

To everything there is a season

by Wilf Swartz

Japanese call it *shun* (旬), the seasonality of food. It refers to the time of year when a specific type of food is at its peak, either in terms of harvest or flavour. It is not unique to Japanese culture, as The Byrds reminded us in the mid-1960s with their, now classic, rendition of "Turn! Turn! Turn! (to Everything There Is a Season)."

Unfortunately, at least in our modern culture, *shun* seems to apply to many kinds of food, but not to fish. Although we do enjoy various seasonal foods out of season, often the associations are still there. Strawberries bring to mind the early days of summer. Pumpkins, especially in pies – and sadly, Brussels sprouts – trigger the whisper of falling leaves, thoughts of turkey and Thanksgiving. Yes, turkey itself is seasonal, although in medieval times it might have been venison instead, roasted over a roaring fire on a cold winter's night. And the list goes on, and on, and on, for all but seafood, or most seafood, which has somehow fallen through the cracks.

As for the ocean's bounty, what is the best time of year to eat, or not to eat, herring or cod or tuna, or you-name-it? We've stopped viewing fish as seasonal.

And it's epidemic. Living in Vancouver, which is more attuned to fish and fisheries than most other cities in Canada, many of us are

aware when salmon is in season; yet, few of us would hesitate to order salmon rolls at a local sushi joint in the middle of February.

The reality is not that seafood lacks seasonality. In fact, as one of the few remaining, large-scale forms of hunting wild foods, marine fisheries are, without doubt, more susceptible to seasonal variations in productivity than other major food sources. We've simply found it convenient to overlook that fact for a number of reasons.

Fish stocks migrate in and out of local fishing grounds. Sometimes they are locally plentiful, and sometimes they're not. During the spawning season, a fish's body chemistry changes, e.g. fat content declines, and consequently for the consumer, flavour differs throughout the year. However, with the advancement of freezing technology and the expansion of global distribution

During the harvest season, wild British Columbia spot prawns (Pandalus platyceros) are available live for a short six to eight weeks each year. (Photo: Island Vittles/flickr.com)



What is the best time of year to eat, or not to eat, herring or cod or tuna, or you-name-it?

networks [1], retail markets are now able to supply select species (and their close substitutes) throughout the year from all corners of the world. This, in effect, masks seasonal variations in local fisheries. Our seafood consumption has gone from “fish of the day” to “fish of whenever” and doesn’t take its bearing from the season.

Furthermore, there are benefits to eating seafood in season that we’re not reaping.

Ecologically speaking, sticking to seasonal seafood would enable fisheries to diversify their target species and distribute fishing impact more evenly across the underlying marine ecosystem. Such a balanced harvest strategy, it has recently been suggested, would be useful in mitigating the adverse ecological effects of fishing, even going so far as to support sustainable fisheries [2].

In terms of economics, matching seafood demand to seasonal availability could moderate the potential for price collapses associated with oversupply during peak catch seasons. By creating a situation in which fisheries could capitalize on the pent-up demand that accrues during periods of little or no catch, the additional supply during seasons of plenty would be absorbed by additional demand. Here the example of BC spot prawns comes to mind.

Diversifying the “portfolio” of fish species targeted by fisheries would also help to mitigate the inherent risks involved with specialized fishing, allowing the

fisheries to better cope with fluctuations of specific stocks. Moreover, the promotion of seasonal seafood may present new marketing opportunities for fishes that aren’t “mainstream” and are currently treated as by-catch, thus further enhancing the economics of multi-species fisheries.

What about the benefits closer to home? A shift to consuming locally seasonal seafood would logically lead to consumption of local fish, which would have a positive impact on local fishing communities. The versatility required to shift target species and gears from season to season throughout the year is likely to favour small-scale fishing operations, which are generally perceived to be – though not necessarily – more energy-efficient and ecologically sustainable [3]. Rather than operating over a greater distance and following the migration patterns of targeted species, vessels could remain closer to their local fishing grounds, enhancing the socio-economic conditions of fishermen.

The issue is how do we promote such a major shift in our purchasing and eating habits?

“Seasonal” versions of consumer guides like OceanWise (<http://www.oceanwisecanada.org/>) and Seafood Watch (<http://www.montereybayaquarium.org/>) would be a start. And the feasibility of a seasonal seafood campaign and its effectiveness in promoting sustainable fisheries certainly needs to be investigated more closely.

But maybe the best science is no science. Yes, those left brainers, right brainers, or as we jokingly refer to them, “no brainers” may offer a key part of the solution. Eating what’s in season is a concept that intrinsically appeals to people at an emotional level. And the message should not be “eat the fish that’s in season for the ecological benefit,”

The *Sea Around Us* Project Newsletter is published by the Fisheries Centre at the University of British Columbia. Six issues are published annually, and subscriptions are free of charge.

Our mailing address is UBC Fisheries Centre, Aquatic Ecosystems Research Laboratory, 2202 Main Mall, The University of British Columbia, Vancouver, BC, Canada, V6T 1Z4. Our fax number is +1 (604) 822-8934. Our e-mail address is SeaNotes@fisheries.ubc.ca. All queries, subscription requests and address changes should be sent to Lisa Boonzaier, the *Sea Around Us* Project Newsletter editor.

The *Sea Around Us* Project website can be accessed at www.seaaroundus.org and contains up-to-date information on the Project.



The *Sea Around Us* Project is a scientific collaboration between the University of British Columbia and the Pew Environmental Group that began in July 1999. The Pew Environment Group works around the world to establish pragmatic, science-based policies that protect our oceans, wild lands and climate. Pew also sponsors scientific research that sheds new light on the dimensions of and solutions to the problems facing the global marine environment.

but rather “eat the fish that’s in season for the emotional benefit.” In other words, because it will make you feel good.

For example, where was the chestnut industry, before a songwriter wrote, “chestnuts roasting by an open fire”? We need to find some brave, bold artist to write a song praising “pilchards pickled on a picnic table.”

All jokes aside, it is time to re-introduce the seasonality of fish into the social conscience and into local diets. The consequences of standing by idly are too terrifying to contemplate. Going back to The Byrds, “I swear it’s not too late.”

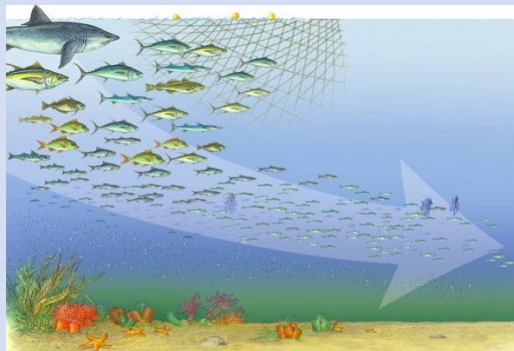
References

- [1] Swartz W, Sumaila UR, Watson R and Pauly D (2010) Sourcing seafood from the three major markets: the EU, Japan and the USA. *Marine Policy* 34: 1366-1373.
- [2] Garcia SM, Kolding J, Rice J, Rochet M-J, Zhou S, Arimoto T, Beyer JE, Borges L, Bundy A, Dunn D, Fulton EA, Hall M, Heino M, Law R, Makino M, Rijnsdorp AD, Simard F, and Smith ADM (2012) Balanced harvesting: reconsidering the consequences of selective fisheries. *Science* 335: 1045-1047.
- [3] Pauly, D (2006) Towards consilience in small-scale fisheries research. *Maritime Studies* 4: 7–22.



The feasibility of a seasonal seafood campaign and its effectiveness in promoting sustainable fisheries certainly needs to be investigated more closely

Website dedicated to “fishing down” launched



A new website (www.fishingdown.org), hosted by the *Sea Around Us* Project, has been launched. This website helps clear up misconceptions about the concept of “fishing down” in marine ecosystems – whereby fisheries have a tendency to deplete longer lived, high-trophic level species first, causing a decline in the mean trophic level of catches from an ecosystem.

Since it was first published, the fishing down concept has been documented and adopted by a broad community of marine and freshwater scientists around the world. Thus, the website also aggregates many case studies illustrating the phenomenon in marine ecosystems all over world, from Argentina to the North Sea, from Greece to the Caribbean. In 2010, the fishing down concept was challenged in a publication in the journal *Nature*. The objections that were raised are based mainly on imputations and misunderstandings, and the Fishing Down website is dedicated to clearing up the misunderstandings behind much of the controversy. One apparent problem is that fishing down can be masked by extraneous factors, such as the taxonomic over-aggregation of catch statistics. The website is intended as a response to the voiced concerns and provides scientific references about the fishing down phenomenon, including a link to the original article, led by biologist Daniel Pauly and published in the journal *Science* in 1998, titled “Fishing down marine food webs.”

We welcome you to visit www.fishingdown.org.



FISHINGDOWN.ORG

[HOME](#)
[The Science](#)
[Case Studies](#)
[The Discord](#)
[Wiki](#)
[The Sea Around Us Project](#)
[CONTACT US](#)

Sharks, “Revolution” & the role of the arts in conservation

By Aylin Ulman and Laurrene Schiller

Despite covering potentially depressing, weighty topics, the movie delivered a sense of proactivity and hope for change from the general public

With the Vancouver International Film Festival in full swing during October, we decided to check out the new environmental documentary by fellow Canadian and ocean enthusiast Rob Stewart. *Revolution* (<http://www.therevolutionmovie.com/>) is a broader and more global follow-up to Stewart’s first documentary, *Sharkwater* (<http://www.sharkwater.com/>), which he produced five years ago.

For those who have not heard of Stewart’s first film, *Sharkwater* documents the illicit global shark trade, an incredibly lucrative exploit based primarily on the wasteful and barbaric practice of shark finning. Shark fin soup is considered both a delicacy and status symbol in China, and serving this dish at government functions, weddings and other cultural festivities shows wealth and power. Unfortunately, high demand for the soup’s main ingredient has contributed to the decimation of many shark populations during the past decade. Although not the initial plan, Stewart’s *Sharkwater* ultimately documents the path from boat to dinner table, demonstrating a high level of corruption and an absence of proper legislation in many shark-fishing countries.

Given that prior to this film little had been done to raise awareness about shark finning, *Sharkwater* garnered much global attention and action from both conservation groups and the general public. Subsequent efforts include the establishment of Shark Truth (<http://www.sharktruth.com/>), a local Vancouver-based shark conservation organization, and 9,000 km away in Guam, a class of sixth graders pushed their government to ban shark-finning. The success of their campaign resulted in a similar proposal from students in nearby Palau making these two island nations part of a very small group of countries that forbid this practice.

In *Revolution*, Stewart took a different and more ambitious approach. The film documents less water and more people. However, the ocean continues to play a pivotal role as Stewart uses it to develop the plot from an evolutionary and ecological standpoint. Filming largely on his own,



Revolution, a new documentary film produced by Rob Stewart, succeeded in motivating and engaging the public on conservation issues, according to the authors. (Image: <http://www.therevolutionmovie.com/>)

in 15 countries and over four years, Stewart attempts to portray the necessary changes required by countries and their citizens in order to prevent further destruction of the Earth’s ecosystems. This is an incredibly ambitious task and one that could have taken many paths, but Stewart chose to do a simultaneous documentation of how various creatures have adapted to changes in the Earth’s climate over millions of years and the current conservation efforts of the world’s youth – action he believes is necessary for the survival of humanity.

Revolution showcases some truly incredible underwater footage, scenes of remote island civilizations and an amazing clip of baby flamboyant

cuttlefish hatching from their eggs. Yet more notable than the beauty of these shots is the importance they played in understanding the film's key messages of adaptation and conservation.

Despite covering potentially depressing, weighty topics, the movie delivers a sense of proactivity and hope for change from the general public – particularly younger generations. *Revolution* shows that while many developed nations are based on democracy, somehow leaders ignore pressing environmental issues and the concerns of their citizens. Conversely, it also shows that even companies aimed at supporting conservation initiatives are afraid of being tied to anything related to civil disobedience. At one point in the film, Stewart joins a protest against climate change in Ottawa and is quite outspoken about urging people to act on these issues. The next day he discovers that the \$5 million he'd been promised to fund *Revolution* had been pulled on account of his advocacy.

This film left us with three main take-home observations. First, it re-ignited our desire to do a bit of good in the world by standing up to protect the things we are so passionate about. "Be the change you want to see in the world" is such a common phrase these days, and here was another documentary aimed at stirring that change. Second, however, this film made us wonder how to accomplish such a goal. While everyone in the theatre likely had a similar mindset – including Stewart most of all – odds are, the majority of people in attendance had either seen *Sharkwater*

or were interested in marine and environmental conservation issues already. So while this film did deliver in terms of entertainment and awareness, one has to wonder if *Revolution*, like many other documentaries, is merely another case of preaching to the converted. Stewart did touch on this issue indirectly during the Q&A session when he proclaimed that his goal is to have *Revolution* seen by a billion people around the world. As such, he is going to make it freely available in 2013. While his goal is ambitious, we believe that Stewart has the right idea and the determination to get his message out to the public. Lastly, this film made us think about the role of science in conservation.

We believe that one of the most difficult tasks for scientists is raising awareness about our research and the ideas we feel strongly about. Advocacy in science has always been a sensitive subject and – right or wrong – it is an entirely personal choice. Art, on the other hand – whether film, print, paint, music, dance or sculpture – is typically meant to target the average citizen and inspire thought. Stewart has the ability, and the luxury, to do something that many scientists dream of: spread knowledge and beliefs en masse to the public. Even if they put a personal spin on it, filmmakers are ultimately the voice for a lot of important research and conservation issues. We believe that those who are successful at communicating science, engaging the general public, and especially, motivating others, are an integral piece of the conservation puzzle. And we felt Stewart with his movie *Revolution* achieved all of the above.

We believe that one of the most difficult tasks for scientists is raising awareness about our research and the ideas we feel strongly about



Position available: Intermediate .NET Developer

The .NET Developer will have two main areas of responsibilities: a) take charge of *Sea Around Us* Web assets [applications and databases]; and b) design various Web or Windows based prototypes/applications which may be utilised in other core or support systems, as defined by the senior project management. The successful candidate will participate in design meetings with various team members and will work closely with our senior developer.

Our office is located on the UBC campus in Vancouver, Canada.

Education level: Bachelor's degree

Relevant work experience: preferably 3+ years

Term: 6-12 months (extension possible, depending on funding)

Please see the [job openings section](http://www.seaaroundus.org/about/) on the *Sea Around Us* Project website (<http://www.seaaroundus.org/about/>) for more details and information on how to apply.