

# Trends in Intensive Pond Aquaculture

- PRESENTER JIM ZHANG | U.S. SOYBEAN EXPORT COUNCIL

GLOBAL OUTLOOK FOR AQUACULTURE LEADERSHIP

GUANGZHOU, CHINA | DAY 3

HEALTHY FISH | HEALTHY PEOPLE | HEALTHY PLANET

# Jim Zhang



- Jian (Jim) Zhang is the aquaculture program manager in China for the U.S. Soybean Export Council.
- Jim joined USSEC in 1993 and has been involved with soy importing and marketing activities in China since the 1980s.
- Jim, who is from Shanghai, has been heavily promoting intensive pond aquaculture technology, or in-pond raceway technology, since the systems were introduced a few years ago.
- Read about China's uptake of IPA technology, and Jim's role in the growth of the industry: <http://advocate.gaalliance.org/goal-preview-ipa-technology-catching-on-in-china/>





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# **IPA-USSEC's Answer to China's Present Aquaculture**

**Jim Zhang**  
**US Soybean Export Council (USSEC)**  
**China Aquaculture Program Manager**

# What is IPA

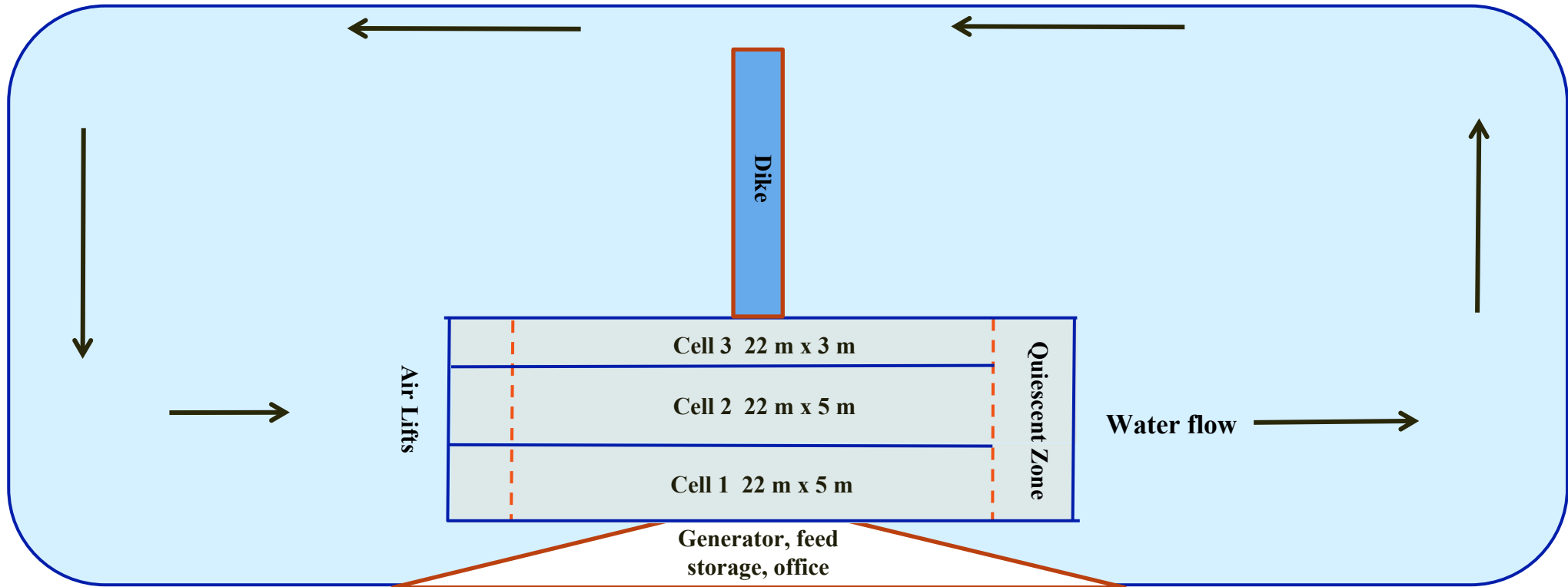
- **IPA**-Intensive Pond Aquaculture or **IRA**-In-Pond Raceway Aquaculture
- The culture of fish in raceways (cells) built in ponds or enclosed water space with water-pushing appliances in front and periodical waste-removal devices at the end



# The Nature of IPA

- It is an aquaculture technology like any other one that functions within the principle of Mother Nature that governs all human activities
- It has no fixed module regarding to the dimensions of the cells, the forms of the cells and ponds, the ratio between the cell space and pond space, the yield per unit, the water flow rate, the species that can be cultured etc. but suggested/recommended ones as all these components vary place from place, species from species
- It is not a miracle that can solve all your problems, but a tool that gives you more options to solve problems and make the production more controllable, more profitable, sustainable and environment friendly

- Pond is subdivided by an earthen dike to allow full circulation of the water flowing through the raceways and around the pond before re-entering the raceways.**



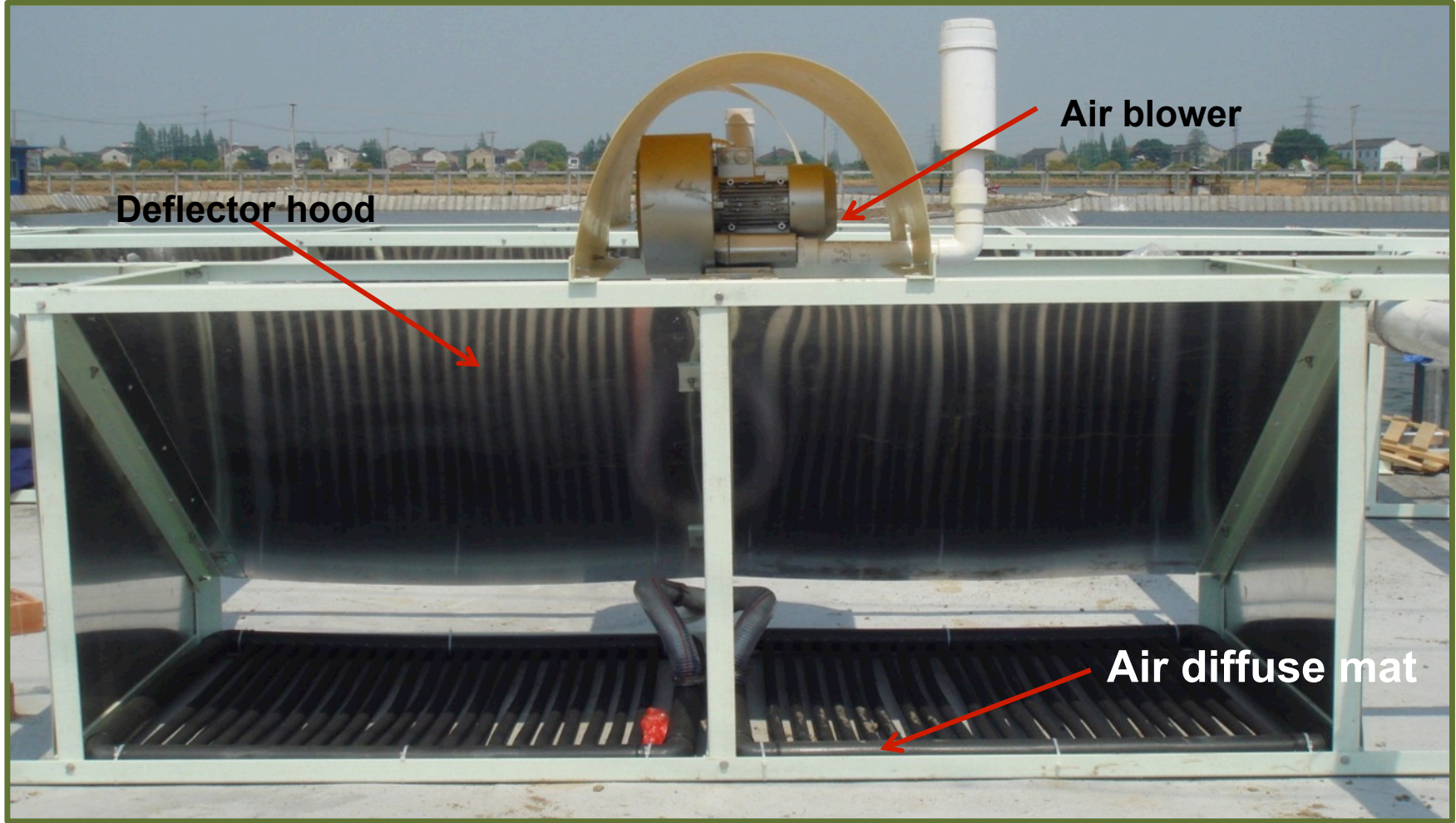


The water-pushing appliances in front of the IPA raceways



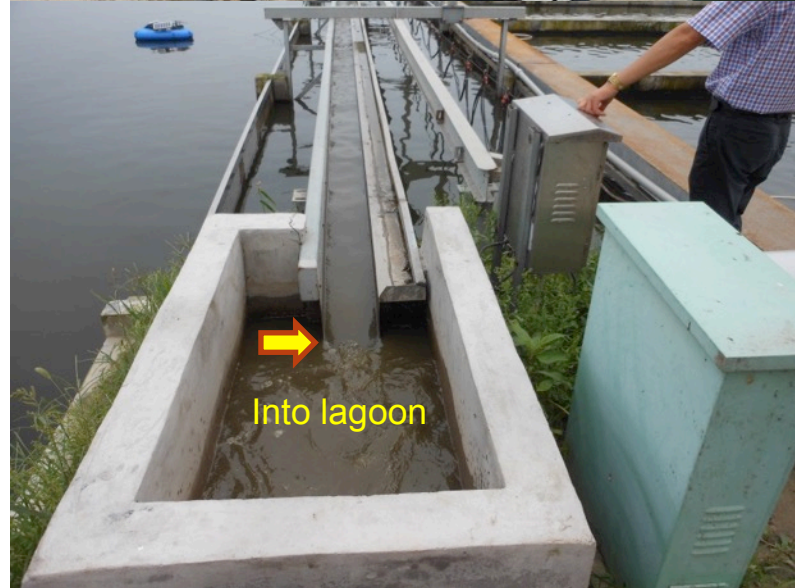
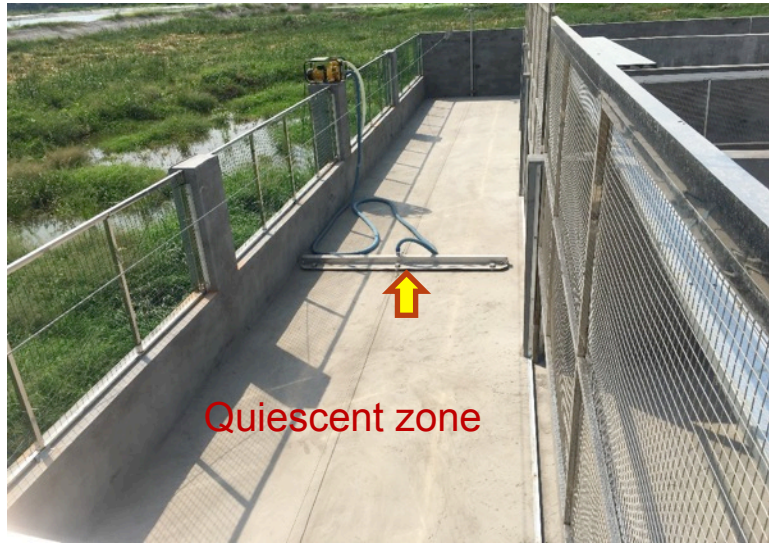
Water being pushed into IPA cells





The structure of water-pushing appliance









Front view of 52-cell IPA unit before water gets in



After water gets in





Fish taking feed in an IPA cell



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*Farming the land to sustain the sea*

# WHY USSEC PROMOTES IPA 为什么USSEC要推广IPA

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# IPA Advantages (1)

## IPA 的优势

- Environment friendly-no water discharge from production pond to outside to cause negative impact to the environment
- 环境友善-不从养殖池塘向外排水从而给环境带来负面影响
- Maximum use of available water resource-no need to add water for the entire production season unless for compensation
- 最大程度上充分利用现有水资源-在整个生产季节无需从外面向池塘内加水, 除非补水



# IPA Advantages (2)

## IPA 的优势

- High yield-more than 300% higher than average pond yield, which helps to offset the increased cost of pond rent, feed, labor and energy etc.
- 高产量-比中国传统池塘养殖产量高出300%以上，这在很大程度上克服了由于生产资料成本上涨而给养殖者带来的压力
- Better and safer aquatic products-fish are in flowing water all the time, which gives better health and flesh quality because no drug/chemical needs to be used or minimally used (1/286, data from Pingwang in 2013)
- 更好更安全的水产品-由于鱼常年处于流水环境中，鱼的健康状况一直保持良好，从而使鱼不得病或很少得病，这样就避免了物和化学物品使用，即便使用，其量也大大小于常规的使用量（1/286。）江苏平望2013年数据）



## IPA Advantages (3)

### IPA 的优势

- Because of highly concentrated culture of fish, it is much easier for daily management and harvest
- 因为是高密度集中养殖，更便于日常管理和起捕
- Different species or same species but different sizes for possible all-year-round marketing instead of seasonal marketing
- 在相对较小的养殖环境中可以做到多品种养殖或是单品种多规格养殖，从而可使周年上市，而非季节性上市

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# IPA HISTORY, PRESENT STATUS AND FUTURE TREND

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# IPA History & Trend (1)

## IPA 的历史和未来

- IPA research started in the US over 10 years ago, but no extension
- USSEC brought IPA to China in 2013 for tackling the bottlenecks and was immediately accepted by the industry
- By 2016 there are in total about 450 IPA cells in the entire country, mainly in Jiangsu, Anhui, Zhejiang and Shanghai areas





Iowa soybean farmers at USSEC's IPA demo site



The first IPA operation in China at Wujiang of Jiangsu





IPA operation in Jianhu of Jiangsu



IPA operation in Songjiang of Shanghai







## IPA History & Trend (2)

### IPA 的历史和未来

- Over 10 different freshwater species are being cultured with IPA technology
- Fast development for the coming 5 years and in more provinces
- IPA for saltwater species in ponds is in consideration
- SIPA for future as the production cost will continue to increase

## SOME TIPS FOR IPA

- Yield range between 100-150 kg/m<sup>3</sup> depending on the species
- Fed species in cells and filter species plus some aquaponics in the open water
- “Small” water body for fish culture and “large” water body for water “culture”
- Easier daily management and harvesting
- Improved flesh quality and safety
- Fixed or floating cells (relocatable)
- Continuous intelligent monitoring recommended

# Acknowledgement

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***Thank you!***

**Jim Zhang**

**[jzhang@ussec.org](mailto:jzhang@ussec.org)**



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