

A large school of silver fish, possibly sardines, swimming in the ocean. The fish are densely packed and moving in a coordinated pattern. The background is dark, making the silver fish stand out.

February 6, 2013 Comments

Comment: Calculation of fish consumption rate

While we believe that it is important to collect data from the population as a whole, we do not believe that non-consumers should be included in the calculation of fish consumption values.

Inclusion of data from non-consumers – i.e. 0 g/day – will result in calculating community fish consumption values that underreport the consumption rates of actual fish consumers. This will result in the development of water quality criteria that are not protective of those who actually eat fish and are thus at risk.

DEQ Response:

We agree that non-consumers should not be included in the calculation of a fish consumer rate for fish consumers; doing so will lower the calculated rate . It is also true that excluding low consumers will inflate the fish consumption rate for fish consumers.

There are two embedded issue here:

1) The main issue is how well do the data we have, or will collect, allows us to truly distinguish consumers from non-consumers.

If our target population is only those that eat fish, but we don't have a good handle on the full distribution of rates, how can we say targeting just fish consumers? Furthermore, miss-classification of low consumers as non-consumers distorts the distribution of fish consumption, and percentiles on that distribution.

2) Secondarily, what do we mean by protected?

If we are mistaken about the percentile of the population that eats a certain amount of fish, because our survey is skewed, we may not be applying the level of protection we think we are. This is where type of survey and statistical analysis applied to its data become critically important.

Comment: Suppressed rates

It is likely that many subpopulations are suppressing their fish consumption because of external factors. For instance, there are numerous fish consumption advisories in Idaho cautioning consumers to limit the amount of locally caught fish that they eat. If these advisories are having their desired effect, then communities in these areas are suppressing their fish consumption. The relative lack of fish, compared to historic abundance, may also suppress fish consumption rates.

DEQ Response:

We agree that suppression of fish consumption rates is real.

However, there are inherent difficulties in estimating past or potential rates in a manner comparable to data about actual present day rates. Absent a historical data set collected under comparable methods, we are asking people hypothetical questions – how much would you eat if? Or how much did you eat at some time in the past? The quality, confidence, in those data is hard to matchup with that we get from asking people about what they are ate yesterday.

We also see two types of suppression: 1) that due to real or perceived contamination, and 2) that due to reduced availability of fish. The former seems to be clearly in the purview of water quality criteria. The latter is not something we can correct through water quality criteria.

More importantly, the need to account for suppression now, is not clear. Health risk in the population is based on what is actually being consumed.

The commenter's scenario that

“an artificially diminished consumption level, ... may set in motion a downward spiral whereby the resulting standards permit further contamination and/or depletion of the fish and aquatic resources”

is unrealistic. This would occur only if we were entertaining adopting a fish consumption rate lower than we have now. We only see the fish consumption rate going up under the current rulemaking. The spiral looks to us to be upward.

If increased fish consumption rates do materialize in the future – due to reduced fish contamination (possibly from lowered toxics criteria) or improved fish availability – we can then adjust consumption rates upward to account for what actually occurs as a result of our efforts.

Comment: Data collection approaches

We believe that face-to-face interviews will result in the highest quality data. Further, we believe that the use of physical models to demonstrate portion size will result in more accurate approximation of how much fish is consumed in a given meal.

The use of in field creel surveys may provide a good means of ensuring that you [sic] the survey is sufficiently sampling individuals who are eating Idaho caught fish.

DEQ Response:

We agree that a face-to-face interview is likely to produce higher quality data from an individual than a phone interview or creel survey would, and is thus the best method for individual data quality. Unfortunately face-to-face interviews are costly. With a fixed budget this means there is a tradeoff in the number of interviews that can be conducted. This in turn means there is a tradeoff in the quantity of individual interviews and thus the quality of the estimation of the larger population sampled, which is improved with more interviews. The number and detail of the questions asked and thus length of each interview factors in this trade off as well.

It is unclear to DEQ at this time what the best balance will be, and what our budget will allow us to do. We have recognized the need to engage a survey expert to help us all sort this out.

Comment: Larger policy questions

We believe that it is important for Idaho to determine the acceptable level of risk and the percentile of the population that will be protected to this level prior to initiating the fish consumption survey.

These policy questions need to be resolved prior to the collection of data. If not, once the data is available, some stakeholders may try to inappropriately influence the resulting water quality criteria outcome by altering certain variables, such as risk levels and protected populations. The process and outcomes will be better if DEQ decides these policy now rather than later.

DEQ Response:

We take to heart the point about the influence knowing the distribution of fish consumption rates in Idaho will likely have on deciding the acceptable level of risk/protection for Idaho. That is why the schedule laid out by DEQ envisions taking up risk and protection, as well as other policy questions, while the data is being collected, and before it is analyzed and summarized into a distribution of fish consumption rates. This should avoid the commenter's concern.

With regard to other policy questions – such as whether or not to include market fish, or how to handle anadromous versus resident fish consumption – DEQ purposely decided it was best to decide these matters later. We made this decision for two reasons: 1) we did not want such policy decisions to possibly limit the designed scope of data to be collected and thus constrain options and broad utility of the data collected; 2) we thought it better to avoid the indeterminate delay in data collection that deciding these questions in advance would entail.

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April 10, 2013 Comments

Comments: Larger policy questions

Policy discussions should be initiated ASAP. These decisions will impact the scope of state and tribal fish consumption surveys. (USRT, CRITFC, UCUT)

We completely agree that these decisions would affect the scope of surveys and type of data collected, likely narrowing the scope and foreclosing some options down the road. This is exactly why we think it best to not let the policy decision drive the survey scope. Furthermore deciding policy question first will delay the surveys and slow the whole process down.

Deciding these [policy] questions up front will ensure the integrity of the survey evaluation by allaying any potential public concerns associated with inappropriately modifying evaluation criteria or methodologies to achieve a desired outcome. (NPT)

We completely disagree. It seems far more likely that deciding policy question up front would result in *“inappropriately modifying evaluation criteria or methodologies to achieve a desired outcome”* and adversely affect the integrity and utility of resulting data.

Comment: Timing of data analysis

Analysis of fish consumption data should be initiated as soon as both tribal and general survey reports have been vetted; not held until March 2015 as indicated in Idaho's schedule. (USRT, CRITFC, UCUT)

We agree. This appears to be a misunderstanding of our schedule. Our plan is to begin analysis of survey data as soon as it is all available and been checked for quality. However, we do not expect the data to all be available until fall of next year (2014). We further expect it will take several month's to process and analyze all of the data and then prepare for a rulemaking meeting to present the results. That is why we have presentation and discussion of survey results tentatively scheduled for March of 2015. It could be earlier or later.

Comment: Suppressed rates

Idaho's survey design should take into account suppression of fish consumption rate from historical levels. (NPT)

While we recognize that suppression is real, we see real difficulty in estimating it. We likely do not have the resources to do it well. Furthermore, our current effort does not have to be the last time we reconsider fish consumption rates. If fish consumption does rise, because improved fish quality alleviates suppression, or because of improved availability of fish, we can revisit fish consumption rates once a rise in rate occurs.

Comment: Calculation of fish consumption rate

Idaho should remove non-consumers from the calculation of fish consumption rates. (NPT)

In order to exclude (remove) non-consumers from a calculation we need to know who they are. Part of the problem we see now is that the low end of the fish consumption rate distribution may be poorly defined and thus we do not know as well as we might think we do, who is or is not a fish consumer and who is not.

Some recent surveys have had a clear focus on the high end of the consumption distribution. This biases our knowledge of the distribution of consumption for all consumers.

Comments: Basis for criteria updates

Basis for update of acrolein, phenol and copper criteria is incomplete. (CLW)

Yes, we presented only information on the effect of the change in reference dose (RfD). We are not yet done with rulemaking; the fish consumption rate we end up with will also affect the final criteria for acrolein and phenol.

Default RSC of 20% are unlikely to be appropriate to acrolein and phenol, chemical specific RSC values should be considered as best available science. (CLW)

While we agree that chemical specific relative source contribution (RSC) values are a step forward in science, we are doubtful of our ability to find or develop data that would support chemical specific RSCs.

Comments: Data collection approaches

Fish consumption survey design and criteria development should consider probabilistic approach to criteria calculation. (CLW)

We intend to explore use of probabilistic , i.e. distributional approach to criteria calculation. It is unclear to us whether we will have the time a resources to accomplish this. Furthermore, at best it appears we'd be able to do only a partial probabilistic approach. Our intent is to collect fish consumption data that will provide a distribution of these rates, not just a single point estimate. Distributional data also appears to be available, or easily obtained for body weights and drinking water intake. However, distributions for reference doses, relative source contributions and bioaccumulations factors are likely beyond our ability at this time.

Total dietary intake should be part of the fish consumption survey, not just limited to fish. This will provide a means to validate fish intake estimates in terms of dietary energy needs. (CLW)

This is a good point and something we can consider. Our budget may however limit our ability to actually implement a full dietary survey.

Why a general population survey?

- Because we have an obligation to all Idahoans
- To provide context

“If a State or Tribe chooses values (whether the central tendency or high-end values) from studies that particularly target high-end consumers, these values should be compared to high-end fish intake rates for the general population to make sure that the high-end consumers within the general population would be protected by the chosen intake rates.” EPA, 2000

- To better define and communicate level of protection

Questions to be answered?

- Who are you?
 - Age, sex, weight, ethnicity, angler, income, place of residence, length of residence
- How often do you eat fish or shellfish or foods containing fish or shellfish?
- How much fish do you eat?
- How much is from
 - Local waters, market, restaurant, elsewhere?

Questions to be answered?

- What kinds of fish do you eat?
 - Salmon, trout, marine, freshwater, etc.
- How do you prepare the fish you eat?
 - Whole or part, what parts?
 - Baked, fried, boiled, smoked, or?
- Do you limit how much fish you eat due to fish consumption advisories/contamination?
- Do you eat different kinds of fish or from different sources due to contamination?