises the industry as a whole is pleased with production, with mortality expected to be close to last year's figure of 2 percent, which is very low for aquaculture. It's expected figures for the year will be around 8000 tonnes, as against 8308 tonnes and 8223 tonnes for the previous two years. The Australian Bureau of Statistics estimates released in January indicated 2003 earnings at \$195 million as against \$264 million in 2002. Spokesman for the tuna industry, Brian Jeffriess, explains by far the biggest factor in this difference is the rise of the Australian dollar against the yen. Another complication is increasing overseas production - it's estimated some 20,000 tonnes of tuna is now being ranched in the Mediterranean

9 September 2004 Eyre Peninsula Seafood & Aquaculture Trail

The Eyre Peninsula Seafood and Aquaculture trail is believed to be the first of its kind in Australia - it's a self-drive trail from Whyalla to Ceduna designed to promote the region's aquaculture industry. It provides for visits to commercial operations ranging from small family businesses to very large facilities, with guides explaining how things are done. It's been predicted the Eyre Peninsula's aquaculture activity is likely to double capacity by 2010 - in 2000-2001 there were sales of \$428.5 million and employment for around 2000 people. The Trail was recently boosted by a State Government grant of \$20,000 for additional signs and car parking, which will help businesses which are new in joining the Trail. Some 24,000 tours were sold last year, an 11 percent increase on the previous year. Those using the Trail can discover the fishing, and in many cases the ranching and tasting of southern Blue Fin tuna, crayfish, abalone, shark, scallops, seahorses, crabs, snapper, oysters, yellow-tail kingfish, mulloway and King George Whiting. Direct sales to the public are also available on many tours. For more information check out www.tep.com.au.

3 June 2004 Not So Wealthy

Over approximately two years the value of tuna quota has halved, and this has impinged on the wealth of some key players in the industry: Sam Sarin's wealth was \$350 million last year, and is now \$220 million; Tony Santic went from \$200 million to \$150 million, and Hagen Stehr from \$160 million to \$110 million. However there's optimism about the longevity of the tuna industry.

3 June 2004 Tuna Industry Fears

With the annual tuna ranching industry harvest looming, there are concerns some of the operators will become unprofitable as a result of a combination of circumstances. In the most difficult year for the industry since tuna ranching built to a formidable producer in the 1990s, farmers are confronting both a downturn in returns owing to a much stronger Australian dollar, and direct competition from industry now operating in Mexico, Turkey, Spain, Malta, and Croatia. Even though it's been predicted the price for product paid by major buyer Japan will be better than last year's, the Oz dollar performance against the yen will undermine the deal.



The Australian southern Blue Fin tuna quota is 5265 tonnes, and most of it goes into the farms which build it to some 9,000 tonnes. However, this year it's expected Europe will produce 18,000 tonnes while Mexico will grow out 4,000 tonnes. Basically, there's been a significant rise in northern hemisphere tuna production - and northern Blue Fin is preferred over southern Blue Fin. Behind these doubts is the knowledge that a significant proportion of Port Lincoln's population are employed in the tuna industry, or in the pilchard industry which provides some of the feed for the tuna farmers.

THE BIG BOYS

Ajka (Pty) Ltd.

Tuna ranching company AJKA was awarded a research and development grant of \$AUS100,000. AJKA used its grant to help fund a graduate student's work to improve fish husbandry and boost production of southern Blue Fin tuna. Tom Bayly is Ajka's tuna technician.



Mesocosm pontoon (left) in Rotton Bay (you can see Boston Island in the background). The tuna were held in the pen on the right until needed for the study. Photo: Quinn Fitzgibbon

Obviously, with such a successful outcome from the mesocosm approach Quinn and his supervisory team are already planning a number of follow up studies for 2005 and 2006.

Name of Tuna Ranching Facility	Ajka Pty Ltd	Ajka Pty Ltd	Marnikol Fisheries Pty Ltd & Ajka Pty Ltd
Name of Owner/s	Ajka Pty Ltd	Ajka Pty Ltd	Mario Valcic
Name of operator/s	Ajka Pty Ltd	Ajka Pty Ltd	Marnikol Fisheries Pty Ltd & Ajka Pty Ltd
Address of Owner/s	7 Riversdale Avenue, Port Lincoln, 5606, Australia	7 Riversdale Avenue, Port Lincoln, 5606, Australia	PO Box 10, Port Lincoln 5606, Australia
Address of Operator/s	P.O. Box 643, Port Lincoln 5606, Australia	P.O. Box 643, Port Lincoln 5606, Australia	PO Box 10, Port Lincoln 5606, Australia
General Manager	Greg Honeychurch	Greg Honeychurch	Mario Valcic
e-mail:	ajka@ajka.com.au	ajka@ajka.com.au	marnikol@bigpond.net
Phone	61 8 8683 0988	61 8 8683 0988	61 8 8683 3900
Fax	61 8 8683 3988	61 8 8683 3988	61 8 8683 3988
Cell	61 419 814 350	61 419 814 350	61 419 814 350
URL	N/A	N/A	N/A
Registration or License Number	FB00060	FB00052	FB00011
Location of Tuna Ranching Facility	Offshore Lincoln Aquaculture Zone	Historic Zone Rabbit Island	Historic Zone Boston Island Bay East
Coordinates (Longitude & Latitude)	A	E 136°.0270' ; S 34°.6292'	E 135°.9594' ; S 34°.6887'
	B	E 136°.029444105813 ; S 34°.6339549834755	E 135°.959470793247 ; S 34°.6922548585299
	C	E 136°.040083918322 ; S 34°.6247029834669	E 135°.963656980751 ; S 34°.6887304210266
	D	E 136°.042467980825 ; S 34°.6293600459713	E 135°.963697480751 ; S 34°.6922214835298

Soon To Be New CRC Student Successfully Tests World's Largest Waterbed!

Quinn Fitzgibbon, who is in the process of officially becoming a CRC PhD student through Adelaide University, spent 3 weeks either side of Easter 2004 wearing a rubber suit and bouncing up and down on the 'worlds largest waterbed' – and it was all in the name of science! What's more, for much of this time the bag contained either a couple of 20kg southern Blue Fin tuna or twenty 4kg yellowtail kingfish. Dr John Carragher tells us about Quinn's recent escapade.



Quinn "lying low" on his giant, comfy, back supporting (but cold) mesocosm. Photo Supplied by John Carragher.

The photo on the left shows the 248,000 litre respirometry bag (or the mesocosm) moored inside a 12m diameter tuna pontoon. The pontoon was anchored beside a second pontoon holding the experimental fish, in the lee of Boston Island, Port Lincoln. Don't be fooled by the calm conditions! The picture shows the set-up on a perfect day, but during the 30 day deployment the gear had to cope with 30 knot winds and a 1m swell – it survived intact, as did the 2 tuna that were swimming around inside!

Whilst some of the tuna millionaires in Port Lincoln might want a waterbed with tuna swimming around inside, they can't have this one – the submerged dissolved oxygen sensors and water stirrers, and above water data logging boxes and batteries make this a unique set-up (and also hint at the real reason why CRC was responsible for such an activity). Quinn's experiments are the first in the world to measure the oxygen consumption rates of any free-swimming large teleost species.



The mesocosm showing the only way in and the only way out (on the left). The clear circles are windows allowing researchers to see the fish and the fish to see daylight. The 16m SARDI vessel Breakwater Bay, from which most of the logistical work was carried out, is moored to the pontoon. Photo: Quinn Fitzgibbon.

Despite a number of opinions which suggested that the tuna would 'freak' once put inside the mesocosm, or be so stressed that the data would be meaningless, the fish coped superbly – swimming as a pair in slow circuits, with a steady fall in DO levels for up to 40 hours. As an indication of how well they coped, some of the fish actually took pilchards offered to them whilst inside the mesocosm!

Blaslov Fishing Group



A diver struggles to grab a southern Blue Fin tuna at Blaslov Fishing off Port Lincoln, South Australia.

Of the 8,400 tonnes of tuna ranched in Port Lincoln every year, 95 percent is exported to Japan. Of the 12 tuna ranching groups in Port Lincoln, many are going through tough times because of current low tuna prices on the Japanese market.

"We can't expect it to be like Christmas every time just because we've had it so good in the past," said Justin Nelligan, director of Blaslov Fishing.

"We had it pretty damn good for years there and maybe that spoiled us."

"Pretty damn good" is an understatement for the times when tuna prices in Japan were peaking.



Large purse seiner Boston Bay operated by Blaslov Fishing Group. Last fishing season, the vessel went on a joint venture fishing trip with MG Kallis.

Name of Tuna Ranching Facility	Blaslov Fishing Pty Ltd	
Name of Owner/s	Branko Sarunic	
Name of operator/s	Blaslov Fishing Pty Ltd	
Address of Owner/s	South Quay Blvd, Port Lincoln 5606, Australia	
Address of Operator/s	South Quay Blvd, Port Lincoln 5606, Australia	
General Manager	Justin Nelligan	
e-mail:	jorsar@centralonline.com.au	
Phone	61 8 8683 4688	
Fax	N/A	
Cell	N/A	
URL	N/A	
Registration or License Number	FB00055	
Location of Tuna Ranching Facility	Offshore Lincoln Aquaculture Zone	
Coordinates (Longitude & Latitude)	A	E 136°.02673735581 ; S 34°.5921172959366
	B	E 136°.028845668312 ; S 34°.5962079834404
	C	E 136°.041576105824 ; S 34°.5868862959317
	D	E 136°.043684980826 ; S 34°.5909767334355

Twenty meters below the waves in a roped pen, southern Blue Fin tuna shoot through the sea like muscular submarines.

At 5:30 a.m., Blaslov Fishing Co.'s tuna boat, the Nanci, leaves the South Australian fishing town of Port Lincoln, ploughing into the Indian Ocean, where tuna is king. Fifty km off the South Australian coast, the Nanci anchors next to the tuna pen. The fish are riling the sea's surface, acting like hungry goldfish, but the fishermen haven't come to feed them today -- they've come for the kill.

Harvesting tuna is a factory-line process and a bloody affair. Divers in wet suits plunge into the pens and catch one tuna after another in their arms. Pushing the tuna onto a ramp lowered into the pen, the next fisherman in line grabs the tuna's gills, hauls it aboard and within a second it has a metal spike through its brain and another thin metal rod shoved down its backbone to still the nerves so the flesh remains tender. Then it's gutted and dropped into ice-filled tanks.

Within 72 hours of the tuna leaving the water, it arrives at a Japanese fish market.

Tuna ideal for ranching are between 2 and 4 years old and are caught anywhere from December to April, when they are plying the sea south of Australia.

Today 1 kg of fresh tuna fetches 2,000 yen on the Japanese market, compared with the 3,000 yen it was worth in 2001. Today frozen tuna goes for 1,150 yen to 1,250 yen, compared with the 2,350 yen it got in 2001.

One reason for the dramatic price drops is the surplus of tuna being supplied to Japan by Mediterranean tuna farms, which saturated and crashed the market.

The changing face of Japanese society has also affected the tuna industry worldwide. The economic downturn put an end to extravagant expense budgets, and many upscale sushi restaurants closed. More Japanese are now cooking at home to save money and supermarkets are going straight to the source and buying tuna in bulk instead of going to wholesalers and paying high prices for quality tuna sold at auction.



Blaslov Fishing ranch manager Ric Lehmann and tuna buyer Tadashi Sasayama.

Di Fishing Co. (Pty) Ltd.



Di Fishing ranch manager Russell Reid helps unload the last of the tuna harvest for season 2005 at the company's factory.

The DI business was started a bit over three decades ago by Donald Ball when he bought a 'bush block' at Nyabing in WA's Great Southern, living in a shed for the first years before moving into nearby Katanning, where the family's now extensive tuna ranching operations are controlled by his son William.



DI diver Nick Heaslip guides a tuna to the harvest platform.

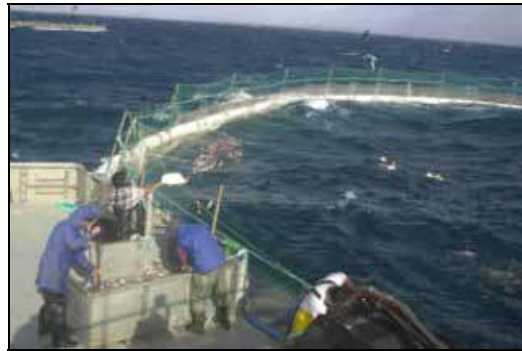
Although the first pages of this family's Australian history were written when some Balls rolled into WA's deep south from Scotland, the success chapters began with Donald when he started tuna fishing at Albany in the late 1970s; armed with a gambler's instinct, a hard-work ethic, a quota and prices of \$1000 a tonne.

Prices for Southern Blue Fin tuna from the Ball's Port Lincoln fish ranching operations, trading as DI Fishing, now fetch anything up to \$35,000 a tonne, because it did not take Donald long to realise that by ranching tuna, their weights could be doubled and returns increased exponentially.

DI Fishing Co Pty Ltd was established in November 1995 to ranch delicate, highly sought-after Southern Blue Fin tuna, which are ideal for value adding, given that all aspects of the fish - weight, growth and fat content - are controlled throughout the fattening operation.

The fish are generally caught around February each year, transferred into pens and fattened until harvesting, processed in DI's own factory in Port Lincoln and then sold to Japanese and US markets.

The company employs trained Japanese staff on its boats and in its factories to maintain quality control.



DI Fishing Pty Ltd in full scale feeding operation.

According to Donald's son Charlie, a director of parent company Coolbarrie and managing director of Ball Noodles, strict adherence to quality and employing Japanese staff, which helped DI break into the competitive and lucrative Japanese fish market, are also key ingredients in his recipe for success in cracking the tough Japanese noodle market.

Established in July 2002, Ball Noodles is a privately held company, created through the union of Coolbarrie in WA and TOHO Corporation in Osaka, Japan. TOHO, with a network of offices in Japan, the US and Korea, acts as the import and distribution agent for Ball Noodles.

Chief executive officer Stephan Schilling said the company had experienced a very good ranching season, but the difficult market circumstances had negated much of this good work.

He said DI had produced its best quality since it had started in the industry. "It's a credit to all the staff," he said.

"This year the whole operation ran smoothly, from catching through to the harvesting stage.

"However we will need to continue looking at improving all aspects of our operations to remain very competitive on the global market."

Mr Schilling said the biggest fish this year weighed 115 kilograms, with the majority of the catch in the 30 to 40kg range as gilled and gutted tuna.

Tuna ranching company DI Fishing was awarded in 2004, a research and development grants of \$100,000.

The DI Fishing grant was to implement a project comparing the performances of a new feed formulation program with traditional feeding methods.



DI Fishing Pty Ltd in full scale harvesting operation.

Name of Tuna Ranching Facility	Di Fishing Co Pty Ltd
Name of Owner/s	Charlie Ball
Name of operator/s	Di Fishing Co Pty Ltd
Address of Owner/s	21, Pine Freezers Road, Port Lincoln 5606, Australia
Address of Operator/s	21, Pine Freezers Road, Port Lincoln 5606, Australia
General Manager	William Ball
e-mail:	charlie@ballnoodles.com
Phone	61 8 9336 6488
Fax	N/A
Cell	N/A
URL	N/A
Registration or License Number	FB00051
Location of Tuna Ranching Facility	Offshore Lincoln Aquaculture Zone
Coordinates (Longitude & Latitude)	A E 135°.980236105767 ; S 34°.7102161085466
	B E 135°.984873855771 ; S 34°.7119565460482
	C E 135°.986332793272 ; S 34°.6991372335362
	D E 135°.990970043277 ; S 34°.7008774835379

The MG Kailis Group

The MG Kailis Group is a leading Australian marine corporation that was founded by the late Michael Kailis and his wife Dr Patricia Kailis in 1962, when they began a small rock lobster operation in Dongara, Western Australia.

From there the company has grown to be a prominent seafood, pearling and marine company renowned for its sustainable, innovative and pioneering practices, whilst maintaining the family values upon which it was established.

The MG Kailis Group is the second largest producer of cultured Australian South Sea Pearls in the world.

The Group entered the industry in 1975 through its subsidiary Broome Pearls Pty Ltd and now farms at a number of locations in the pristine waters of northern Australia.

In 2002 the Group also launched its own premium retail pearl brand, Kailis Australian Pearls.

Using only the finest pearls from their annual harvests, the exclusive brand has showrooms in Fremantle and Broome and selected collections are featured by retailers in Spain, Perth and Sydney.

With an extensive history in boat building and design, the Group boasts a significant engineering division capable of redesigning and refitting a wide range of vessels.

For over 40 years, the MG Kailis Group has been extensively involved in all facets of the seafood industry, including catching, production, marketing and trading.

The Group offers premium quality Australian lobster (western rock lobster and tropical lobster), Australian ocean caught prawns and Southern Blue Fin Tuna to international and domestic markets.



Today the company remains proudly family-owned and run, Co-founder, Dr Patricia Kailis, is Governing Director, her youngest son, Alex Kailis, is Managing Director and her eldest son, Professor George Kailis, has previously been Managing Director and is currently a Director on the Board.

Daughters, Maria and Amanda, have an active interest as shareholders of the company.



Tuna Queen anchored out in Rotten Bay freezing fish delivered by MG Kailis tuna division general.



MG Kailis manager John Isle pictured offloading his fish.



Farmer worker Paul Smith feeding at MG Kailis.



MG Kailis deckhand Paul Smith is pictured with tuna being off loaded at the wharf.



Feeding Time at MG Kailis Tuna Ranch.

MG Kailis' plan to submit a final proposal early 2006 to establish a 150 tonne tuna ranch near Remark Island in the Recherche Archipelago has been shelved following what the company has cited as large-scale downturns in the industry.

Conservationists in Esperance said they were "extremely pleased" with the decision by one of Western Australia's

biggest aquaculture companies. The move comes as MG Kailis continues negotiations for the sale of all of its tuna operations to a syndicate in Port Lincoln, led by current general manager John Isle, as part of a company-wide restructure.



Harvesting time at MG Kailis's.

Local environmental group Vive Le Recherche has been opposed to the plan since it was first mooted more than two years ago and has run an active local campaign against the project.

The Parliamentary Member for Roe, Graham Jacobs, has warned the group not to celebrate too early, saying there was still work to be done and without an environmental management plan for the Recherche Archipelago, the area could be targeted by other industries.

Dr Jacobs says he would like to see a co-operative approach between the State Government, environmental groups and the local community to ensure that a suitable management plan is drawn up in the near future.

Name of Tuna Ranching Facility	MG Kailis Pty Ltd	MG Kailis Pty Ltd
Name of Owner/s	Kailis Family	Kailis Family
Name of operator/s	MG Kailis Pty Ltd	MG Kailis Pty Ltd
Address of Owner/s	7/6 South Quay Boulevard, Port Lincoln 5605, Australia	7/6 South Quay Boulevard, Port Lincoln 5605, Australia
Address of Operator/s	7/6 South Quay Boulevard, Port Lincoln 5605, Australia	7/6 South Quay Boulevard, Port Lincoln 5605, Australia
General Manager	John Isle	John Isle
e-mail:	seafood@kailis.com.au	seafood@kailis.com.au
Phone	61 8 8682 1970	61 8 8682 1970
Fax	61 8 8682 1965	61 8 8682 1965
Cell	61 418 831 969	61 418 831 969
URL	www.kailis.com.au	www.kailis.com.au
Registration or License Number	FB00072	FB00075
Location of Tuna Ranching Facility	Historic Zone - Rabbit Island	Offshore Lincoln Aquaculture Zone
Coordinates (Longitude & Latitude)	A E 135° 95'31.59668241 ; S 34° 68'36.032335218	E 136° 01'22.18855796 ; S 34° 68'56.89835264
	B E 135° 95'54.12418244 ; S 34° 68'66.916085247	E 136° 01'23.04168297 ; S 34° 69'55.370460329
	C E 135° 95'54.96293244 ; S 34° 68'24.401085207	E 136° 02'42.16918308 ; S 34° 68'46.79835263
	D E 135° 95'77.49105746 ; S 34° 68'55.285460236	E 136° 02'43.2980808 ; S 34° 69'54.370460328

Australian Fishing Enterprises



Australian Fishing Enterprises is the largest Southern Blue Fin Tuna ranching company in Australia. Harvesting at one of AFE's tuna ranches.

The tuna industry is here to stay and there is no reason to panic despite the value of tuna quota halving in the last year or so, according to tuna baron Sam Sarin.

The man who built his empire on the fishing industry remains very optimistic despite a drop in his wealth as reported in latest BRW magazine Rich List.

Sam Sarin dropped from \$350 million last year to \$220 million this year, while Tony Santic had a similar decline from \$200 million to \$150 million, and third tuna farmer on the list, Hagen Stehr went from a net worth of \$160 million to \$110 million.

He said the tuna ranching industry had a long-term future in Port Lincoln.

"Fishing is a serious game and a tough industry, which needs serious players who understand and have knowledge of the fishing industry," Mr Sarin said.

"Tuna ranching will change over time for better or worse but it will be here forever."

The tuna quota was very volatile and while the market was quite tough now with additional supplies going to Japan from other tuna farms around the world, he said things would eventually improve.

He said the true extent of other fishing resources available in the southern oceans and the Great Australian Bight were not yet known.

"The opportunity is there and we don't know really know what is out there," Mr Sarin said.

Fishing however was an expensive operation and it took considerable capital outlay in new vessels, he said.

Mr Sarin had recently brought two vessels, Riba I and Riba II, from Norway which were now both bringing in good catches.



Australian Fishing Enterprises was formed in 1987.

Mr. Sime (Sam) Sarin is the founder of Australian Fishing Enterprises and is still currently the active President of the company. Mr Sarin has been in the Tuna industry for over 40 years, which has seen the capture of tuna for canning, to the now ranching/Ranching of tuna for the Japanese Sashimi market. Australian Fishing Enterprises is the largest Southern Blue Fin Tuna quota holder in Australia.



Apollo S underway

Fishing Operations



Deep Sea Trawling Operations

In 1988 Australian Fishing Enterprises entered the demersal trawling sector of the Australia fishing industry in the South East and Great Australian Bight Fisheries. AFE has steadily grown to become the largest quota owner and fishing fleet operator in the South East fishery. All catches have traditionally been landed as fresh fish and sold through the Melbourne & Sydney fish markets.

In 2004 AFE acquired a new 38m-factory freezer stern trawler that catches, processes and freezes premium quality product onboard. This frozen at sea product has enabled AFE to develop new domestic and offshore markets.

AFE currently operates a fleet of 4 trawlers in the southern fisheries of Australia. This includes 3 fresh fish demersal trawlers and one factory freezer trawler. This fleet configuration enables AFE to supply a wide range of fresh and frozen product to both domestic and offshore customers.

Pilchards

AFE uses its pilchard quota as a source of feed for our tuna ranching operations.

The MFV Apollo & MFV Maria Luisa are deployed to catch our pilchard quota when they return from the Great Australian Bight after the Southern Blue Fin Tuna have been caught.



The Apollo is a state of the art modern purse seine vessel that stores the catch onboard in refrigerated seawater. This

The ranching of AFE's Southern Blue Fin Tuna requires significant amounts of small pelagic species as feed for the tuna. Australian Fishing Enterprises has 2 purse seine vessels to catch pilchards for tuna feed. The pilchards are fed to the tuna fresh or sent ashore to the company's land based processing facility where they are frozen and stored until required



AFE catches and sells fresh fish into the Australian domestic market and is pioneering the catching, processing and freezing of premium quality product onboard two new vessels.

This product is being successfully sold into both domestic and overseas markets.

Australian Fishing Enterprises has developed a significant in-house engineering capability to ensure continuous operational support for the fleet of catching and ranch support vessels.

In the late 1980's Mr. Sarin and Australian Fishing Enterprises started to become involved in the South East Trawl Industry. Australian Fishing

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ensures premium quality bait is fed to our tuna. The Maria Luisa has the capability to either freeze and store its catch onboard or store it in refrigerated seawater. AFE supplies pilchards for tuna bait to a number of local customers and is always looking for interested parties wanting to purchase pilchards.



Automatic Long-lining

In 2004 AFE acquired a new 34m-factory freezer automatic long line vessel that catches, processes and freezes high value species into premium quality product onboard.

This frozen at sea product enables AFE to offer our customers a regular supply of top quality product and has led to the development of new domestic and offshore markets that were previously inaccessible.

Tuna Operations



The MFV Apollo and MFV Maria Luisa are deployed each year from January through to April to catch our Southern Blue Fin Tuna quota in the Great Australian Bight.

The tuna are transferred from the catch net into tow cages that are used to transport the fish to Port Lincoln where they are again transferred into the grow-out cages on our ranch sites.

These vessels are responsible for catching all AFE's annual tuna quota for the ranching season.

Australian Fishing Enterprises also uses these vessels to catch tuna for other operators on a contract basis.

AFE is Australia's largest holder of Southern Blue Fin Tuna Quota: 1023 Tonnes.

The ranching process is managed by AFE's Tuna Ranch Manager in conjunction with Sam Sarin to ensure that the company produces a premium quality product that meets the expectations of its export customers.

AFE successfully produces consistent quality tuna each year. This is achieved through a range of proactive fish husbandry practices such as diet formulation during the growth cycle, feeding practices in response to fish feeding behaviour, water temperature changes, cage design and maintenance to maximise water flow through the cages while minimising marine growth.



AFE follows a stringent environmental monitoring program that meets both industry and internal company standards.

The program requires AFE to closely monitor a range of environmental parameters to ensure the health of the fish is maximised while minimising the impact on the environment.

These include water temperature, dissolved oxygen inside and outside of the cages at various depths, the amount of marine growth of the cages restricting water flow and any changes to the demersal habitat under the ranch sites compared with areas away from the ranch sites.



The accumulation of residues in large predators at the top of the food chain has been known for many years. Globally, Food Safety Authorities have established maximum tolerable limits for a wide range of these residues including heavy metals, pesticides, antimicrobials, dioxin and polychlorinated biphenyls (PCB's) to ensure that consumers are protected.

Australian Fishing Enterprises (AFE) is the largest farmer of Southern Blue Fin Tuna (SBT) in Australia.

AFE has recognised the need to provide its customers the information they require to ensure the product maintains a leading position in the market place.

AFE has taken the initiative and conducted independent residue testing on our SBT as this information is a key part of our marketing strategy.

No detectable levels of any pesticide, antimicrobial, antimony, cadmium, lead or tin residues were found in our fish.

Both dioxin and polychlorinated biphenyls (PCB's) were extremely low, with mean dioxin being 5% of the European maximum limit and mean PCB results were 1.6% of the Australia New Zealand Food Standards Code maximum limit.

Traceability

Today, consumers want to know that the seafood they are consuming is caught in pristine, unpolluted and clean oceans by operators that are legally licensed by their government to fish and that the supply chain complies with all food safety standards. These customer requirements are driving changes in domestic and overseas food safety regulations.



Food safety is managed by a series of controls, microbiological testing regimes and audits conducted by the Australian Quarantine and Inspection Service (AQIS). AFE complies with all relevant food safety controls.

Traceability encompasses food safety and the ability to trace the product from source to sale. Traceability requires all inputs and outputs to be carefully monitored, recorded and reported.

Traceability is expanding to include points of difference such as resource sustainability, biological quality, environmental interaction and ethical standards.

Resource sustainability relates to the management regime of the natural resources being harvested. All fisheries that AFE has access to are managed by the Australian government with the stated goal of long term sustainable utilisation.

Biological quality highlights inputs such as water and environmental quality in capture fisheries and feed and water quality and husbandry practices in fish ranching operations. AFE fishes in the pristine waters of the Southern Ocean and we monitor water and feed quality on our fish ranching operations. We follow 'worlds best practice' in our fish handling and husbandry techniques.

Environmental interaction monitors the impacts of our fishing and ranching practices on the environment. There are strict government guidelines that

- ATRT Tuna-Ranching Intelligence Unit -

AFE follows. Compliance is monitored continuously to ensure environmental interaction is within these government guidelines.



Ethical standards refers to the company's labour policies and practices including remuneration rates and working conditions compared to industry standards. AFE is proud of its labour practices and ensures that our work force is treated fairly and transparently.

AFE has been proactive and implemented the ability to trace our products from the point of capture to the point of sale, including the details of all inputs and outputs.

Cold Storage

AFE built a state of the art 3600 tonne cold storage facility at its Windsor Avenue site in Port Lincoln to store frozen pilchards and trawl fish.

The cold store has 6 rooms that each have the capacity to hold 560 pallets of frozen fish.

This facility includes a plate freezing room that is used to freeze some of our pilchard catch. The frozen product is stored in our cold store until it is fed to the tuna.



Outside freezers at Windsor Avenue, Port Lincoln

ISO Accreditation

24 February 2005 Sarin Ranch Reaches Iso14001

Based at Port Lincoln, Sarin Marine Ranch has achieved the new international ISO14001 Environmental Certificate Standard. The operation, which deals with tuna aquaculture, is one of the first companies in the world to achieve certification. It's the fifth tuna company in SA to do so, under the guidance of Enviro Action.

Australian Fishing Enterprises (AFE) conducts its operations in accordance with an Integrated Management System (IMS), we colloquially refer to as ISO. Three main policies, Quality, Environment and Safety set the scene and provide objectives for the IMS. This IMS is accredited with Total Quality Certification Services International, for compliance with

- AS/NZS ISO 9001 Quality Standard
- AS/NZS ISO 14001 Environmental Management Standard
- AS/NZS 4801 OHS Management System Standard
- TQCSI HACCP 2003 Food Safety Code

The IMS ensures all Australian Fishing Enterprises activities that have the potential to negatively or positively affect, quality, the environment, OHS and food hygiene are analysed and managed to eliminate or minimise any impact. Australian Fishing Enterprises quality and food hygiene activities are aimed at achieving customer satisfaction by applying good management practices to all stages, from catching fish, to processing and supply of both wild catch fish and ranched tuna to customers. Australian Fishing Enterprises environmental activities are aimed at sustainable fishing for the future and minimising environmental harm when fishing, ranching, harvesting and processing fish, whilst the OHS activities are predominantly employee, contractor or visitor related.

Good quality management begins with quality staff. Australian Fishing Enterprises have a committed management team with dedicated roles bringing together skills and experience



from many industries, not just fishing, to ensure the objectives of our Quality, Environmental and Safety policies are met. The Billy Light's Point office operations include coordination of OHS/International Standards implementation.

Australian Fishing Enterprises fleet vessels operate in accordance with the same quality management principles

and adhere to the same policies and procedures, with several vessels being Australian Quality Inspection Services (AQIS) registered for Food Processing Accreditation.



Australian Fishing Enterprises maintains its processing vessels to meet the requirements of the Export Control (Processed Food) Orders, and documents all maintenance, cleaning and Hazard Analysis Critical Control Point (HACCP) activities to ensure the quality of local and export products. AQIS conduct third party audits of these process vessels to ensure compliance with the Australian Fishing Enterprises quality assurance system and the Processed Food Orders. Personnel required to handle product are required to undertake training in the HACCP principles and food and general hygiene. Australian Fishing Enterprises also conducts its fishing operations in a manner that minimises harm to unwanted fish species, sea mammals, aquatic birds and the sea bed, with many of the fishing operations randomly monitored by Australian Fisheries Management Authority (AFMA) observers. All environmental aspects and impacts have been assessed with controls developed and implemented to minimize harm. Australian Fishing Enterprises ranching operations are also monitored to ensure the local marine environment is not adversely affected. These activities include the Windsor Avenue Plate/Fish Freezer outputs and the actual ranch sites east of Boston Island.



Good occupational health and safety management is as equally important to Australian Fishing Enterprises as quality and environmental management. Australian Fishing Enterprises employees undertake high risk activities as part of the fishing operations, particularly when on vessels, requiring highly trained and skilled personnel.

Skippers are the managers of vessels and all crew are their responsibility whilst at sea. Australian Fishing Enterprises provide vessels that are required to meet stringent safety survey requirements before they are permitted to sail and these surveys are required regularly to remain registered. Local State OHS Regulations are

- ATRT Tuna-Ranching Intelligence Unit -

complied with for both vessel and land based operations, and considered a minimum level of compliance.



Training is monitored to ensure crew meet the requirements of State and National navigation Certificates of Competency for the relevant tasks they undertake. Australian Fishing Enterprises foster a continuous improvement philosophy, regularly auditing internally, and subject to external audits of all elements of Australian Fishing Enterprises Quality, Environment and Safety systems. Outcomes are reviewed to develop and implement actions on an ongoing basis with annual senior management reviews for system development and improvement.

Name of Tuna Ranching Facility	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd
Name of Owner/s	Same Sarn	Same Sarn	Same Sarn
Name of operator/s	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd
Address of Owner/s	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia
Address of Operator/s	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia
General Manager	Alistair McLachlan	Alistair McLachlan	Alistair McLachlan
e-mail:	afel@afepond.com.au	afel@afepond.com.au	afel@afepond.com.au
Phone	61 8 8682 8711	61 8 8682 8711	61 8 8682 8711
Fax	61 8 86820987	61 8 86820987	61 8 86820987
Cell	61 400 837 089	61 400 837 089	61 400 837 089
URL	www.afel.net.au	www.afel.net.au	www.afel.net.au
Registration or License Number	F00009	F00050	F00059
Location of Tuna Ranching Facility	Historic Zone Boston Island Bay East	Historic Zone - Rabbit Island	Historic Zone - Rabbit Island
Coordinates (Longitude & Latitude)	A	E 130° 04'00" ; S 34° 58'00"	N/A
	B	E 130° 04'55.043236 ; S 34° 58'58.296033	N/A
	C	E 130° 05'11.886574 ; S 34° 59'01.92332869	N/A
	D	E 130° 05'22.916242 ; S 34° 59'02.7235302	N/A

Name of Tuna Ranching Facility	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd
Name of Owner/s	Same Sarn	Same Sarn	Same Sarn
Name of operator/s	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd
Address of Owner/s	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia
Address of Operator/s	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia
General Manager	Alistair McLachlan	Alistair McLachlan	Alistair McLachlan
e-mail:	afel@afepond.com.au	afel@afepond.com.au	afel@afepond.com.au
Phone	61 8 8682 8711	61 8 8682 8711	61 8 8682 8711
Fax	61 8 86820987	61 8 86820987	61 8 86820987
Cell	61 400 837 089	61 400 837 089	61 400 837 089
URL	www.afel.net.au	www.afel.net.au	www.afel.net.au
Registration or License Number	F00007	F00074	F00075
Location of Tuna Ranching Facility	Offshore Lincoln Aquaculture Zone	Historic Zone - Rabbit Island	Offshore Lincoln Aquaculture Zone
Coordinates (Longitude & Latitude)	A	E 130° 56'04" ; S 34° 58'01"	E 130° 02'06" ; S 34° 57'00"
	B	E 130° 56'49.0232746 ; S 34° 57'43.6085132	E 130° 02'54.0543309 ; S 34° 58'45.6483235
	C	E 130° 56'48.68328752 ; S 34° 58'01.982325085	E 130° 02'58.40918322 ; S 34° 57'40.22358168
	D	E 130° 56'47.25400752 ; S 34° 58'04.210132	E 130° 02'59.2169822 ; S 34° 58'36.2325234

Name of Tuna Ranching Facility	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd, Tuna Growers Pty Ltd	Sarn Marine Farm Pty Ltd
Name of Owner/s	Same Sarn	Same Sarn	Same Sarn
Name of operator/s	Australian Fishing Enterprises Pty Ltd	Australian Fishing Enterprises Pty Ltd, Tuna Growers Pty Ltd	Sarn Marine Farm Pty Ltd
Address of Owner/s	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia
Address of Operator/s	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia	Dilly Lights Point, Port Lincoln 5006, Australia
General Manager	Alistair McLachlan	Alistair McLachlan	Alistair McLachlan
e-mail:	afel@afepond.com.au	afel@afepond.com.au	afel@afepond.com.au
Phone	61 8 8682 8711	61 8 8682 8711	61 8 8682 8711
Fax	61 8 86820987	61 8 86820987	61 8 86820987
Cell	61 400 837 089	61 400 837 089	61 400 837 089
URL	www.afel.net.au	www.afel.net.au	www.afel.net.au
Registration or License Number	F00000	F00001	F00054
Location of Tuna Ranching Facility	Historic Zone Boston Island Bay East	Historic Zone - Boston Island Vined (Sea Cage(s) - no stock)	Offshore Lincoln Aquaculture Zone
Coordinates (Longitude & Latitude)	A	E 130° 06'01" ; S 34° 58'05"	N/A
	B	E 130° 06'00.000000749 ; S 34° 57'51.6046019	E 130° 00'01.2000794 ; S 34° 58'01.601584230
	C	E 130° 06'7.943605765 ; S 34° 58'43.988836235	N/A
	D	E 130° 06'00.4543255 ; S 34° 58'04.9835167	N/A

Southern Waters Marine Products (Pty) Ltd.

Within 10 years, Southern Waters Marine Products has developed into a global multi-million dollar fish buying and export house, with its own processing factory and retail seafood outlet.

Southern Waters Marine Products Pty Ltd was established in 1989, specialising in the export of live lobster.

Three years later, oyster leases were taken up in the protected and pristine waters of Coffin Bay on Eyre Peninsula - one of Australia's finest and most productive marine environments.



It was also here that in 1994 the company's fresh tuna export business was successfully established. Southern Waters Marine Products operates its own boat out of Port Lincoln to catch live lobster in the wild and sources additional lobster from professional lobster fishing fleets.

This port is a major seafood centre and home of the Australian tuna fishing fleet and so has a large pool of skilled operators able to provide further supplies as necessary.

Live, tailed and cooked Southern Rock Lobster (*Jasus Edwardsii*) is supplied to the export and domestic markets. These are purchased direct from the fishermen in sizes from 600g to 3.5kg, and are then held live in close circulation tanks before being exported by airfreight. Ranched Southern Blue Fin Tuna (*Thunnus Maccoyii*) is supplied fresh chilled for export markets, particularly for the sashimi market in Japan.

The tuna is captured in the wild off the Great Australian Bight and slowly towed in pens back to the clear waters of Boston Bay at Port Lincoln. Here the catch are held and fattened in the company's ranch before being delivered fresh by airfreight.

The product ranges in size from 18kg to 50kg and can be graded and processed to the customer's own specifications.

Where necessary, additional supplies are obtained from selected tuna farms in the region.

The company also handles wild catch big-eye tuna and broadbill swordfish. The fish are sourced from Western Australia, South Australia and Queensland. The fishing method is pelagic long line. Pacific Oysters (*Crassostrea Gigas*) are supplied fresh chilled or fresh frozen by the company from its own oyster farms and associated suppliers - all located at Coffin Bay.

As a measure of commitment to Quality Assurance and healthy production regimes, Southern Waters Marine Products holds Japanese Health & Welfare classification for live oysters. Size ranges from 60mm - 100mm (shell length). Southern Waters Marine Products is also accredited with AQIS (Australian Quarantine Inspection Service) and operates under HACCP principles. Port Lincoln Operations.



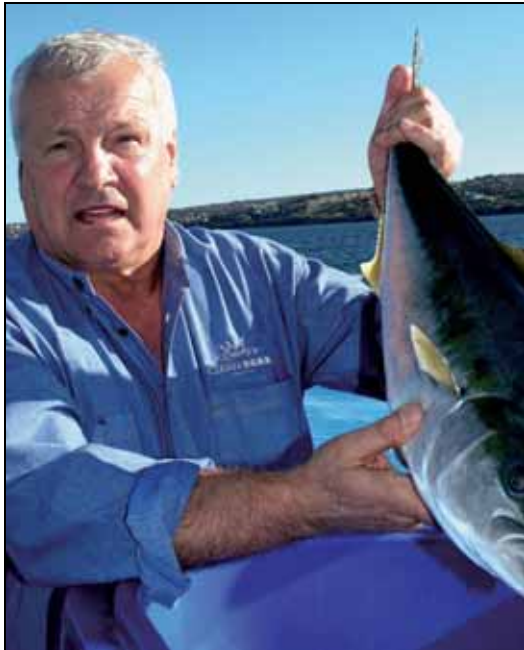
Export orders are handled by the company's Port Lincoln purpose-built packing plant. Part of the company's grading facility.

The company's tuna and oyster farms and lobster catch vessels are operated through its Port Lincoln headquarters, and this is also the site of its sophisticated packing and processing plant designed to handle export orders.

CONTACT: OYSA Ltd. PO Box 82 Whites Road Salisbury North SA 5108
Phone: +61 8 8280 9855
Fax: +61 8 8280 9833
Website: www.oysa.com.au

The Stehr Group

Founded by German born Mr Hagen H Stehr AO, JP in 1969, the Stehr Group of companies is a specialist fishing organisation. Widely recognised as leading experts in Tuna Fishing, Offshore Ranching, the grow-out of premium quality Southern Blue Fin Tuna, and in the propagation and grow-out of Australian Yellowtail Kingfish (*Seriola Lalandi*) and Australian Mulloway (*Argyrosomus Hololepidotus*) through its aquaculture division "Clean Seas" Aquaculture Growout Pty. Ltd.



Mr Hagen H Stehr AO, JP

The organisation operates a world class hatchery at Arno Bay in South Australia for the specialist propagation and grow-out of finfish species and has an extensive research and development department staffed by world standard technologists. As an Australian leader in their field they are well known for their innovative approach to offshore ranching and ocean cage aquaculture finfish grow-out.

The group is a major sponsor, and supporter of seafood training and environmental training in Australia, and were the driving force in the foundation of the Australian Fisheries Academy.

This family owned concern is highly respected as an integral part of the Seafood Industry of Australia and is a major employer with a workforce of in excess of 200 expertly trained and motivated people.



The Stehr Group has grown from a small fishing business to a Group of Companies with an International reputation.

As major exporters the group understands the requirements of wholesalers and retailers alike.

The Stehr Group owns and operates a fleet of fishing vessels, a world class hatchery and offshore grow-out sites.

It produces Ocean Run Australian Yellowtail Kingfish (*Seriola Lalandi*), Mulloway (*Argyrosomus japonicus*) and Southern Blue Fin Tuna (*Thunnus Maccoyii*)

First fishing and aquaculture company to attain ISO 14001 in the southern hemisphere; the Stehr Group is the only fishing company in the world with 6 years standing brood-stock of Southern Blue Fin Tuna.

The Stehr Group is one of the largest private researchers and development divisions in Australia. It is the only tuna ranching company with specific pellet feed technology.

The company produces annually from the pristine waters of the southern oceans of Australia:

- In excess of 600 tonnes of Southern Blue Fin Tuna (*Thunnus Maccoyii*)
- In excess of 500 tonnes of Australian Yellowtail Kingfish (*Seriola Lalandi*)
- In excess of 400 tonnes of Mulloway (*Argyrosomus japonicus*)

Tuna is harvested and processed for the "top end" of the Japanese and other discerning markets.

The group operates a state of the art hatchery on 150ha of clean and green ocean front coastline, 110km away from any major built up area and has other substantial interests in the Australian Fishing Industry.

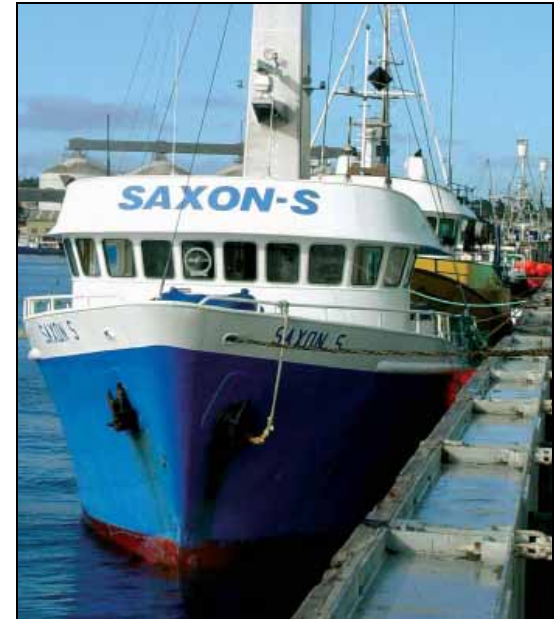
The Stehr Group Pty Ltd Incorporates among other companies:



- Clean Seas Aquaculture Growout Pty Ltd.
- Clean Seas Aquaculture Hatchery Pty Ltd.
- Australian Tuna Fisheries Pty Ltd.
- Santa Anna Tuna Fisheries Pty Ltd.
- JWS (No.1) Pty Ltd.
- Stehr SZRL Unit Trust

As specialists in fishing and aquaculture the Stehr Group has a sophisticated fleet of fishing vessels

Name	Size	Description / Type	Capacity (tonnes)
Saxon S	24m	Specialist tuna / farm support vessel	100
Sanchez J	22m	Specialised tuna fishing / farm support vessel	50
Bella Isha	21.3m	Fast transport lobster and farm vessel	40
Ocean Odyssey	10.5m	Farm specialist dive vessel	-
Kingfish 1	24m	Fishing / farm support vessel	70
Kingfish 2	9m	Transport and fish farm support & dive vessel	-
Kingfish 3	12m	Transport carrying vessel	10
Kingfish 4	7.7m	Fish farm support vessel	3
Jarrah T	28m	Fat Boy specialist carrying & harvesting vessel	100



Taking his inspiration from the Japanese, who reportedly closed the northern Blue Fin tuna lifecycle, the managing director of the Stehr Group hopes to double South Australia's AUD 200 million (USD 153.7 million) tuna ranching sector by setting up an onshore tuna breeding site in Eyre Peninsula's Arno Bay.

German-born Hagen Stehr plans to double Australia's southern Blue Fin tuna harvest in the next ten years by growing tuna to marketable size in the Arno Bay site, the *Adelaide Advertiser* reports.

"To create a new sustainable tuna industry is very exciting; there will be significant opportunity for expansion over the next decade," said Stehr, who has been working on the project for the last five years.

The Stehr Group, deemed South Australia's most successful fishing and aquaculture company, was founded in Port Lincoln in 1969. Since then, it has become a pioneer in offshore tuna ranching and has also evolved a controlled aquaculture environment to breed and grow finfish through its Clean Seas Aquaculture Hatchery, which has cost the company around AUD 20 million (USD 15.4 million) since the year 2000.

Starting his fisheries career as a tuna fisher in the 1960s, Stehr is now one of Port Lincoln's richest fishermen.

Stehr said that tuna ranching in Port Lincoln began in a one-kilometre area at a time when no other world nation had thought of its potential.



Tuna farmer Hagen Stehr (right) meets with Israeli tuna expert Hillel Gordin

The Group's managing director, however, said that the number of trained aquaculture workers in South Australia was still not enough to fuel the industry along a path that could yield enormous benefits.

- ATRT Tuna-Ranching Intelligence Unit -

"This is an expanding industry with enormous potential when you think that Australia will need one million tonnes of fish annually in 2050 to satisfy its growing population - without even taking into account enormous growth in world demand," Stehr said.



Arno Bay grow-out

"I don't know any other industry. This is my life and this country has been good to me and I like to give something back in return by developing the industry and sharing my knowledge," he added.

Clean Seas Aquaculture, one of 11 Australian companies to receive a share of \$11 million in grants under the government's Commercial Ready innovation program, was awarded a \$4.1 million federal government grant to be used to help develop a process in which mature southern Blue Fin tuna will be conditioned for spawning in a purpose-built onshore facility.

The Commercial Ready program is a federal government innovation program, providing \$200 million a year to support research and development, proof of concept and early stage commercialization activities.

Furthermore, the Stehr Group has launched an \$18 million initial public offering (IPO) to create its on-shore hatchery for the southern Blue Fin tuna (SBT). The tuna-ranching and aquaculture firm is understood to have consulted Adelaide stock brokers, shoring up support for an initial public offer.

Sydney-based Cartesian Capital is handling the deal. Cartesian's Nick Mannings last week would not confirm or deny an IPO was likely, saying only that the Stehr Group was canvassing capital-raising options.

A Stehr Group spokesman reiterated this, adding the firm had "spoken to a number of people about that". Group founder Hagen Stehr announced in August the group would develop a breeding facility at Arno Bay, on Eyre Peninsula. Currently the company catches tuna in the wild, and then fattens them in holding pens off Port Lincoln.

For the first time ever, average residents with a spare \$5000 will also be able to buy shares in an industry

that has brought so much wealth to the region.

Hagen Stehr is urging the average Eyre Peninsula resident to become part of his operation by buying shares in the family company that is about to be listed on the Australian stock exchange.



Processing Southern Blue Fin Tuna at Stehr's

"I would prefer it if people from Eyre Peninsula have a stake in the business," he said. "Here is a way normal people can invest in aquaculture and no longer will all the power be in the hands of a few. This is a major step for aquaculture in South Australia and Australia - but it is just the beginning."

Prospective punters would need a minimum of \$5000 to invest.

Mr. Stehr was more than pleased with the early progress as large corporate investors had already indicated enough interest that the \$18 million goal would easily be reached and the 50-cent price of the shares would rise quickly.



Arno Bay fingerling tanks

"The stocks of southern Blue Fin have been under threat for some time and for the last six years we kept brood-stock back and now we are the only company in the world with southern Blue Fin brood-stock."

"This is one of the most exciting developments in the global aquaculture

industry," Mr. Stehr said. "The Japanese already have closed the northern Blue Fin tuna life cycle and are selling aquaculture-bred tuna in supermarkets - this has been our inspiration."

We aim to mirror our successful propagation of Kingfish and Mulloway with SBT, leading to the establishment of an exciting and long-term commercially viable SBT business - not only for our group, but for South Australia and Australia."

The Clean Seas share offer - which is fully underwritten by LCS Capital - opens on November 14 and is expected to close on December 2, ahead of listing on the ASX on December 13.

The Stehr family will be 67 per cent majority shareholders in the company and have 45 years experience catching tuna and 14 years experience ranching tuna.



Arno Bay hatchery

The Stehr Group in 2004-2005 produced more than 650 tonnes of ranched tuna (compared to the total ranched production of 9200 tonnes) as well as more than 600 tonnes and 200 tonnes of aquaculture-bred kingfish and mullocky respectively.



SBT harvesting at Stehr's

Mr. Stehr who will be chairman of the company said with the ongoing concern about bird-flu, fish was seen as a clean and green alternative to poultry and worldwide demand for fish such as kingfish and mullocky would only continue to climb. He said he was more determined than ever to close the lifecycle of tuna potentially allowing

- ATRT Tuna-Ranching Intelligence Unit -

thousands of more tonnes to be ranched each year. "It's not a matter of if, but only a matter of when," Mr. Stehr said.



200kg gg SBT

Clean Seas Aquaculture Pty Ltd has appointed former federal minister Ian McLachlan to its board of directors.

Mr McLachlan has held several roles in primary industry including National Farmers' Federation president.

New Zealand fishing industry identity Sir Tipene O'Regan has also joined the Clean Seas board after experience as chair of the Treaty of Waitangi Fisheries Commission and the Sealord Group of Companies.



Southern Blue Fin tuna harvesting at Stehr's tuna ranch

Name of Tuna Ranching Facility	Australian Tuna Fisheries Pty Ltd	Clean Seas Aquaculture Growout Pty Ltd	Clean Seas Aquaculture Growout Pty Ltd	Clean Seas Aquaculture Growout Pty Ltd	Stot Sea Farm Pty Ltd & Stehr, MA
Name of Owner/s	Stehr Group	Stehr Group	Stehr Group	Stehr Group	Stot Sea Farm Pty Ltd & Stehr, MA
Name of operator/s	Australian Tuna Fisheries Pty Ltd	Clean Seas Aquaculture Growout Pty Ltd	Clean Seas Aquaculture Growout Pty Ltd	Clean Seas Aquaculture Growout Pty Ltd	Stot Sea Farm Pty Ltd & Stehr, MA
Address of Owner/s	7 North Quay Boulevard, Lincoln Cove Marina, Port Lincoln 5606, Australia	7 North Quay Boulevard, Lincoln Cove Marina, Port Lincoln 5606, Australia	7 North Quay Boulevard, Lincoln Cove Marina, Port Lincoln 5606, Australia	7 North Quay Boulevard, Lincoln Cove Marina, Port Lincoln 5606, Australia	17, Pine Freezer Road, Port Lincoln 5606, Australia
Address of Operator/s	Box 159, Port Lincoln 5606, Australia	Box 159, Port Lincoln 5606, Australia	Box 159, Port Lincoln 5606, Australia	Box 159, Port Lincoln 5606, Australia	17, Pine Freezer Road, Port Lincoln 5606, Australia
General Manager	Hagen Stehr	Hagen Stehr	Hagen Stehr	Hagen Stehr	David Puglisi
e-mail:	stehr@stehrgroup.net	stehr@stehrgroup.net	stehr@stehrgroup.net	stehr@stehrgroup.net	David.Puglisi@stotseafarm.com
Phone	61 8 8628 0220	61 8 8628 0220	61 8 8628 0220	61 8 8628 0220	61 8 8682 5577
Fax	61 8 8628 0221	61 8 8628 0221	61 8 8628 0221	61 8 8628 0221	61 8 8682 5593
Cell	61 8 8682 2784	61 8 8682 2784	61 8 8682 2784	61 8 8682 2784	N/A
URL	www.stehrgroup.net	www.stehrgroup.net	www.stehrgroup.net	www.stehrgroup.net	www.stotseafarm.com
Registration or License Number	FB00062	FB00078	FH00003	FH00004	FB00012
Location of Tuna Ranching Facility	Offshore Lincoln Aquaculture Zone	Historic Zone - Cleve	Historic Zone - Cleve (Sea Cage(s) - no stock)	Historic Zone - Cleve (Sea Cage(s) - no stock)	Historic Zone Boston Island Bay East
Coordinates (Longitude & Latitude)	A E 136° 061397605842 ; S 34° 6235750459659	E 136° 646900186888 ; -33,9301606078201	E 136° 587420981332 ; -33,94866047328354	E 136° 594940731339 ; -33,935667678252	E 135° 954612293243 ; S 34° 7146313585507
	B E 136° 063323230844 ; S 34° 6273061709694	E 136° 646900231388 ; -33,9274175453175	E 136° 589568918834 ; -33,9434796703325	E 136° 597088688841 ; -33,9325425453223	E 135° 957242355745 ; S 34° 7210313585566
	C E 136° 08034185586 ; S 34° 6168922334597	E 136° 650476418891 ; -33,9301606703201	E 136° 592128981337 ; -33,9488326703375	E 136° 599648731344 ; -33,9378955453273	E 135° 958749188247 ; S 34° 7134712960496
	D E 136° 082288105862 ; S 34° 6206231084631	E 136° 650476481391 ; -33,9274176703175	E 136° 594277918839 ; -33,9457076703346	E 136° 601795688846 ; -33,9347704828244	E 135° 961378293249 ; S 34° 7188712960556

SmartAqua

SmartAqua is a small business specialising in marine aquaculture. Alastair Smart is the Manager of this business with over 12 years experience working with a variety of different species, such as tuna, salmon, mussels, yellowtail, etc.

Most recently based in Scotland with Marine Harvest, Alastair has worked throughout Chile, Norway, France, the Netherlands, Belgium, Greece, and Ireland. He has strong linkages with international producers and fish retailers and is part of a worldwide aquaculture network.

SmartAqua's field of expertise ranges from husbandry, nutrition and feed management to harvest strategy, processing, product quality, and environmental monitoring. In addition, SmartAqua assists with the setting up

and permitting of new aquaculture ventures.

A major area of involvement is with the development of welfare friendly, mechanised slaughter systems for salmonids and yellowtail together with the company Seafood Innovations, and



is a regular participant on various working parties of welfare associations (such as the RSPCA) helping to establish guidelines on fish welfare, particularly for the slaughter process.

Principal Personnel:

Aquaculture - Alastair Smart, B.Sc., Grad. Dip. Ed., M.Sc. (Aquaculture)

IT & Info. Management - Philippa Mawby, B.A., Dip. Ed., Dip TESOL, Dip. Info Management (cand.)

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Mobile + 61 428 773 104

Stolt Sea Ranch

The name may have changed, but the experience, team and product quality remains the same – with an international boost.



As part of the largest transaction in Australian fishing industry history, the former Australian Blue Fin company joined the global operation of Stolt-Nielsen S.A. to create Stolt Sea Ranch and in so doing has become a key business among Stolt's extensive processing and distribution capabilities.



As the holder of one of the largest Southern Blue Fin Tuna Stolt Sea Ranch quota in Australia, in its first harvest Stolt Sea Ranch secured export contracts valued at \$85 million, doubling the previous seasons export value.

The Stolt-Nielsen company network gives Stolt Sea Ranch access to key processors and distributors in 55 countries.

Using the resources and market intelligence and integrated distribution service of its offices in Japan, Korea, Taiwan and Singapore, Stolt Sea Ranch is able to broaden its export reach.

Japan remains a market focus and in order to provide the best and most profitable trade here, Stolt Sea Ranch is acquiring expertise in processing tuna for the sushi market.



It is moving to build its own specialist processing facility for sushi at Port

Lincoln, with a factory employing 150 people.



Stolt Sea Ranch already has one of the largest factory, freezer and processing facilities in Port Lincoln (comprising special processing rooms, blast freezer, brine tanks, ice making machines, a large workshop and storage area). The company also owns six fishing and fish ranching vessels, two diving boats, one spotting aircraft and eighteen tuna pens.



The Stolt Sea Ranch web page includes an order processing system plus 'Naviseon' – an integrated accounting and warehouse system purpose-designed for the seafood industry.

This gives online access to that company's trading account, plus an online chat function and email system. This allows 24-hour instant communication across Stolt Sea Ranch's entire overseas office network.

An online video monitoring system also gives Stolt Sea Ranch's overseas customers an ability to send video images of any product or shipment problems for instant resolution.

Stolt Sea Ranch has adopted and, in some cases, improved on the technological innovations pioneered by Australian Blue Fin.

These include extending photographic monitoring of the holding pens to 24-hour video monitoring from the office or overseas.

This ensures more fish are fed and eliminates the need for divers to enter the pens, which can be stressful and dangerous to the tuna.



A 'bait slinger' machine was developed in-house to scatter bait over the surface of the holding pens at a pre-determined and changeable rate.

Also a special pontoon with higher fences has been designed which has reduced attacks by seals on the tuna by 80%.

The new processing facility is being designed to meet HACCP and ISO standards. To ensure that the product freshness, colour, taste and smell meets key market requirements, two Japanese processing technicians are permanently on site, checking the production line.



One of Stolt's Tuna Purseiners tied up in Port Lincoln

Stolt Sea Ranch (SSF) reported that it received a previously deferred after-tax gain of \$7.0 million on the sale of Southern Blue Fin tuna quota rights in Australia

Name of Tuna Ranching Facility	Stolt Sea Farm Pty Ltd	Stolt Sea Farm Pty Ltd
Name of Owner/s	Stolt Sea Farm Pty Ltd	Stolt Sea Farm Pty Ltd
Name of operator/s	Stolt Sea Farm Pty Ltd	Stolt Sea Farm Pty Ltd
Address of Owner/s	17, Pine Freezer Road, Port Lincoln 5606, Australia	17, Pine Freezer Road, Port Lincoln 5606, Australia
Address of Operator/s	17, Pine Freezer Road, Port Lincoln 5606, Australia	17, Pine Freezer Road, Port Lincoln 5606, Australia
General Manager	David Puglisi	David Puglisi
e-mail:	smf@stoltseafarm.com	smf@stoltseafarm.com
Phone	61 8 8682 5577	61 8 8682 5577
Fax	61 8 8682 6593	61 8 8682 6593
Cell	N/A	N/A
URL	www.stoltseafarm.com	www.stoltseafarm.com
Registration or License Number	FB00014	FB00068
Location of Tuna Ranching Facility	Historic Zone Boston Island Bay East	Historic Zone - Rabbit Island
Coordinates (Longitude & Latitude)	A E 135° 968653043256 ; S 34° 7096691710461	E 135° 981410230768 ; S 34° 667877335071
	B E 135° 971492105759 ; S 34° 7152101710512	E 135° 981524355768 ; S 34° 6775677960162
	C E 135° 97317698076 ; S 34° 7080911085446	E 136° 003229980788 ; S 34° 667699483507
	D E 135° 976015980763 ; S 34° 7136321085498	E 136° 003347105788 ; S 34° 677389546016

- ATRT Tuna-Ranching Intelligence Unit -

Tony's Tuna International (Pty) Ltd.

Tony's Tuna International Pty Ltd (Tony's Tuna) was founded in 1994 by Tony Santic, one of the pioneers of the Australian Tuna ranching industry.



Tony Santic, CEO of Tony's Tuna

Tony commenced tuna ranching operations in 1992 after being a tuna fisherman since 1970.

Tony's Tuna is currently the second largest farmer of Southern Blue Fin Tuna (also known as *Thunnus Maccoyii*, and *Minami Maguro*) in Australia.



Tony's Tuna is the only Australian tuna ranch operator that has the ability to control it's catching, feeding, ranching, processing and freezing of all of it's product under the company banner, without the need for external contractors.

Tony's Tuna controls every step of the process enabling it to achieve its mission of delivering a high quality sashimi product to its Japanese customers.



Consumer safety is always top of mind at Tony's Tuna, where all Australian Export and Japanese Import regulations are met and exceed.

Managing the entire process continues to allow the company flexibility in the type and style of products it can produce.



The company has always been able to meet the various product specification required by all of its customers



Tony's Tuna International Pty Ltd is jointly owned by the Santic Family (Founders and operators of this Company as well as founding and

establishing tuna ranching in Croatia) and the Smorgon Family (Diversified family business, mainly manufacturing and retail).

Andrew Wilkinson has been the company's General Manager for the past 6 Years.

Adam Whittaker, Tony's son who was very involved in setting up the company's fresh and frozen processing facilities and continues to oversee processing staff training as well as procedures, is the company's Assistant G.M. Adam also worked in the Osaka fish market.

Leith Whittaker, Tony's son - 10 years with the Company, actively involved in the catching as well as managing the feeding health and harvesting of ranched tunas, is the Ranch Manager. Leith also oversees Tony's Tuna International's environmental monitoring program.



Name of Tuna Ranching Facility	Tony's Tuna International Pty Ltd (Emily Krstina (Australia) Pty Ltd)	Tony's Tuna International Pty Ltd (Emily Krstina (Australia) Pty Ltd)
Name of Owner/s	Tony Santic	Tony Santic
Name of operator/s	Tony's Tuna International Pty Ltd (Emily Krstina (Australia) Pty Ltd)	Tony's Tuna International Pty Ltd (Emily Krstina (Australia) Pty Ltd)
Address of Owner/s	21, Pine Freezers Road, Port Lincoln 5606, Australia	21, Pine Freezers Road, Port Lincoln 5606, Australia
Address of Operator/s	21, Pine Freezers Road, Port Lincoln 5606, Australia	21, Pine Freezers Road, Port Lincoln 5606, Australia
General Manager	Andrew Wilkinson	Andrew Wilkinson
e-mail:	andrew@tonystuna.com.au	andrew@tonystuna.com.au
Phone	61 8 8682 2266	61 8 8682 2266
Fax	61 8 8683 0646	61 8 8683 0646
Cell	61 409 566 631	61 409 566 631
URL	www.tonystuna.com.au	www.tonystuna.com.au
Registration or License Number	FB00050	FB00065
Location of Tuna Ranching Facility	Historic Zone Rabbit Island	Historic Zone - Rabbit Island
Coordinates (Longitude & Latitude)	A	E 135° 968511668256 ; S 34° 6880190460259
	B	E 135° 968579793256 ; S 34° 6937200460312
	C	E 135° 982314543269 ; S 34° 6879088585258
	D	E 135° 982383605769 ; S 34° 6936099210311

Name of Tuna Ranching Facility	Tony's Tuna International Pty Ltd (Emily Krstina (Australia) Pty Ltd)	Tony's Tuna International Pty Ltd Sea Marine Holdings Pty Ltd & Emily Krstina (Australia) Pty Ltd
Name of Owner/s	Tony Santic	Tony Santic
Name of operator/s	Tony's Tuna International Pty Ltd (Emily Krstina (Australia) Pty Ltd)	Tony's Tuna International Pty Ltd Sea Marine Holdings Pty Ltd & Emily Krstina (Australia) Pty Ltd
Address of Owner/s	21, Pine Freezers Road, Port Lincoln 5606, Australia	21, Pine Freezers Road, Port Lincoln 5606, Australia
Address of Operator/s	21, Pine Freezers Road, Port Lincoln 5606, Australia	21, Pine Freezers Road, Port Lincoln 5606, Australia
General Manager	Andrew Wilkinson	Andrew Wilkinson
e-mail:	andrew@tonystuna.com.au	andrew@tonystuna.com.au
Phone	61 8 8682 2266	61 8 8682 2266
Fax	61 8 8683 0646	61 8 8683 0646
Cell	61 409 566 631	61 409 566 631
URL	www.tonystuna.com.au	www.tonystuna.com.au
Registration or License Number	FB00069	FB00015
Location of Tuna Ranching Facility	Historic Zone - Rabbit Island	Historic Zone Boston Island Bay East
Coordinates (Longitude & Latitude)	A	E 136° 01195385796 ; S 34° 6673264210066
	B	E 136° 012019918296 ; S 34° 6727354210117
	C	E 136° 024862730808 ; S 34° 6672182960065
	D	E 136° 024929793308 ; S 34° 6726272960116

Name of Tuna Ranching Facility	Boric Fisheries Pty Ltd (Tony's Tuna International Pty Ltd)	Prisman Pty Ltd
Name of Owner/s	Tony Santic	Prisman Pty Ltd
Name of operator/s	Boric Fisheries Pty Ltd (Tony's Tuna International Pty Ltd)	Prisman Pty Ltd
Address of Owner/s	21, Pine Freezers Road, Port Lincoln 5606, Australia	Level 8,19 Pier St. Perth, WA 6000, Australia
Address of Operator/s	21, Pine Freezers Road, Port Lincoln 5606, Australia	Level 8,19 Pier St. Perth, WA 6000, Australia
General Manager	Leith Whittaker	Andrew Wilkinson
e-mail:	andrew@tonystuna.com.au	andrew@tonystuna.com.au
Phone	61 8 8682 2266	61 8 9325 2411
Fax	61 8 8683 0646	61 8 8683 0646
Cell	N/A	61 409 566 631
URL	www.tonystuna.com.au	www.tonystuna.com.au
Registration or License Number	FB00070	FB00071
Location of Tuna Ranching Facility	Historic Zone - Rabbit Island	Historic Zone - Rabbit Island
Coordinates (Longitude & Latitude)	A	E 136° 027999043311 ; S 34° 6672064210065
	B	E 136° 028054730811 ; S 34° 6717133585107
	C	E 136° 033453918316 ; S 34° 6671602960065
	D	E 136° 033509918316 ; S 34° 6716672335107

Dinko Tuna Farmers (Pty) Ltd.



Known worldwide after National Geographic's TV report "Tuna Cowboys", Dinko Lukin, the "father of tuna ranching industry", owns Dinko Tuna Farmers Pty Ltd and Lukin Fisheries Pty Ltd in Australia.

In 1993 Dinko Lukin developed the modern "purse seine" system that enables the tuna to be caught and transferred live into underwater cages with a single net.

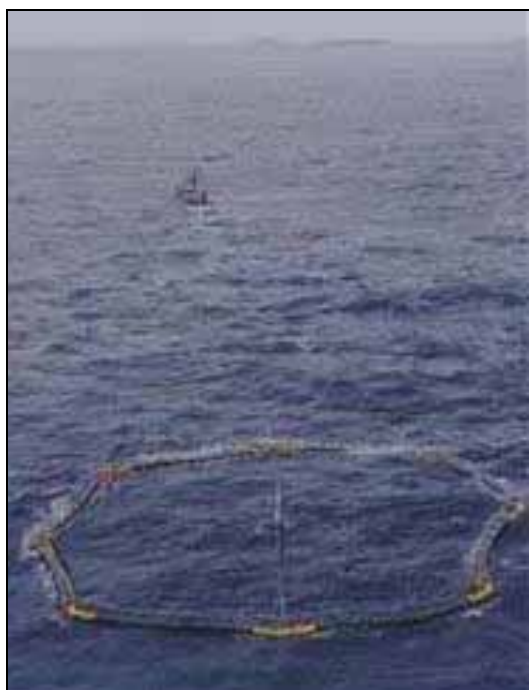


Port Lincoln tuna rancher Dinko Lukin and one of his vessels.

Lukin's idea was to fatten up the tuna between capture and sale to squeeze more value from each catch-quota tonne.

Lukin's purse seine system meant that Port Lincoln became home to the world's first tuna ranching industry guaranteeing South Australia a much needed new export industry, worth 300 million Australian dollars a year.

For the Australian tuna industry, this move upmarket has been dramatic.



The old Bridgeston rubber-gravity tuna cages introduced by Lukin, have been replaced by modern mono-tubular HDPE net pens.

Australia's 14,500-tonne share of the overall trilateral catch quota between 1984 and 1989 would have been sold to the local Port Lincoln tuna cannery for around \$1 per kilogram.

Port Lincoln is today one of the world's tuna ranching Meccas.



Tuna diver stitching a cage net

Again Dinko Lukin was the first to take advantage of unwanted vessels from declining North Sea and European fisheries.

Port Lincoln's fishing fleet has grown thanks to tuna fishing pioneer Dinko Lukin's acquisitions.

In 2002, Mr Lukin purchased two former North Sea trawlers in the Netherlands and renamed them Lukina 1 and Lukina 2.

The two vessels, measuring 45 metres and 40 metres respectively, were converted from trawlers into purse seiners, joining D3 fishing vessel also owned by Mr Lukin.

Sadly Lukin has just recently appeared in the Port Lincoln Magistrates Court, where he is being tried for allegedly spilling 2,000 litres of oil into Boston Bay.

Lukin and his company Dinko Tuna are charged with the spill under the Protection of Marine Waters Act.

Lukin sat at the back of the court room while the prosecution said an expert witness will show that oil found in the bilge of Lukin's boat, the D3, is a perfect match for oil taken from the Port Lincoln beach on the day of the spill.

The prosecution took Magistrate Bill Ackland to the wharf to show where the boat is docked and the area that was covered by the spill.

Lukin's lawyers have challenged the quality of evidence pointing out that there were many other ships docked at the wharf alongside the D3.

The prosecution's case hinges largely on samples of oil taken from the spill and from two boats that were docked at the wharf that day.

Lukin's lawyers cross-examined the man who took the samples, Gary Henson.

Mr Henson was forced to admit that it appears one sample bottle has gone missing, and others may have been contaminated.

The defence contended that the integrity of the sampling process was completely destroyed. The trial in Adelaide continues.

Name of Tuna Ranching Facility	Dinko Tuna Farmers Pty Ltd	Dinko Tuna Farmers Pty Ltd
Name of Owner/s	Dinko Lukin	Dinko Lukin
Name of operator/s	Dinko Tuna Farmers Pty Ltd	Dinko Tuna Farmers Pty Ltd
Address of Owner/s	Celestine Barnes, 112-114 Proper Bay Road, Port Lincoln 5606, Australia	Celestine Barnes, 112-114 Proper Bay Road, Port Lincoln 5606, Australia
Address of Operator/s	Celestine Barnes, 112-114 Proper Bay Road, Port Lincoln 5606, Australia	Celestine Barnes, 112-114 Proper Bay Road, Port Lincoln 5606, Australia
General Manager	Dinko Lukin	Dinko Lukin
e-mail:	lukin@centralonline.com.au	lukin@centralonline.com.au
Phone	61 8 8682 4655	61 8 8682 4655
Fax	61 8 8682 1453	61 8 8682 1453
Cell	61 427 768 027	61 427 768 027
URL	www.safoodcentre.com/auvershub/businesses/dinkotunafarmers	www.safoodcentre.com/auvershub/businesses/dinkotunafarmers
Registration or License Number	FB00066	FB00077
Location of Tuna Ranching Facility	Offshore Lincoln Aquaculture Zone	Historic Zone - Rabbit Island
Coordinates (Longitude & Latitude)	A	E 135° 995610980781 ; S 34° 63869998348
	B	E 135° 995685980781 ; S 34° 6450749834859
	C	E 136° 011032980795 ; S 34° 6385719834798
	D	E 136° 011110980795 ; S 34° 6449469834858

OTHERS

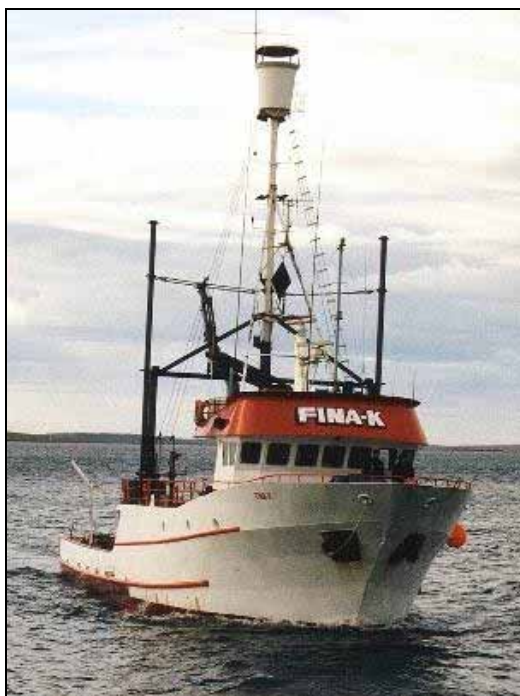
*Lucky S Fishing (Pty) Ltd.
Sekol Farm Tuna (Pty) Ltd.
Fina K Fisheries (Pty) Ltd.*



Spencer Gulf Sekol, South Australia.



Getting nets ready to corral for tuna harvesting at Sekol's tuna ranch.



The Fina K, one of Sekol's vessels.



TV host and food guru Maeve O'Meara middle, Maruha Corporation tuna grader Koji Tabata and Rick Kolega from Sekol

Marnikol Fisheries (Pty) Ltd.

The Port Lincoln tuna industry has acknowledged some tuna ranching operators could do a better job of managing blood during harvests.

The admission was raised along with general pollution issues and a need to recycle tuna offal at a recent public forum on sustainable aquaculture in Port Lincoln.



Sustainable aquaculture forum speakers PIRSA Aquaculture executive director Ian Nightingale, SARDI executive director Rob Lewis, PIRSA food safety officer Dr Ben Daughtry and Marnikol Fisheries general manager Daryl Evans.

Concerns about sharks being attracted to the Japanese freezer boats prompted a recent inspection by Environment and Protection Authority officials.

However the authority found the vessels were compliant with their licence requirements, so attention turned to the local tuna fleet that harvests and processes the fish at sea and then transport them to the freezer vessels.

Speaking on behalf of the tuna industry, Marnikol Fisheries general manager Daryl Evans noted different companies used different approaches to the waste issue.

"The freezer boats have totally cleaned up their act, now we need to make sure industry is doing everything we can," Mr Evans said.

"Some farms did not manage (their harvest blood) very well in 2005 and this must be resolved."

Mr Evans also acknowledged more needed to be done in relation to the disposal of tuna waste.

The local companies that recycled the offal had reached their capacities.

Another issue raised at the aquaculture meeting was the general off-shore pollution with plastic from feed and material such a ropes washing away particularly at the beginning of the season.

"I personally believe we can do a lot better," Mr Evans said.

Name of Tuna Ranching Facility	Lucky S Fishing Pty Ltd & Sekol Farm Tuna Pty Ltd	Fina K Fisheries Pty Ltd
Name of Owner/s	Sam Skoljarev & Rick Kolega	Rick Kolega
Name of operator/s	Lucky S Fishing Pty Ltd (Sekol Farm Tuna PTY LTD)	Fina K Fisheries Pty Ltd
Address of Owner/s	Unit 5, 5 North Quay Blvd, Port Lincoln 5606, Australia	PO. Box: 2336, Port Lincoln, SA 5606, Australia
Address of Operator/s	Unit 5, 5 North Quay Blvd, Port Lincoln 5606, Australia	PO. Box: 2336, Port Lincoln, SA 5606, Australia
General Manager	Semi Skoljarev	David W'arland
e-mail:	semisk@bigpond.com.au	finak@pl.camtech.net.au
Phone	61 8 8682 6355	61 8 8682 2481
Fax	61 8 8682 1766	61 8 8683 4511
Cell	61 428 837 221	61 417 843 536
URL	www.lucky-s-fishing.com	N/A
Registration or License Number	FB00057	FB00061
Location of Tuna Ranching Facility	Historic Zone - Rabbit Island	Historic Zone - Rabbit Island
Coordinates (Longitude & Latitude)	A E 136°.046098480828 ; S 34°.6043206084479	E 136°.046235605828 ; S 34°.6153327334582
	B E 136°.046179543328 ; S 34°.610825670954	E 136°.046373793328 ; S 34°.6263297959684
	C E 136°.050177418332 ; S 34°.6042856084479	E 136°.051687605833 ; S 34°.6152856709582
	D E 136°.050258543332 ; S 34°.610790608454	E 136°.051826730833 ; S 34°.6262827334684

Name of Tuna Ranching Facility	Marnikol Fisheries Pty Ltd	Marnikol Fisheries Pty Ltd & Ajka Pty Ltd
Name of Owner/s	Mario Valcic	Mario Valcic
Name of operator/s	Marnikol Fisheries Pty Ltd	Marnikol Fisheries Pty Ltd & Ajka Pty Ltd
Address of Owner/s	PO Box 10, Port Lincoln 5606, Australia	PO Box 10, Port Lincoln 5606, Australia
Address of Operator/s	PO Box 10, Port Lincoln 5606, Australia	PO Box 10, Port Lincoln 5606, Australia
General Manager	Daryl Evans	Daryl Evans
e-mail:	marnikol@bigpond.net	marnikol@bigpond.net
Phone	61 8 8683 3900	61 8 8683 3900
Fax	61 8 8683 3988	61 8 8683 3988
Cell	61 419 814 350	61 419 814 350
URL	N/A	N/A
Registration or License Number	FB00076	FB00011
Location of Tuna Ranching Facility	Offshore Lincoln Aquaculture Zone	Historic Zone Boston Island Bay East
Coordinates (Longitude & Latitude)	A E 135°.986454355772 ; S 34°.6866864210247	E 135°.955948043244 ; S 34°.702072233539
	B E 135°.988886855775 ; S 34°.6904882960282	E 135°.958176043246 ; S 34°.7051742335419
	C E 135°.999398543285 ; S 34°.6810350460194	E 135°.962990918251 ; S 34°.6986221710358
	D E 136°.001831418287 ; S 34°.6848365460229	E 135°.965218918253 ; S 34°.7017241710387

CAPE VERDE



Fresh Tuna at Port Praia, Santiago

Cape Verde and Angola are jointly to explore tuna fishing possibilities on the west coast of Africa and in the exclusive economic zones of Angola and São Tomé and Príncipe.

In this sense, a corporation is in the process of being created involving an Angolan company, private Cape Verdean enterprises and the Cape Verdean state.

The social capital of this joint venture will be euro 5 million, with the Angolan partners expected to contribute with approximately euro 2 million.

The partners will also seek out external financing, particularly from African financial institutions, for the purchase of vessels.

The corporation programme calls for a fleet of 10 tuna fishing vessels that will operate in the waters of Cape Verde, Senegal, São Tomé and Príncipe and Angola, according to José Lopes of Cape Verde's National Fishing Development Institute, who is elaborating the project's viability study.

The operability of the vessels will take into account the productivity of the Exclusive Economic Zones, explains Mr Lopes.

"If there is a period during which there is an abundance of tuna in this exclusive economic zone, there will be

no reason eight or ten vessels cannot operate in the same zone at the same time," he adds.

In terms of the industrialisation of catches, the company plans to take advantage of the Angolan market's capacity to absorb the product, according to the Cape Verdean institute.

Both Cape Verde and Angola have vast fisheries resources that are mostly sold to foreign interests, in particular the European Union (EU).

The governments in Praia and Luanda however plan to make the fisheries a more important indigenous sector in the near future.

COSTA RICA

Venezuelan stakeholder Manuel de la Iglesia has established a tuna ranch to grow tuna in an area along the Costa Rican South Pacific coastline, in order to harness the high demand of Yellowfin tuna primarily from the United States and Japan.

Although its company, Granjas Atuneras del Golfito (GAG), does not have the corresponding environmental permits yet, de la Iglesia said that he has the full support of Costa Rican President Abel Pacheco and other authorities in the country.

If the project is implemented, the Venezuelan entrepreneur will become a pioneer in the installation of tuna farms along the South Pacific coastline.

The project is being undertaken in conjunction with biologist Eduardo Velarde, in Pavones some 320 kilometres south of the capital city of Costa Rica.

According to sources from GAG, licences have already been applied for in order to kick off the project, whose maximum output is estimated in 250 metric tonnes of tuna annually.

The Venezuelan entrepreneur expects that during the first year of operation, If all goes according to plans, the corporation should begin operating in December.

investment will amount to slightly more than USD 1 million, and beginning in the third year, it would increase to USD 2.8 million.

De la Iglesia has also said in a statement to *El Universal*, that they

estimate that over the first two years, tuna exports will total USD 8.1 million.

"Costa Rica could become an aquaculture power," said Velarde, when explaining that around 10 cages have been placed some two kilometres off the coast and would be stocked with offshore-caught tuna specimens.



The Spanish company Corelsa, property of Isidro de la Cal, is providing the cages wherein the fattening phase will take place using imported sardines.

The group failed to start-up a tuna ranch in Panama.

Biologist Eduardo Velarde, creator of the cutting-edge project to ranch Yellowfin tuna in Costa Rica hopes to have the floating cages filled with tuna before year's end.

"The environmental impact study has already been approved and it took a long time because we are the first people to request a marine license in Costa Rica," Velarde said.

"The Fisheries and Aquaculture Law was approved four months ago and

that changed the bureaucratic procedures. We hope to have the license in two months and start the project."

He said the initial project investment will be \$4 million (€3.2 million) and the final investment could reach \$40 million (€32 million).



A group of investors from Costa Rica, Spain and Venezuela own the project, which will be undertaken by the company Granjas Atuneras del Golfito.

Velarde said this project will be the only one of its kind in the world, as Blue Fin tuna ranching only is undertaken in the Mediterranean Sea, Australia, Mexico and Panama. So far, the Yellowfin tuna business entails catching tuna of 30 kilograms or larger, putting them into cages and selling them to order.

"Nobody that I know of is undertaking the commercial ranching of Yellowfin tuna from eggs. Japan does this but at an experimental level and without much success," he said.

"The Inter-American Tropical Tuna Commission (IATTC) in Panama has a

- ATRT Tuna-Ranching Intelligence Unit -

laboratory for the artificial reproduction of Yellowfin tuna, which is unique in the world.

However, they are only specialized in reproduction and spawning and do not ranch them. They study the behaviour of tuna in natural conditions but in captivity.

That means they do not control the physical and chemical parameters attempting to simulate nature, despite the fact that this is done in huge concrete tanks."

Velarde explained the project.

"We believe that to develop this industry in Costa Rica, it is vital to give the staff technical training," he said. "So, as it is at present not

economically viable to ranch tuna from eggs, we will start with large tuna, which will prepare people so that in the near future it is profitable to ranch them from eggs. By then, we will already have the techniques to master tuna ranching."

The products from the Yellowfin tuna farms in Costa Rica will go to the fresh product market due to the high ranching costs, mainly the sushi market that requires top quality and where tuna is traded at high prices.

Velarde said the process will start in Costa Rica when a "tuna clipper, [a special vessel to catch tuna], which normally sells its catch to a canning company, will call us on the radio and we will send a tug with a transport cage."

On reaching the tuna clipper, the tuna will be taken from the net to the transport cage, which will take the live tuna to the fattening or storage cages two kilometres from the Costa Rica coastline, he said.

The tuna will then be taken from the transport cages to the fattening cages where they will be kept for three months and will be fed with sardines. "They will then start to be sold as a fresh product to markets in the United States and Japan one month after reaching the cages," he said.

The project will start up with production of 480 metric tonnes per cycle, with two to three cycles a year depending on catches, and with expectations of reaching 1,200 metric tonnes per cycle by year three.

CROATIA

A very small part of the world fish business is done in one of the most promising post-war phenomena in independent Croatia, thanks to Croatian returnees from Port Lincoln, SA, Australia. Tuna ranching is the most successful investment in Croatia as the domestically fattened tuna, the best-known Croatian export product, has become world-famous.



Tuna cage being towed back to the ranch

The fattening of Blue Fin tuna started in Croatia in 1996. In 2002, there were 10 farms in place in the counties of Zadar, Sibenik and Split, worth 65 floating cages in which captured juvenile Blue Fin, mostly in May and June, were fattened up to commercial size and weight.

The fish are extremely small, some below the ICCAT minimum of 6,4kgs. Croatian tuna weights vary from 20 to 80kg. According to estimates from Japanese trade data, 3.910 tonnes of Blue Fin tuna were introduced into Croatian farms in 2002 (a total 2.628 according to Croatian sources).

According to ICCAT total maximum tuna ranching capacity in Croatia in 2005 is 6.810 tonnes.

Though in the first 4 years of ranching all live tuna was supplied by the local purse seine tuna fleet, from 2001 onwards farms also rely on the activity of foreign fleets, namely Italian, Tunisian, French and Spanish.



Croatian tuna purse seiner Ribari

Unlike the other ranching sites in the Mediterranean, the duration of the fattening season in Croatia can last up to 20 months, due to the very small size of tuna entered into the cages. As reported to GFCM and ICCAT, part of feed-fish used by farms consists of small pelagic fish locally harvested in the Adriatic Sea.

Some tuna farms benefit from the full-time activity of owned or chartered purse seiners targeting small pelagic fish. One of the owners of Kali Tuna declared that the amount of anchovy needed for one year amounted to 4.500 tonnes that year. All the production is shipped to Japan (40% of it frozen).



Two divers herding penna tuna into an area to be processed at a Croatian tuna ranch.

Annual production averaged about 2,500 tonnes from 1999 to 2002.

Production in 2003 rose to over 3.500 tonnes. Production in 2004 plunged to some 1.900 tonnes.

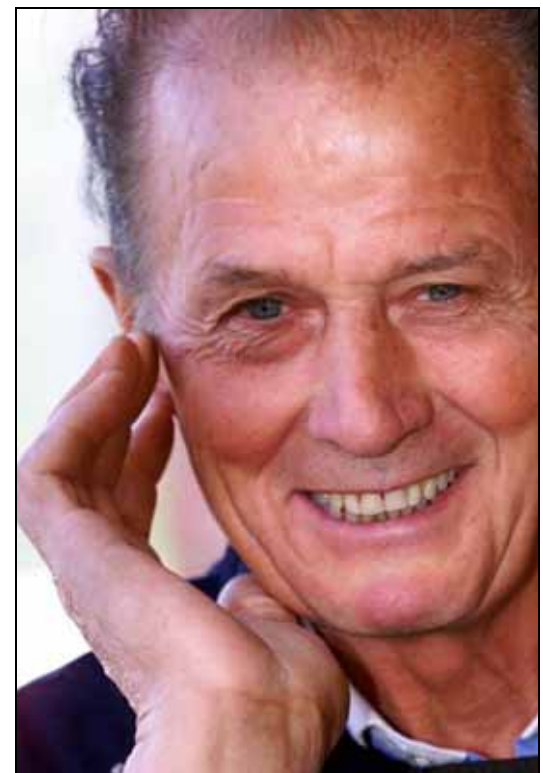
Some 2.000 tonnes are being ranches this year.

Second to none, Australian tuna farmer Dinko Lukin is Croatia's biggest operator in terms of fishing fleets, tuna ranches, and stocked live-tuna. Dinko Lukin, like many local Port Lincoln fishermen, is of Croatian origin.

In 1993 he developed the modern "purse seine" system that enables the tuna to be caught and transferred into underwater cages with a single net.

He now owns Dinko Tuna Farmers Pty Ltd and Lukin Fisheries Pty Ltd in Australia.

Along with Croatian Tankerkomerc d.d Group of companies, Lukin is a major shareholder in three of Croatia's major tuna farms: Adriatic Tuna, ddo; Brac Tuna, doo and Marituna, doo.



Dinko Lukin

Marituna, d.o.o.



Major shareholders are:
Tankerkomerc d.d. Zadar
Dinko Lukin (Australia)

Miro Mirković is Marituna, doo's General Manager.

Marituna, d.o.o. was incorporated in May 2001, from Plodovi mora, daughter company of Tankerkomerc Ltd.

The company is located in Zadar, at the very center of the Adriatic coast, right by one of the cleanest seas in the world.



Marituna's processing plant and storage facilities

Marituna's also operates its own tuna fishing fleet, and owns a processing plant and storage facilities.

Marituna Ltd. has 6 cages for tuna ranching, located on the northern uninhabited shore of Zverinac Island.

The cages are moored in 70m deep waters in an area of strong sea currents, and have a total declared capacity of 600 tonnes.

Marituna counts some 60 employees.



Tuna ranch at Luka Island, Vela-arska. NW from Zverinac Island.

Adriatic Tuna, d.d.o.



Adriatic Tuna ranch NW from Iž Island

Major shareholders are:
Tankerkomerc d.d. Zadar
Dinko Lukin (Australia)
Recent changes in ownership have not been made official yet.

Key Management:
Željko Zubčić
Mate Lukin
Milivoj Braslov.

Ranch maximum declared capacity is 400 tonnes.

Adriatic Tuna, ddo, operates its own purse seine fleet: MFV/Bozo, MFV/Centar B, MFV/Dinko, MFV/Molo and MFV/Denis.



Brac Tuna, d.o.o.



Tuna ranch at Smrka Bay, Brač Island.

Major shareholders are: Tankerkomerc d.d. Zadar and Dinko Lukin (Australia).

Mladen Ilić is Brac Tuna doo General Manager. The ranch declared maximum capacity is 900 tonnes.



Brac Tuna, doo, operates its own purse seine fleet: MFV/Skusa (9A3059) and Jadran I (9A3062)

Drvenik Tuna, d.o.o., Croatia.



DRVENIK TUNA
d.o.o. za uzgoj tune i trgovinu

Drvenik Tuna doo was incorporated in May 1998. The tuna ranching Joint-venture Company is participated by Conex Trade, Ricardo Fuentes e Hijos, S.A.-Atunes de Levante, SA. (30%) and Japan's tuna giants Mitsubishi Corporation and Toyo Reizo.



Mladen Milakovic with Japanese business partner Shigemitsu Tamura.

Drvenik Tuna doo's General Manager is Mr. Mladen Milaković.

Most of the equipment and technology has been supplied by Spanish companies such as Corelsa from Vigo.

Drvenik Tuna, doo focuses on Adriatic Sea medium sized Blue Fin tuna, especially suited for distribution and commercialisation through Japanese supermarkets and retailers.



Veliki Island Tuna Ranch

Unconfirmed reports state that the Drvenik based ranch has some 650 tonnes of live tuna in its cages.

One of the farms is located by Veliki Island, Drvenik, some 20 miles off the shores of Split.

The second tuna ranching facility is moored at Kluda Island, some 20 miles off the shores of Split.



Kluda Island Tuna Ranch

The combined maximum declared capacity of both ranches is 1.100 tonnes.

Trough Conex Split, Drvenik Tuna doo operates the MFV/NEPTUN and MFV/Radula (9A8531).

Jadran Tuna, d.d.o.

Mišo Mandić, a returnee, was the first Croatian operator to realise that tuna ranching could be a pot of gold. He was the first to start exporting tuna to the Japanese market some ten years ago.



One of Jadran Tuna ranches

He now co-owns Jadran Tuna's two ranching sites, one NW from Murvenjak Island, the other one south from Vrgada Island. The combined maximum declared capacity of both ranches is 900 tonnes.

The owners of Jadran-tuna proudly point out that they had set-up the business by putting a lot of their own work into it and using domestic materials.

Jadran Tuna Japanese customers have accepted the company's product so well that it paved the way for the opening of a second Jadran Tuna ranch South from Vrgada Island and NW from Murvenjak Island. Some one hundred people are employed in the two tuna-farms.

The success achieved by domestic tuna-farmer was nevertheless, heavily subsidised by the state.



According to Ocean Stage Inc, Jadran-Tuna's sales agent in Japan since 2001, the company exported to the Japanese market 1.000 tonnes in 2002, 1.200 tonnes in 2003 and 800 tonnes in 2004.

Jadran Tuna, d.d.o. directly operates two tuna purse seiners: MFV/Spartak and MFV/Jadran Dva.

The company also operates two tugboats: Trapa and Cezar.



Kali Tuna, d.d.o.



Fishing boat Croatian Success moored at the cage with a flock of some thousands of tuna fish caught somewhere between Jabuka Island and Opat in the Adriatic Sea. Huge grey and blue fish wag with their tails at the sea surface. Skilful scuba divers pushed excited and scared tuna fish one after another on the platform.

In 1995, several well-know Kali fishermen from the Island of Ugljan, backed by Japanese capital, decided to invest their money made abroad into tuna ranching.

Tony's Tuna International Pty Ltd., the second largest farmer of Southern Blue Fin Tuna in Australia was also a part of the picture.

The company has 104 employees and operates through its subsidiary company Hrvatski Uspjeh d.o.o. (Croatian Success) six fishing boats: MFV/Sin Kali, MFV/Fulija (9a6440), MFV/Hrvatski Uspjeh (9a4675), MFV/Kali Dva (9a3692), MFV/Ošljak Dva (9a7327) and MFV/Lubin (9a3269)



Harvesting at one of Kali Tuna's ranches



Hrvatski Uspjeh's fleet

With the start-up capital of two million Australian dollars and another five million spend on the purchase of cages, fishing boats and other infrastructure, Tony Santic and Dragan Vidov started up Kali Tuna's first tuna ranch at the Island of Dugi Otok.

Kali Tuna is today the largest Croatian tuna ranching company, operating four ranching locations NW from Fulija Island, Island of Ugljan and NW from Kudica Island.

The combined ranching capacity at Kali Tuna is 1.500 tonnes.



A Kali Tuna diver with a 60kg tuna.



Feeding time at one of Kali Tuna's ranches.

Sardina, d.d.



As part of a Croatian fishing family, Sardina, d.d. was established as a subsidiary of Sardina Postira (1906)



Located in the Croatian region of Dalmatia, on the Island of Brač, near Diocletian town Split, Sardina d.d owns a tuna ranch in the Island of Brač (Mala Grška Bay).



Due to its unique geographical position, Sardina, d.d. owned by Niko Bezmalinović, enjoys an ideal environment for tuna ranching.

The Mala Grška Bay tuna ranch is managed by Mislav Bezmalinovic. The entire operation is up to HACCP and ISO 9001 : 2000 standards and its

fattened tunas are generally rated at the highest grade, perfect for sashimi due to its large size, colour (deep, translucent red colour), texture (firm and fresh looking) and high fat content.



The ranching production is based on self-caught tuna and bait thanks to the company's fishing fleet of seven purse seine tuna vessels. Maximum declared capacity of the ranch is 900 tonnes.

The company also operates its own fishing fleet.



MFV/Hlap(9a5712)



MFV/Davorin (9a2258)



MFV/Jadran (9a3062)



MFV/Palamida and Hlap



MFV/Predvodnik



MFV/Ruda

CYPRUS

KimArgo Fishfarming Ltd.

Though Antonis Kimonides, General Manager of Kimagro Fishfarming, Ltd. will not comment on actual penned tuna stock, it is widely accepted within the fishing community, that the Limassol tuna ranch fattened some 740 tonnes of Blue Fin tunas in its cages during 2004. Some 1.000 tonnes could be currently being fattened in 2005.



Aerial view of the Bay and Port of Limassol

Tunas are caught and transferred by Cyprus re-flagged Jean Marie Christian II (P3UW9), owned by Salamina Fisheries, Ltd., at Iris House John Kennedy 3rd floor, 3106 Limassol; Jean Marie Christian III (Sète, France), Jean Marie Christian IV (Sète France) and Le Vent du Nord, 32 nautical miles off the coast of Syria. The logistics and know-how is provided by Spanish Cartagena based Grupo Ricardo Fuentes e Hijos, SA.

Grupo Fuentes' presence in newly EU-Cyprus is part of a bold strategic planning decision.



Kimagro Fishfarming tuna ranch off the Bay of Limassol

By exporting and re-flagging old French purse seiners and installing a tuna ranch in Cypriot waters, the whole Limassol-based operation will surely benefit from the European Commission Cyprus' operational programme for fisheries for the period 1 May 2004 to 31 December 2006.

Cyprus will receive € 3.4 million from the EU Financial Instrument for Fisheries Guidance (FIFG).

Almost half the aid (48%) will help finance a reduction in fleet capacity, through the permanent removal of fishing vessels, so as to achieve a better balance between fishing capacity and available fish resources.

Most of the other half (44%) will support investment in the

modernisation of aquaculture, processing and marketing of fisheries products and fishing port facilities.

In aquaculture, priority will be given to enhancing environmental conditions and promote the quality and hygiene of aquaculture products. Landing facilities will be improved and special attention will be given to increasing the productivity and competitiveness of the processing and marketing sectors.

While fisheries only represent 0.3% of Cyprus GDP, the fisheries and aquaculture industry, which provides around 1.350 jobs, play a significant socio-economic role in a number of coastal areas.

Dardanel Su Ürünleri Üretim A.S.

Japanese Tohto Suisan Co. Ltd. and at the time cash strapped Turkish canned fish producer Dardanel Dis Ticaret A.S. sealed an alliance in 2001, whereby both companies incorporated Dardanel Su Ürünleri Üretim A.S. The Japanese company acquired a 36% stake in the Turkish firm.



According to Anatolia news agency, the joint venture alliance initially invested \$4.6 million on a 300 acres tuna fish ranch in the southern town of Alanya, Gazipaşa-Antalya, on the Mediterranean coast. With an 840 tonnes production in 2001, the tuna ranch company partly supplied Dardanel Ton and exported \$US11 million worth of products to Japan in its first year of operations.



With a 2002 production of 1.600 tonnes (1.405 reported) the figure increased to \$US28 million, as Dardanel Su Urunleri Uretim A.S. benefited from the Japanese firm's sales and marketing power in Japan.

- ATRT Tuna-Ranching Intelligence Unit -



Yukiya Sekimoto, Director and President, Tohto Suisan Co., Ltd

Under the deal the Japanese company financed the tuna fish investment and contributed to Dardanel's capital expansion.



Niyazi Önen, Chairman of Dardanel Su Ürünleri Üretim A.Ş.

The Turkish firm also reached an agreement with a U.S. fund to sell 28 percent of Dardanel Food Company shares and expand its capital by 400 percent. "The deal entailed a cash infusion of \$60 million," said Niyazi Önen, Chairman of Dardanel Su Ürünleri Üretim A.Ş. at a news conference.

The company further borrowed \$40 million from the same fund for a term of 15 years.

At the time of its joint venture with Tohto Suisan, Dardanel had been suspended from trading on the Istanbul Stock Exchange (IMKB) for some time due to financial difficulties.

The company then managed to reach an agreement with seven banks to extend its debt maturing in March 2001 for a period of six months.

Dardanel's joint venture with Tohto Suisan was implemented in 2002 with the setting-up of another tuna ranching operation at Rizokarpasso, north-eastern coast of Turkish Occupied Cyprus.

According to Murashi Seto, Tohto Suisan representative, Dardanel Cyprus Ltd. 500 acres tuna ranch, was relocated at Koma Tou Yialou Famagusta Bay, and has a maximum annual production capacity of 3,000 tonnes and an export capacity of \$US100 million.

The tuna ranch is located between:

35° 25' .04N., 34° 09' .13E.
35° 25' .04N., 34° 10' .33E.
35° 24' .24N., 34° 10' .33E.
35° 24' .24N., 34° 09' .13E.

The tuna ranch, under the name 'Dardanel Cyprus', started production in 2002 with an initial capacity of 1,000 tonnes, reported daily newspaper Birlik. The chairman of the company, Niyazi Onen, said that due to teething problems, starting production would only reach 200 tonnes but that he aimed to increase capacity to 3,000 tonnes in the future.



Musashi Seto, representing the Japanese company, said the prevalent view in Japan was of economic and political instability in the occupied north, which was why nobody wanted to invest there.

He expressed the view that this project brought technology and investment money to northern Cyprus, hoping that with the help of the regime it would be successful.

Meanwhile, according to a source in the north, since the ranch was set up in the occupied north, the company avoids any obligations to international or Turkish fishing quotas.

The Turkish Cypriot Chamber of Commerce has teamed up with hoteliers in the north and other organisations to take the Turkish Cypriot authorities to court for giving the company a permit. The proceedings have already begun, according to the source.

Asked about the tuna ranch operating in the occupied north, Cyprus Greens deputy Perdakis said: "We need to make sure our farms are complying with the regulations before talking about a ranch in the occupied north".

"We are the firm that introduced tuna ranching to Turkey and to the Ministry of Agriculture. We have made a lot of investment in this area. We partially process the fish. However, for us to be

able to fully process it and create an added value, we have to invest more and for this to take place, we have to be able to see ahead. There is great ambiguity in the sector today and our investments will increase when these become clearer. This is, as I mentioned earlier, an issue that will be realized with long-term policies through precautions that the Ministry of Agriculture will take on the issue. When these conditions are met, the added value of tuna fish will augment by 50%" says Niyazi Önen.



Niyazi Önen, Chairman of Dardanel Su Ürünleri Üretim A.Ş. and Rauf Denktaş prominent political figure in Turkish Occupied Cyprus

GREECE

Selonda & Nireus go tuna

As one of the pioneers of Mediterranean aquaculture, Selonda constitutes, both for Greek and European aquaculture as a whole, an example of a company with a clear strategy, dedication to fundamental business principles, sound choices and, above all, sustainable growth rates.



Since its establishment, the Group has adopted an integrated approach to planning and has set definite goals that have steadily led a newly established primary production area to its maturity.

The culmination of this approach was the company's listing on the Athens Stock Exchange, which makes Selonda the first aquaculture company on a European level to have gained access to the capital markets and their advantages of transparency, public exposure, and participation.

What lies behind SELONDA Group's success -the hatcheries and on growing units, the commercial, holding companies, and aquaculture consultant companies that comprise the Group, but also the mergers, acquisitions and strategic alliances- is a team of dedicated executives who have managed through their scientific expertise, experience, and professional conduct, to transform the company vision into a successful business reality, operating in the high technology sector of marine biotechnology.



John Stephanis is CEO Selonda Aquaculture S.A., President of FEAP and Board Member of the Federation of Greek Maricultures and Managing Director of Blue Fin Tuna Hellas S.A.

Nireus Chios Aquaculture, one of the enterprises that have led Greece's explosive growth in fish ranching during the last 15 years, has also decided to go tuna.



NIREUS GROUP OF COMPANIES

Nireus began on the island of Chios in 1988 as a simple fattening unit. Fifteen years later the company reached a production capacity of 9.000 tonnes and 65 million juveniles of sea bream and sea bass at numerous units throughout Greece. It is Greece's largest exporter of ranched sea bream and sea bass, the two Mediterranean species that have caught the favour of consumers worldwide. Nireus has expanded through mergers and acquisitions so that today it operates three state-of-the-art hatchery stations, 19 grow-out units, and packaging plants on the islands of Chios, Inousses, Evia, and in Western Greece.

The company was first listed on the parallel market of the Athens Stock Exchange in 1995 and in 1998 moved to the main market, where it is listed today. Its commitment to aquaculture led Nireus to establish Proteus Equipment S.A. and Feedus S.A. Proteus specializes in the production and trade of aquaculture equipment and Feedus in animal and fish feed products. International expansion began in 1998 when Nireus began operations in Abu Dhabi with International Fish Ranching Company, which it manages and in which it is a minority shareholder.

Further diversification led to the acquisition of Sarantis Traditional Chios Sweets in 1999 and Alpino, a Northern Greece dairy company. Nireus also founded Eurocaterers, which specialized in filleted, headed, gutted fish, and marinated seafood, which the company marketed under the Sea Delicacies brand. Sea Delicacies earned the international Sial D'Or award. Most recently, the company has entered the fast-food sector by establishing SeaLand, a new seafood restaurant concept that is getting its start in Athens.



On May 26, 2003, Selonda Aquaculture SA. (25%) Nireus Chios Aquaculture, SA (25%) and Semi Sarin's Australian Fishing Enterprises Spain SL (50%) (A subsidiary of the company Australian Fishing Enterprises, which is based in Australia and has a long experience in the ranching and commerce of tuna fish along with a significant know-how in the tuna ranching sector), established Blue Fin Tuna Hellas, SA. with an initial share capital amounting to €1.000.000.



Blue Fin Tuna Hellas S.A. registered under number GR 01/2004, has an annual maximum final biomass capacity of 1.000 tonnes. According to company's sources, the total 2004/05 production was 586 tonnes W/R and the expected 2005/06 production will be 850 tonnes W/R.



Apostolos Tzoumas: General Manager of Blue Fin Tuna Hellas S.A.



Blue Fin Tuna Hellas tuna ranch at Grava-Astakos, Echinades islands, Prefecture of Kefallonia-Ithaki islands



- ATRT Tuna-Ranching Intelligence Unit -



Cage's detail at Blue Fin Tuna Hellas tuna ranch at Grava-Astakos, Echinades islands, Prefecture of Kefallonia-Ithaki islands



Park A at Blue Fin Tuna Hellas tuna ranch at Grava-Astakos, Echinades islands, Prefecture of Kefallonia-Ithaki islands



Park B at Blue Fin Tuna Hellas tuna ranch at Grava-Astakos, Echinades islands, Prefecture of Kefallonia-Ithaki islands

Name of Tuna Ranching Facility	Blue Fin Tuna Hellas, S.A.	
Name of Owner/s	Selonda Aquaculture SA. (25%) Nireus Chios Aquaculture, SA (25%) Australian Fishing Enterprises Spain - Sime Sarin SL (50%)	
Name of operator/s	Blue Fin Tuna Hellas, S.A.	
Address of Owner/s	231, Syngrou Av. Nea Smyrni, Athens 17121. Greece.	
Address of Operator/s	409 Vouliagmenis Ave., Ilioupoli 163 46, Greece.	
General Manager	Apostlos Tzoumas	
e-mail:	tzouap@bluefin.gr	
Phone	+ 30 (210) 9761120	
Fax	+30 (210) 9761097	
Cell		
URL	www.selonda.com	
Registration or License Number	GR 01/2004	
Location of Tuna Ranching Facility	Grava-Astakos, Echinades islands, Prefecture of Kefallonia-Ithaki islands	
Coordinates (Longitude & Latitude) Park Centers	A	N 38° 26' 04" ; E 21° 01' 48"
	B	N 38° 25' 55" ; E 21° 01' 43"
Maximum declared capacity	1.000,00	
2004 Production	586 W/R	
2005 Expected production	850 W/R	

ITALY

In late 1990's two experimental farms were developed in Italy and in 2001 a commercial operation was commenced in Trapani on the Tyrrhenian coast with 400 tonnes of medium-size Blue Fin tunas.

Pescazzurra, s.r.l.

Since then, other operators have initiated tuna ranching in Sicily. This has been the case for Pescazzurra S.r.l. (Via Campo delle Vettovaglie Mercato Ittico, 98100 Messina Tel.090/710134 Fax 090/715799)



The company from Messina has implemented a tuna ranch in the North-eastern coast of Sicily, off the coast of Giammoro-Milazzo (ME).

The tuna ranch is located between:

38°15'35".0 N - 015°25'32".5 E;
38°15'12".1 N - 015°25'32".5 E;
38°15'11".5 N - 015°25'53".5 E;
38°15'20".0 N - 015°25'47".0 E.

One would think that tuna farmers across the world would look for clean waters and an eco-friendly coastal environment before even thinking of mooring a tuna ranch.

Pescazzurra, s.r.l. must be the exception to such rule...

The ranch is located in front of an industrial area where one can find an oil refinery, a thermoelectric power plant, a steel plant and as Dott.ssa Alessandra Reale from Gaia Soc. Coop. a.r.l kindly puts it: "other industrial and artisan realities"...

Gaia Soc. Coop. A.r.l. are the authors of the environmental impact assessment study for such tuna ranch.

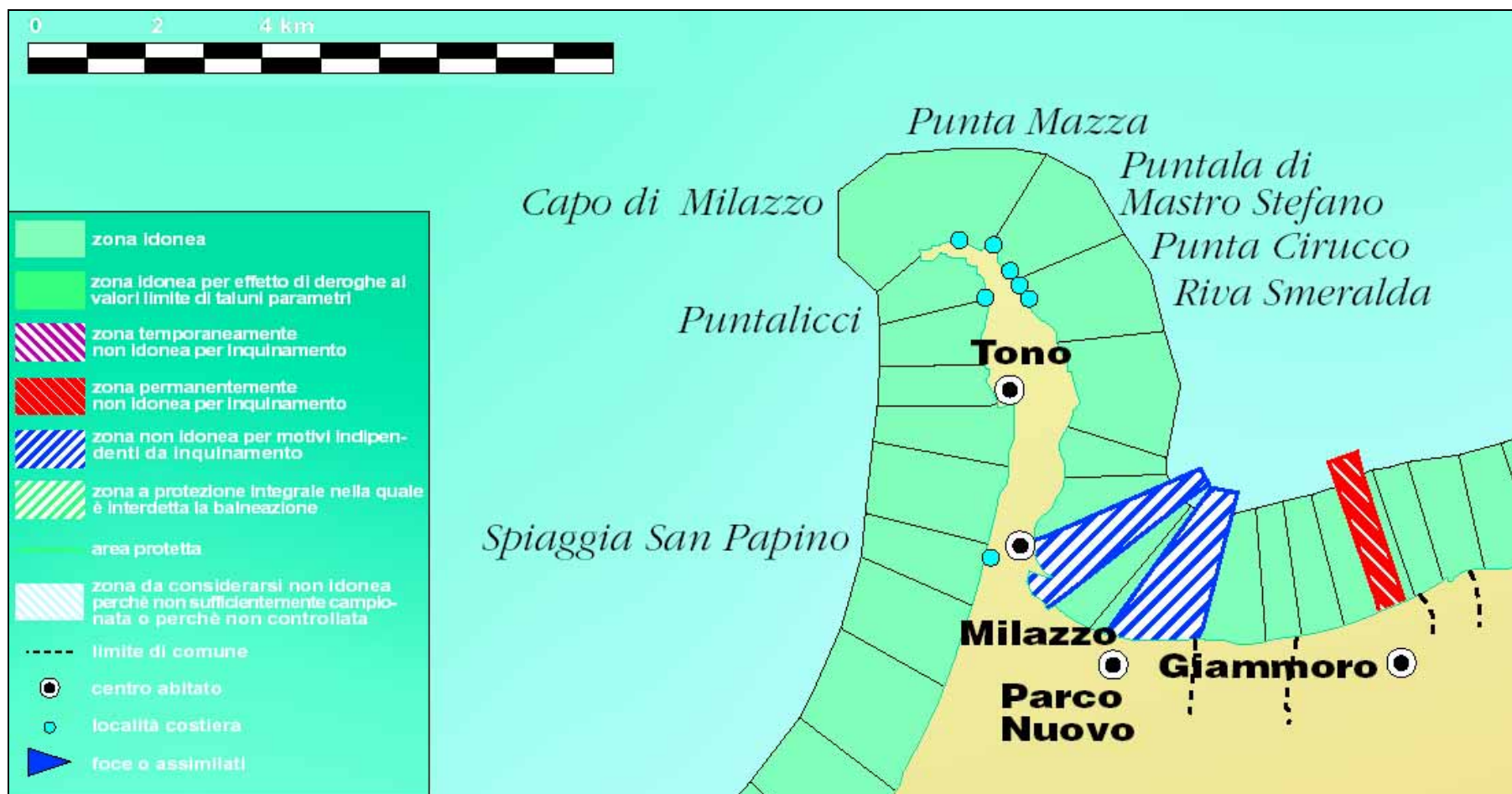
In 2002, its first year of operations, the ranch managed to export some 4.000 tunas (80 tonnes) to Japan and Korea. The ranch, at the time, had three Ø50m cages moored in 50m deep waters.



Giammoro-Milazzo

There is no available recorded official information about Pescazzurra's tuna ranching activities during 2003, though unconfirmed sector reports do account some 400 tonnes in 2003, some 600 tonnes in 2004 and 1.000 tonnes in 2005.

According to ICCAT the annual maximum biomass capacity of this tuna ranch (ITA-FAR005) is 1.500 tonnes.



Tuna Fish S.p.a.

On the southern coast of Sicily off the coast of Marina di Modica, 3,7 nautical miles from Punta Regilione, Pozzallo, lies a 2.000.000m² tuna ranch operated by Tuna Fish S.p.A., a company from Palermo.

The operation consists of five Ø50m Corelsa type gravity pens, thus allowing a maximum capacity of over 1.000 tonnes of live stocked tunas.

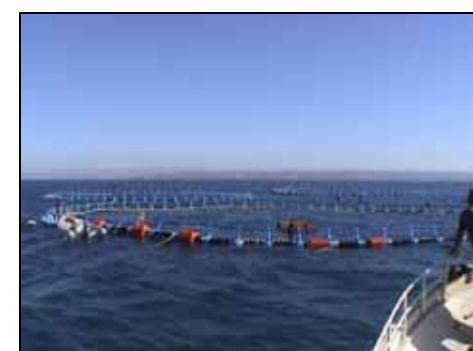
The ranch is located between:

36°40'58" N - 014°43'18" E;
36°40'30" N - 014°43'35" E;
36°40'06" N - 014°42'21" E;
36°40'36" N - 014°42'07" E.



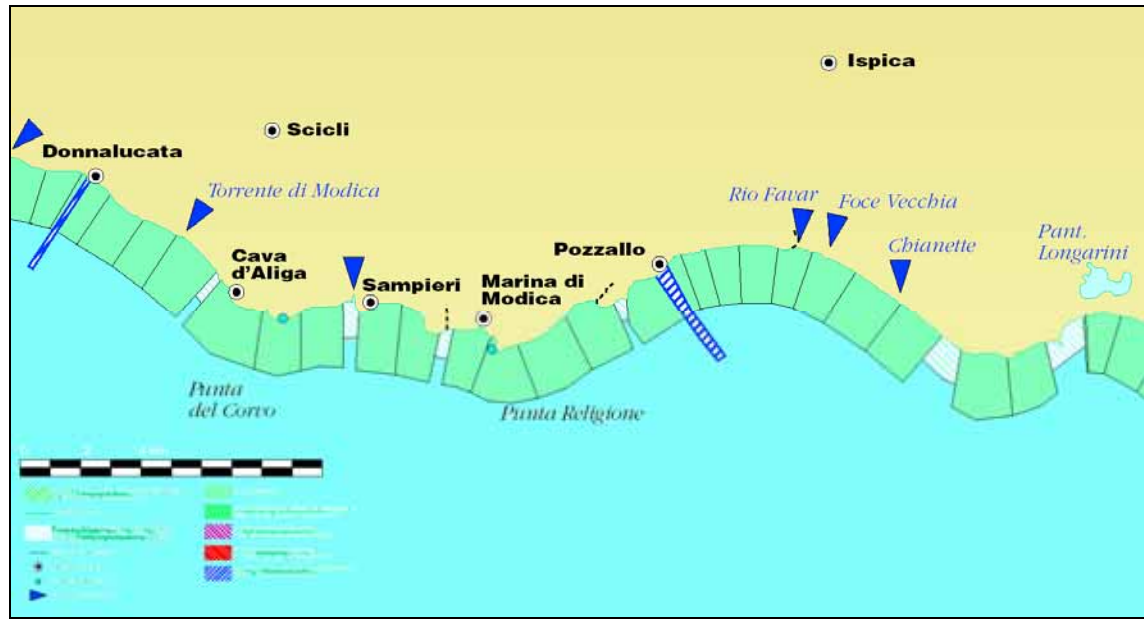
According to Italian Coast Guard sources of information, Tuna Fish S.p.A. has paid some €330.065 to the Sicily Region, in terms of public domain occupancy fee.

It is still unclear who is behind this operation and if Japanese or Korean concerns are involved in some sort of joint venture with Tuna Fish S.p.A. Sicilian owners.



- ATRT Tuna-Ranching Intelligence Unit -

According to ICCAT the annual maximum biomass capacity of this tuna ranch (ITA-FAR004) is 700 tonnes though unconfirmed reports state that 1075 tonnes were produced in 2004 and some 1.000 tonnes are currently being fattened.



*New Eurofish,
Castellamare del Golfo,
Sicily.*



View of the New Eurofish tuna ranch at Castellamare del Golfo



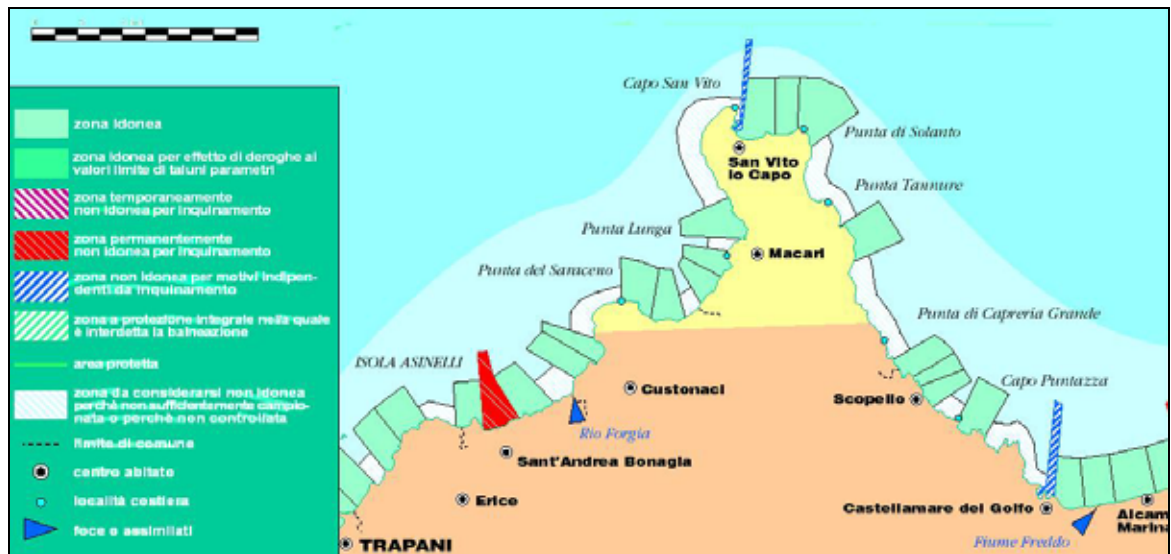
New Eurofish s.r.l. from Marsala, Trapani was incorporated some four years ago by the Fuentes Group, Mitsui Corp. (Japan) and local businessman Guglielmo Maurizio Maggio.



Shohei Utsuda, President and CEO, Mitsui & Co., Ltd.

Andrea Piccione is the General Manager and Giuseppe Stabile its ranch manager.

According to local sources of information, the ranch would be jammed-packed with some 1.500 tonnes of live Blue Fin tunas, caught off the Libyan coast.



According to ICCAT, the annual maximum biomass capacity of this tuna ranch (ITA-FAR001) is 900 tonnes though unconfirmed reports state that 1.075 tonnes were produced in 2004 and some 1.350 tonnes are currently being fattened.

Others



Four more cages 158 metres of circumference are assembled for red tuna stocking at the Fishers Cooperative in S. Francesco da Paola in Vibo Marina. The cages include nets over 20 metres high and can contain over 100 tonnes of tuna.

In Marina di Camerota (SA), off-shore of the Cilento coast line in 48 m deep sea, SIMAR spa has carried out a new fish ranching including n° 2 submersible cages of 40 m circumference + n° 1 submersible cage of 70 m.

TechnoSEA srl cages at Capraia Island's A.R.P.A.T. (Agenzia Regionale per la Protezione dell'Ambiente, Regione Toscana) ranching facility.

Name of Tuna Ranching Facility	Registration or License Number	Address of Owner/s	Location of Tuna Ranching Facility	Ranched Tonnage		
				Maximum declared capacity	2004	2005
Cooperativa S. Francesco di Paola a r.l.	ITA-FAR003	Molo Bengasi - Vibo Marina (VV)	Bivona (VV)	400,00	400,00	N/A
Med-Fish, SpA	Not Registered	Lungomare Caboto, 55. 04024 Gaeta (LT)	Golfo de Gaeta, Formia	1.200,00	N/A	N/A
Ora Ora Maricoltura s.r.l.	ITA-FAR002	Via G. Matteotti n.15 - Vibo Valentia	Ex Sir - Lamezia Terme	200,00	200,00	N/A
Soc. Coop. "Cala Bianca" a r.l.	ITA-FAR006	Via Diaz n. 90 - 85059, Marina di Camerota (SA)	Marina di Camerota (SA)	800,00	800,00	N/A

INDONESIA



An Indonesian fisherman cleaning and packing his tuna catch in ice at a small tuna processing plant located on the docks of Benoa Port in Bali.

A Yellowfin tuna-ranching project has been established in Indonesia by a government-run marine research centre called the Gondol Research Institute for Mariculture in the sleepy village of Gondol in Bali.

Japan is the major buyer of tuna from Indonesia, and the two have joined hands to set up South-East Asia's largest tuna hatchery centre on the north coast of Bali, an island better known as a sun and sand holiday destination.



The tuna hatchery situated on the Pegametan bay, North West Coast of Bali.

Japan's Overseas Fishery Cooperation Foundation has pledged to invest \$2.5 million in the centre and assigned scientists to join Indonesian researchers in studying the hatching behaviour of Yellowfin tuna.

They now have around 60 Yellowfins in their pools. More than half of them, each weighing around 5kg to 10kg are in a 6m deep, 18m diameter main pool where eggs are expected to be collected in August. Institute head Adi Hanafi said the centre is concentrating on the hatching process before rushing into tuna ranching.

"Japanese like tuna so much," said Akio Nakazawa, the chief expert at the Indonesia Japan Tuna Propagation Research Project that opened last year in the sleepy fishing village of Gondol. "So, the Japanese government now wants to work together and establish tuna fisheries.

I think to maintain the tuna catch at this level or more is very important," he said, after showing how mother tunas were acclimatised in round blue-painted pools.

The project is part of a long-established government marine research centre called the Gondol Research Institute for Mariculture that has successfully ranched groupers.

Indonesia produces 200,000 tonnes of tuna every year worth around US\$400mil (RM1.5bil), which includes Yellowfin much favoured for Japanese sashimi. But it's getting harder to maintain those numbers.

The tuna hatchery is not a quick fix. "Indeed, this will take time. What's important now is pushing for it. If this is successful, the contribution can be felt nationwide," said Hanafi.

The Research Institute for Mariculture-Gondol (RIMGondol), Bali, Indonesia began constructing a Yellowfin tuna hatchery facility in 2001, which was completed in 2003.



One of the huge tuna broodstock tanks

In early 2004, at a press conference Dr Adi Hanafi (Director of RIM-Gondol) stated that RIM-Gondol currently has 43 Yellowfin tuna broodstock in the holding tanks, and they are expecting to conduct the first spawning trial in June 2004.

This Yellowfin tuna project is partly funded by Overseas Economic Cooperation Fund (OECF) of Japan in a four year project with the objective to successfully spawn, fertilize and hatch Yellowfin tuna in captivity. If breeding is successful, this may bring ranching of Yellowfin tuna to commercial farmers in Indonesia.

JAPAN

In Japan, there are about 20 Blue Fin tuna ranching and research stations. From their farms, 300 to 500 tonnes are harvested per year. Their farms are located in central and southern Japan, nearly Wakayama, Ehime, Kochi, Nagasaki, Amami (Kagoshima) and Okinawa Pref.



Blue Fin tuna ranching in Japan starts in July or August when 150-500g tunas are caught and stocked into the cages.

These small tunas are caught by the fishermen and sold to the farmers. They are reared for 3 to 4 years until they grow to a body weight of about 30 kg to 70 kg.

According to the method followed by Kinki University, the fish are reared for the first 4 or 5 months in 12 m _ 12 m square cages. After this period they are transferred to large cages. For example, 50 m diameter circular cages or 20 to 40 _ 40 to 60m rectangular cages, without a frame using just floats to hold the net.

The ranching method in Japan is different from that used in the Mediterranean, for example, if a 20 kg tuna is caught in Japan, the fisherman can get better price at the fish market immediately, rather than if sold to the farms. This is why Japanese tuna farmers prefer to stock smaller tuna.

Juvenile tunas stocked in cages show a better survival rate than if they were left in the wild.

In the cages, tunas are fed on fresh or frozen sand eel, anchovy, sardines, mackerel, jack mackerel and squid. A vitamin mix is also added. FCR up to 40 kg is 10 to 14, over 60 kg is 14 to 20, on a wet matter basis.

In the case of Wakayama, Kinki University, growth is as following for this broodstock data. A 150-500g small tuna reaches 3 to 8 kg after one year, 10 to 30 kg after two years, and maximum weight of 50 kg after 3 years.

In comparison, tunas ranched at the research station JASFA in Okinawa, reached 100kg within 4 years, probably because of higher average water temperature. Also seawater currents

- ATRT Tuna-Ranching Intelligence Unit -

and stocking density may be factors that affect their growth rate.



Survival rates are 90% or higher in larger cages. Feed expenses, labour costs and equipment costs during a 3 to 4 year period makes it difficult for Japanese tuna ranches to make a profit when selling their production at Tokyo or Osaka.



Generally Japanese ranched tunas are superior in terms of colour, fat content and taste, to the ones imported from the Mediterranean ranches.

However, it seems there is a consumption limit for such expensive home ranched tuna.

Should the yearly production of Japanese ranched tuna increase in the future, production costs could drop but market prices would certainly follow the same path.

Japanese tuna market



The supply of tuna (total production of domestically culture, wild-caught, imported fresh and frozen fish) indicates values that range from

451.000 to 507.000 tonnes per year during the last four years.

It should be noted that the ratio of fish with a high product value, known as Toro in Japanese, is decreasing.

Toro forms only approximately 30% of wild-caught tuna, so the figures for 2001 indicate that only 137.000 tonnes of Toro were obtained.

On the other hand, almost all ranched tunas are Toro and although this represents only a 4% share of all tuna provided to the Japanese market, it increases the supply of Toro products by 15%.

Moreover, to obtain the same quantity of Toro provided by 20.000 tonnes of ranched tuna, it would be necessary to catch 70.000 tonnes of wild tuna.

The advantage of ranched tuna is that it can be supplied at a third or half the price of wild-caught Blue Fin or Southern Blue Fin tuna.

High quality tuna is now available at supermarkets, fresh fish shops or Kaiten-Sushi restaurants throughout the year.

The supply of Toro has recently increased. Its price has dragged down.

In addition, the demand for cultured Bigeye and Yellowfin tuna, both valuable intermediate products between conventional ranched tuna and Toro-Binchou, is expected to increase, because of its fatty meat and cheap price.

However, tuna ranchers should think wisely about supplying Bigeye and Yellowfin Toro, as prices will indeed drop in Japan due to over-supply.

Ranched fish vex sushi lovers

At a sushi bar in the JR Nagoya Takashimaya department store in Nagoya, a customer recently suspected there was something wrong with his

tuna, supposedly from a fish caught in the Tsugaru Strait.

"This is too fatty. I doubt this is meat from a fish caught in the wild," he reportedly said.

The store's subsequent investigation revealed that the meat was actually from a fish fattened at a tuna ranch in Turkey.



Fresh Blue Fin Tuna before being auctioned at Tokyo Tsukiji fish market.

The operator of the sushi bar, which advertises itself as specializing in Hokkaido-sourced chikuyo fish, served the imported fish because it was unable to secure enough wild Blue Fin tuna.



One of the world's first fully cultivated bluefin tuna raised from eggs by the Kushimoto Kinki University's Fisheries Laboratory.

Under a method called chikuyo in Japanese, operators cultivate fish, which have reached adulthood in the wild, in fish farms for periods ranging from a few months to up to one year, a process intended to increase body fat.

"I think chikuyo fish is not that bad, but it tastes kind of sticky. Because their meat is not as firm as that of naturally grown fish, people simply prefer natural ones", says Yosuke Imada, manager of Kyubei, a top-quality sushi shop in Ginza, Tokyo.

Of 2.06 million tonnes of tuna eaten in 2002, about 460.000 tonnes were consumed in Japan in the form of sashimi.

According to an estimate by the Japanese Fisheries Agency, of about 21.500 tonnes of tuna imported last year, 19.500 tonnes, or about 90 percent of the total, were so-called chikuyo tuna.

LIBYA

Locking-up the tuna fishing grounds

July 2005, Tunisia joined Libya in creating a newly claimed exclusive fishing zone. The decision was set to pave the way for a stronger alliance than ever between the two North African countries and Spanish, French and Japanese fishing giants blamed for depleting the Mediterranean of Blue Fin tuna, Karl Schembri reports from Malta.

The Tunisian decision was taken while Maltese government fisheries officials were in Tripoli trying to strike a deal with the Libyan government to permit Maltese fishermen back to their historical fishing grounds.

The decision to declare a so-called exclusive economic zone was adopted by the Tunisian parliament on 21 June and widely publicised in the Arabic press in the wake of Libya's unilateral declaration of a 62-mile fishing conservation zone.

Just like with Libya, the coordinates of the newly claimed Tunisian exclusive zone have yet to be announced but tuna industry sources informed MaltaToday that it comprises key areas of prime tuna cages' towing routes linked to Blue Fin tuna catching areas.

private partnerships in the fisheries and tuna ranching and fattening industries.

Couched between the fishing conservation rhetoric of the two countries' declarations lies the reality of thousands of tonnes of Blue Fin tuna being caught in Libyan and Tunisian waters above the legal quota by the International Commission for the Conservation of Atlantic Tunas (ICCAT) a powerless commission given that enforcement of its quotas is the responsibility of individual governments.

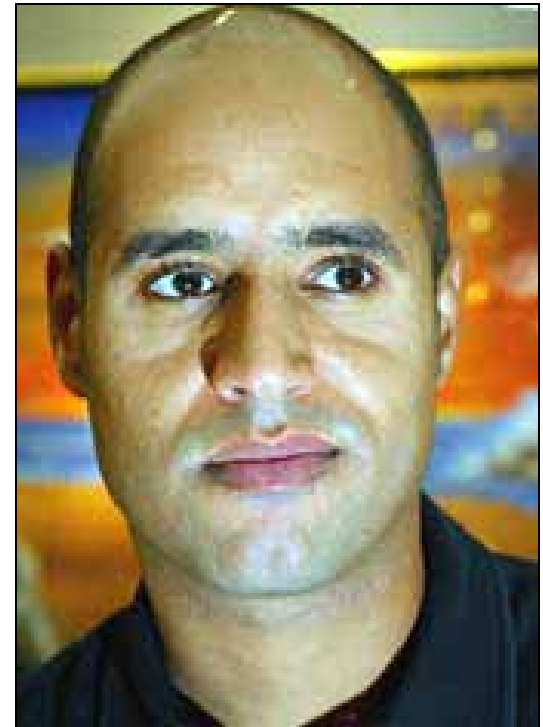
In fact, the effective kings of these two newly claimed zones are Libyan leader Muammar Gaddafi's son, Seif al-Islam, and Tunisian President Ben Ali's brother-in-law, Maroud Trabelsi.

The bright 33-year-old son of the architect of the Jamahiriya is the owner of a tuna fattening operation in Ras El Hilal in the north-eastern coast of Libya called RH Marine Services.

Mourad Trabelsi who runs his joint venture tuna ranch with the Fuentes Group, Carthage Blue Fine Farm, sarl, also operates the second most powerful tuna fishing fleet in Tunisia.

It is through direct partnerships with these two individuals that Fuentes Group, who is interested in opening a tuna ranch in Marsascula, Malta, now has direct access to exclusive Libyan waters, and soon to similarly exclusive Tunisian territory, considered to be the last refuge of Mediterranean tuna

some fifty cages, inside Libyan waters since the tuna season started May 15th.



Seif-al-Islam Kadhafi

Out of six Libyanised purse seiners currently operating in Libyan waters, only two have been properly recorded on ICCAT's fishing registry.

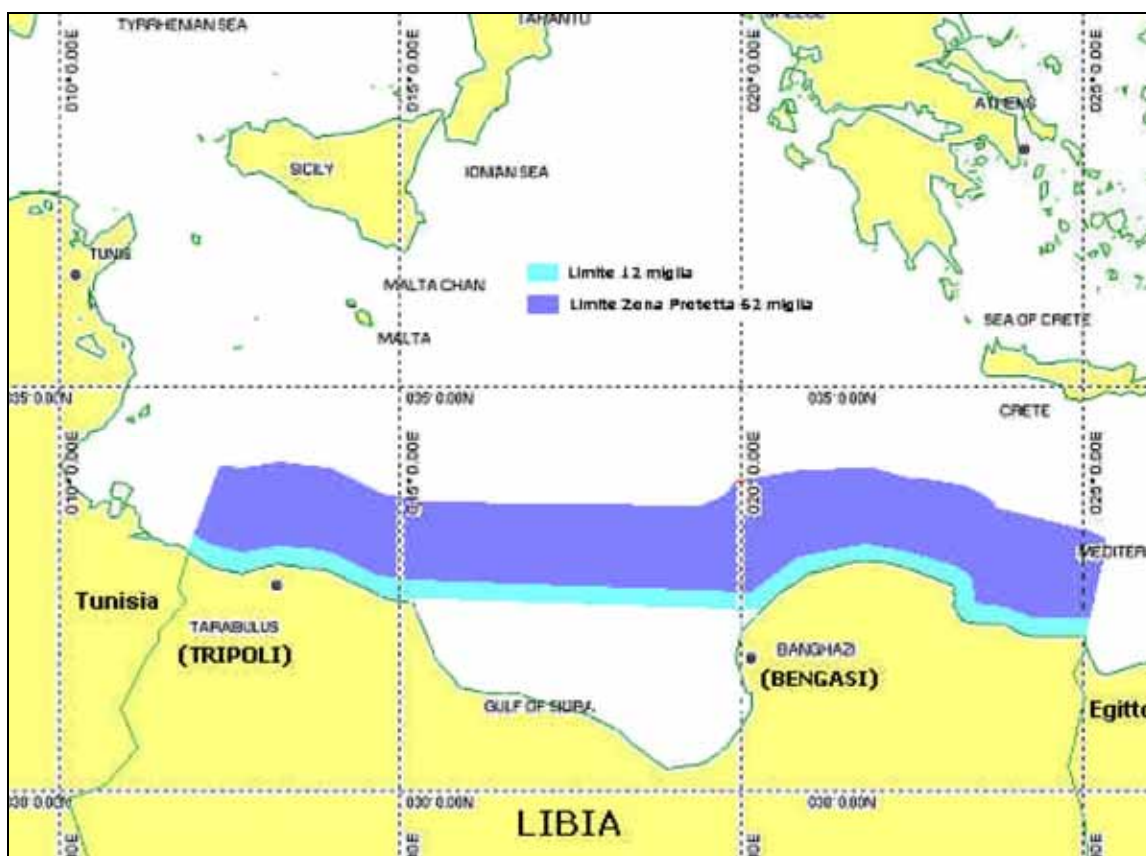
Sources have identified five tuna purse seining fleets operating in Libyan waters.

The Avalone/Jean Marie Christian Group (France), the Scannapieco Group (France) and the Sainte Sophie Francois Group (France) are all fishing for Fuentes with some 11 vessels, apart from Fuentes's own four vessels.

The Ville d'Agde Group (France) has four vessels fishing for Japanese partner, Matsuoka, who buys ranched tunas from a tuna ranch in Malta that operated 10 cages in Libyan waters this year.

The official Libyan ICCAT quota for 2004 was set at 1.400 tonnes but according to industry estimates, more than 6.400 tonnes of tuna were captured in Libyan waters until mid June, that is around 5.000 tonnes above the quota.

Most of the catches are usually declared under different ICCAT quota (Libyan, French and Spanish), enabling Fuentes to "camouflage his catches by dispersing live, fresh or frozen them across the Mediterranean", namely in Tunisia, Turkey, Cyprus, Croatia, Sicily, and soon maybe Malta.



Libya's new unilaterally declared 62-mile fishing conservation zone.

The move will be a further blow to Maltese fishermen who are seeing their historical fishing grounds slowly being eaten away while the Spanish tuna giant fishing fleet of the Fuentes Group is steadily increasing its control of the southern Mediterranean waters in partnership with the Libyans and Tunisians.

A bilateral fisheries agreement between Libya and Tunisia signed last May already sets the backdrop for

destined to be chopped and exported to Japan.

In Libyan waters, Fuentes has ingeniously "Libyanised" French purse seiners -that is giving them over to his Libyan partner- through his affiliated French fleet, Avallone, allowing him to operate his entire fishing fleets and affiliated vessels in the exclusive zone.

Tuna industry sources say Fuentes' fleets have caught and transferred well over 9.000 tonnes of live tuna into



Trabelsi's tuna ranch off Mahdia

- ATRT Tuna-Ranching Intelligence Unit -

Around 400 tonnes under Libyan ICCAT quota have been transferred into Trabelsi's tuna ranch in Mahdia, Tunisia.

Trabelsi is also understood to be holding another 600 tonnes in Mehdia under Tunisian ICCAT quota while Gaddafi's Ras el Hilal ranch is expected to house some 800 tonnes of tuna this year.

Another 1.600 tonnes were towed in cages back to Fuentes's farms in Sicily, and Cartagena, Spain.

Tuna that die during the transfers or slaughtered tuna at sea is processed on board Fuentes's four processing and freezing vessels: Daniela, Paloma Reefer, Valeria and Graciela – with an overall capacity of more than 4.000 tonnes of frozen tuna or tuna loins.

"Now that the Mitsubishi, Fuentes, Avallone, Trabelsi, Gaddafi alliance have shut the doors of their private aquarium, they just might go for a new joint venture", a tuna ranching expert said. "The implications are now tremendous in the sense that they have managed to put their hands for good over the entire region."

According to a study report about Libya's fisheries carried last year by Oceanic Development, a French fishing consultancy firm, Blue Fin tuna has been caught "in excess of the quota allocated by ICCAT to Libya for the last three years".



A Big White shark trapped inside a tuna cage being towed off the coast of Tripoli. Picture: Lorenzo Millan Verdú.

"Blue Fin tuna in the waters of Libya is also exploited by around 10 (EU) Community purse seiners operating under private licence agreements but with catches deducted from the Community quota", the report says.

"As far as tuna is concerned, the situation of the Blue Fin stock is not good with signs of over-exploitation.

The quota policy adopted by ICCAT needs to be fully enforced, together with other technical measures adopted."

As a conclusion, the study of the Libya fisheries sector indicates that the country is not in a position to meet the practices recommended in the Code of Conduct for Responsible Fishing.

"In particular, Libya does not show the capacity to monitor its fishing fleet (effort, catches) and to formulate advices on the status of stocks and recommendations for sustainable exploitation."

RH Marine Services Co.

Fuentes's strategic alliance with Trabelsi allows Fuentes's fishing fleets to freely operate inside and outside Libyan territorial waters.

It was indeed Mr. Trabelsi who brooked Fuentes Group relationship with Libya-based R.H. Marine Services Co., owned by Seif Al-Islam Kadhafi.



Tuna purse seiners operating inside Libyan waters

Tripoli-based R.H. Marine Services Co. currently owns and runs an aquaculture operation at Ras-El-Hilal in the North-eastern coast of Libya.

Its sea bream and sea bass operation should have been replaced with a 400 tonnes tuna fattening operation as from July 2003.



Partial view of Ras-El-Hilal's aquaculture sea cages

It is unclear if the company has managed to transfer some of the tuna caught by Fuentes's fleet, since it started giving logistic support to Fuentes's vessels and tuna spotting aircrafts operating inside Libyan territorial waters.

Cap. Khaled Ouz, Manager of the Fishing & Marine Investment Dept. at R.H. Marine Services Co. would not comment on the issue.

Nour-Al-Haiat Fishing Co.

Tripoli-based Nour-Al Haiat Fishing Co. (NAFCO) started as a tuna long-lining business giving logistical support and selling Libyan tuna quota to Japanese

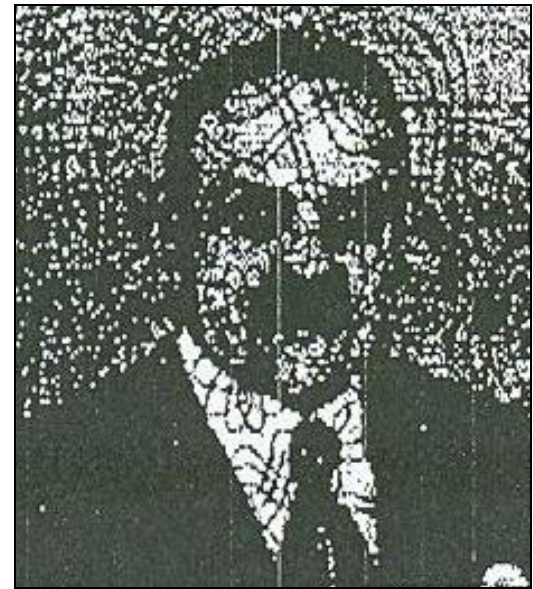
long liners at Tripoli, Khoms and Benghazi.

The company's shareholding structure is opaque and little is known about who the real bosses are. What is clear is that Mr. Aladdin Wefati, General Manager and Dr. Abdel Salem Furjani, Operations Manager, have strong ties to Libyan Fishing and Aviation Authorities.

In just six years, NAFCO has become a "must" for most foreign tuna-fishing companies wanting to do business in Libya.

Through savvy lobbying, NAFCO has managed to weave a logistics network inside Libya that allows its foreign partners and clients to freely operate their vessels and tuna spotting airplanes, even during the month of June.

Aladdin Wefati is the brother of a high ranked Libyan Civil Aviation Authority officer and a close friend to Eng. Bashir Ramadan Abu Genah, former Chairman of the Libyan General Authority for Marine Wealth and Aquaculture.



Aladdin Wefati, NAFCO General Manager

NAFCO owns and runs most of Libyan flagged tuna purse-seiners: MFV/Uzo2. (5A-RZ), MFV/Tagreft, (5A-5A), MFV/Khaleej Ettahadi (5A-RY), MFV/Al-Arabta (5A-RS), MFV/El-Aghile (5A-SB) and MFV/Nawras (5A-UW) former French flagged Cisberlande III from Sète.



Tagreft, (5A-5A) undergoing full remodelling in 2003 at Piriou shipyard in France

Almost every single foreign tuna purse-seining vessel operating inside or near to Libya's Territorial Waters uses NAFCO's services. Through 50/50 fishing partnership contracts with French, Italian and Spanish tuna fishing companies, NAFCO establishes a "de facto" fishing calendar and

- ATRT Tuna-Ranching Intelligence Unit -

distribution of the different fishing grounds in Libya.



NAFCO's Tuna purse-seiner Nawras

As a host company, NAFCO provides foreign tuna spotting aircraft operators with full logistical and tactical support from land, whichever the landing and take-off Libyan airport for each airplane is. NAFCO also provides full legal, logistical and tactical coverage/support from within Libyan territory for any situation that may hamper, restrict or impede their normal activities and/or operations during the tuna-fishing seasons inside and in the adjacent Libyan territorial waters.

Chartered and/or associated foreign purse seine vessels were then allowed inside Libyan territorial waters, where it is thought that 45% of the entire Mediterranean live-tuna catching and transferring activity has taken place this year. Yet, NAFCO's lucrative fishing and logistics business set-up hasn't translated into a proper tuna ranching operation off the Libyan coast.

Its initial joint-venture tuna ranching project in Misratah with Grupo Antalba from Spain was moved to Qaraboulli (West of Misratah) in 2003, for unknown reasons.

The decision resulted in a total fiasco.

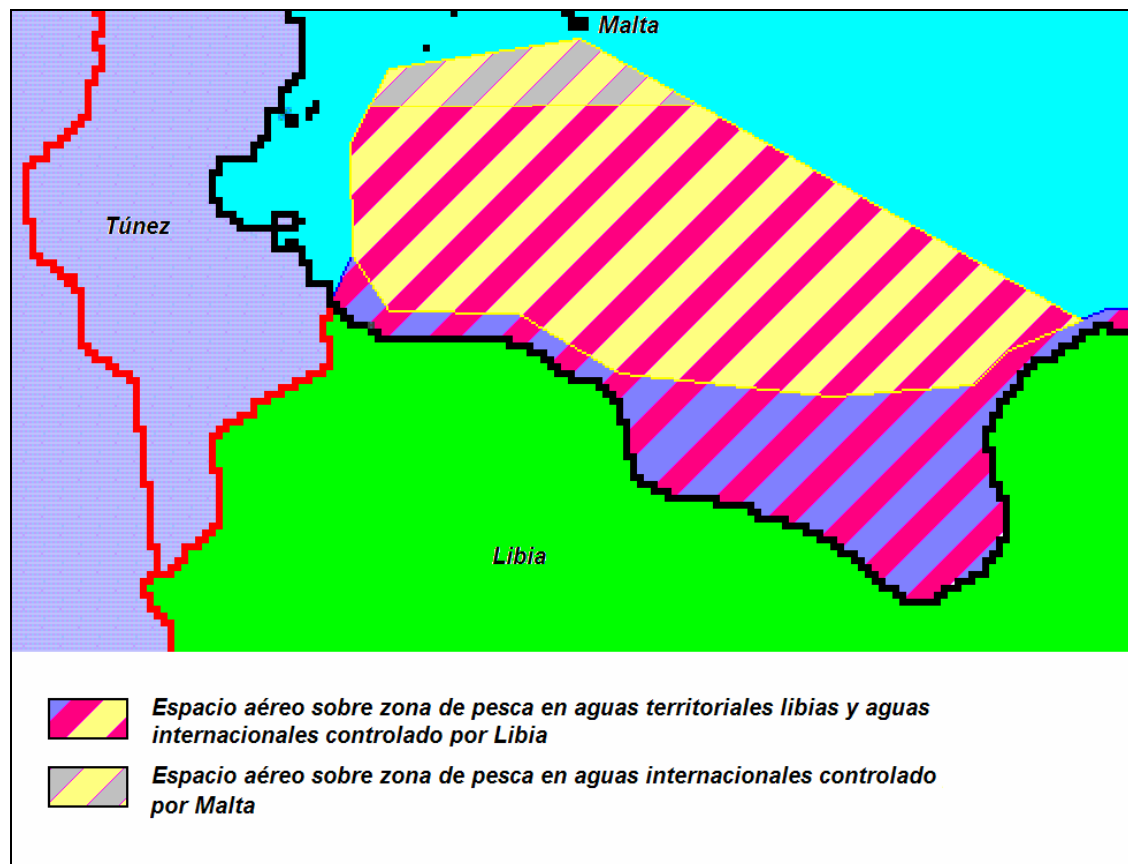


Urbanised beach used for recreational activities at Tunnart Al-Qarabulli.

sashimi-wholesaler Marukoh's involvement in such an operation.

Some observers are keen to point out that both Libyan, Tunisian and French interests in the region may explain France and Libya's concurrent positions during the Seville ICCAT meeting.

"Libya is a particularly worrying case," said Sergi Tudela, Fisheries Coordinator at WWF's Mediterranean office based in Italy. "This North African country's annual tuna quota is 1.400 tonnes, but Libya has so far this year taken more than 9.000 tonnes. This illegal catch has been caged in Libya, Tunisia and Spain."



Overlapping of Libya's fishing grounds and controlled airspace

Since all of the tuna fishing grounds inside and outside Libyan territorial waters are inside Libyan controlled airspace, small "Push-Pull" Cessnas and Partenavias P68 tuna spotting aircrafts must land and take-off Libyan airports. (See Spot that tuna!) Libya's tuna fishing grounds are known to be the last refuge for the over fished Atlantic Blue Fin tuna.

The Gulf of Sirte happens to be a "protected" spawning area for the fish.

It is there that most of the catches and transferring have taken place for the past three years.

This year has been no exception: NAFCO tuna fishing vessels have been able to work on an exclusivity base inside Libyan territorial waters until June 15th.

After three months at the new Garabouli ranch site, the surviving 60 tonnes of starving-tunas were sold at a loss to a foreign tuna rancher. "The poor tunas were just starving to death inside those cages as sea surface water temperature was as high as 33°C, the perfect scenario for bacterial blooming" says a disgusted former NAFCO tuna-diver.

Unconfirmed reports from Tripoli state that some 400 tonnes of live-tunas that were initially transferred into NAFCO's cages in 2004, were slaughtered at sea and frozen on board Japanese long liners, as early as June.

How that fish was declared or if it was declared at all, is unknowned.

Mr. Masayuki Yano from Marubeni Corp. with a strong presence in Libya emphatically denies Marubeni or its

MALTA

While Maltese fishermen's representatives called on their government to push for sanctions on Libya's tuna exports in response to the controversial 62 miles "fishing conservation zone" that excludes them from fishing in their historical fishing grounds, Malta's tuna ranching operators kept a low profile during July and August this year, as they monitored the delicate situation.



*George Pullicino,
Malta's environment minister.*

In a meeting held with EU Fisheries Commissioner Joe Borg and Environment Minister George Pullicino, officials from the National Fisheries Cooperative and the Ghaqda Koperattiva tas-Sajd demanded that international sanctions were imposed on Libya until the dispute is resolved, claiming that they are already being hit hard by the Libyans' unilateral decision.

"We insisted that the government acts immediately on this by pushing for sanctions on the transportation of tuna from Libyan waters," said Paul Piscopo, the President of the Ghaqda Koperattiva tas-Sajd.

"The situation is precarious for us all.

Apart from the historical fishing waters we've lost, we are already ending up with other foreign fishermen in our remaining restricted area."

Government sources said the fishermen's demand for sanctions was "unrealistic".

Piscopo said the government's diplomatic efforts "are leading to nowhere" as the Libyans are effectively enforcing their own decree.

"Commissioner Borg promised us to seek the agreement of the other EU member states to tackle this issue at a European level," Piscopo said. "But there are foreign tuna industry giants involved in this and their governments won't ruin their business."

"We all know that this has nothing to do with conservation of the fishing stocks, in fact Libya is increasing its fishing fleet," Piscopo said. "If it was not for some European businessmen

they would have left everything as before. A good example of a conservation zone is the Maltese Shelf, where Malta decreased fishing in its 25 mile zone."

Indeed the Libyan Fishing Conservation 62-mile new limit is key to the future of Malta's tuna ranching sector's future. Most of transferred and penned tunas in Malta are caught inside the new Libyan fishing zone.

Last year, the Malta Environment and Planning Authority (MEPA) granted a full development permit to double the extension of a tuna-penning site and operations at il-Hofra z-Zghira, in Delimara.

The tuna cage extension has raised the capacity of the tuna ranch to 1.200 tonnes.

Malta loads its cages in May-July and markets the fish from October to January.

In 2000 the size of the fish ranged from 80 to 250kg.

In 2001 about 1.200 tonnes were exported with size ranging from 50 to 620 kg.

2003 was a record year with an overall production of over 3.500 tonnes.

During the peak month of May 2004 the approximate size of individual fish landed has dropped drastically from 300 kilos to 180-200 kilos.



Parliamentary Secretary responsible for Agriculture and Fisheries Dr. Francis Agius visiting a Tuna Ranch 20 minutes off M'Xlokk bay on the closure of the 2004 Tuna season.

According to Maltese official sources of information, the surface long-line Blue Fin tuna fishery in 2004 landed in excess of 250 tonnes, a value which is similar to that of 2003.

As usual during the 16 week fishing season, which extends from April to July, the peak month for catches is normally May during which more than 50% of the total catches are obtained.

Cleaner production methods

In Malta a freak accident on 21 October caused a substantial amount of tuna entrails to float into Marsascula Bay, Environment Minister George Pullicino admitted yesterday.

Replying to a question by Carmelo Abela, Mr. Pullicino said that what

happened was that as tuna were being killed in the open sea out of the bay, the jumbo bag which was supposed to contain the entrails burst while it was being transferred from one boat to the other.

The fishermen tried to collect as many entrails as they could, the minister said, but due to the rough seas, all the offal could not be collected.

The minister added that following a news story appearing on It-Torca, the ministry had sent a reply which has not appeared so far. This was an inconvenience, the minister added, but it also shows the validity of the government's proposal for all tuna farms to be relocated to 6.3 kilometres outside Malta, so that such accidents are not repeated.

In another reply to Mr. Abela the minister said that a second tuna ranch is being proposed to the west of Malta to include within it all tuna farms in the north of Malta. For this reason, he added, Mepa is not accepting any more applications for fish ranching for it will be the government which will be the developer through the Fisheries Conservation and Control Section. Operators would then apply with the section if they intend to operate in this sector.

The minister also added that while the present production of fish farms amounts to 1,000 tonnes a year, this quantity is intended to increase to 2,500 tonnes a year, possibly through diversification of fish species.

At present Malta has five tuna farms of which only three are operational.

Marsascula council has often denounced that fish farms were polluting the seabed of the bays of Marsascula when the wind blew in their direction. Fishermen were finding fewer seabed fish since the tuna cages had been put in place and swimmers complained about the ranch attracting large predatory fish into the bays.



General view of the dead fish at il-Hofriet, July 23rd 2004



A close up of the dead fish at il-Hofriet, July 23rd 2004

The spread of organic and smelly substances out of the tuna pens for

- ATRT Tuna-Ranching Intelligence Unit -

kilometres around, depending on sea current directions, as well as dead and decaying Blue Fin tuna strandings along the Maltese coasts have been reported in the past.

Whatever the outcome of such controversy, it is clear that Malta's fresh and frozen ranched tuna exports to Japan, could yet take another price blow, should the three Maltese tuna-ranch operators (Azzopardi, Ellul and Caruana) fail to prove that tuna penning, fattening and harvesting procedures meet the required sanitary and hygiene standards in Japan.



Italian tuna purse-seiner fleet at the Gran Harbour

The major issue the Maltese Government will have to solve, now the country is a EU member state, is that of an ICCAT tuna quota in accordance with a future Maltese flagged tuna-purse-seining fleet. So far, Malta is being used by purse seiners from Italy, France, Spain, Greece and Croatia as a "diving-board" that allows them to operate in adjacent Tunisian and Libyan waters. 100% of framed tuna in Malta comes from these fleets.



Italian tuna purse-seiner fleet at the Gran Harbour.

"Maltese fishermen have good reason to be angry, Sicilian fishermen are indiscriminate and are over-fishing in our waters and on many occasions they have deliberately damaged fishing sites for local fishermen" says a Malta-based columnist, as he recalls the "Tuna Fiasco" three years ago.

"What we saw at that time was a Government, swooning and guzzling at the feet of the Italians – which was one good reason to say enough is enough. What took place on the high seas and later on, on land was a disgrace not for the fishermen but for the government", says a local fisherman.



Tuna purse-seiners of Gran Harbour, during the "Tuna Fiasco"

The re-flagging of foreign purse seiners could be an initial solution to the lack of proper financial funding by local operators.



French built Cisberlande III was purchased and re-flagged by Tripoli-based Nour Al-Haiat Fishing Co. The purse-seiner appears on the ICCAT list of vessels under EU-Malta and Libyan Flag. Maltese operator is Bugeja Raymond, F/H 1. Tower Road. Marsaxlokk.

Some French, Italian, Tunisian and Libyan fishing companies would be more than glad to go into partnership with Maltese fishing concerns as it is the case for other new EU-member states such as Cyprus.

Maltese re-flagged purse seiners could benefit from Maltese ICCAT tuna quota.

The issue will certainly be closely monitored by newly appointed EU Fisheries & Maritime Affairs Commissioner, former Malta's Minister for Foreign Affairs Dr. Joe Borg.

- ATRT Tuna-Ranching Intelligence Unit -

AJD Tuna Limited

AJD's first tuna cages in Malta were sold to Charles Azzopardi and his Korean partner, Lee Gang Pil, by Tuna Farms of Mediterraneo from Spain some five years ago.



Charles Azzopardi, President of Azzopardi Fisheries

Mr. Lee, a former business partner of Joaquin Albaladejo from Grupo Antalba in San Javier, was also involved in a tuna trap-set-net in Morocco.



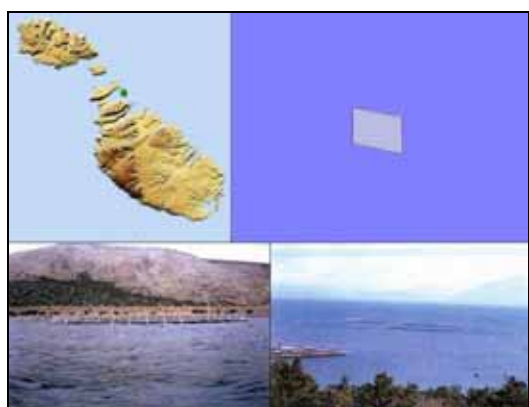
Partial view of the tuna set-net trap operated by Jeong Pil Co. in Morocco.

During the year 2000, the four Ø50m cage ranch located at is-Sikka I-Bajda off St. Paul's Bay yielded around 330 tonnes of Blue Fin tuna for export.

The project exported its total production to Asian markets. The fish caught varied in size between 50 and 300 kg with the majority being in the 150-200 kg range.

For the purposes of quota allocations, the fish were assigned to the country of registration of the fishing vessel. The fish were then procured with an ICCAT certificate by the flag state of the encircled vessels. On slaughter, the Department issued an ICCAT Re Export Licence.

Today, AJD Tuna Ltd. still runs the Sikka Il-Bajja ta' San Pawl il-Bahar eight-cage tuna-ranch operation, with a maximum capacity of 1.200 tonnes of live tuna.



The ranch is located between:

- A 35° 58'. 57N; 14° 24'.97E
- B 35° 58'. 79N; 14° 24'.95E
- C 35° 58'. 64N; 14° 25'.70E
- D 35° 58'. 42N; 14° 25'.71E

The shareholding structure of AJD is split between:

- Jeong Pil Co., Ltd. (Korea)
- Azzopardi Fisheries (Malta)
- Dohsui Co. Ltd., (Japan)



Youzou Takano, Chairman of Dohsui Co., Ltd

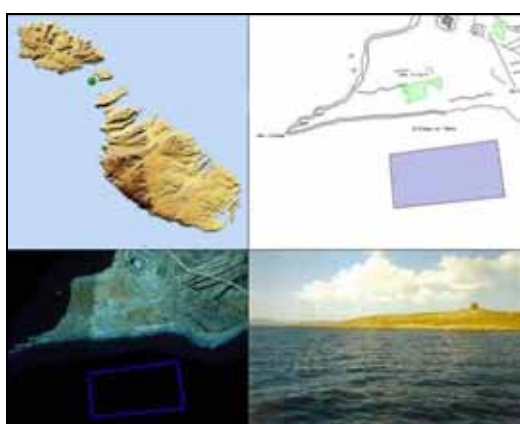
Azzopardi Fisheries have contracts with Maltese fishermen to buy most of their catch, but most of the tuna for their two farms (one between Comino and Mtarfa and the other near Sikka I-Bajda, off Qawra) are caught by Italian vessels.



AJD Tuna ranch off Qawra, Sikka I-Bajda

A.J.D. Tuna has been a Lufthansa Cargo customer for many years as part of its fresh-ranching tuna is shipped by airfreight, using Lufthansa services to Tokyo via Frankfurt.

The season normally concludes on Christmas eve, with the Yuletide period seeing over 200 tonnes of fresh tuna exported to Japan, most of them under the Fresh/td service package.



AJD's Comino Channel tuna ranch location map



AJD's Comino Channel tuna ranch



Aerial view of Comino Island

Lufthansa operated in the past the bigger Airbus 300-600 aircraft to Malta, to be able to take 12 tonnes of tuna on each flight.

Surely the rise in oil prices and the downfall of the fresh tuna market in Tokyo this year, will force AJD to consider freezing most of its production on board -60°C reefer vessels.



Preparing a tuna Harvest at AJD's



Harvesting at AJD's Comino Channel tuna ranch. Note Japanese tuna reefer in the back.

- ATRT Tuna-Ranching Intelligence Unit -

Quicker reefer-frozen tuna surely doesn't match the quality standards for fresh/chilled tuna. On the other hand, it allows AJD to cash-in most needed payments as it reduces chumming expenses.

For the past three years, the Saint Paul's Bay tuna-ranch operation, as well as the Comino Channel one, have been filled-up thanks to Salerno's *Associazione Produttori Tonnieri del Tirreno, Scrl*, of which Mr. Consalvo Natale is the President.



Aerial view of Italian purse seiners operating in the Central Mediterranean Sea.



Italian tuna purse seiner: FATIMA



Italian tuna purse seiner: GAETANO



Italian tuna purse seiner: PADRE PIO



Italian tuna purse seiner: VALERIA

In 2003 and 2004, Mr. Lee won the Salerno bid for the 2.000-some tonnes of tuna quota.

This year Salerno has again sold its tuna to AJD at some €4/kilo. AJD can afford this kind of pricing because of shorter distances between the fishing grounds and its ranch-sites.

According to Mr. Azzopardi it takes 35 days for the pens filled with live tuna to be tugged back to Malta all the way from Sardinia where most of the fish has been caught this year by the Salerno fleet.

Malta Fish Ranching & Melitta Tuna Ltd.

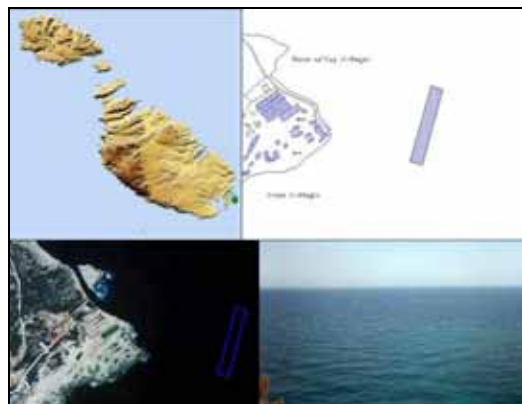
Malta Fishfarming and Melitta Tuna are operated by the Ellul brothers, owners of the Elbros Group of companies. Elbros core business is quarrying and construction.



Saviour Ellul, Chairman of the Elbros Group

Malta Fishfarming and Melitta Tuna run two-in-one tuna farms located at:

- Il-Ponta tal-Munxar North East off Marsaxlokk Harbour.



- A: 35° 50' .76N; 14° 35' .15E
- B: 35° 50' .67N; 14° 35' .31E
- C: 35° 50' .34N; 14° 35' .09E
- D: 35° 50' .40N; 14° 34' .92E

- Il-Hofra z-Zghira North East off Marsaxlokk Harbour



- A: 35° 50' .08N; 14° 34'.46E
- B: 35° 49' .90N; 14° 34'.85E
- C: 35° 49' .70N; 14° 34'.75E
- D: 35° 49' .90N; 14° 34'.35E

Brothers Salvu and Charles Ellul run Ta' Robba- L/O Kirkop based, Malta

- ATRT Tuna-Ranching Intelligence Unit -

Fishfarming Ltd. and Melitta Tuna Ltd. respectively.

The shareholding structure of both companies is unclear though it is believed that Japan-based Takayama Seafood Co. Ltd. will be buying most of the fish again this year.

Takayama Seafood was established in 1992 with a \$US157:000 Capital. Takayama's annual imports of fish – mainly fresh and frozen tuna- into Japan, amount to some \$US38.235.000.

According to Malta Fishfarming Ltd. and Melitta Tuna Ltd. spokesman, Mr. Salvu Ellul, "the companies have contracts with a number of tuna fishermen, from whom they purchase tonnes of live fish" during the 16-week fishing season, which extends from April to July, the peak month for tuna catches being May.

Malta Tuna Trading, Ltd.

Five Triton cages were supplied by Fusion Marine to Malta Tuna Trading (MTT), former Fish & Fish, in a move that confirms the growing popularity of Triton for offshore fish ranching, particularly where large cages are required, such as for tuna and other large scale finfish ranching operations.



Cage strength was a key factor in MTT's decision to opt for Triton, given that each cage is constructed from three thick-walled 450mm polyethylene pipes, designed to resist impact and reduce distortion in the stormy offshore conditions often found in the Mediterranean.



Joe Caruana of MTT says: "Triton are excellent cages for tuna ranching.

The high value of the stock more than justifies the extra investment required to ensure stock security. We tow our cages for long distances and they are obviously subject to huge stresses. But despite this, the cages need very little maintenance and they are very cost effective."

Zurrieq-based MTT runs an eight Ø50m cage tuna ranch operation off Delimara l/o Marsaxlokk.

The ranch has an ICCAT declared maximum holding capacity of 1.200 tonnes of live-tuna.

Name of Tuna Ranching Facility	AJD Tuna, Ltd.	Malta Mariculture, Ltd.	Malta Tuna Trading, Ltd. (Fish & Fish)	Mediterranean Tuna, Ltd.	Melitta Tuna, Ltd.	Malta Fish Farming, Ltd.
Address of Operator/s	Mosta Road, St. Paul's Bay, Malta SPB 02	Mosta Road, St. Paul's Bay, Malta SPB 02	P.P Saydon Street, Zurrieq, Malta ZRO 02	c/o Cole Foods Ltd, A59, Industrial Estate, Marsa, Malta LQA 06	Elbros, Triq I-Industrija, Kirkop, Malta ZRO 10	Elbros, Triq I-Industrija, Kirkop, Malta ZRO 10
General Manager	Charles Azzopardi	Charles Azzopardi	Joseph Caruana	Kenneth J. Cole	Salvu Ellul	Salvu Ellul
e-mail:	ajdtuna@keyworld.net	azzopardifisheries@keyworld.net	dvd@maltanet.net	kjc@colefoods.com	sellul@ebcon.com.mt	sellul@ebcon.com.mt
Phone	356 2158 1109	356 2158 1109	356 2164 7391	356 2123 3475	356 2124 9999	356 2124 9999
Fax	356 2157 6017	356 2157 6017	356 2168 3408	356 2124 4683	356 2168 5075	356 2168 5075
Cell	356 9949 6706	356 9949 6706	356 9947 4491	N/A	N/A	N/A
URL	http://geocities.com/ajdtuna/	www.azzopardifisheries.com	N/A	www.colefoods.com	www.mtl.com.mt	www.mtl.com.mt
Registration or License Number	MF12F	MF10F	MF26F	MF27F	MF25F	MF30F
Location of Tuna Ranching Facility	St. Paul's Bay	Comino Channel	Delimara l/o Marsaxlokk	Benghajsa	Munxar Reef, Xorb I-Ghagin l/o Marsaxlokk	Munxar Reef, Xorb I-Ghagin l/o Marsaxlokk
Coordinates (Longitude & Latitude)	A 35° 58'. 57N; 14° 24'.97E	N/A	N/A	N/A	35° 50'.76N; 14° 35'.15E	35° 50'.76N; 14° 35'.15E
	B 35° 58'. 79N; 14° 24'.95E	N/A	N/A	N/A	35° 50'.67N; 14° 35'.31E	35° 50'.67N; 14° 35'.31E
	C 35° 58'. 64N; 14° 25'.70E	N/A	N/A	N/A	35° 50'.34N; 14° 35'.09E	35° 50'.34N; 14° 35'.09E
	D 35° 58'. 42N; 14° 25'.71E	N/A	N/A	N/A	35° 50'.40N; 14° 34'.92E	35° 50'.40N; 14° 34'.92E
Maximum declared capacity	2.500,00	800,00	1.200,00	350,00	1.050,00	450,00
2004	2.500,00	800,00	1.200,00	N/A	1.050,00	450,00
2005	N/A	N/A	N/A	N/A	N/A	N/A



Ranched Tuna at AJD'S

MALAYSIA

Layang Layang Pilot tuna rearing project

The Department of Fisheries of Malaysia has started a pilot project to rear tuna at Pulau Layang-Layang, one of the islands of the Spratly group located some 300 km from Kota Kinabalu, Sabah.

The islands are in the path of migratory young tuna on their way from the Pacific to the South China Sea, according to Director General Datuk Junaidi Che Ayub, and this makes Pulau Layang-Layang the ideal spot for tuna ranching.



The project, under the newly completed Pulau Layang-Layang Marine Research Station, would explore the use of semi-submerged cages to rear Yellowfin and big-eye tuna for commercial purposes.

The research is expected to yield results in a year's time. Based on the department's estimation, a cage can yield up to 30 m of fish worth about RM* 120 000.



If the research proves successful, the department will publish a model which can be adopted by anyone interested in exploring it commercially.

The RM 560 000 station, known as Marsal, will also be used for other marine research, such as studies on coral reef ecosystems, monitoring water pollution and studies on sea turtles and marine mammals.

Department of Fisheries Director General Datuk Junaidi Che Ayub said that the Pulau Layang-Layang island, which is part of the Spratly island network 300 kilometres off Kota Kinabalu, Sabah, is strategically placed in an area where juvenile tuna migrate from the Pacific to the South China Sea.

According to Datuk Junaidi, the station will enable scientists to conduct a wide range of research activities. The island has a resort with 87 rooms, an air strip and a naval base.



The pilot tuna ranching project, said Datuk Junaidi, will look into breeding Yellowfin and big-eye tuna in semi-submerged cages and should begin yielding results after the first year.

Fisheries predicts that each cage will produce up to thirty metric tonnes of tuna and generate about MYR 120,000 (USD 31,546).



Erica Reef

If successful, the department will draw up a model which could later be used by commercial tuna farmers.

Valued at MYR 560,000 (USD 147,679), the Marsal Marine Research Station will additionally house research projects on coral reef ecosystems, water pollution, sea turtles, and marine mammals, Infofish International reports.



Tuna breeding would be the ultimate aim, leaving the wild stocks in place, but at this moment the tuna purse seiners are landing huge catches of juvenile Yellowfin and Bigeye tuna around the 1-5kg mark. In truth there is no market value for these size fish except for the cannery at about USD1000 -USD1,500 per tonne. (Each purse seiner around this area land about 300tons to 500tons per 14 day trip consisting of skipjacks, big eye and yellow fin.)

"In the initial stages we are trying to Value add to these catches by rearing them for 6 months, which would add body fat by 70% (hopefully if all goes well) This would be good for the high end Sashimi markets."



MEXICO

Can the Big Bang be controlled?

Tuna ranching started in Mexico in 1997 in the Island of Cedros's Atunera Nair, SA de CV operation. At the time, the company was, Mexico's largest tuna fishing operator. Atunera Nair only managed to produce 64 tonnes of ranched tuna during three years.



Atunera Nair's limited success was largely due to weather events such as El Niño and Hurricane Nora at the time but also due to a general lack of tuna ranching experience, which led to high mortalities.

The company eventually closed its Cedros Island operation in 1999 and is now known since 2002 as Rancho Marino Guadalupe, running two tuna ranching operations: on off the Island of Cedros and the other one in Salsipuedes Bay.



Cedros Island

In 1998, Maricultura del Norte SA de CV, another Mexican tuna ranch operator, started operations near Todos Santos Bay.

However, the development of many innovative techniques for both fishing and ranching by Mexican operations in recent years have allowed them to emerge as significant competitors in a relatively young but growing industry.

Some five tuna ranching companies were fully operational by the end of 2003 in Baja California. In 2004, some ten tuna ranching permits were granted.



Maricultura del Norte's semi-collapsible tuna cages at the Port of Ensenada.

Today about half a dozen tuna ranching operations exist in the Ensenada area either already online or approved by the Mexican government. In 2004, over 5.000 tonnes of Blue Fin tuna were ranched in Baja California.

The first and largest, Maricultura del Norte SA de CV, operates over 15 cages, and over the past few years, fish buyers from Japanese markets have paid the Mexican tuna ranchers nearly \$US. 50 million annually to secure practically their entire harvest.



One of Maricultura del Norte's tuna ranches.

Tuna Ranching has also spreaded to other Mexican states such as Baja California Sur, with tuna ranches being set in the Bay of La Paz.

According to local sources, some 22 tuna ranching projects have been submitted to the CONAPESCA and SEMARNAT Authorities, 10 projects have presented their environmental impact assessment studies and four, with a combined maximum production

capacity of 18.000 tonnes of Yellowfin tuna, have been given the green light to start operations in the Bay of La Paz.

Mr. Alberto Cárdenas Jiménez, SEMARNAT (Environment & Natural Resources) Secretary, acknowledges that the impact of such ranches will be the equivalent of that of a population of 60.000.

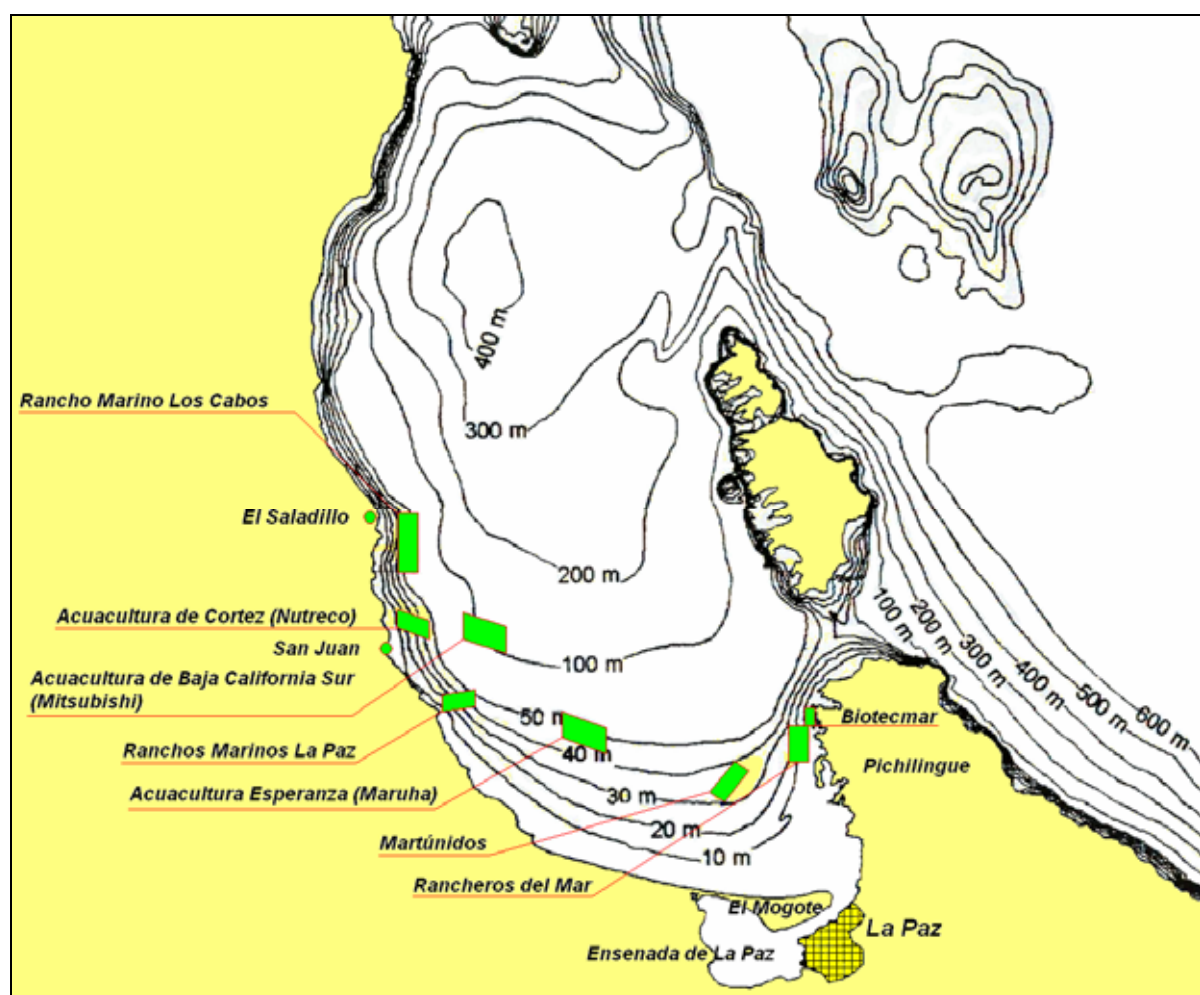


Tuna cages near the Bay of La Paz, Baja California Sur.

According to Allen W. Lloyd y Asociados, SA de CV, a Guadalajara based Mutual Funds Management company: "Dohsui, a subsidiary of Japanese conglomerate Mitsubishi, is investing 150 million dollars in building "fish farms" for tuna in La Paz, Baja California Sur. Mitsubishi, one of world's most diversified transnationals, is the world's largest tuna trader. The operation will produce Blue Fin tuna (which commands higher prices than Yellowfin or big-eye) for export to the U.S. and Japan.

About 30 million dollars worth of the nation's total tuna exports in 2004 (88.7 million dollars) went to Japan. The national's tuna fleet, comprised of 60 vessels operating in the eastern Pacific, caught 128,914 tonnes of tuna in 2004."

Mitsubishi is partnering with local entrepreneur, Mateo Arjona, in order to invest 18 million dollars building 22 large pens to hold yellow fin tuna



Location of eight new tuna ranches in the Bay of La Paz, Baja California Sur.

ranching near San Juan de La Costa. Waters in the bay of La Paz are considered between best in the world for tuna ranching. The tunas will be caught in the wild and put in the large pens (about 100 meters diameter and 40 meters deep) to be fattened up with sardines caught mainly on the Pacific side.

According to Panorama Acuicola Magazine Acuicultura de Baja California SA de CV (Affiliated to Mitsubishi through Dohsui) started operations on December 1st 2004 at the Bay of La Paz.

According to Panorama Acuicola, the same company has started the installation of six more tuna cages in the San Juan de la Costa area, with a 12.000 tonnes of ranched tuna target. The initial investment of this operation, according to the same source, would be in excess of \$US. 6 million.

Mitsubishi has been allowed to catch 200 tonnes/day more of sardines in the Bay of Magdalena, in order to guaranty its bait stock for its various tuna ranches in the area.

According to Reforma from Mexico, "Jalisco will export the first 300 tonnes of its pilot sea-ranching project to Japan.

The project intends to produce 4.000 tonnes of yellow fin tuna requiring a \$US.4 million dollars investment for its development. This first project is located in Punta Tavito in the Cabo Corriente Municipality, and is operated by the Maricultura de la Bahia company with the support of the Sagarpa. The tuna ranch, set in 2000, originally a US holding, has belonged to local investors since 2002. The ranch started with three 100 tonnes capacity pens and should implement its capacity up to 20 gravity net pens.



In the state of Nayarit, Isabel Island, another tuna ranch became operational in 2004.

The positive financial results of tuna ranching in Baja California are motivating the United States to modify their laws in order to install fishing farms, currently forbidden by their own environmental regulation.

Mexican fishing companies located in the port of Ensenada, Baja California, are successfully exporting to Japan on a regular basis since the signing of the Free Trade Commerce Agreement between Mexico and Japan in April 2005.

According to the representative of the Mexican Federal Economy Secretariat in Ensenada, Mr. Jose Alan Medivil Bojorquez, so far this year already 120 fishing factories from Ensenada have requested Mexican certificates of origin to export fishing products to Japan, while only 33 certificates were processed last year.



Priority conservation areas according to US environmental organizations.

Blue Fin tuna and sardine are the two main products exported from Ensenada to Japan. This represents an increase for Ensenada fish exports, as well as a confirmation that the sector complies with the adequate international quality regulations.



Mr. Mendivil indicated that exports of fishing products can only take place once the companies obtain a certificate of origin issued by the Mexican Secretariat of Federal Economy and although the Secretariat does not have the exact export figures, the production of Blue Fin tuna has increased from 2,400 tonnes in 2003, to almost 5,000 tonnes in 2004. This figure could highly increase if exports to Japan continue to boost.

However, according to Mr. Andres Armenta, President of the Fishing Chamber of Baja California, the US together with environmental groups, are at the same time demanding that the Pacific Islands become Reserved Areas, therefore eliminating any possibility for Mexico to install more fishing farms.

Indeed several US fishing industrialists have presently started actions to pressure their legislators and Government in obtaining an amendment to the environmental

regulations, which are currently being imposed. These regulations reject the possibilities to install different types of aquaculture industries for the ranching of marine species.

In the meantime, other nations world wide have discovered aquaculture and marine ranching to have great further development and business potential. For two decades these industries have shown increasingly strong commercial growth.

Fish ranching, such as tuna fattening farms, among other species, are being successfully developed in several European countries, as well as in Australia, South America and Mexico.

The US have no share in this growing worldwide market, however are interested in joining it and commence by eliminating competition to proceed more successfully. The US' main competitors are the Mexican tuna farms. Currently, subsidized conservationist groups pretend to convert these tuna farms located in the Pacific Ocean into reservations, and ensure that no other new tuna from projects are installed.

Tuna Ranching in Baja California

Today, over ten tuna ranches are currently operating in the state of Baja California:

- One off Coronado Island
- Four in the Salsipuedes Bay
- One in the Todos Santos Bay
- One in Puerto Escondido
- One in Santo Tomás
- One in the Bay of Soledad Bay
- One off Cedros Island
- One off Bahía Magdalena
- One off Islas Marias

- ATRT Tuna-Ranching Intelligence Unit -

Both Blue Fin and Yellowfin tunas are fattened in Mexican tuna ranches.

The currently producing operations have a combination of Mexican,

American, Australian and Japanese partners. As of March 2002, 6 new lease sites were granted for Blue Fin, which are all located in the Ensenada area with an allowable production of 400 t each.



The original operating farms currently do not have any production restrictions.

Mexico is particularly inviting for tuna ranching because of its temperate weather conditions, an abundant supply of locally caught feed, proximity to major international airports in the USA, lack of various regulations and low labour costs.

Fishing Blue Fin in Mexican waters for ranching operations have proven more difficult than in other parts of the world. In Australia, live bait is used to readily and consistently attract southern Blue Fin tuna schools before they are seined.

In Mexico, many factors such as water depth, fish behaviour and unique weather conditions have contributed to inconsistent and unpredictable seasons.

The majority of catches occur at night and rely mainly on the presence of bioluminescence to locate Blue Fin schools. Typical size at capture ranges from 15-45 kilograms, with smaller fish being caught in southern areas and larger fish to the north, and in many instances over the USA border.

Tuna fishing and transferring takes place on the West Coast of Baja California between N 23° and N 33°.



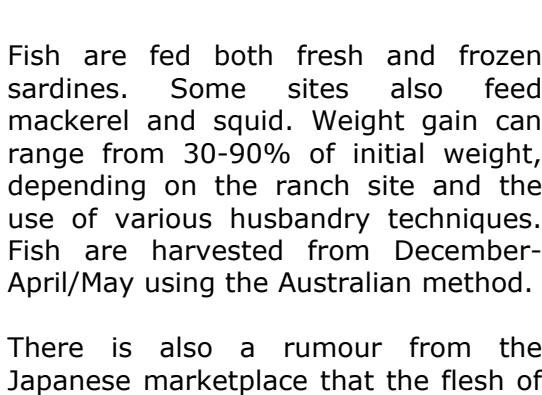
The catching season typically ranges from July to late August but can extend into November, depending on fishing location. Towing distances can range from 96 - >800 kilometres.

The production cycle typically ranges from 3-8 months, depending on the ranch site but also depending on the size of the fish.



Smaller fish that are caught in the southern areas are usually held in the cages for longer periods of time. Water temperatures typically range from 18-22°C.

Cage systems are 40-50 meters diameter, 15-20 meters deep, with holding volumes of 18,000 m³-20,000 m³. Fish densities can range from 2-5 kg/m³, water currents from <1-2 knots depending on the ranch site.



Fish are fed both fresh and frozen sardines. Some sites also feed mackerel and squid. Weight gain can range from 30-90% of initial weight, depending on the ranch site and the use of various husbandry techniques. Fish are harvested from December-April/May using the Australian method.

There is also a rumour from the Japanese marketplace that the flesh of the Mexican fish has a "bait smell" and is often unattractive to buyers and consumers. It is currently believed that this is caused by feeding the fish only one type of feed. The cause is debatable at this point.

There are a variety of concerns particular to Mexico. Although seldom referred to or discussed is the issue of predators, in particular, red tides, sea lions and sharks.

Red Tides

The Mexican Chamber of Fisheries confirmed, November 4th that there is a problem at one of the tuna farms located in the South of the Ensenada Bay, where an usual death toll of tunas is currently being investigated.

The President of the Mexican Chamber of Fisheries, Mr. Andres Armenta Gonzalez, noted that the reasons for this high tuna mortality are still unknown. This case has only been registered at one of the tuna farms in South Ensenada Area.

The name of this tuna ranch has not been revealed, only its location. Specialists are analyzing both the dead tunas as well as the quality of the local waters to detect any abnormality.

The high Blue Fin tuna mortality could be caused by different factors, which vary from bacteria that may have affected the tuna to an inadequate handling of the Blue Fin tuna which is kept in captivity at the fattening farms until they are sold.

Once these deaths were reported, the Mexican National Commission of Aquaculture and Fisheries (CONAPESCA) approached the Blue Fin tuna producer to convey its support.

The results of the tests will determine the cause of this high Blue Fin tuna mortality occurred exclusively in one of the many tuna farms in the South of Ensenada Bay.

This isn't the first time Mexican tuna ranchers have to face the occurrence of such phenomena.

A non-toxic red tide, together with other environmental factors at sea, caused the loss of Blue Fins at farms in Ensenada, Mexico October 2002.

A red tide was also reported July 2004, again off the coasts of Ensenada, killing close to 10 tonnes of Blue Fins which were being fattened at a local tuna ranch.

After this episode some cages were transported out to open sea to avoid further deaths.

According to fishery authorities the micro organism which produces red tide is plankton and is not toxic to human life. However, because of their double flagellate characteristics and their microscopic size they are fatal to fish as they introduce themselves into fish bronchioles obstructing air flow and provoking death by asphyxia.

Sea Lions

Many areas along the coastline of Mexico and its associated islands support large colonies of sea lions which have reportedly been shot in large numbers around the tuna pens situated just south of the El Mirador viewpoint on Mexican Highway 1.



Sea lions off the coast of Cedros Island

They are attracted to the farms for both the tuna in the cages but also by excess feed that falls through the cages or that is discarded. Many of the farms do not use predator nets on their cage systems but instead use fences around the perimeter of the cages to prevent the sea lions from hauling out on the cages and from jumping in the cages.

Some farms use electric fences around the cage surface perimeter. Although these are effective measures, significant predator effects continue to be a problem. Stress and poor growth performance are common in most of the farms. Fresh or healing wounds from the nails of the flippers or from the mouths of the sea lions are often present on the flanks and underside of the fish in at least 1/3 but sometimes up to 1/2 of the fish being harvested.

Although many fish survive these wounds, their value is significantly decreased in the marketplace.

Additionally, many mortalities that occur from these sea lion attacks are not accounted for or go un-noticed. The use of predator nets would greatly improve this situation.



Dead sea lions trapped in nets or slaughtered in the vicinity of Baja California tuna ranches.

Sharks

Though sharks do not seem to be a generalized problem in the Western Pacific coast of Baja California, the unusual occurrence of one of them being attracted by ranched tunas undoubtedly hits the press.

This was indeed the case in 2003, for Dean "Deano" Stefanek, an Australian tuna ranching diver with Baja Aquafarms off the Island of Coronado.



Baja Aquafarms tuna pens off Coronado Island

According to the Australian press reports, "Deano" spent 30 minutes battling an enraged 6m great white shark and lived. The South Australian tuna diver told how he volunteered to jump into a tuna pen to try to kill the injured shark. Baja Aquafarms has a

strong connection to South Australia with its director Christian Huntington active in both local and overseas operations.



"Somebody had to do it, no one else was too keen, so I went in," Mr Stefanek, 38, said.



"There was just no way we could get it out, so the decision to kill it was made and some blokes shot it - but no way it would die."

"It started to get messy and I jumped into the water and swam outside the net so I could shoot it with a power head (spear-fitted with a shotgun cartridge)."

The white pointer became enraged and began thrashing around the 45m tuna net.

Though sharks are abundant in the Cenicienta coastal area, the case of this 5,18m and 1.500 kilogram great white is the only one reported ever since, according to Conapesca's representative in Baja California, Mr. Jorge Alberto Covarrubias.

Market analysis

After a decade of the tuna ranching industry starting up in Mexico, the fattening potential of the Blue Fin species has increased substantially in the Ensenada area.

Mexico's burgeoning tuna ranch business, which is housed mostly along the Baja Coast, helped increase the country's Blue Fin exports by 487% in 2003. Shipments reached 840 tonnes, up from 143 tonnes in 2002. The value increased to \$8.9 million, up from \$1.6 million.

Despite the recession during the first half of 2004, the Mexican fishing industry clearly recovered, particularly the tuna-ranching sector.

According to Luis F. Eustaquio Davrieux a local fisheries analyst. "All Mexican tuna ranches were fully packed in 2004 with some 4.800 to 5.000 tonnes of live caged Blue Fin tunas to be fattened". If accurate, these figures would represent a growth of over 500% compared with the previous season.

There were eight leases for tuna ranches in 2004 near Baja's Ensenada area, five of which were being used. Main tuna ranching companies operating in the Ensenada area are: Maricultura del Norte, Baja Aquafarms, Acuicultura de Baja California and Operadora Marítima de Oriente.

Maricultura del Norte, owned 100% by Mexican businessman Felipe Charat, is by far the largest ranch in the area and in 2004 had its biggest harvest ever of around 1.000 tonnes. The company has sixteen Ø50m pens and the majority of its product was sold to one buyer.



One of the positive effects for this industry is the resurgence of Sauzal sardine catches in that Mexican region, as this is the main food of Mexican ranched tunas as opposed to their Mediterranean brothers fed on mackerel.



Partial view of Felipe Charat's tuna ranch, Ensenada Bay, Mexico.

According to Andres Armenta Gonzalez, President of the National Commission

for Agriculture and Fishery (Canainpesca) "the sardine fleet had gone through one adversity after the other, with the shut down of several sardine factories and fishmeal recovery plants; a situation which has reached a positive turning point thanks to the Blue Fin tuna fattening farms".



Tuna Pens of Puerto Escondido, south side of Pt Banda Top photo by Luis F. Eustaquio Davrieux, bottom photo by: David Hopps.

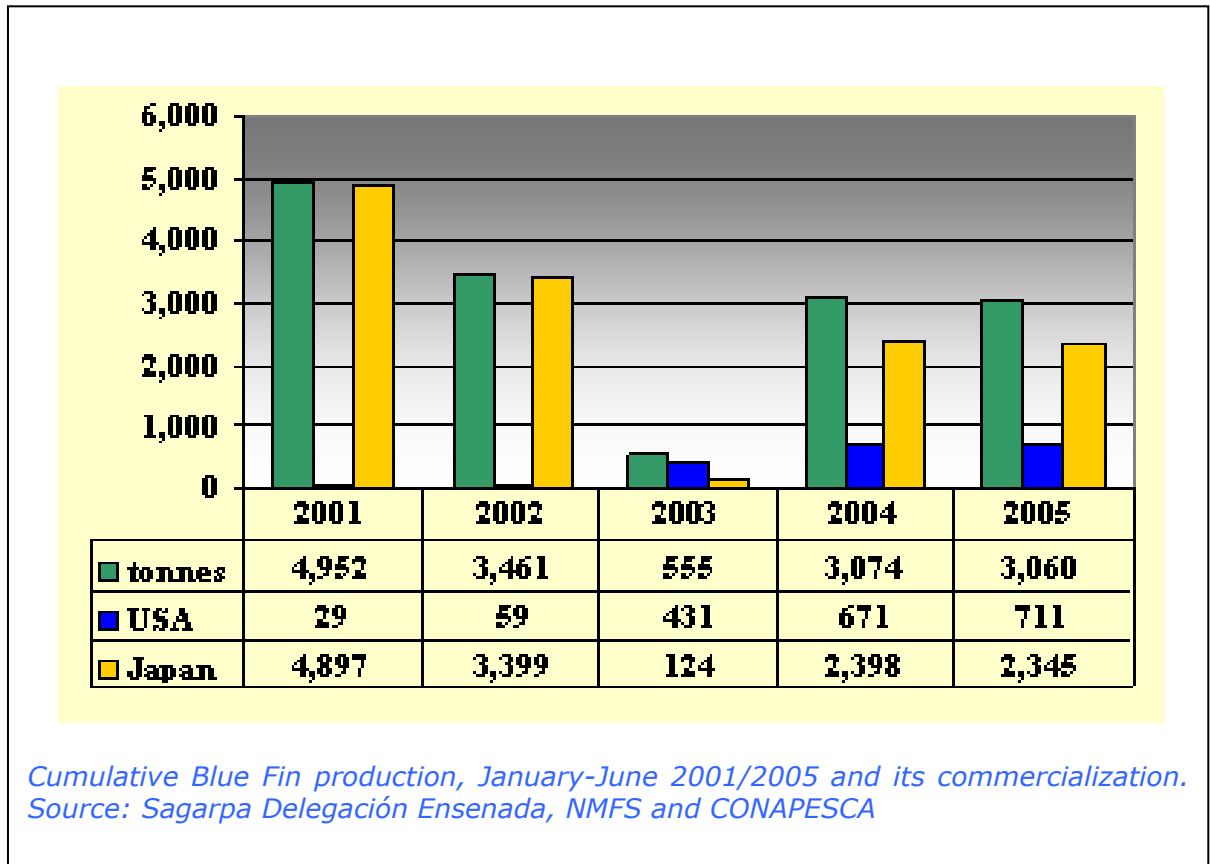
being of US capital- had very good results in its ranch and was not affected by red tides, which affected many farms at that time. It is interesting to see that exports to the US have been increasing and it will apparently go on with the same trend.



The companies operating with this activity are: Maricultura del Norte, Baja Aqua Farms, Operadora Marítima del Oriente, Acuicultura de Baja California and Frescatún. Operadora Marítima currently holds a greater quantity of samples in its cages.

From 19 July to 13 August, Mexico sent 59 samples to the Japanese market. Tunas were of about 35 kg, and reached an average price of JPY 2,194/kg, rather high for what the market generally pays for Mexican tuna.

The Japanese market still features good domestic entries of large Blue Fin and at good prices, because there is a



As per usual with other countries ranching tuna, the primary market is Japan.

However, Mexico as well as the US are beginning to experience the advantages of the rapidly expanding US market for sashimi products. This is of particular importance to Mexico because of the typical small size of their ranched tuna. The smaller tuna simply cannot compete with the larger tunas ranched in other countries.

The greatest production of Blue Fin is destined to the Japanese market, except in 2003, when in June a higher production was sent to the US, because Baja Aquafarms -the only company which sends production to the US,

good demand of those sizes and good supplies of Bigeye and southern Blue Fin come from Australia.

Grades	Presentation	Quality	Price (JPY/kg)
Pieces of 25 kg to 30 kg	Fresh Whole gutted	Sashimi	2.600
Pieces of 31kg to 45kg			3.300

The table shows EXW prices through 13 August, up in the highest and lowest prices, compared with those reached through 9 July. This is probably due to the weakening of the JPY against the US dollar, which is firmer each day.



EXW prices Japan for Mexican Blue Fin, through 13 August. Source: FIS.com

When all costs are taken into account it can be predicted that at some point in the future, marketing these small fish in Japan may become cost prohibitive.

At this point, only the best quality fish goes to Japan.



Poor quality and predator-affected fish are sold in the US. In the future, it is predicted that a larger percentage of ranched tuna from Mexico as well as the US will be marketed in the US. As the market continues to develop and mature in the US, higher quality fish will stay in the US ultimately presenting a significant savings on the final price by just eliminating shipping and import taxes.

However, because Mexico and the West coast of the US are in close proximity to major international airports and routine flights to Japan, and in order to remain competitive in the global marketplace, a percentage of fish will always target the Japanese market.

Of particular interest is the fact that other, commercially valuable tuna species such as Bigeye and Yellowfin are common inhabitants of Mexican, southern California and Hawaiian waters. These species are beginning to emerge as a valuable alternative to Blue Fin in the marketplace. Efforts to ranch Bigeye are already underway in Spain, Chile and Hawaii. Yellowfin are successfully being ranched in Mexico. During the tuna season of 1998, the ranch located in Cedros Island had the opportunity to rear Blue Fin, Bigeye and Yellowfin in the same cage system.

Maricultura del Norte, SA de CV.

Maricultura del Norte is the largest producer of sashimi grade fresh Blue Fin tuna in the Western Hemisphere and the only fully integrated operator controlling every aspect of the operation from catching the fish and feed, to feeding, harvesting, packing and distribution.



Maricultura del Norte's tuna ranching operation at the Bahia de Todos Santos. The operation consists of 13 fattening cages and three catch cage.

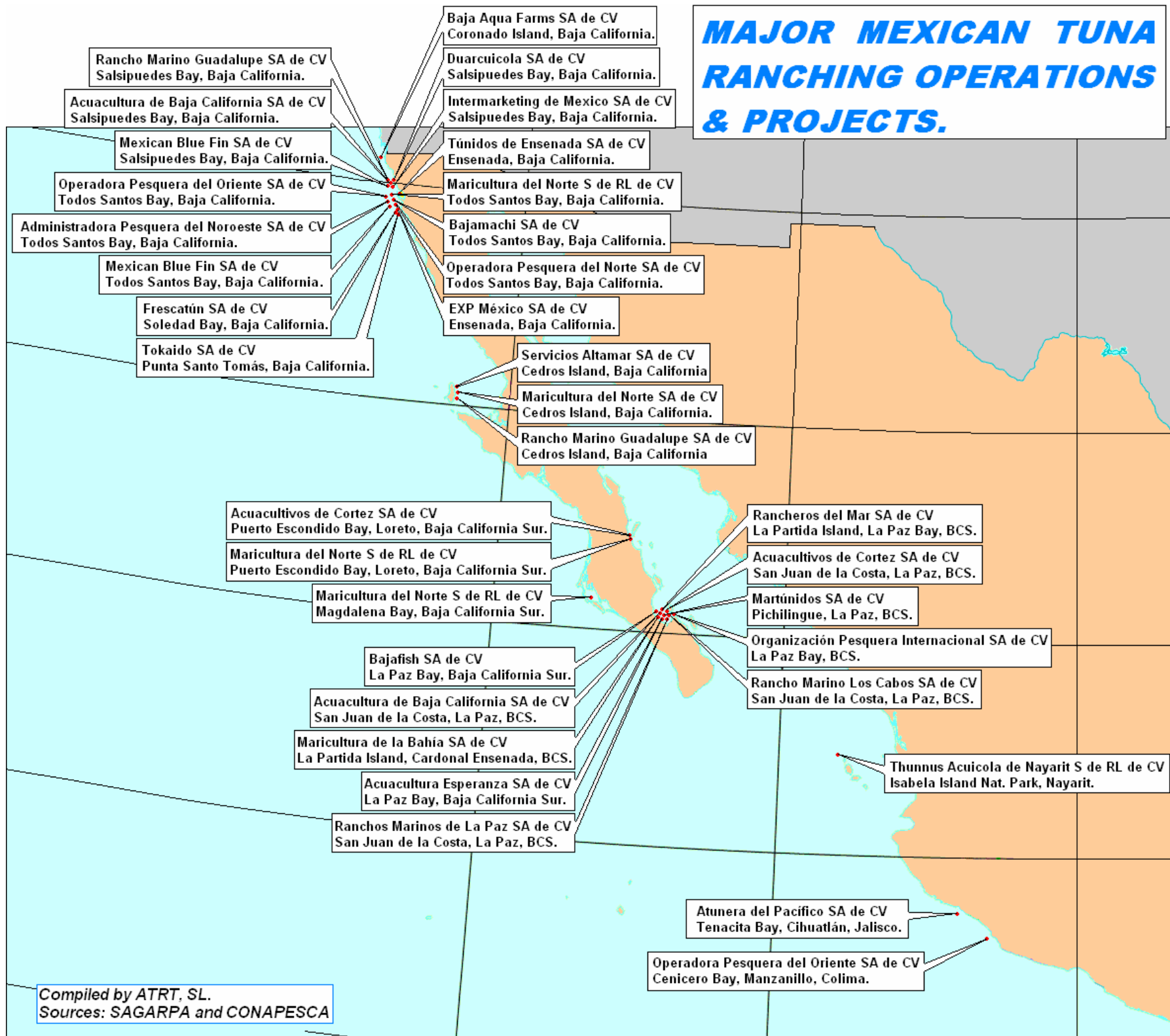
The company has grown every year since its inception in 1997, through Ocean Farmers LLC, a California limited liability company. In 2004, its seventh year of operation, the company employs over 280 people who produced over 1,400 tons of Blue Fin tuna, which the company sold principally in the Japanese market, and 5,000 tons of yellowfin tuna, which the company sold to Mexican canneries.

The company utilizes environmentally friendly sustainable production techniques and only feeds its fish with all natural fresh sardines.



The Maricultura management team, spearheaded by its Chairman Felipe Charat, achieved its success by identifying key corporate partners to assist with the development of production processes, product distribution and finance of the business.

Today, Maricultura del Norte, SA de CV is the largest and most successful tuna ranching operator in the Western Hemisphere with sales in excess of US\$23 million and profits of US\$6.5 million for its 2003-2004 fiscal year.



OMAN

Quriyat Aquaculture Co LLC

Quriyat Aquaculture Co LLC, Oman's first ever commercial aquaculture company, which is collaborating with a company in the United Arab Emirates (UAE) to start aquaculture production there, is ready to export ranched tuna to Europe and the Middle East.

Quriyat Aquaculture started as a joint venture between the Omani company Cyclone LLC. (35%) and Asmak-International Fish Ranching Co, (65%), a UAE public Joint stock company established with the support of the Abu Dhabi Government having diversified activities in the field of fisheries and the pioneer in aquaculture in UAE and GCC.

Quriyat Aquaculture had the initial technical support from the Greek company Nireus Chios.

Quriyat Aquaculture has already established another fish processing and trading company, Ocean Fish of Oman, which is again a venture with ASMAK, Cyclone and Nireus Chios. Currently, in this segment, they have no competition.



Quriyat Aquaculture Co's activities include but not limited to fish ranching, shrimp ranching, tuna fattening and all aquaculture related activities, In addition it offers consulting services such as preparation of feasibility studies, projects development, licensing, research and development

The company started its first operations in September 2000 with introduction of three fish species, European sea bream, sea bass and mullets and in October 2002 two local species were introduced (Shaem and Grouper).

According to the initial plan, the firm was to reach a maximum production capacity of 2 500 MT by 2004. "We have already begun exporting to open markets in some Arab countries like Jordan and Egypt on a trial basis, and are now on the verge of exporting to Europe and the Middle East," said project manager Dr Adel Gindy.



Quriyat Aquaculture Co. is currently operating two cage farms in Quriyat province and Bandar Khayran with a total production capacity of 700 tonnes and in the process of establishing a shrimp ranch project and a tuna fattening ranch. The company is HACCP certified and applies the highest quality systems standards in all ranching operations.

The company was granted the local and European authorities' approval for exporting its products to EU countries and has already exported more than 250 tonnes of fresh ranched fish to several countries around the world.

PANAMA

Granjas Atuneras SA.

The Granjas Atuneras SA. tuna processing and ranching project in Baru, Panama is currently postponed due to the lack of tuna fishing licenses in local waters, said Karim Gozaine, manager of the Baru duty free zone.

According to Gozaine, "the reason for this temporary suspension is because there is no defined tuna policy and consequently the Spanish investment in Baru, which could create 700 jobs, is at a stand-still and at the verge of disappearing altogether. If tuna cannot be fished in Panamanian waters, it will then be caught elsewhere in Central America."



Corelsa type of tuna cages at the faro site of Granjas Atuneras, SA.

The situation is becoming serious as the Panamanian Marine Administration (AMP) has not yet taken a decision and continues to maintain its position of not granting these kinds of permits.

In the meantime, investors have apparently decided taking their business to Costa Rica where tuna fishing licenses have been reportedly granted.

The two companies Fabrica de Exquisiteces de Atun (Fextun), and Granjas Atuneras have invested USD 3 million in this zone, where they have installed pilot farms and still have 40 containers in the area, which are not being used.

The final fishing project should install 10 cages about two kilometres from the Panamanian coast.

Cages will have a 150-tonne capacity for Pacific Blue Fin tuna.

According to Gozaine, in the future, industrialists were going to invest \$US 8 millions into the construction of a dock and \$US 14 million on a plant.

However, this may no longer occur given the lack of licenses.

Spanish company Granjas Atuneras S.A., a Panamanian subsidiary of Grupo Ricardo Fuentes e Hijos formally initiated tuna fishing and ranching operations in the Pacific Ocean in 2004, teaming-up with Venezuelan businessman Manuel de La Iglesia.

The Ecuadorian tuna fishing fleet would not transfer its catches to Granjas Atuneras, SA, due to poor overall catches in 2004 (40% less than in 2003).

While Manta was paying \$US1.500/tonne, the Fuentes subsidiary was only ready to pay half as much. The tuna ranch is located in the Charco Azul Bay off the coast of Baru in the province of Chiriqui.



David Rodriguez Martinez, operations manager of Granjas Atuneras, SA. and FEXTUN, SA.

The project establishment was opposed from day-one by the Seafood Producer, Processor, and Export Association (APPEXMAR) on the grounds it would have negatively affected the work of its own members.

APPEXMAR's representative, Jose Motta, said that he had photographs and videos showing "proof" that the tuna fishers did not respect the fishery law in prohibited waters.

According to Motta, such projects "boost illegal fishing" and "no arrests are being made by the authorities".

He added that exports of tuna dropped by 40% between 2003 and 2004 because of the presence of these tuna vessels in Panamanian waters.



According to sources of information from Corelsa, SA. the entire ranch would now be for sale and Grupo Fuentes would not build the intended US\$14 million tuna processing plant (Fábrica de Exquisiteces de Atún S.A. FEXTUN) that would have taken care of all fattened tuna at the ranch.

PHILLIPINES

Tuna ranching, a dream?

Philippine Bureau of Fisheries and Aquatic Resources (BFAR) assistant director Reuben Ganaden, has finally thumbed down a proposal to venture into tuna ranching due to its prohibitive cost.

Ganaden said the country's tropical waters were not suited for the high-valued Blue Fin tuna ranching that is now adapted by European as well as Northern American tuna producers.

"Tuna ranching is capital intensive. If we push Yellowfin tuna ranching, we would be at a loss considering its cheap price in the market," he said without giving actual figures.

He also discounted the possibility of tuna ranching at the Sarangani Bay. "Even if we close the entire [Sarangani] Bay for them to grow, it still would not be a good venture so long as its prices remain low," he added.

The Department of Agriculture (DA) studied the viability of the proposed Yellowfin tuna ranching along the Sarangani Bay, which was being eyed as an alternative tuna resource base in the Southern Philippines over the next decade.



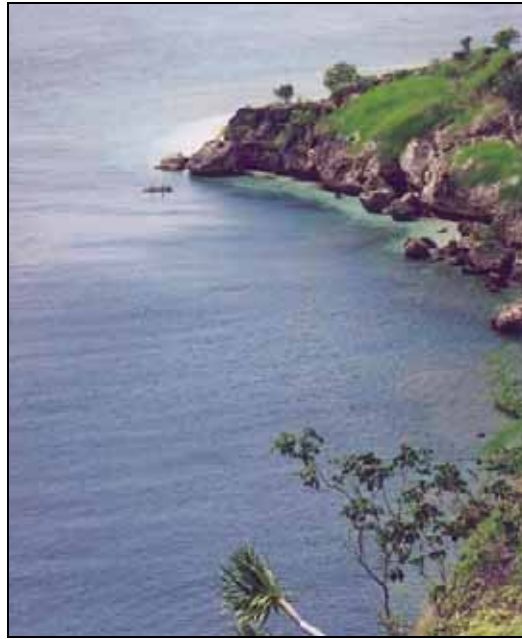
Yet, Sani Macabalang, regional director of the Bureau of Fisheries and Aquatic Resources (BFAR) in Region 12, said tuna ranching is currently the most viable alternative in ensuring a stable supply of tuna in the area over the next decade.

Agriculture undersecretary Cesar Drilon, who is DA in-charge for the fisheries sector, said they identified tuna ranching as viable option to help address the dwindling tuna catches along the country's waters.

"This is a pioneering venture in the country and we hope to introduce this project soon," he said.

Drilon said agriculture Sec. Arthur Yap has expressed support to the project, which was proposed by Sarangani Gov. Miguel Dominguez during the 6th National Tuna Congress here earlier this month.

Dominguez' family owns aquaculture firm Alsons Aqua Technologies Inc. based in Alabel, Sarangani.

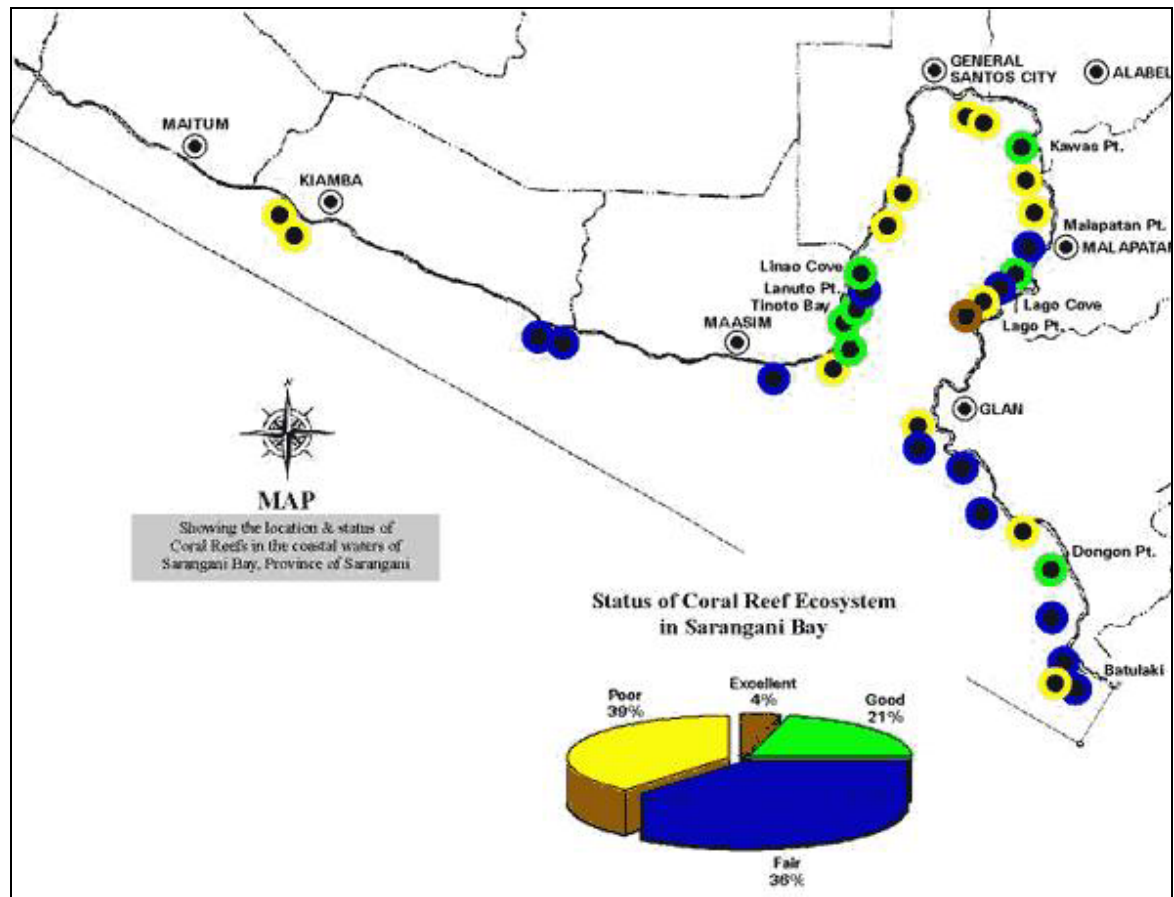


supported the plan of putting up of tuna farms off General Santos City and other areas in southern Mindanao.

During a recent visit to General Santos City, Panganiban said the government may request from "Mother Spain" the transfer of its tuna ranching technologies here "for old time's sake."

Four Japanese businessmen also recently visited the Eastern Visayas region to look for new investment opportunities, particularly in tuna ranching. The Japanese traders were executives of Taiyo A & F Company Limited (TAFCO).

They visited the region at the invitation of Bureau of Fisheries and Aquatic Resources (BFAR) Regional Director Gil A. Adora.



The company, which now exports the Sarangani Bay brand bangus, pioneered the marine culture in the area. Dominguez said his province is a potential area for Yellowfin tuna ranching, which involves the raising of the migratory Yellowfin tuna in a controlled environment, being an identified spawning ground for the valuable fish specie. He said the bay area off the province's six coastal towns provide the best prospective locations for tuna aquaculture.

Fishery studies showed that Yellowfin tuna spawns along the bay and then stays in the area for four to five months before migrating to deeper waters.

Dominguez said the proposed tuna-ranching project in Sarangani Bay could be patterned after the technologies and practices for the southern Blue Fin tuna being done in Australia and Spain.

Drilon said they look at Yellowfin tuna ranching in Sarangani as one of the answers to the declining catch of the tuna handline fishing sector, which was due to the lack of fishing areas.

Agriculture Secretary Domingo Panganiban has also strongly

The Bureau of Fisheries and Aquatic Resources (BFAR) is developing Eastern Visayas as the Mariculture Park Center of the Philippines.

BFAR has already established 12 mariculture parks in the region which covers the provinces of North Leyte, Southern Leyte, Eastern Samar, Northern Samar, West Samar and Biliran; and the cities of Tacloban, Ormoc and Calbayog City.

The establishment of mariculture parks in the country is part of the Department of Agriculture's (DA) commitment to the 10-point agenda of President Gloria Macapagal Arroyo.

Michael and Richard Sy, who run the Sun Tai International based in Metro Manila and an affiliate of TAFCO engaged in tuna long-line fishing, accompanied Hitoshi Fujii, chairman of TAFCO; Osamu Shirakawa, Shisuke Sawa, and Hitoshi Hayashida during their visit. Sy also owns a bangus (milkfish) fry hatchery in Amandayehan, Basey, Samar.

Adora and some BFAR aquaculture experts escorted the prospective investors on a tour of the Basey Mariculture Zone in Basey, Samar; the

- ATRT Tuna-Ranching Intelligence Unit -

BFAR Guiuan Marine Fisheries Development Center (GMFDC) in Guiuan; and Maydolong, Eastern Samar where the BFAR is currently training fishermen in the tuna long-line fishing method.



Among the ventures which the Japanese traders showed keen interest in are the culture or ranching of high value fin fishes like that of the grouper (lapu-lapu); tuna (balelang); and pearl oysters, including the high quality gold-lipped oyster (tipay), the Mabe oyster sometimes called wing oyster and locally known as wasay-wasay which thrive abundantly in Northern Samar.

A new leap in aquaculture, which the Japanese could bring in to the Philippines, is the culture of tuna or "tuna ranching."

In the country aquaculture locators ranch only small finfishes that could not reach more than 1.5 kilogram at marketable size, like milkfish (bangus), grouper (lapu-lapu), siganid (dangit).

TAFCO is already engaged in sea pen tuna ranching in the cities of Okinawa, Kochi and Nagasaki.



Fishing is a P50-billion industry in the Philippines, contributing about 4% of the country's GNP.

With an annual production volume of 2.4 million metric tonnes of fish, it directly provides livelihood and employment to over one million Filipinos.

The Philippines ranks 7th among the top tuna producing countries in the world, both in terms of fresh, frozen and canned tuna.



General Santos is the country's leading supplier of canned tuna, high value sashimi tuna and tuna steaks to the Japanese, European and American markets. Fishport Complex.

Industry records showed that the catch of the country's tuna handline fleet, estimated at 3,000 boats, has dropped to 15,000 metric tonnes (MT) a year from 30,000 MT three years ago, due to the lack of fishing areas.

Stanley Swerdloff, senior fisheries consultant of the United States Agency for International Development-funded Growth with Equity in Mindanao program, had warned that the decline in tuna handline catches might affect the operations of tuna handline fishing boats.

With each fishing boat currently employing at least 13-15 crewmembers, he said the local tuna industry would be facing a big problem if the tuna handline fleet would eventually start to falter.

PORTUGAL

Tunipex

Since 1996, Tunipex is the only Portuguese tuna ranching active company operating a 1.700m x 1.000m tuna underwater compound some two miles off the coast of Olhão between Fuzeta and Tavira. In 1996, Tunipex, a joint venture between Japan's Arai Shoji Group and Portugal's Cofaco fattened 69 Blue Fins. The company owns, among other vessels, a 22m Japanese tuna ranching type of vessel, the "Guentaro maru" and employs 28 people.



Guentaro maru

Name of Tuna Ranching Facility	Tunipex, Empresa de Pesca de Tunídeos, S.A.	
Name of Owner/s	Cofaco (Portugal) - Arai Shoji Group (Japan)	
Name of operator/s	Tunipex, Empresa de Pesca de Tunídeos, S.A.	
Address of Owner/s	Porto de Pesca - Armazem nº 2 8700-914 Olhão	
Address of Operator/s	Porto de Pesca - Armazem nº 2 8700-914 Olhão	
General Manager	António Luis Magalhães Tavares	
e-mail:	honsha@arai-group.co.jp	
Phone	289 723610	
Fax	289 723611	
Cell	N/A	
URL	www.arai-group.co.jp/internat/europe.html	
Registration or License Number	298 -350	
Location of Tuna Ranching Facility	Fuzeta - Tavira at 4 kms from Olhão	
Coordinates (Longitude & Latitude)	A	N/A
	B	N/A
	C	N/A
	D	N/A
Maximum declared capacity	500,00	
2004	500,00	
2005	N/A	

SPAIN

Caladeros del Mediterráneo, SL.

Francisco Martinez Rebollo, a local fish trader from Cabo de Palos was the first Spaniard to set-up a tuna ranch in the Mediterranean Sea, along with late Yoshinaga San. The idea was so revolutionary that Spanish tuna purse seiners would not transfer their catches into the old Bridgestone gravity cages. After two years battling with fishing captains, he sold his share of the company to the Albaladejo family and went back to his initial long line tuna selling business.

In 2000, Rebollo surprisingly enough started a new tuna ranch off the town of Portman, Murcia, teaming up with Pedro José Sánchez López, owner of Salazones y Pescados Sánchez, La Unión.



Caladero's 375.000m² tuna ranch is located between Punta de la Chapa and Cabo Negrete. (*Fecha de publicación de la concesión en el BORM nº107, de 10 de mayo de 2001. Fecha de publicación de la Declaración de Impacto Ambiental Favorable en el BORM nº 265, de 15 de noviembre de 2000*)

- A. 37° 34,310' N; 00° 49,551' W
- B. 37° 34,072' N; 00° 49,712' W
- C. 37° 34,264' N; 00° 50,160' W
- D. 37° 34,502' N; 00° 49,999' W

The financial start-up of this operation was assured by Korean Capital through "The Mediterranean Tuna Foundation" of which Mr. Chul Ho Kim was its President.

The Korean connection was nevertheless over, after the first season and Mr. Rebollo teamed up with Spanish tuna purse seining group Norcomatun from L'ametlla de Mar, spearheaded by the Balfegó family.



Caladeros's vertical integration has proven to be the best possible solution to its 2003 disastrous results due to a market price drop. The company currently owns and runs its fleet of tugboats and support/well vessels.

• *The Remolcatuna, SL. fleet*



The Remolcatuna fleet seen at the Port of Cartagena



Triton



Antonie



Boa Max



Viking



Dolfijn (Nassau)



Caladeros del Mediterráneo Tres.



Caladeros del Mediterráneo Cinco.

During the 2004 tuna-fishing season, Caladeros del Mediterraneo, SL ranch was able to transfer some 1.100 tonnes of live-tunas caught by the Norcomatun fleet. Unconfirmed reports for 2005 state a similar amount, again caught by the Norcomatun fleet from L'Ametlla de Mar, Tarragona.



La Frau Second (EATR)

Caladeros's ranched tuna will be marketed through Baleartuna, SL. (a 50-50% joint venture between Norcomatun and Caladeros).

According to Pere Vicent Balfegó, Captain on board the Tio Gel Second and member of Norcomatun's board of Directors, "Tuna will be slaughtered and sold to a variety of foreign buyers such as Sirius, Ocean Explorer, Shiroei and Traspac."

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Tio Gel Second (EAXZ)



Janvier Giordano (FOCL)



The Balfegó brothers

Pesca i Afers Marítims del Departament d'Agricultura, Ramaderia i Pesca, DOGC núm. 3829 Data 24.02.03 Pàg. 3884 N/R: PIS 983-01) was cleared and accepted by the Catalan Environmental Authorities."

The final permits were granted to Mollusc Castells, SL. on March 21st 2004.

According to Subirats the ranch will have eight Ø50m – 26m deep gravity-type cages, thus allowing a maximum stocking capacity of 1.200 tonnes of live-tuna.

Total investment of such ranch could reach some €4 million. The ranch is to be operated by the Grup Tuna Med, SA, a joint venture between the Balfegó and the Brull family, also a tuna fishing family from L'Ametlla de Mar.

"Norcomatun also started its own tuna ranching operation in 2004. We transferred some 75 tonnes of live-tuna into our cages off L'Ametlla de Mar (Tarragona). We wanted to see how the fish reacted to this site and make sure we are ready for next years fishing season" says Pere Vicent Balfegó.

The tuna ranch is located between:

- A. 40° 51'·575N., 00° 51'·515E.
- B. 40° 51'·600N., 00° 51'·075E.
- C. 40° 51'·950N., 00° 51'·175E.
- D. 40° 51'·915N., 00° 51'·615E.



L'Ametlla de Mar, Tarragona

According to Hernan Subirats, General Manager for Fishing and Maritime Affairs of the Catalanian Government, *"the ranch site permit has been issued" to Mollusc Castells, SL. (owned by the Balfegó family) after its environmental impact assessment study (Base sobre engreix de tonyines vermelles (Thunnus thynnus)", promogut per l'empresa Moluscos Castells, SL, i tramitat per la Direcció General de*

Grupo Antalba

2003 was indeed an "annus horribilis" for Grupo Antalba from San Javier. The group, incorporated by Joaquin Albaladejo López was directly hit by the Blue Fin tuna market crisis and reported losses of up to €18million.

With over 4.000 tonnes of live-tunas inside its cages in the Mediterranean, for the second consecutive year, Antalba found itself selling frozen and fresh tuna to Japan at a loss.



Joaquín Albaladejo López, President of the Antalba Group of Companies.

The Antalba group of companies found itself in a financial maelstrom, with its 2002 reserves ransacked by non-productive real-estate investments and pending debts both to fishermen and local banks.

Its international expansion projects in Italy, Madeira, Chile, Namibia, Crete and Ecuador were halted due to a sheer lack of funding and total mismanagement.

With €18 million reported net loss in 2003, Antalba's new management team, nevertheless came-up with a break-even balance sheet in 2004, thanks to the sale of corporate property such as the US-built MFV Diosa Josephine, the group's financial and logistical restructuring.

The Antalba Group reshaped its business size and only ranched some 2.500 tonnes of tuna in 2004.

Product marketing was pumped-up thanks to new marketing & sales manager Eddie Corvalan.

The Antalba Group owns through some of its subsidiary companies, a fleet of well-vessels, tailor-built for fishing and ranching. All of them have been used during the fishing season mainly for chilled dead tuna transport. Unloading of these vessels normally takes place at San Pedro del Pinatar and Denia.



Well vessel Tuna Farms Primero



Well-vessels Hnos Alba 1 & 2



Well vessel Tuna Farms Segundo



Sea Nostromo Quinto



Tugboat Sea Nostromo Tercero



Tugboat Sea Nostromo Primero



Tugboat Sea Nostromo Segundo

The Antalba Group, through Sea Nostromo, SL, also owns four tugboats that service cages in the Balearic Island and Tunisian fishing grounds.



Tugboat Sea Nostromo Roompot

Most of the cages tugged from Italy, Tunisia and Libya back to Antalba's tuna farms in Murcia are taken care by Rimorchiatori Sardi from Cagliari and Rimorchiatori Riuniti from Naples.



Tugboat Tarentum



Tugboat San Cataldo



Tugboat Maria Onorato



Tugboat Pina Onorato



Tugboat Vincenzo Onorato

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The Antalba Group has three tuna farms in the Mediterranean, two in Spain and one in Tunisia. Its plans to set tuna farms in Sardinia (Tuna Farms of Italy), Libya (Tuna Farms of Libya) have failed due to mismanagement and strong opposition by local conservationist groups. Its oldest tuna ranch is located in La Cala del Gorguel, Murcia.

The ranch was the first one of its kind in the Mediterranean Sea. It was established by a Japanese/Australian/Spanish joint venture spearheaded by the late Mr. Yoshinaga and Mr. Francisco Rebollo from Cabo de Palos.

Due to financial difficulties, the business was sold to Tuna Farms of Mediterraneo, SL a company owned by the Antalba Corporation.



The 900.000m² ranch (Fecha de publicación de la concesión en el BORM nº203, de 2 de septiembre de 1999. Fecha de publicación de la Declaración de Impacto Ambiental Favorable en el BORM nº 269, de 20 de noviembre de 1998) is located between:

37° 34' 25'' N; 00° 52' 32'' W
 37° 34' 25'' N; 00° 52' 12'' W
 37° 34' 13'' N; 00° 52' 32'' W
 37° 34' 13'' N; 00° 52' 12'' W

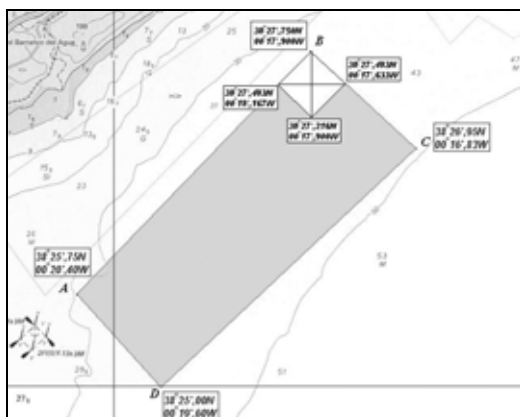


The ranch has a maximum capacity of 2.400 tonnes of live-tuna.



Through Tuna Farms Grosa, SL., the Antalba Group owns a second tuna ranch located off Puerto de San Pedro del Pinatar between:

37° 48' 30» N; 00° 40' 42» W
 37° 48' 30» N; 00° 40' 04» W
 37° 48' 15» N; 00° 40' 42» W
 37° 48' 15» N; 00° 40' 04» W



Situation map and cages layout

The 412.515m² ranch (BORM nº82, de 9 de abril de 2001 a nombre de VIVEROS MARINOS ALBA & HERMANOS LÓPEZ, S.L. Fecha de publicación Declaración de Impacto Ambiental Favorable en el BORM nº 161, de 13 de julio de 2000) has a maximum capacity of 1.800 tonnes of live-tuna.



Feeding time at Antalba's tuna ranch

The Antalba Group also owns a tuna ranch in Tunisia, through its joint venture with Kerkenna-based tuna fishing operator Ridha Sallem.

Tuna Farms of Tunisia, SL., as the company is named, operates its facilities off the Port of Hergla, Gulf of Hammamet.



In its third year of operations, the 571.835m² with a maximum capacity of 1.500 tonnes of live-tuna is thought to have a stock of 680 tonnes of which some 250 tonnes were caught by Italian tuna purse seiners in the Thyrranean Sea. According to Tunisian sources of information, the fish was sold by TFM to TFT.

Some 430 tonnes were caught by Ridha Sallem's aging fleet of purse seiners.

OWNER/OPERATOR	VESSEL NAME	Reg. Num	Length	TRB
SALLEM RIDHA	MED SALLEM	SF 1566	28,93	127,000
	MED TAHAR II	SF 2146	24,15	90,000
	RAF RAF	SF 2160	24,25	91,000
NIFAR	YOSRI II	SF 1645	25,00	84,000
	IMEN	SF 2324	29,10	168,000
	MERIEM	SF 1761	30,45	129,000
RAOUINE AHMED	JAMEL	SF 1788	26,29	98,000
	TJANI	SF 2305	27,20	142,000
CHABCHOUB	CHAFFAR	SF 2186	25,55	95,000
	ELAMINE	SF 2353	39,23	275,000
	ELAZIZ	SF 2352	39,23	275,000
	MOEZ II	SF 2034	27,88	116,000



In 2003 and again in 2004, Tuna Farms of Tunisia, SL. surprised Japanese customers for its top quality "A" Grade sashimi tuna.

According to several sources of information, TFT, SL tuna was top of the 2003 and 2004 list for quality, fat and colour in the entire Mediterranean, though last year's low price situation, both for frozen and fresh, did not help the company to fully break-through in Japan.

Toumi Nedji, General Manager at Tuna Farms of Tunisia, SL. is nevertheless optimistic about this year' results. His Japanese customers among which Nihon Marine and Daito Gyorui Co. Ltd. have already proposed a fixed cross-the-board price for all of TFT's frozen production in 2004.

With a 2003 annual Turnover of ¥174,700 million, Daito Gyorui Co. Ltd. -founded 1in 1947- is the biggest of five auction houses at Tokyo's Central wholesale market.



Toumi Nedji, General Manager
Tuna Farms of Tunisia, SL.



TFT's tuna ranch was charged by MV/Martina February 9th causing some \$US1,5 million losses to the company.

Daito also owns five fish markets in the Greater Tokyo area and is one of the leading companies of Maruha Group, which is the world largest group of companies in the fishing industry.

With the support of Maruha Group fish markets and allied fish markets located all over Japan, Daito has established a strong and reliable sales network.

Daito's affiliated company, Maruto Shokuhin, is running the business of fish wholesale, fish processing and retailing (tenant shops in department stores and supermarkets) in the Greater Tokyo area. Another affiliate, Maruto Reizo, is processing fish and running cold storage at Hachinohe City in Aomori prefecture.



Daito's distribution network in Japan

Daito, with the support of Maruha Group's fish markets and allied fish markets, has established a strong and reliable sales network in Japan. Major fish markets in the network are Nagoya, Kyoto, Kobe, Kannonji, Sakai-Minato, Kita-Kyushu, Saga, Kumamoto, Kagoshima (Maruha Group markets) and Sapporo, Aomori, Sendai, Mito,



Tuna slaughtering at one of Antalba's tuna farms

Yokohama, Kawasaki, Osaka, Okayama, Hiroshima, Fukuoka, Nagasaki (Allied markets)

TFT's objective to reach its maximum holding capacity of 1.500 tonnes of live-Blue Fin tunas has not been reached in 2005 as Tunisian fishing and aquaculture authorities did not authorized TFT to import live tuna into its Hergla Ranch with Libyan ICCAT documentation.

With feeding-bait down to US\$240/tonne, live-transferred-tuna down to US\$4.000/tonne, cost cutting, ranch personnel layoffs, debt re-financing and corporate restructuring the Antalba Group has managed not only to survive but has proven its resolve to stay alive in the business.

Joaquín Albaladejo, Chairman of the Antalba Group, has clearly proven his willingness to stay in business.

This much cannot be said of other Spanish tuna ranching operators who fled abroad after a disastrous 2003 season. Clearly Antalba's new management team is carefully monitoring the rising price of fuel and assessing its effects not only on airfreight prices and insurance rates, but also on general running costs at Blue Fin Tuna, SL., Antalba's cold-storage, packaging and road transport subsidiary.



Blue Fin Tuna refrigerated truck being loaded with chilled tunas at the Port of Cartagena, Spain.



Tuna grading and packing at BlueFin Tuna, SL facilities in San Javier, Murcia, Spain.

The Ricardo Fuentes e Hijos Group

The Ricardo Fuentes e Hijos, SL group, founded in the 1960's and currently managed by Francisco and Juan Fuentes is a clearly vertically integrated group in terms of tuna fishing capacity, shipping offshore freezing and tugging, ranching, processing and distribution. The Fuentes Group is present in Tunisia, Morocco, Turkey, Libya, Cyprus, Greece as well as Panama and Costa Rica.



Francisco and Juan Fuentes



Fuentes' Fresh Blue Fin Tuna shipments being loaded at Alicante's Altet Airport, for airfreight to Japan

The Fuentes Group has put together the most impressive fleet of tuna purseinining ships, some of them directly owned by the group through subsidiary companies such as Armuelles, SA. (Panama) and Le Vent du Nord, SARL (France). The aim of these companies is to guarantee regular tuna supplies during the different catching seasons in the Mediterranean Sea.

The Vent du Nord fishing group.



A French company incorporated four years ago, currently owning and running the following purse seiners: Golfe du Lion 4 (FZQK), Golfe du Lion 5 (FQAU) and the Golfe du Lion 6 (ATEC0FRA00082)



Golfe du Lion 5 (FQAU)

Le thon du Nord sarl



A French company incorporated in 1997, currently owning and running the following purse seiners: "Vent du Nord", "Marcal" and "Bernadette"



Vent du Nord (FPLU)



Marcal (FVOS)

Pesqueries Elorz

Pesqueries ELORZ, S.L.U.

A Spanish company incorporated in 1999, currently owning and running the following purse seiners: "Elorz" and "Nuevo Elorz" (EABQ)



Elorz

Panchilleta slu

PANCHILLETA, S.L.U.

A Spanish company incorporated in 1995, currently owning and running the purse seiner: "Nuevo Panchilleta"



Nuevo Panchilleta

The 43 metre, 15 knot vessel is able to stay at sea for up to 10 days and is equipped to dry bulk freeze its catch, or transport it in refrigerated seawater or in brine.

The Viver Atún fleet



The Viver Atun fleet is composed by nine vessels between 11 and 34 metres long of which:



Viver Atún Uno RSW vessel

- ATRT Tuna-Ranching Intelligence Unit -



Viver Atún Dos RSW vessel



Paloma Reefer (Panama)



Punta La Gaviota support vessel



Daniela Reefer (Panama)



Ranch Vessel

It is thought that Fuentes also owns and runs the Panamanian flagged Valeria and Graciela, two other reefer vessels.

Tuna Supplies, SA. Fleet



The Ricardo Fuentes e Hijos Group is also involved in tugboats and supply vessels that can service the sixty-some tuna pens all over the Mediterranean Sea.

Five years ago, the Fuentes Group went into a joint venture with Sant Carles de La Ràpita based Naviera Ariés, SL, owned at the time by Catalan businessman Florenci Macias.

The result of such joint venture is Tuna Supplies S.A, the largest fleet in the world of tugboats and supply-vessels specialised in offshore tuna-cage's towing formed by:



57m 4.000HP "Scotian Shore"

Other Tugboats

- Montgat, (Spanish flag)
- Montornés, (Spanish flag)
- Gargal, (Spanish flag)
- Cataluña, (Spanish flag)
- Montjuic, (Spanish flag)
- Montcabré, (Spanish flag)
- Montroig, (Spanish flag)



Harvesting Vessel Cabo Tiñoso Dos



Montornés, (Spanish flag)

The Armuelles, SA. Fleet

The Paloma Reefer is one of the Fuentes Group latest acquisition. Taylor-built in Japan for tuna freezing purposes, the ship is owned by Fuentes Group shipping subsidiary in Panama, Armuelles, SA. It has a 30 tonnes/day freezing capacity and can hold over 2.500 tonnes of frozen tuna loins. It hoists a Panamanian flag and is registered on the EU consolidated list of approved or recognised Panamanian factory vessels, processing plants and freezer vessels.



55m, 2.000HP "Britannia Chieftain"



Montgat, (Spanish flag)

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Other partner fishing fleets:

Further more, Ricardo Fuentes e Hijos, SA. entertains a long and stable fishing partnership with a number of tuna-fishing fleets. Their entire yearly catches are bought by the group on an exclusivity basis.



Gepus (EBZF)

The Avallone Group from Sète (France)



Jean Marie Christian 2



Jean Marie Christian 3 (FLRC)



Jean Marie Christian 4 (FGGS)



Jean Marie Christian 5 (FQAO)



Jean Marie Christian 6 (FQBN)



Jean Marie Christian 7 (FIAT)

Fuentes' tuna ranches

Yaizatun SA.



Yaizatún, SA, the operating company of the Avila Bay 1.856 tonnes tuna-ranch, near Playa Quemada, Yaiza, Lanzarote, was incorporated in 2000 and ceased its operations after ranching some 300 tonnes of live tuna.



Yaizatun's tuna ranching vessels

The ranch, managed by Gregorio Armas, was co-owned by the Fuentes Group, the Isidro de la Cal Group and Andrés Cedrés, a local tuna purse seiners operator.

Tuna Graso SA.



Tuna Graso was established in 1996 by Ricardo Fuentes e Hijos, S.A., Mitsui & Co. Ltd Group, and Kanetomo Co. Ltd.

With a 2002 €16 million turnover, Tuna Graso Spain, incorporated Tuna Graso Japan along with processing and distribution partner Kanetomo Co. Ltd.

Due to the changes in the Japanese Market, Tuna Graso doubled in 2004 the capacity of its 304.210m² ranch located at Punta de La Azohía (T.M. Cartagena), being able to lodge up to 800 Tonnes of live tuna.

Tuna Graso ranching facilities have now been moved to the Cala del Gorguel along with Viver Atun's.

The Tuna Graso ranch was authorised January 12th 1998 (BORM de nº8, de 12 de enero de 1998. Fecha de publicación de la Declaración de Impacto Ambiental Favorable en el BORM nº 196, de 26 de agosto de 1997)



Tuna Graso previous ranch site location



Aerial view of Tuna Graso ranch

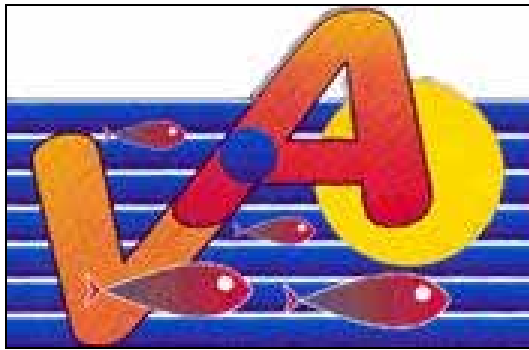
Tuna Graso previous ranch was located between:

- 37° 32' 54,92" N; 01° 10' 34,41" W
- 37° 32' 50,24" N; 01° 10' 16,73" W
- 37° 32' 32,49" N; 01° 10' 16,78" W
- 37° 32' 36,76" N; 01° 10' 41,98" W



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Viver-Atun, Cartagena SA.



Incorporated in 1996 by Ricardo Fuentes e Hijos, S.A., Maruha Corporation (39%) and Taiyo A&F Co. Ltd.: a corporate merger between: New Nippo Corporation, Kokai Corporation and Daito Deep-Sea Fishing Company Ltd.

Viver Atún Cartagena has a very important fleet to support its fishing and ranching activities.

Most vessels have been especially designed by Rodman Polyships from Vigo, Spain.

They allow fast and efficient feeding of tunas as well as immediate chilling and processing on board before hauling at Cartagena harbour.

The company now owns two tuna farms in Spain, with a consolidated maximum capacity of 2.400 tonnes of Blue Fin tuna.

As is the case with Tuna Graso, one of the Viver Atun tuna ranches has been moved to the Cala del Gorguel,



Tuna ranch at Piedra Blanca, Los Boletes, Cartagena, authorised December 24th 1997 (BORM nº296, de 24 de diciembre de 1997. Fecha de publicación de la Declaración de Impacto Ambiental Favorable en el BORM nº 126, de 3 de junio de 1997)



Partial sight of the 325.000 m² tuna ranch located on the coast of Cartagena, Spain, between:

37° 33' 56,28" N; 01° 06' 36,41" W
 37° 34' 08,96" N; 01° 06' 28,20" W
 37° 33' 57,97" N; 01° 06' 01,40" W
 37° 33' 45,28" N; 01° 06' 09,61" W



Partial view of a Ø50m cage at Viver Atun's 640.000 m² tuna ranch at Piedra Blanca between Puerto de San Pedro del Pinatar and Torre Derribada, located between:

37° 49' 59.4" N; 0° 40' 18.7" W
 37° 49' 58.1" N; 0° 40' 02.3" W
 37° 49' 06.2" N; 0° 40' 04.0" W
 37° 49' 06.6" N; 0° 40' 20.3" W

Atunes de Levante, SA.



One of Fuentes Group latest incorporations (1999), Atunes de Levante, SA. is shared with Mitsubishi Torei-Toyo Reizo (49%).



Takeshi Inoue, Executive Vice President, Group CEO, Living Essentials Group, Tuna Unit, Mitsubishi Corporation

The new 640.000 m² tuna ranch has a maximum capacity of 1.600 tonnes and is also located off the coast of San Pedro, between:

37° 49' 58.0" N; 0° 39' 58.2" W
 37° 49' 57.7" N; 0° 39' 41.9" W
 37° 49' 05.8" N; 0° 39' 43.5" W
 37° 49' 06.2" N; 0° 39' 59.9" W

Winter tuna ranch in Tarragona.

The Fuentes Group has started works on its latest project: "Projecte d'engreix de tonyines en gàbies flotants al golf de Sant Jordi" near L'Ametlla de Mar. The project has been approved (DOGC núm. 3843 Data Pàg. 5402 N/R: PIS 1011/02) March 14th 2003 by the Direcció General de Pesca i Afers Marítims del Departament d'Agricultura Ramaderia i Pesca (Catalonian Regional Governemnt) and should be fully operational as from September 2004. It is though, the Fuentes Group will use this ranch to cage smaller tunas, caught by its fishing fleet, during the winter fishing season in the Gulf of Lyons. Tuna size will vary from 20 to 80 kilograms and maximum capacity of this ranch will be 600 tonnes.

Explotaciones atuneras del mediterraneo, SA.



Explotaciones Atuneras del Mediterraneo, S.A.

The company was incorporated in July 2000 as a 50/50 joint venture between the Ricardo Fuentes e Hijos Group and French number one Mediterranean tuna fishing fleet, Médi-Pêche owned by Jean Marie and Christian Avallone from Sète.



The company was refused a license to establish a €1,8 million tuna ranch in Alicante between Benissa and Teulada.



The ranch would have had a maximum capacity of 1.000 tonnes, and would have meant the creation of 30 jobs. Explotaciones Atuneras del Mediterraneo, SA should be running the new winter tuna ranch in the Gulf of Sant Jordi, near L'Ametlla de Mar.

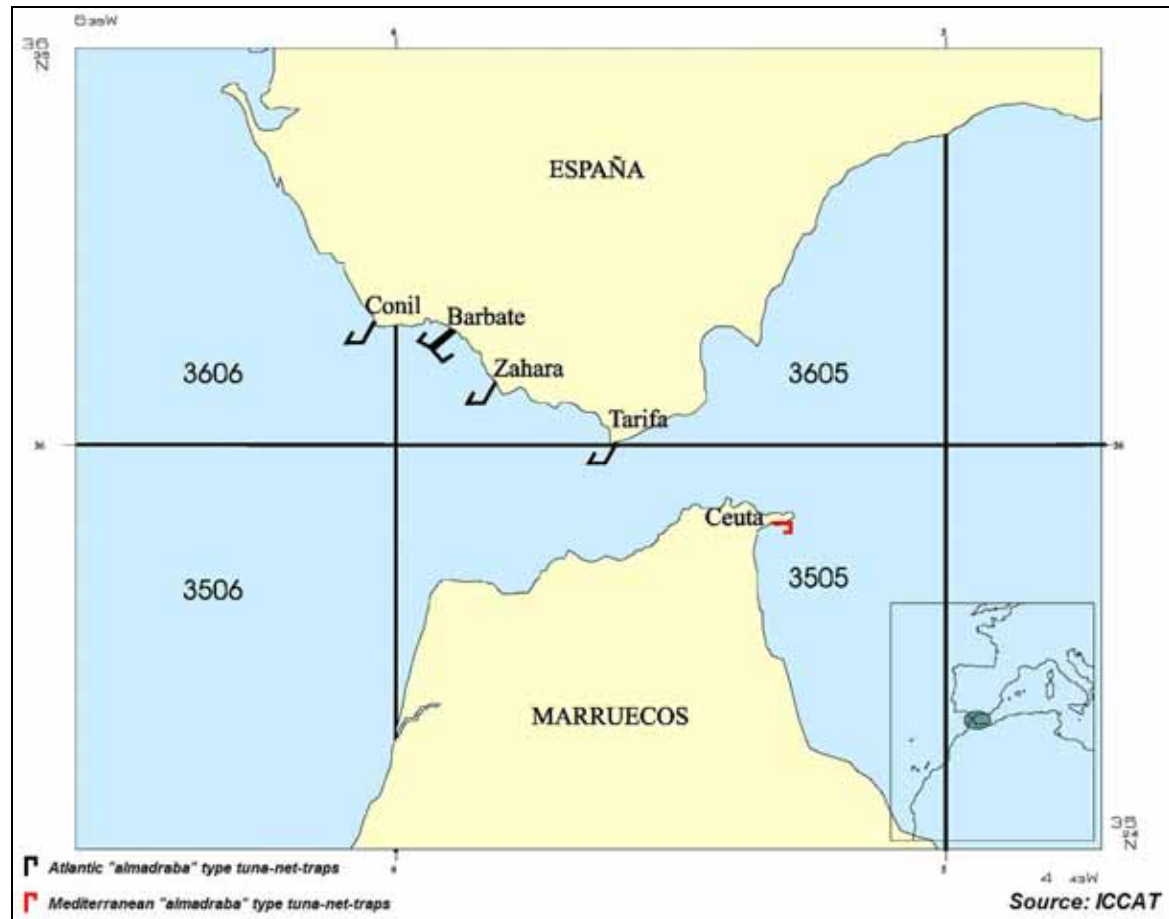
Tuna trapping

"Tuna trap (named "almadraba" in Spanish) consists of a fixed gear anchored to the bottom, usually containing a guide net that leads fish into an enclosure. Tuna traps are located in coastal places with clear and clean waters. Tunas are caught by these traps when they come in or out of the Mediterranean Sea". Source: Analysis of Tuna Trap Fishing in Spain by: Jiménez Toribio, R.a ; García del Hoyo, J.J.b ; González Galán, M.D.c ; García Ordaz, F.d.

According to our information there are six fully operative "almadrabas" (See location map)



Sur Uno (252) and Sur Dos (254) built by Shipyard Nodosa, being delivered in the port of Larache, Morocco, to owner company Ricardo Fuentes e Hijos. Both boats are to be employed as auxiliary craft in tuna fishing operations using trap nets at an "almadraba" owned by Fuentes Group in Morocco.



Maromadraba sarl



Joint venture between the Ricardo Fuentes e Hijos Group and Marroc Tuna, sarl. Incorporated in 2001. The company operates the "Es Sahel" set-net in Larache, Morocco.

Almadraba del Sur sarl



Joint venture between the Ricardo Fuentes e Hijos Group and Moroccan investors, incorporated in 2002. The company operates the "Kenitra n°2" set-net in Kenitra, Morocco.

Congelaysi

Joint venture between the Ricardo Fuentes e Hijos Group and Moroccan investors, incorporated in 2002. The company operates the "Las Cuevas" set-net in Asilah, Morocco.

Almadraba de Sancti Petri

In association with other tuna trap operators from Cadiz that exploit the current trap-net sites in Barbate, Zahara, Conil and Tarifa, Fuentes' new "almadraba" has been projected at Sancti Petri Island, Chiclana, with the full backing of former PP Minister of Agriculture & Fisheries, Arias Cañete.

The Sancti Petri tuna trap project is nevertheless at a standstill at the Spanish Constitutional Tribunal since June, 2004, due to the Junta de Andalucía's (Andalusia Autonomous Government) opposition.

As Maribel Atienza, Fisheries General Director explains, "Not only the Junta of Andalusia will not withdraw its opposition claims to the project because the Junta has every right and

- ATRT Tuna-Ranching Intelligence Unit -

obligation to issue whatever permit is required, but we still have to see hard-evidence proof that Pesquerías de Chiclana's project will not harm other existing tuna traps in the area".

This year's Barbate and Tarifa tuna trap season in the Janda coast-Cadiz area has been characterised by fewer catches than in 2004.

Locals also fear the possible resumption of outside access to the Sancti Petri trap-net site, which has been restricted since 1971.

Some of these companies include a Galician cannery, the name of which has not yet been made known. The firm eagerly hopes to obtain direct catches from this tuna fishery, which until now has only been possible for Andalusian canneries that profit from the marketing advantages of dealing in tuna caught by this special process.



Europe. 4.800 m³ are used to store fish at -60°C.

The Fuentes Group has also three other storage plants in the area, capable of maintaining up to 600 tonnes of frozen sashimi quality tuna at -60°C.



Furthermore, the company uses part of these facilities as "customs public deposit" attracting foreign fishing fleets mainly from Asian countries, operating in the Mediterranean Sea and the North Atlantic Ocean.

Other facilities

The Fuentes Group has also finished the works on a 3.000m² state-of-the-art tuna cold storage and processing plant at the port of Cadiz, Spain, capable of processing up to 16.500 tonnes of fish per year.

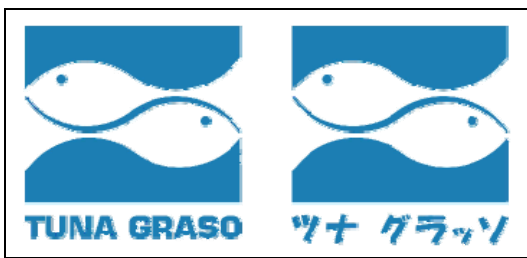
Yellowfin and Bigeye were only used for canning purposes. Now sashimi grade of these tunas is selected and processed in to raw loins.

Tuna Graso is not aiming solely for the Japanese market, but is also introducing its production into Europe and the United States.

Moreover, the plant holds twenty "ultra-freezing" nitrogen tunnels at -80°C with a freezing capacity of 60 tonnes a day.

Fuentes's Factories

Tuna Graso



Tuna Graso opened Europe's first raw sashimi processing plant a couple of years ago.

The plant, owned by Ricardo Fuentes e Hijos, covers 4,000m² and has created over 40 new jobs, according to local newspaper La Verdad.

The plant was established after a total €6,8 million investment and forms part of the company's strategy to diversify production, initially limited to export raw tuna to wholesalers.

The plant processes raw Blue Fin, Yellowfin and Bigeye tuna.

Frigoríficos de Túnidos SA



Aerial view of 1.500 tonnes processing capacity plant at La Palma, Murcia

Frigoríficos de Túnidos SA, covers a structural lack of cold storage plants in the Murcia region. This 30,000m³ facility is the largest of its kind in

Nature Pesca, SA.

Nature Pesca SA is a 50/50 joint venture between Antonio José García León from Garrucha, Almería and Lucien Francis Barba Henri, a well known French tuna distributor from Sète, France.

The company operates a 600.000m² tuna ranch 2.500m off the coast of Vera, Almería.



One of the tuna cages at Nature Pesca's ranch

Maximum holding capacity is 1.000 tonnes, though the company has only managed to ranch 400 tonnes in 2004 and expects to ranch 500 tonnes during 2005.

Name of Tuna Ranching Facility	Nature Pesca, S.L.	
Name of Owner/s	Antonio José García León & Lucien Francis Barba Henri	
Name of operator/s	Nature Pesca, S.L. - Barba-Marée (France)	
Address of Owner/s	C/ Mayor, s/n. Apto. Correos, 148. 04630 Garrucha, Almería	
Address of Operator/s	Paraje Cerro Alto, s/n A.C. 383. 04620 Vera, Almería	
General Manager	Antonio José García León	
e-mail:	josefina@naturepesca.com	
Phone	34 950 460851	
Fax		
Cell		
URL	www.naturepesca.com	
Registration or License Number	ICAR 13	
Location of Tuna Ranching Facility	(Between Garrucha and Villaricos) Vera, Almería	
Coordinates (Longitude & Latitude)	A	37° 13,79' N; 001° 44,803' W
	B	37° 13,10' N; 001° 00,000' W
	C	37° 13,60' N; 001° 44,500' W
	D	37° 13,20' N; 001° 45,200' W
Maximum declared capacity	1.500,00	
2004	400,00	
2005	500,00	

Servicios Atuneros del Mediterráneo, SL.



One of the Q&Q tuna cages at SAM's tuna ranch.

Name of Tuna Ranching Facility	Servicios Atuneros del Mediterráneo, S.L.	
Name of Owner/s	José Luis López Sánchez, Nicolas López Saura & Angel María López Sánchez	
Name of operator/s	Ecolo Fish, sarl (France) & Nippon Mediterráneo, S.L. (Spain)	
Address of Owner/s	Avd. del Pilar, 74 30740 San Pedro del Pinatar, Murcia	
Address of Operator/s	Pol. Ind. Los Alcazares, Vial A, Nave 3. Apdo. 186. 30710 Los Alcazares, Murcia	
General Manager	José Luis López	
e-mail:	pescamur@cajamar.es	
Phone	34 968 180618	
Fax	34 968 184508	
Cell	34 609 483778	
URL	www.niponmediterraneo.com	
Registration or License Number	ICAR 14	
Location of Tuna Ranching Facility	San Pedro del Pinatar, Murcia	
Coordinates (Longitude & Latitude)	A	37° 49',6 N 000° 40',7 W
	B	37° 49',0 N 000° 40',5 W
	C	37° 49',6 N 000° 40',4 W
	D	37° 49',0 N 000° 41',0 W
Maximum declared capacity	1.000,00	
2004	Not operational	
2005	400,00	

TUNISIA

Viver Maritime de Tunisie, SL



A Tunisian proverb said, "Nothing is dafter than selling fish at sea".

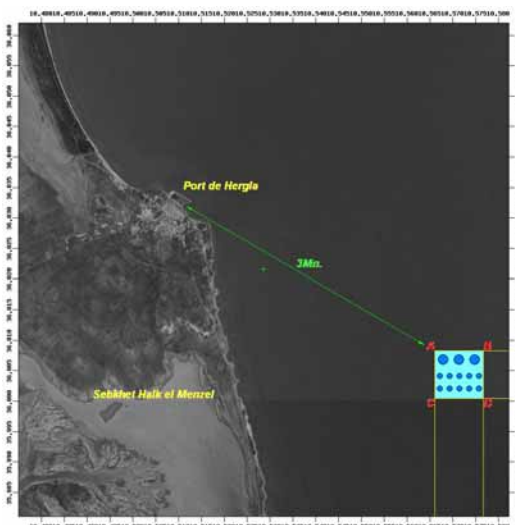
In 2001 Hamed Sallem, Chairman of Sfax-based agribusiness company Fish Tunisie, SL, proved everybody wrong as he managed to catch and transfer some 1.600 tonnes of live-tunas into ten Ø50m gravity cages belonging to Spanish company Tuna Farms of Mediterráneo, SL.

All ten cages were towed back to TFM's ranch in Murcia. This was the first time ever that a 90 days live-tuna transport operation was achieved. The crossing of the Sicily Straight took three weeks alone due to strong adverse currents.

Fish mortality was kept as low as 5% due to TFM and Rimorchiatori Sardi's own cage-towing technique.

Such an astounding business success was more than enough to convince former Tunisian Fisheries General Manager, Taoufik Shriah, to issue an up-to 1.300 tonnes tuna ranch permit in the name of Tuna Farms of Tunisia, SA (A joint-venture between the Antalba Group of companies, Hamed Sallem and his nephew Ridah Sallem).

The chosen tuna ranch site was some three miles SE of the Port of Hergla in the Gulf of Hammamet.



Initial TFT's tuna ranch location

Unfortunately the project was halted just before the 2002 tuna fishing season even started.

Major corporate differences between Hamed Sallem and his Spanish partners ended up in the company's split. The Sallem's sold their fish to the

Fuentes group and TFM moved its cages to Libya where it was able to transfer and tow back to Spain some 1.500 tonnes of live-tunas.

The 2002 experience proved the Sallem's to be less profitable than the previous year and in 2003 the Hergla tuna ranching operation resumed.

The ranch site was split in two.

The northern part and the cold storage infrastructure at Hergla were adjudicated to Tuna Farms of Tunisia, SL (A 50/50 joint-venture between the Antalba Group and Ridha Sallem).

The southern part of the ranch site went to Viver Maritime de Tunisie, SL. VMT (A joint venture between Hamed Sallem and Sinforoso Albaladejo former shareholder of Viveros Marinos Hijos de Albaladejo, SL. (Spain).



Viver Maritime de Tunisie, SL. Tuna ranching facilities off the coast of Hergla (Courtesy: VMT)

VMT's 286.440m² (Maximum holding capacity: 1.000 tonnes) tuna ranch is made of:

- One Ø90m tuna fattening cage
- Four Ø50m tuna transport cages
- One Ø25m tuna harvesting cage

VMT's General Manager is Hamed Sallem's youngest son Sahbi Sallem. Tuna ranching operations are supervised by ranch captain Jamel Ben Houcine.



Sahbi Sallem, General Manager of Viver Maritime de Tunisie, SL. (VMT) (Courtesy: VMT)

According to Sahbi Sallem, this year's total production will amount to less than 300 tonnes of ranched tunas since all of the fish was only caught by Hamed Sallem's tuna purse seine fleet:

- Raoued (SF 1766)
- Riadh (SF 1720)
- Sallem (SF 2322)
- Zied (SF 1794)



Norwegian built purse seiner Sallem (Courtesy: VMT)

The harvested tuna will be processed and packed at Fish Tunisie's 4.500m² factory in Sfax, which holds:

- One tunnel with patches: Capacity: 350kg/hour.
- Three -40°C freezing tunnels: Capacity: 12 Tonnes/day.
- Two 0°C cold rooms: Capacity: 20 Tonnes/day
- Two ice silos: Capacity: 13 Tonnes/day
- One -18°C stocking room: Volume: 3.000 m³

*Other Tuna Ranches
in Tunisia*

Name of Tuna Ranching Facility	Carthage Blue Fine Farm, sarl	Tuna Farms of Tunisia, sarl
Name of Owner/s	Viver-Atún, S.A. (Spain) - Mohamed Mourad Trabelsi (Tunisia)	Ridha Sallem (75%), Tuna Farms of Mediterraneo S.L. (25%)
Name of operator/s	Viver-Atún Cartagena, S.A.	Tuna Farms of Tunisia, S.L.
Address of Operator/s	13 Avenue El Mansour Menzeh 4, 1004 Tunis, Tunisie	Port de Hergla BP23, CP 4012 Tunisie
General Manager	Mohamed Mourad Trabelsi	Toumi Nedji
e-mail:		to.ne@planet.tn
Phone	N/A	N/A
Fax	N/A	N/A
Location of Tuna Ranching Facility	Port de Salakta, à 18 km du Port de la Chebba. Gouvernorat de Mahdia	Hergla Gouvernorat de Sousse
Maximum declared capacity	1.100,00	400,00
2004	1.100,00	750,00
2005	1.600,00	680,00

Name of Tuna Ranching Facility	Tunisian Blue Fine Farm, sarl.	Viver-maritime de Tunisie, sarl
Name of Owner/s	Viver-Atún S.A. (Spain) - Ben Romdhane Abdelwaheb (Tunisia)	Hamed Sallem (50%), Viveros Marinos San Pedro, S.L.-Spain (50%)
Name of operator/s	Viver-Atún Cartagena, S.A.	Viver-maritime de Tunisie, S.L.
Address of Operator/s	Zone industrielle de Mahdia, Immeuble Akkari Hsan, route de Rejich Mahdia, Tunisie	Residence Essalem, Ave l'Atlas 3000, Sfax, Tunisie
General Manager	Ben Romdhane Abdelwaheb	Sahbi Sallem
e-mail:	calembo@tunet.tn	viver@tunet.tn
Phone	216 74 497 150	216 74 49 80 50
Fax	216 74 497 870	216 74 49 77 08
Location of Tuna Ranching Facility	Port de Salakta, à 18 km du Port de la Chebba. Gouvernorat de Mahdia	Hergla Gouvernorat de Sousse
Maximum declared capacity	500,00	400,00
2004	500,00	400,00
2005	680,00	550,00

TURKEY

The Akua-Group

Akua-Group's tuna ranching operations are located in the bays of Ildir & Gerence, located West of Izmir and northeast of Cesme, Turkey.

AKUA-GROUP



The Akua-Group consists of 2 companies, both being owner and operated:

- Akua-Dem Deniz Mahsulleri Ltd.
- Akua-Kocaman Su Urunleri Ltd.

The Akua-Group is just over four years old and growing. The two companies are owned by an all panel of Turkish shareholders, two of which are Turkey's biggest fishing companies.

Akua-Dem Ltd. shareholding is composed of:

Öztürk Şerefoğlu	30,0%
Denizer Ltd.	17,5%
Mamuli Ltd	17,5%
Hasan Şerefoğlu	8,0%
Abidin Kadloglu	9,0%
Nedim Anbar	6,0%
İbrahim Aksoy	6,0%
Engin Gürdeniz	6,0%

Akua-Kocaman Ltd. shareholding is composed of:

Akua-Dem	40%
Kocaman Balıkçılık Ltd	40%
Ahmet Menekşe	5,0%
Recep Denizer	10,0%
Abdullah Denizer	2,5%
Muharrem Aksoy	2,5%



Nedim Anbar, GM of Akua-Group



Mr. Ozturk Serefoğlu, CEO of the Akua-Group



Geographical location and coordinates of Akua-Group's tuna ranches.



The two companies have a combined maximum annual capacity of some 1.600 tonnes.

According to Akua-Group, 2004-2005 season production amounted to: 1.850 tonnes, 1.350 tonnes (frozen) and 500 tonnes (fresh).

The 2004-2005 production was delivered to:

- SOJITZ Corp.
- IBC Corp.
- Tokyo Seafoods Ltd.
- Marukoh Fisheries Ltd.

According to Akua-Group, The 2005-2006 season expected production on WR basis is:

1.200 tonnes (frozen) + 260 tonnes (fresh) = 1.460 tonnes total. The entire production will again be delivered to:

- SOJITZ Corp.
- IBC Corp.
- ITOCHU Corp.
- Marukoh Fisheries Ltd.

The Akua-Group was at the forefront of a realistic evaluation of the Turkish Tuna industry by the authorities which resulted in the formation of a semi governmental special committee that successfully completed ICCAT membership of Turkey, July 2003 and a new format of domestic quota distribution.

Akua-Group builds most of its ranching equipment (cages).



The catch season for Akua-Dem is in May-June so the fish is in place in the cages from the end of June to early July.



Akua-Dem's Ranch Manager, Hasan Şerefoğlu

According to Akua-Group's General Manager, Nedim Anbar, "during the 2003 season the fish weighed on average 45-50 kg. when they arrived at the site. This included some fish that were 15-20 kg and others that were 350-400 kg. Six months later when the fish were ready to be harvested the average weight was 65 kg. However, weight is not the factor that determines when the fish should be

- ATRT Tuna-Ranching Intelligence Unit -

harvested. Fat content and colour are the more important criteria, as any fish above 25 kg is considered big enough to be harvested."

"The fish are fed on a diet of mackerel, herring and squid. The material is whole frozen fish primarily from Denmark, Holland as well as some small quantities from the US. The quality of the feed is almost as good as that for human consumption. The tuna are not given any synthetic feed as this will affect the quality of the meat. However, in the last phase of the feeding the tuna are fed with squid that has been stuffed with shrimp shells and heads from shrimp processing factories.



This imparts a reddish colour to the meat, which is highly desired on the Japanese market. The flesh of tuna which is not fed this diet of shrimp shells and heads remains white and is not as popular amongst the Japanese." says Mr. Ambar



"Once the Blue Fin tuna have achieved the desired fat content, they are harvested. A special harvesting net is dropped in to the cage and divers indicate how many fish are in the net. The net is lifted and the fish are brought to a harvesting boat where they are slaughtered by spiking the brain and the gills and guts are removed. About 25 tonnes are harvested a day. The fish are cleaned and then sent to a special processing vessel where they are frozen down to -60 degrees.



The frozen fish are sold directly to Japanese buyers. Last year the company's entire production was purchased by Nissho Iwai one of the biggest Japanese buyers of Blue Fin tuna." through its Turkish subsidiary

Nissho Iwai Corp. Merk. Tokyo Ankara Merk.ve Ist.Şubeleri



Nobuaki Ito, President, Foods & Consumer Products Company, Nissho Iwai Corporation

"The presence of fish cages tends to attract predators, but this has not been an issue for Akua Dem. The Aegean Sea is relatively free of predators and neither ourselves nor any of the other farms in the area that are ranching sea bass and sea bream have been bothered by predators" says Akua-Dem's Ranch Manager, Hasan Şerefoğlu.



Akua-Group is an internationally recognized fishery group, a Blue Fin tuna ranching operator well known in the fishing world, as a serious buyer and supplier with 1.800 tonnes catch and 2.700 tonnes harvest capacity.



The catch made in the lukewarm waters of the Mediterranean for 2.5 months from May 1st to July 15th, is fed up to the satisfaction of the customers for fat content and taste, with sardines,

herring and mackerel, purchased from the reliable companies of Europe (Marine Foods bv, Parlevliet & Van der Plas, Evimare Fish) and USA (Northern Pelagic Group LLC) in the Akua-Group ranch, located in the cool and clean waters of the Aegean sea.

Akua-Group definitely does not use any artificial feed for fattening.

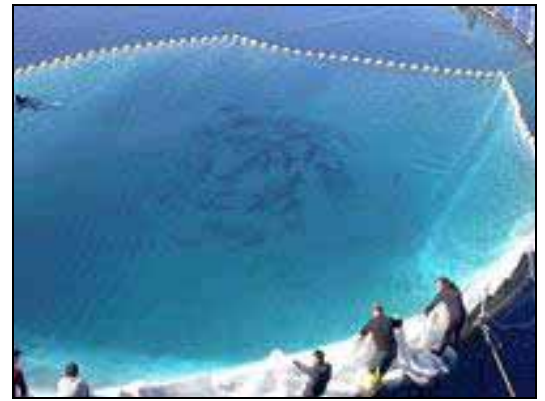
The off-shore ranch, locations allow for a mild 0.7knots current to clear any environmental pollution.



Recently the Japanese consumer distinguishes his Maguro choice by a certain brand name.



It is not the quality only that makes "Akua-Maguro" distinguishable; but as well the unique support of our Japanese customers, Sojitz Corp., Try Inc., IBC Corp., Tokyo Seafoods Ltd., Marubeni Corp. and Marukoh Fisheries Co.Ltd.



Akua-Group knows the unique format of tuna ranching, the Blue Fin tuna acquires the desired fat content and taste in December and January after being fed in the cages of the ranch for 6-8 months and then harvested and exported as fresh by air or as frozen in the process vessel of the Japanese customers, primarily to Japan and the whole world.



TSM
Deniz Urunleri As.

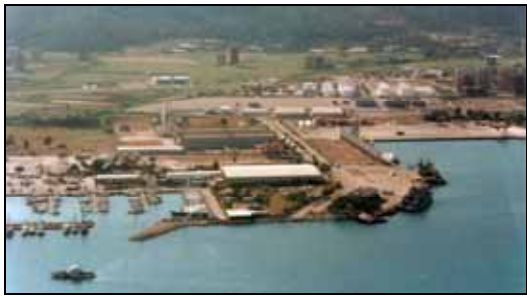


The company, affiliated to the Sagun Group, was founded in 2002 by its actual CEO, Mr. Tuncay Sagun.

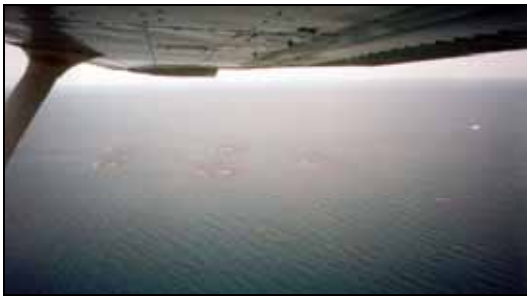
The 1.800 tonnes maximum capacity tuna ranch is located at: Kemer, Havuz, Antalia



Tuncay Sagun, Chairman of TSM Deniz-Urunleri As.



The aim of the company is to deliver second to none service to its valued customers for whom it dedicated itself in all ways on the entire process, from catch and cultivation till the export. TSM spends utmost effort in order to provide reliable service and reach the customer satisfaction in return.



TSM's technical staff is made of one professor, nine experienced fish cultivation & processing seafood engineers, two marine biologist, eighteen divers, three skippers and twelve seamen along with thirty seven other harvesting, cutting, warehouse and administrative executive personnel.

TSM also runs its own fleet of vessels.



Sagun-TSM Purse-seining and tuna ranching fleet at Gazipasa Harbour



TS1: a ship with length 45m made of sheet iron. Berths 20 persons. Crane for 20tons, tank with 4 cooler systems and freezer. Also the generator and ice machine (providing ice from sea water)



TS2: length 32m made of sheet iron. Feeding boat.



TS3: length 14m made of sheet iron. Serving boat.



TS4: powerful boat serving as trailer in cage transfer.

TSM also operates a -25°C 6.000MT capacity coldstore, a 300MT -70°C coldstorage and a -110°C blast-freezer room at its facility located on a 16.000m² industrial estate at Büyük Ortadoğu Antalya Yat limanı.



- ATRT Tuna-Ranching Intelligence Unit -



TSM runs a fleet of trucks with thermoking systems, used both for export purposes and for inland baitfish provision.



The company enjoys a logistic advantage thanks to its onshore facilities location:

- 5 miles away from the tuna ranch cages.
- 30 minutes away from Antalya airport.
- Being aside of Antalya's seaport facilitates frozen baitfish imports.

This enables TSM to harvest, chill, transport, pack and export fresh tunas worldwide on a client-need basis.



TSM 500mm-Ø50m HDPE cages are moored on a 120.000m² sea area with the following coordinates:

- A) 36 45' 40" N-30 35' 05" E
- B) 36 45' 50" N-30 35' 05" E
- C) 36 45' 50" N-30 35' 15" E
- D) 36 45' 40" N-30 35' 15" E

TSM employs 18 experienced divers to service its tuna ranch.



TSM's twelve Ø50m cages floating rings are made of Ø500mm HDPE pipe. The company also uses smaller harvesting pools.

Blue Fin tunas caught during the May-June fishing season in Turkish waters are fed at TSM for 4-5 months.

Tunas are fed in the cages from mid-may with bait fishes with high fat content like mackerel, herring, sardine and squid. TSM spends utmost effort while choosing the baitfish; it does require all corresponding reports from providers thus the baitfish it uses are fit for human consumption.

2004 ranched tuna production (H&G and G&G) at TSM was 900 tonnes, according to company's sources.

The maximum holding capacity of TSM's tuna ranch is 1.500 tonnes.

TSM's production has been exported to France and Japan through TSM's Japanese partner Torei-Toyo Reizo, 80,82% owned by Mitsubishi Corp.

Food business is directly related with human health which does not accept any error in quality. Many business has the chance of restitution of error but it may not be possible to make up the error to be made in food business, so many times. Also sometimes unfortunately these errors may cause some bitter results as per human health. We know this well and therefore, we make much of importance quality in this area that we are a well-known brand in the whole world. So this principle is the too significant for us: Whatever people consume is doubtless very important.

This principle brings us some responsibilities along with and we effort this in order. Our cages are close to harbour where we have land plant and cold storage and catching area. Also they are in sufficient distance to the shore regarding the standard for preventing the environmental pollution. The situation of our cages, working technique and whole technology we have; provides to conduct catching, harvest, processing and marketing transactions with an excellent coordination. Furthermore, we have one professor, nine fishery products engineers, and two biologists who are experienced on their branches.

Since 1964, our company processes, imports and exports a wide range of fresh water and sea products. We are a long standing firm that has been acting in this business area for three generation. We are dealing with several products that are collected/catched from the several regions in our 8 factories which are located in different regions of Turkey. Our production is HACCP and EU Sanitation approved.

We export our products to Japan, USA, Canada, South Korea, France, Switzerland, Sweden, Italy, Greece, Holland, Germany, Spain etc...

Our Blue Fin Tuna is ranched at our Antalya ranch which has 12 cages. We transfer the fishes we catch with our own 20 purse seiners. We feed them with good quality bait fish like; mackerel, herring, sardines, and squid. We start to harvest them as of end of August and export them mainly to Japan.

Our Tuna ranch which is operating for 4 years is in successful situation about supplying the best quality fish with its both equipment technology, infrastructure and professional team. This year; we have started operating our 2nd Tuna cultivation ranch. Every season passing, we are increasing both our quantity & quality.

Our tuna ranch was the first and only ranch in the Mediterranean to achieved ISO 9001 quality certification in 2004.



In 2004 and under Group Sagun, we have established a new company and new brand name 'MARINES'. This company deals with our local market seafood & fish distribution. Since it has been a very short time from its establishment; MARINES is now at a position to supply our products to big supermarket chains (Metro, Carrefour, Migros..), restaurants, hotels etc..

Furthermore, we have a truck transportation company and IATA member Air Cargo Transportation company which we make our shipments to around the world.

Finally, we care with every stage of our products, from manufacturing to delivery, since this business we deal with is very important for human health and this is our company policy.

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Web : www.sagun.com

Dardanel su Ürünleri Üretim A.S.

Tuna ranching was introduced in Turkey by Niyazi Önen Chairman of the Dardanel Önentaş Food Industry Corporation and Gines Mendez España from Mazarrón, Spain, some five years ago.



Ranched tuna now constitutes 60% of Turkish exports to Japan.

Japanese Tohto Suisan Co. Ltd. and at the time cash strapped Turkish canned fish producer Dardanel Dis Ticaret A.S. sealed an alliance in 2001, whereby both companies incorporated Dardanel Su Ürünleri Üretim A.S.

The Japanese company acquired a 36% stake in the Turkish firm.

According to Anatolia news agency, the joint venture alliance initially invested \$4.6 million on a 300 acres tuna fish ranch in the southern town of Alanya, Gazipaşa-Antalya, on the Mediterranean coast.

With an 840 tonnes production in 2001, the tuna ranch company partly supplied Dardanel Ton and exported \$US11 million worth of products to Japan in its first year of operations.



*Niyazi Önen, Chairman of
Dardanel Su Ürünleri Üretim A.Ş*

With a 2002 production of 1.600 tonnes (1.405 reported) the figure increased to \$US28 million, as Dardanel Su Urunleri Uretim A.S. benefited from the Japanese firm's sales and marketing power in Japan.

Under the deal the Japanese company financed the tuna fish investment and contributed to Dardanel's capital expansion.

The Turkish firm also reached an agreement with a U.S. fund to sell 28 percent of Dardanel Food Company shares and expand its capital by 400 percent. "The deal entailed a cash infusion of \$60 million," said Niyazi Önen, Chairman of Dardanel Su Ürünleri Üretim A.Ş at a news conference.

The company further borrowed \$40 million from the same fund for a term of 15 years.

At the time of its joint venture with Tohto Suisan, Dardanel had been suspended from trading on the Istanbul Stock Exchange (IMKB) for some time due to financial difficulties.

The company then managed to reach an agreement with seven banks to extend its debt maturing in March 2001 for a period of six months.

"We are the firm that introduced tuna ranching to Turkey and to the Ministry of Agriculture. We have made a lot of investment in this area. We partially process the fish. However, for us to be able to fully process it and create an added value, we have to invest more and for this to take place, we have to be able to see ahead. There is great ambiguity in the sector today and our investments will increase when these become clearer. This is, as I mentioned earlier, an issue that will be realized with long-term policies through precautions that the Ministry of Agriculture will take on the issue. When these conditions are met, the added value of tuna fish will augment by 50%" says Niyazi Önen

Others

Name of Tuna Ranching Facility	Ak-Tuna Orkinos Besiciligi Projesi	Başaranlar Orkinos Besiciligi Projesi
Name of Owner/s	Nazim Kul (37.5%), Mehmet Fat (25%), Yasar Ali Aktas (12.5%), Osman Atalay (12.5%), Recep Ali Cinar (12.5%)	Başaranlar Su Ürünleri Gıda İnfaat Ve Tur. Tic. Ltd. Sti & Takaei Trading Co. (Japan)
Name of operator/s	Ak-Tuna Gemicilik Balıkçılık turizm Ve dis Tic Ltd. Sti	Başaranlar Su Ürünleri Yetiştiriciliği Ltd. Şti.
Address of Owner/s	Su Ürünleri Hali No. 16, Kumkapi, Eminönü, İstanbul	Su Urunleri Hali No:27 Kumkapi İstanbul / Türkiye
Address of Operator/s	Pazarci Mh. Ugur Mumcu Cd. Gazipasa-Antalya	Cihangir Mah. Burnaz Cad. No: 22/A Avcilar / İstanbul
General Manager	Nazim Kul	Fatih Basaran
e-mail:	aktuna2003@e-kolay.net	feride.basaran@basaranbalikcilik.com
Phone	90 212 5177040	90 212 517 70 46
Fax	90 212 5177040	90 212 517 70 48
Cell	90 242 5726378	N/A
URL	N/A	www.basaranbalikcilik.com/tr
Registration or License Number	07.02.30(3).65.901	07.02.30(4).66.903
Location of Tuna Ranching Facility	Gazipaşa Antalya	Gazipaşa Antalya
Maximum declared capacity	1.000,00	1.000,00
2004	1.200,00	1.000,00
Expected 2005	1.500,00	1.000,00

U.S.A.

On June 7, 2005, the Bush Administration submitted to Congress for consideration and action The National Offshore Aquaculture Act of 2005.

The bill, introduced by Senate Commerce Committee Co-Chairmen Ted Stevens (R-Alaska) and Daniel Inouye (D-Hawaii) would grant the Secretary of Commerce new authority to issue permits for offshore aquaculture in federal ocean waters, while providing environmental and other safeguards to protect wild stocks, marine ecosystems, and other users.

The National Offshore Aquaculture Act of 2005 responds to the U.S. Commission on Ocean Policy's recommendations for NOAA to develop a comprehensive, environmentally sound permitting and regulatory program for offshore aquaculture, and fulfils the Administration's commitment, in the U.S. Ocean Action Plan, to propose national offshore aquaculture legislation in the 109th Congress. It is expected the National Offshore Aquaculture Act of 2005 will be referred to the Committee on Commerce, Science, and Transportation, where the Chairman and Co-Chairman of the Committee will be able to work out the particulars of the final bill.



Tuna cage 24 miles offshore of California.(NOAA)

Along with the bill, Senator Stevens introduced an amendment to allow coastal states to decide whether or not they want offshore aquaculture in the EEZ off that state's coastline. "This option allows states like Alaska and Hawaii to decide for themselves whether this law and offshore aquaculture are best for their citizens and economies," said Stevens. "But, on the other hand, there is a great increase in demand for fish ranching in the ocean areas and we should have a national recognition of that so it can proceed and have federal funding."

Tuna ranching in the United States Exclusive Economic Zone (EEZ) could therefore become a reality under President Bush's plan to create a process that would allow aquaculture-fish farms three to 200 miles offshore.

Three tuna ranching projects are already on the drawing-board, two in Hawaii and one in California

Ahi Nui Tuna Ranching, LLC.

In 1999 the Hawaii Legislature amended Chapter 190D HRS and enacted the Ocean and Submerged Lands Leasing program to allow ocean aquaculture in Hawaiian waters.

August 2002, the Hawaii Hilo-based company Ahi Nui Tuna Ranching, LLC submitted a tuna ranching proposal in the Western Hawaii pristine waters.

The project was to develop a 216 acres (18 cages) tuna ranch with an approximate 54,000 fish (2.000 tonnes) North of Kohala, some 4.5 miles north of Kawaihae and one half mile offshore.

Ahi Nui is being promoted by two Hawaiian fisherman and foreign investors.

"We're not doing anything new," said Clayton Brenton, a marine biologist and project manager. "We're just trying to adapt proven methods to Hawaii's waters, and do it in a way that won't affect anything or anyone negatively."

Brenton said Ahi Nui plans to stock 18 floating net cages with young Yellowfin and Bigeye tuna, each weighing 30 to 50 pounds.

Brenton also said conditions at the selected site are ideal for the tuna ranch operation. Those assets include deep, clean water, consistent tidal currents, protection from storms, a deep sea container port and international airport nearby, local labour pool and processing facilities, cold storage.

When fully operational, the firm expects to employ 60 to 100 workers. Brenton said Ahi Nui will also use local services whenever possible, and he expects the creation of 100 more spin-off jobs. Brenton estimates Ahi Nui will annually contribute \$10 million to \$20 million to the Big Island economy within five years.

Robert Cabos of Ahi Nui Tuna Ranching LLC and a commercial fisherman for 25 years in East Hawaii with his company, Fisherman Direct, said the company now plans to develop the fish ranch 21 miles southwest of Kawaihae in water 800 feet deep.



School of Yellowfin tuna, *Thunnus albacares*. (NOAA)

The previous plan called for establishing the floating net cages in water 170 feet deep about a quarter

mile off the coast four miles north of Kawaihae Harbour.

Community opposition was a prime reason for the decision to move the facility 21 miles offshore, Cabos said.

Ahi Nui's request for a state lease and a permit to build the facility in a conservation area was opposed by several groups comprised of fishermen and other ocean users who said they were concerned that the fish ranch would harm the environment.

Cabos said the change in location and to deeper water should ease those worries.

"There should be no environmental concerns," he said.

"We felt it would be in the best interest of the project if we moved it further offshore, outside residential view planes," said Michael Muranaka, project biologist.

"Some people also claimed we were in their fishing areas, and those concerns are what caused us to drop our application."

Ahi Nui wants to take juvenile Yellowfin tuna, also known as ahi, and Bigeye tuna caught with barbless hooks in Hawaiian waters and keep them in the cages for up to eight months.

During that time the fish will double or triple their weight, company officials say, and will then be sold to sushi and sashimi markets primarily in Japan.

Ahi Farms Inc.

Ahi Farms was founded by Harry Ako, a University of Hawaii professor who is especially well-known for his work on formulating feed for aquaculture.

Ahi Farms, Inc. has applied for permits to put cages offshore of Waianae in north-western Oahu, a mile offshore of Kepuhi Point and Maili Point.

The company wants to place 18 cages about 660 feet in circumference and 50 to 60 feet deep in waters with a depth of about 100 feet. Each cage would hold up to 2.000 juvenile Yellowfin and Bigeye tunas bought from local fishermen. The fish would be raised until they weigh about 100 pounds each and are ready for market.

The cages will be filled with juvenile (5 to 6 pounds) Yellowfin and Bigeye tuna caught by local fishermen, which will then be fed and grown out to sizes of up to 100 pounds.



Prof. Harry Ako

- ATRT Tuna-Ranching Intelligence Unit -

Because few juvenile tuna ever reach spawning age, Ahi Farms believes their cages will have no net effect on wild tuna populations, and relying on local fishermen will provide much-needed employment in an economically depressed area of the island.

The founders have met with many native Hawaiians to get their blessing, and have also reached out to as many environmentalists as they could find. After securing support from fishermen, Hawaiians, and environmentalists, however, Harry Ako is growing increasingly frustrated with the permitting process.

At a meeting of the World Aquaculture Society in Honolulu in March 2004, Ako described Ahi Farms efforts: "Presently we are attempting to address concerns of a fourth group we did not plan on being a problem, state bureaucrats."

According to Ako, his frustration stems from missed response deadlines and the difficulty of trying to figure out just what standards need to be met for a permit to be approved.

Platform Grace Tuna Ranch

With legislation pending, a research-business consortium is making plans for a tuna ranch in the Santa Barbara Channel off California.

The consortium, led by San Diego's Hubbs-SeaWorld Research Institute (HSWRI), stands ready, to begin the construction and anchoring of an experimental tuna ranching facility formed by some two square kilometres of nets, on former Chevron oil-drilling platform, Platform Grace, located between Ventura and Anacapa Island about 20 km off the coast.

reduce the U.S. fisheries trade deficit, which was about \$9 billion in 1999, by increasing U.S. aquaculture production from the current half million metric tonnes to two million metric tonnes by 2025.

Legislation to authorize the project is already being drafted.

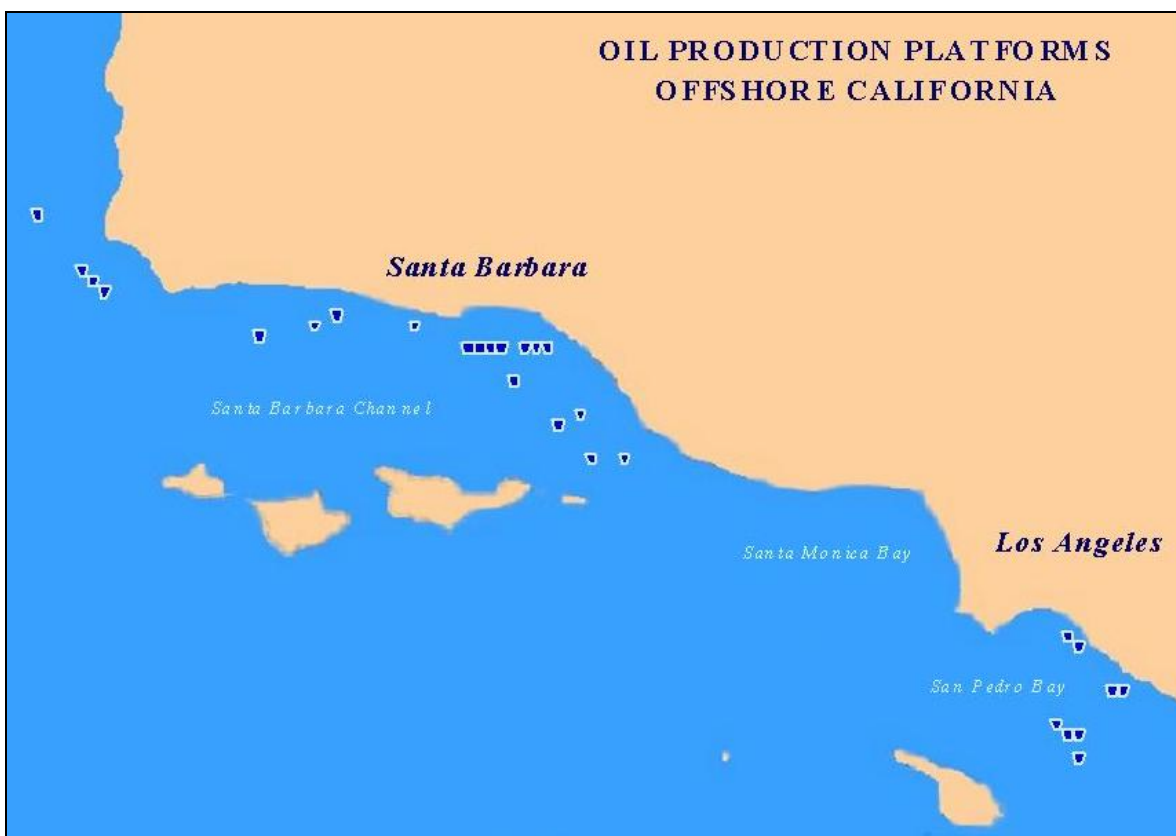
The facility would be used to determine the economic and environmental feasibility of tuna ranching in the USA, as well as to evaluate the possibility of replenishing stocks of bocaccio and other species considered over fished in the same way white sea bass stocks have been replenished.

The Chevron Corporation has reportedly offered almost \$US10 million to help fund the experiment for three years. The oil company hopes to avoid the substantial expense of removing the oil platform completely.

The project would begin as a research facility, examining the capability of offshore farms and their environmental impact.

The non-profit institute says it also has plans to extend operations to a commercial venture, using millions of dollars from fish sales to support the facility and its research.

California, like other US states, only controls waters up to 5.5 km from the shore, so the consortium has only needed to apply for federal permits.



The plan, supported by the Department of Commerce and the National Marine Fisheries Service, an agency within the Department of Commerce's National Oceanic and Atmospheric Administration, is part of an effort to

Advanced Tuna Ranching Technologies S.L. (ATRT), is the first tuna aqua-culture R&D company in Europe.

Its business is the development, implementation & management of new eco-friendly tuna ranching turnkey projects, technologies and methodologies.

ATRT believes that the decline of conventional bluefin tuna fisheries and the significant changes in national and international regulations governing the fishing industry, provides a unique opportunity to focus on emerging sustainable fisheries and responsible new catching and ranching techniques.

ATRT's tailor-made projects and technology are based on cleaner organic production as well as the total elimination of captured endangered species such as seabirds, dolphins, turtles, sharks and juvenile tuna.



*Roberto Mielgo Bregazzi,
C.E.O.
A.T.R.T., SL.*

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Promoting fair, responsible & sustainable tuna fishing & ranching worldwide.