Preface

This document serves to capture the methodologies we used in the Energy Modeling and Analysis eXercise (EMAX) to present the parameter values across all taxa (biomass, consumption, production, respiration, other rate estimates, diet compositions, etc.). The intent is not to provide particular scenarios or detailed analyses of the networks modeled, nor to present results of any particular group, as many of these are reported in other venues. Rather, we wanted to document the methodological approaches we used in one place for future reference.

Each subject matter expert or group of experts is noted as the lead for each section, and references are kept within each section for proximity to the subject matter.

The document is organized into four main sections. First is an introduction which provides the background context and rationale for why we undertook this exercise. A list of acronyms is provided here.

The second and largest section is a series of chapters outlining how biomasses were estimated for each of the network nodes. The format of each generally follows the same outline. First, any relevant background information is provided, including a species list. Next is an annotation (with references) of the data sources from which biomass estimates were obtained. Following that is a section noting the quantitative approaches for estimatation, and finally, any germane example results are presented to help clarify the methodology. We also include the major rate values where appropriate.

The third section treats respiration, consumption, diet composition, fisheries and other removals separately. These parameters are common across nodes and as such are presented distinct from any particular node. This section also includes the modeling protocols and how we constructed, balanced, and utilized the network.

Finally there is a discussion section which includes a glossary and appendix of the input matrices. The discussion reports on key data gaps and lessons learned from EMAX; the glossary defines some key terms used in the model; and the appendix presents the prebalanced data matrices.

Nearly twenty researchers worked to bring information together for this reference document, and we hope it will well serve future EMAX efforts.

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