

SERIOLA/COBIA AQUACULTURE DIALOGUE

TOKYO, JAPAN

FEBRUARY 12-13, 2013

Draft Meeting Summary

Prepared by

Paul Holthus - [paul.holthus@oceancouncil.org](mailto:paul.holthus@oceancouncil.org)

for World Wildlife Fund

1250 24<sup>th</sup> Street, NW  
Washington, DC 20037  
[www.worldwildlife.org](http://www.worldwildlife.org)

## **Meeting Background**

The Seriola/Cobia Aquaculture Dialogue (SCAD) met for the third time February 12-13, 2013 in Tokyo, Japan to consider the first full draft set of standards for responsible Seriola/Cobia farming. Paul Holthus, a consultant who is coordinating the SCAD on behalf of World Wildlife Fund (WWF), organized and facilitated the meeting. The agenda and participants list for the meeting are included in appendix 1 and 2. The first SCAD meeting was held in Seattle, Washington, USA on 19-20 February, 2009; the second SCAD meeting was held in Vera Cruz, Mexico on 24-25 September, 2011.

The expected outcomes of the third SCAD meeting included:

1. Create a shared understanding of the SCAD process and how meeting attendees can participate in the process.
2. Update participants on the outcomes of the first and second SCAD meetings and the progress since then.
3. Review the first full set of SCAD draft principles, criteria, indicators and standards, and the associated, supporting information.

This meeting report provides a summary of key issues related to the meeting and next steps for the SCAD. Any omission or errors are the sole responsibility of WWF, which convened the meeting. Please send any corrections or comments related to the summary to Paul Holthus at [paul.holthus@oceanCouncil.org](mailto:paul.holthus@oceanCouncil.org) by April 30, 2013. A final meeting summary will be circulated to all meeting participants as soon as possible after that.

Please note that all documents and presentations referred to in the meeting summary are available at: <http://www.worldwildlife.org/what/globalmarkets/aquaculture/serioladialogue-additionalresources.html>

## **Pre-Meeting Outreach and Attendance**

A press release about the meeting was sent to trade publications several months prior to the meeting. In December 2012 a save-the-date message was sent to key stakeholders, including Seriola/Cobia producers, producer associations, and research institutes, NGOs, processing companies and services industries. The final invitation was sent to a broad group of stakeholders in January 2013. Forty-six (46) people participated in the meeting. This included aquaculture producers, seafood distributors, aquaculture food producers, other affiliated industries, academics and a number of international NGOs. Most members of the current SCAD Steering Committee were present at the meeting.

## **Purpose and Process of the Aquaculture Dialogues and the SCAD**

A presentation was made by Paul Holthus and Jose Villalon to provide an overview of the purpose of and process for the Aquaculture Dialogues and, more specifically, outline the SCAD process in relation to the overall Dialogue framework. Several attendees were familiar with the Dialogues, as some have attended

other Dialogue meetings, and several of those attending the SCAD 3 meeting had also participated in one or more of the previous SCAD meeting.

*Key points made during the introduction were:*

- The purpose of the SCAD is to create standards that will minimize the key impacts of Seriola/Cobia aquaculture and move producers towards better performance.
- The standards can be used to certify products and benchmark other standards. They also can create the foundation for buyer and investment evaluation and have the potential to be incorporated into government programs.
- Standards are geared toward the best performers in the industry.
- The SCAD process is designed to be open and transparent, as well as to result in standards that are performance-based, science-based and measurable.
- Stakeholders can participate in the SCAD by attending Dialogue meetings, providing input via review and comment on the draft criteria, indicators and standards, and serving on the Steering Committee (SC) that manages the SCAD.
- At the first SCAD meeting, participants agreed that the SC should include 3-4 NGO representatives and 3-4 Seriola or Cobia producers. The purpose and role of the SCAD SC to:
  - Make final decisions about standards.
  - Consider input from all Dialogue participants, technical working groups and advisory groups.
  - Manage a consensus-oriented decision making process that follows ISEAL standards and is approved by the SC.
- The Aquaculture Stewardship Council (ASC): The ASC is a new entity that will be responsible for hiring auditors to certify farms that adopt the Dialogue standards. Jose Villalon of WWF, which is co-founding the ASC, briefed the participants on the development of the ASC and its initial operations.

### **Review of Draft SCAD Principles, Criteria, Indicators and Standards**

The meeting reviewed the complete set of draft SCAD Principles, Criteria, Indicators and Standards and the following provides a summary of the discussions.

#### **Principle 1: Comply With All Applicable International And National Laws And Local Regulations**

Participants' questions largely focused on how farmers and companies would demonstrate compliance with laws and regulations, e.g. the documents that would be required to demonstrate that the criteria are being met. It was explained that auditors will review and evaluate the documents and other information relevant to verifying compliance with laws and regulations as the basis for determination.

Auditor manuals and guidelines will indicate the required documentation, which includes: original lease agreements, land titles, permits from government agencies where applicable, reports from inspections for compliance with national and local law regulations, and identification of high valued conservation area, and protected area nearby. It was suggested that the indicators should also include the list of the required documents for applicants to prepare easily. The SC will look at eliminating or combining overlapping or redundant Indicators and ensuring that the list of the required documents is in the auditor manuals and available for applicants in order to make compliance and auditing efficient for all parties.

Some participants noted that for other ASC standards there is only one indicator for Criteria 1. Since the SCAD Indicator 1.1.1 requires the applicants to demonstrate compliance with “all” relevant local and national laws and regulations, it was suggested that Indicators 1.1.2, 1.1.3 and 1.1.4 could be eliminated. From the auditors’ point of view, auditing is more efficient if there are not overlapping Indicators. Related to this, it was noted that Principle 6 covers the detailed Indicators for labor laws and regulations, and Principle 2 covers regulations and permits concerning water quality, adding additional support for eliminating Indicators 1.1.3 and 1.1.4. The SC agreed that this should be considered. However, it was noted that Principle 2 and 6 Indicators relate to high level environmental management practices, not necessarily the laws and regulations. So, it will be important to ensure that these Indicators adequately cover the situation.

The discussion also considered that regulations and the degrees to which legal standards differ in each country, raising the question of how the ASC Standards could be accommodated by each country, e.g. it could seem unfair for a company operating in a country with high legal standards to meet the requirement of Principle 1. The SC pointed out that the ASC sets global standards that apply to each country. Principle 1 requires a farm or company to comply with their country’s laws and regulations as a baseline. Other SCAD Principles require a higher level of environmental and social best practices that apply to all applicants.

## **Principle 2: Conserve Natural Habitat, Local Biodiversity, And Ecosystem Structure And Function**

### **Criterion 2.1 Benthic biodiversity and benthic effects**

The discussion focused on the Allowable Zone of Effect (AZE), in particular whether this is based on sufficient data, e.g. for salmon aquaculture, and if new data will change the determination of the AZE. The SC explained that the AZE concept is well established for several decades to document and predicts the accumulation of organic substance in farm areas. The SCAD Standards refer to the model developed in Scotland, which is considered to be the best available, but it would be good to see if there is a Japanese model that should be considered. New data can and should be used to reevaluate the AZE as appropriate.

Participants also raised the issue of pre-existing, residual toxic material, such as heavy metals (PCB, cadmium, etc.) in the sediments or benthos of an area where aquaculture is taking place and how the standard applies to aquaculture in highly polluted sites. The SC clarified that, while the environmental

and human health issues of toxic materials are important, the ASC standard relates to the impacts of aquaculture on the environment, and does not cover pollution caused by the other industries.

There was also considerable discussion about whether the SCAD standards and sampling process for addressing sulfide and oxidation-reduction potential (ORP) were sufficient. For example, there can be significant variation of results depending on the sampling sites and procedures. The SC outlined that farmers can choose to measure total organic carbon (TOC), sulfide or deoxidization. It will be important that the correlation between chemical oxygen demand (COD) and ORP can be determined.

Some farmer representatives were concerned about the cost and expertise needed to undertake benthic surveys. The SC suggested that farmer's groups could look to form partnerships with environmental specialists and universities for benthic environmental assessment and monitoring.

One fishery cooperative explained that there is data for 30 years by cooperative research with a University conducting benthic monitoring and reporting twice a year, and asked whether COD can be used as an indicator based on this. If COD in the water or benthic material increases over some certain threshold, regulations require that farm production has to decrease. In Japan, dissolved oxygen and COD are regulated as 7.5 ppm and 2 ppm. The SC explained that the standards accept biological oxygen demand (BOD) now, but also need to think about COD moving forward.

Participants involved in land based aquaculture raised the issue of effluent from recirculation. The SC noted that if total water quality in the effluent receiving water is not affected, then this is not a problem. However, the effluent and receiving water quality does need to be measured. The ASC Tilapia standards provide a good reference for this approach.

Concerns were raised about the cost and difficulty of monitoring for Criterion 2.1.3, and the need for concrete methods. The SC explained that acceptable methods would be set down in the auditor guidance.

#### Criterion 2.2 Water quality in and near the site of operation

The SC explained that there was no a consensus on the issue of dissolved oxygen (DO). For example, are veterinarians required to decide the average value of the degree of saturation? Some felt that DO doesn't need to be considered. Some Japanese areas use DO measurement for fisheries evaluation, which provides a baseline. If DO decreases to a certain level, fish are no longer present. It may be difficult for veterinarians to decide the standard, and other specialists may be more available and appropriate.

With regard to item 2.2.3 on turbidity and 2.2.4 on ammonia levels, participants felt it was not clear how to measure these and it will be necessary to include this in the auditor manual. Criterion 2.3 Interaction with critical or sensitive habitats and species

For item 2.3.1, there was general agreement that the assessment of the farm's potential impacts on biodiversity and nearby ecosystems should include: a) identifying the proximity to critical, sensitive or protected habitats and species, b) describing the potential impacts the farm might have on biodiversity, with a focus on affected habitats or species, and c) describing strategies and current and future programs to eliminate or minimize impacts the farm might have.

#### Criterion 2.4 Interaction with wildlife, including predators

For item 2.4.2, participants felt that incidental death of fish should be defined as the exception and that every accident should be reported. However, for item 2.4.5, there were concerns that the maximum number of fatal accident allowed is same even if number and size of farms are different. The SC acknowledged that there is a lack of data to determine this and that the ASC standard for Salmon was used as the basis for the standard on marine mammal interactions. In the discussion, it was suggested that perhaps the standard should require farms to report on the interactions for a period and that the indicator should be changed from "on the farm" to cover "in aquaculture activities".

### **Principle 3: Protect The Health And Genetic Integrity Of Wild Populations**

#### Criterion 3.1 Introduction of non-native species

For item 3.1.1 on the culture of a non-native species, it was noted that *Seriola* is a non-native species in Netherland and that the EU requires documents and safeguards on the aquaculture of non-native species. It was agreed that completely closed land-based production systems should be differentiated from a land-based production system that has discharges. For the latter, special treatment of discharged water should be required, for example, achieving sterilization of discharged water, killing escaping fish, and etc.

There was concern about whether the same species brood stock in foreign countries is recognized as "non-native species" or not and the risk of introducing disease from foreign countries. For Japan, there is a particular issue with the import of juveniles to stock farms from China. A disease-free verification of the fish is required, but there are potentially problems regarding the water used to transfer the fish, as it may contain pathogens and is often untreated.

#### Criterion 3.2 Introduction of transgenic species

It was clarified to the meeting that the use of transgenic species included that they cannot reproduce. There were also concerns about the competition of transgenics with other species. Overall, it was agreed that the culture of transgenics was not allowed.

#### Criterion 3.3 Escapes

The problems of escape related to typhoons, sharks and red tide were explained by participants. The typhoon situation in Japan is particularly difficult. Participants felt that this indicator and standard would be difficult for farms to meet, especially for small farms and that a way to take into account the local

difference in conditions should be included in the standard. In the end, the meeting thought that this indicator will be acceptable as a starting point, but should be reevaluated over time.

It was noted that more clarity was needed to define terms, such as “selectively bred stock” and “non-selectively bred stock”. Most Japanese *Seriola* aquaculture farms use wild fish as brood stock and the standard needs to show clearly how it is applied to this.

There was good discussion regarding the accuracy of the counting technology. Farmers believed that the verification of fish count accuracy would be a burden to farms, and it was not clear that adequate measuring equipment was available.

For items 3.3.2 and 3.3.4, it was agreed that the percentage figures are not necessary to define, while for 3.3.1 and 3.3.3 the numbers are acceptable. Auditors originally evaluate fish escape. It was noted that where vaccinations are done by hand, it is possible to have accurate fish counts as a baseline. Those that use chain link nets noted that escapes were not a problem and that dead fish are collected by professional divers.

Noting that almost all farmed *Seriola* in Japan come from wild populations, the discussion also covered the issue of taking fingerlings from wild stocks, i.e. for “ranching”. It was agreed that the impacts of taking seedlings from wild populations should also be considered in the SCAD standards, at least to verify the sources are legal. The meeting agreed that the management of wild fish stocks that provide fingerlings was outside the scope of the ASC standards, and was perhaps more of an MSC issue. Japanese *Seriola* stocks are thought to be stable and the fishery for juveniles is sustainable. Local government agencies have figures on wild fish catch that is for used for farming and these measurements should be adequate.

#### **Principle 4: Use Resources In An Environmentally Efficient And Responsible Manner**

##### Criterion 4.1 Traceability and transparency of marine raw materials in feed

The need for information on traceability was highlighted in the discussion, including information on country, species, fishing method and, if possible, the FishSource score. The meeting agreed that it would be very important to have the FishSource scores for forage fish, and for *Seriola* itself.

##### Criterion 4.2 Efficient and optimized diets

The meeting noted that the proposed Forage Fish Dependency Ratio (FFDR) was based on young fish raised in lab conditions and that real data (growth size, farming duration, type of feed, water temperature, etc.) from producers and feed manufacturers was needed in order to reevaluate FFDR. Farmers from Japan informed the meeting that moist pellet and raw fish often are fed to *Seriola* in Japan. Experimental farming to reduce fish meal and fish oil (FMFO) needs has started in some sites, but is not practical yet. Some participants felt that the standard as proposed for fish meal would be achievable in the near future, but not for fish oil.

#### Criterion 4.3 Responsible origin of marine raw materials

Participants discussed that the SCAD needs more information on the fish used in feed, noting that there is not enough data about forage fish in FishSource. It was explained that the moist pellet is made from mainly inedible fish caught by net-fishing, but it was not clear how this relates to the use of “trimmings”. Some made the point that the use of bycatch as a feed ingredient may encourage fisheries which catch such untargeted fish. SCAD cannot recommend such fishery. It is also known that some fishers intentionally allow the fish quality to deteriorate in order to use the catch as forage.

In relation to item 4.3.4, some felt that since the moist pellet is processed with heating it is doubtful whether the criterion is reasonable, even if it intends to prevent new diseases in *Seriola* farming. There was a suggestion that the standard could be to “not allow the use raw material without heating the feed”. Others felt that there is not enough information to evaluate the risk, and therefore 4.3.4 would be reasonable unless the standard is shown to be unattainable.

#### Criterion 4.4 Responsible origin of non-marine raw materials in feed

The standard demands information on genetically modified organisms (GMO) from feed manufacturers. In Japan, feed manufacturers cannot or do not distinguish GMOs in their ingredients. In this case, if it is not distinguishable, the labeling would be “undistinguishable” and buyers usually regard this as meaning the feed may contain GMO ingredients.

### **Principle 5: Proactively Maintain The Health And Welfare Of Cultured Fish And Minimize The Risk Of Disease Transmission**

#### Criterion 5.1 Minimize the transfer of pests or parasites to wild stocks

Regarding indicator 5.1.1, questions were raised on how farms should verify “no significant difference from baseline” and whether farms need to proactively conduct ongoing monitoring. Currently, in Japan, farms only report if a problem occurs. The SC indicated that, as there is a known risk of disease transmission, farms should conduct monitoring to avoid disease transmission and show no significant difference from baseline by data. Participants from Japan considered that monitoring would be impossible, because wild yellowtail migrated and only live in coastal waters at the stage of *mojako* (young fish). There was also lack of clarity about the word “endemic”, e.g. the geographic range that this indicator covers. As the wild *Seriola* range far from the farms areas, it would be difficult to identify and monitor the direct effects of the farm stock.

It was pointed out that although wild *Seriola* generally have no parasites, this indicator asks the farmer to confirm there are no problems. However others said that there may be skin parasites, but that the parasite carried by wild fish is different from farmed fish and it would be difficult to determine whether or not there was a relationship. The SC indicated that, in any case, the farms need to show evidence that the number of parasite does not increase in wild populations, and that perhaps farms can cooperate with the universities and research institutes in collecting data.



The possibility was raised that evidence of no diseased wild caught fish in the fishery could be recognized as evidence, which could be acceptable if tests verify this situation. For example, the fisheries cooperative conducts visual examinations and provides data that could be analyzed and the auditors assess the situation based on these. However, if disease was found in wild populations, it would be difficult to prove whether or not the disease was spread from specific farms.

The question was raised about what is the base line for 5.1.1 and who decides it. Participants from Japan noted that it would be difficult for government institutes to conduct monitoring and so there would not be scientific data to show that a parasite or disease spread to wild fish. The SC proposed that farms and scientists can decide this by comparing net cages and the area around them and asked the industry to propose how you to best monitor.

#### Criterion 5.2 Chemicals and treatments

For item 5.2.4, participants raised questions about specific chemicals and treatments and proposed alternatives. For example, it was asked why “Hadaclean” was prohibited, and whether oral treatment to eliminate parasites was acceptable. The SC responded that it was necessary to collect and provide data on the use of chemicals and treatments.

Regarding item 5.2.3, it was agreed that a specialist of fish epidemic prevention could be acceptable in Japan instead of a veterinarian. For 5.2.4 the participants discussed the need for the standard to be based on scientific evidence that the use of formalin and hydrogen peroxide solution does not caused impacts.

### **Principle 6: Operate Farms With Responsible Labor Practices**

#### Criterion 6.1 Child labor and young workers

Participants noted that there are many family-run farms in Japan and often children under the age of 15 help out the farms, so there were questions about whether this is categorized as child labor. The SC pointed out that the guidance for implementation of 6.1 refers to 15 years old as the minimum allowable age for *permanent* work, which usually means full-time work, implying that children under 15 can assist on the farm at less than full time. The SC agreed that the next iteration of the standard needs to confirm and clarify this situation.

For the following criterion there were no comments:

- Criterion 6.2 Forced, bonded compulsory labor
- Criterion 6.3 Discrimination in the work environment
- Criterion 6.4 Work environment health and safety
- Criterion 6.5 Wages

- Criterion 6.7 Harassment and disciplinary practices in the working environment causing temporary or permanent physical and/or mental harm
- Criterion 6.9 Contracts or other written employment agreements
- Criterion 6.10 Conflict resolution
- Criterion 6.11 Living conditions for employees accommodated on the farm

#### Criterion 6.6 Access to freedom of association and the right to collective bargaining

An auditor asked what the documentation requirements are for this, as it is difficult in Japan to examine written documents to see the freedom of association and rights bargaining have been allowed on the farm. Members of the SC responded that the determination could be made based on private staff interviews by the auditors, with the flexibility for auditors to collect some sample answers and make a determination. This can be as simple as ensuring that employees are aware they are entitled to form/join a union and bargain and that employers are not putting pressure on employee's rights.

#### Criterion 6.8 Working hours and overtime

Some participants raised the point that in Japan, especially in fisheries, there is often no set time for work hours or limitation on numbers of work days. Others clarified that, although the labor law in Japan is complicated, there is a set time for work hours but companies can apply for the exception when overtime is needed. Also, the SC added that the ILO standards are adapted into SCAD standards so it requires following both Japanese labor laws and ILO standards. There was also the question of self-employed farmers that don't have set work hours and need to put in the time if work needs to get done. It was suggested that the guideline should clarify that the ILO principles apply to employees, not employers. The SC agreed that this needs to be addressed in the next iteration.

### **Principle 7: Be A Good Neighbor And Conscientious Citizen**

#### Criterion 7.1 Community engagement

Some participants questioned whether this standard is needed in Japan, as there are no social aspects conflicts. The SC indicated that is necessary to show there is no problem, because this is an international standard. The group discussed different ways in which community engagement can be documented. For example, fisheries cooperative associations hold meetings among the members that sometimes include community representatives. The minutes of these meetings would show compliance with this criterion.

The SC also identified that the standard requires keeping in communication with the community and local people and having a policy and process for addressing problems. If there is a problem, this needs to be documented, with verification that the problem is being addressed. There is a need for a clear

definition of “community stakeholders/representatives and organizations”, i.e. that these are not only fisheries cooperative associations.

Criterion 7.2 Respect for indigenous and aboriginal cultures and traditional territories

Regarding the issue of “indigenous and aboriginal cultures and traditional territories”, farms need to show documents that verify there are no such cultures and territories being affected by the farm.

### **Next Steps**

The first of two 60-day public comment periods were started the same week as the SCAD 3 meeting was held in Tokyo. As part of a diverse, multi-stakeholder process, the public is encouraged to provide feedback on the draft standards. The SCAD Steering Committee will use all feedback received during the public comment period as well as the results of this third public meeting of the Dialogue to revise the standards. Following that, a second public consultation period will take place, with the standards expected to be finalized later in 2013.

## **Appendix 1: AGENDA**

### ***Day 1: 12 February***

<b>Timing</b>	<b>Item</b>	<b>Session Leaders</b>
8:30 – 9:00	Registration	
9:00 – 9:15	Welcome and introductions	Paul Holthus, SCAD Coordinator
9:15 – 9:45	Overview of Aquaculture Dialogues and SCAD	Paul Holthus, SCAD Coordinator
9:45 – 10:15	Overview Discussion	
<i>10:15 – 10:30</i>	<i>~ Break ~</i>	
10:30 – 10:50	Standards Setting Terms and Meanings	Jose Villalon, WWF
10:50 – 11:00	Standards Setting Discussion	
11:00 – 11:50	SCAD Principle 1	Paul Holthus
11:50 – 12:15	Principle 1 Discussion	
<i>12:15 – 1:30</i>	<i>~Lunch ~ (provided)</i>	
1:30 – 2:30	SCAD Principle 2	Michael Tlusty, New England Aquarium; Jose Villalon
2:30 – 3:00	Principle 2 Discussion	
<i>3:00 – 3:15</i>	<i>~ Break ~</i>	
3:15 – 4:15	SCAD Principle 3	Steve Craig, Virginia Cobia Farms; Neil Sims, Kampachi Farms
4:15 – 5:00	Principle 3 Discussion	
5:00	Adjourn	Adjourn
<i>Evening event</i>	<i>Informal social gathering</i>	

**Day 2: 13 February**

<b>Timing</b>	<b>Item</b>	<b>Session Leaders</b>
9:00 – 10:15	SCAD Principle 4	Aaron Welch, University of Miami; Michael Tlusty
10:15 – 11:00	Principle 4 Discussion	
11:00 – 11:15	~ Break ~	
11:15 – 12:15	SCAD Principle 5	Neil Sims; Steve Craig
12:15 – 1:15	12:00 – 1:00 ~Lunch ~ (provided)	
1:15 – 2:00	Principle 5 Discussion	
2:00 – 2:30	SCAD Principle 6	Jose Villalon, Paul Holthus
2:30 – 2:45	Principle 6 Discussion	
2:45 – 3:00	~ Break ~	
3:00 – 3:30	SCAD Principle 7	Jose Villalon, Paul Holthus
3:30 – 3:45	Principle 7 Discussion	
3:45 – 5:00	Wrap up and Next steps	3:45 – 5:00 Wrap up and Next steps
5:00	Adjourn	5:00 Adjourn

## **Appendix 2: LIST OF PARTICIPANTS**

<b>First Name</b>	<b>Last Name</b>	<b>Organization</b>
Steve	Craig	Virginia Cobia Farms
Kimie	Endo	AMITA Institute of Environmental Certification Co., Ltd.
Susumu	Endo	Japan Fisheries Resource Conservation Association.
Hisashi	Fukushima	Kurose Suisan (Nissui)
Yoshihisa	Hakata	MARUICHI Co., Ltd.
Yuta	Hamazaki	Skretting Japan
Takashi	Hara	Kurose Suisan (Nissui)
Yasushi	Hibi	Conservation International Japan
Taro	Hikiso	Nippon Suisan Kaisha, Ltd.
Paul	Holthus	SCAD Coordinator
Yukio	Ishida	Azuma-cho Prefecture Fishery Association
Takuni	Ishikawa	Japan Feed Manufacturers Association
Asako	Isobe	Conservation International Japan
Arata	Izawa	YANMAR Co., Ltd.
Kouji	Kaneko	Japan Feed Manufacturers Association
Hiroaki	Kawate	Bureau Veritas Japan Co., Ltd.
Kees	Kees Kloet	SILT Yellowtail Kingfish
Tetsuhiro	Kuroda	Kurose Suisan (Nissui)
Lance	Lance	Blue Ocean Mariculture
Masashi	Maita	Tokyo University of Marine Science and Technology
Shinnich	Matsuura	Alpha Hydraulic Engineering Consultants Co., Ltd.
Yasuo	Mitani	MARUICHI Co., Ltd.
Masanobu	Murakami	Nippon Suisan Kaisha, Ltd.
Yoshinobu	Obara	SEKISUI PLASTICS Co., Ltd.
Ayako	Okada	TUV Rheinland Japan Co., Inc.
Toru	Oode	AEON
Yoshito	Otsubo	Ministry of the Environment
Serge	Serge	Alltech Japan
Keizo	Shimada	Azuma-cho Prefecture Fishery Association
Toshikuni	Shiraishi	APRO JAPAN CO., Ltd.
Eiichiro	Shiraishi	APRO JAPAN CO., Ltd.
Tatsuya	Shoji	Nippon Suisan Kaisha, Ltd.
Neil	Sims	Kampachi Farms
Makoto	Tanemura	Nippon Suisan Kaisha, Ltd.
Tetsuro	Tao	RUMI Japan
Michael	Tlusty	New England Aquarium
Tokumitsu	Tokumitsu	Nippon Suisan Kaisha, Ltd.

Jose  
Aaron  
Aiko

Villalon  
Welch  
Yamauchi

WWF US  
University of Miami  
WWF Japan