

A New Paradigm in Fisheries Management – The Elevator Pitch

Effective fisheries management results in sustainable harvests from commercial fish stocks with concomitant attention to issues such as by-catch, societal expectations and environment/ecological matters. In New Zealand these are expected as best practice and mandated by law and regulation.

For high value fisheries, the necessary resources (manpower and money) can usually be made readily available to gather the necessary data, synthesise relevant information and make effective pragmatic fisheries management decisions. This approach can be referred to as the “**Assessment Paradigm**”. This is not always the most efficient or practical way of achieving the desired outcomes. Sometimes the necessary data cannot be gathered or analysed for technical reasons

For low value fisheries (and even some high value fisheries) the Assessment Paradigm often fails to deliver effective management decisions because the necessary resources cannot be made available; the data or the information derived from the data is inadequate (poor); and the resulting management decisions are ineffective, unduly precautionary, or quite simply never made at all – the “default decision” is no decision. The overall effect is that the full and meaningful achievement of the diverse range of often conflicting outcomes (sustainable fish stocks, managing by-catch, and meeting societal and environment/ecological expectations) is not achieved.

By contrast the “**Procedural Paradigm**” offers the opportunity to deliver the desired outcomes in fisheries management without recourse to all of the resources required for the Assessment Paradigm. The degree to which these outcomes are delivered is not always as great as could in theory be achieved if the resources necessary for the Assessment Paradigm were deployed. However, by adopting the more strategic approach of the Procedural Paradigm, sound and pragmatic outcomes can be achieved within accepted resource constraints. And in cases where the Assessment Paradigm cannot be deployed (for whatever reasons), the Procedural Paradigm is virtually guaranteed to deliver improved outcomes.

The three key differences between the two paradigms (procedural versus assessment) can best be summarised as follows:

- Repeatedly *evaluating* the performance of alternative management plans (procedures), versus repeatedly *estimating* (assessing) the current state of the fisheries stock.
- Methodically considering the *performance* (better or worse) of alternative management procedures in terms of the probabilities of achieving desired outcomes (risk assessment) versus ongoing commitment to *standard methods*, sometimes requiring data that cannot or will not be collected.
- Adopting a *robust and adaptive* approach whereby the selection of “better” procedures mitigates the uncertainties in data collection and analysis that drives the *precautionary* approach that often dominates data poor assessments.

A more complete discussion can be found in “Contrasting Paradigms for Fisheries Management Decision Making: How Well Do They Serve Data-Poor Fisheries?” Nokome Bentley, Kevin Stokes, Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science 1:391–401, 2009