



ICAR-CIBA - a nodal R&D agency working in brackishwater aquaculture for the past three decades with a vision of environmentally sustainable, economically viable and socially acceptable aquaculture technologies, system interventions, technology backstopping and policy inputs by the institute, contributing to economic benefits of the sector which has already recorded annual export revenue of ₹ 23,000 crores apart from domestic consumption.

CarryCap –An online aquaculture planning tool for the estimation of carrying capacity of water bodies

ICAR-CIBA

Rationale

A key element in many definitions of sustainable development of shrimp farming is to stay within the “carrying capacity” of the ecosystem. The unplanned and uncontrolled expansion of shrimp aquaculture in developing countries poses risks of exceeding the carrying capacity of the source water bodies. This leads to negative impacts on the sustainability of aquaculture, through poor productivity and occurrence of diseases. Carrying capacity (CC) is the number of enterprises which can be supported by a defined area, ecosystem or coastline. The carrying capacity of coastal areas for aquaculture should be assessed and guidelines provided for considering further increase in area under shrimp farming in the coastal region.



CarryCap

Carrying Capacity Estimation of Waterbodies

This tool estimates the Carrying Capacity (CC) of source water for brackishwater aquaculture. CC refers to the maximum development of aquaculture farming that a waterbody can accommodate without excessive water quality degradation. The CC of a waterbody can be defined in terms of nutrient loading as the level of nutrients, which can be assimilated by the waterbody without exceeding the permissible levels. It essentially depends on the hydrological conditions such as tidal aptitude, tidal current and ecological conditions. The aquaculture area that can be operated sustainably on source water will be quantified and its estimation requires data collection of various parameters for use in carrying capacity estimation for one year or atleast for one crop and more refined modeling. This tool will be of immense use to brackishwater farming sector and government agencies dealing with land use planning, aqua zoning and environmental regulation.

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For Queries/Suggestions Pl. Contact
[Dr. M. Muralidhar](#)

For further details
Dr. K.K. Vijayan, Director
ICAR-Central Institute of Brackishwater Aquaculture
75, Santhome High Road, MRC Nagar,
Chennai - 600 028
TN, India

Highlights of the technology

- Conceptual model and the methodology for the assessment of carrying capacity of water bodies in relation to aquaculture are translated into online tool.
- CarryCap tool defines the maximum nutrient loading which can be assimilated by the waterbody based on its dilution rate and flushing time without exceeding the permissible levels of waterbodies.
- Decision support online tool to estimate the optimum farming area for brackishwater species on a particular water source.

Likely impact of the technology

This tool can be used for the estimation of carrying capacity of source water bodies for optimization of brackishwater aquaculture development. The online tool can help the state governments and other regulatory organisations to regulate the level of aquaculture activity and to develop guidelines for further development of farming area within suitably zoned areas. The CC models will provide information necessary for the formulation of strategies to integrate shrimp farming into coastal zone management. The importance and utility of the tool was presented to the Officers of Fisheries Department of the States Andhra Pradesh for the purpose of aquaculture zonation.



CarryCap

Carrying Capacity Estimation of Waterbodies

Site Registration

Personal information	
Name	<input type="text"/>
Email-id	<input type="text"/>
Occupation	<input type="text"/>
Address	<input type="text"/>
State	Andhra Pradesh ▼
Mobile Number	<input type="text"/>
Location information	
Name of the Waterbody	<input type="text"/>
Location of the waterbody (District)	<input type="text"/>
Location (Mandal)	<input type="text"/>
Location (Villages)	<input type="text"/>
Total area developed on waterbody (ha)	<input type="text"/>
Species	Shrimp ▼
Choose Starting month	January ▼
Number of Months	1 ▼
Whether Paddy cultivation is included?	No ▼

Register

“Brackishwater Aquaculture for Food, Employment and Prosperity”

ICAR-Central Institute of Brackishwater Aquaculture

(ISO 9001:2015 certified)

Indian Council of Agricultural Research,

75, Santhome High Road, MRC Nagar, Chennai 600 028 Tamil Nadu, India

Phone: +91 44 24618817, 24616948, 24610565 | Fax: +91 44 24610311

Web: www.ciba.res.in | Email: director.ciba@icar.gov.in, director@ciba.res.in