



# Aquaculture engineering

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Lekang, Odd-Ivar

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Monografía

"As aquaculture continues to grow at a rapid pace, understanding the engineering behind aquatic production facilities is of increasing importance for all those working in the industry. Aquaculture engineering requires knowledge of the many general aspects of engineering such as material technology, building design and construction, mechanical engineering, and environmental engineering. In comprehensive book now in its second edition, author Odd-Ivar Lekang introduces these principles and demonstrates how such technical knowledge can be applied to aquaculture systems"--

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**Título:** Aquaculture engineering Odd-Ivar Lekang

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**Descripción física:** 1 online resource (xv, 415 pages) illustrations

**Bibliografía:** Includes bibliographical references and index

**Contenido:** Aquaculture Engineering; Copyright; Contents; Preface; 1 Introduction; 1.1 Aquaculture engineering; 1.2 Classification of aquaculture; 1.3 The farm: technical components in a system; 1.3.1 Land-based hatchery and juvenile production farm; 1.3.2 On-growing sea cage farm; 1.4 Future trends: increased importance of aquaculture engineering; 1.5 This textbook; References; 2 Water Transport; 2.1 Introduction; 2.2 Pipe and pipe parts; 2.2.1 Pipes; 2.2.2 Valves; 2.2.3 Pipe parts: fittings; 2.2.4 Pipe connections: jointing; 2.2.5 Mooring of pipes; 2.2.6 Ditches for pipes 2.3 Water flow and head loss in channels and pipe systems 2.3.1 Water flow; 2.3.2 Head loss in pipelines; 2.3.3 Head loss in single parts (fittings); 2.4 Pumps; 2.4.1 Types of pump; 2.4.2 Some definitions; 2.4.3 Pumping of water requires energy; 2.4.4 Centrifugal and propeller pumps; 2.4.5 Pump performance curves and working point for centrifugal pumps; 2.4.6 Change of water flow or pressure; 2.4.7 Regulation of flow from selected pumps; References; 3 Water Quality and Water Treatment: An Introduction; 3.1 Increased focus on water quality; 3.2 Inlet water; 3.3 Outlet water; 3.4 Water treatment 6.2 Characterization of the water 6.3 Methods for particle removal in fish farming; 6.3.1 Mechanical filters and microscreens; 6.3.2 Depth filtration: granular medium filters; 6.3.3 Settling or gravity filters; 6.3.4 Integrated treatment systems; 6.4 Hydraulic loads on filter units; 6.5 Purification efficiency; 6.6 Dual drain tank; 6.7 Local ecological solutions; References; 7 Protein Skimming,

Flotation, Coagulation and Flocculation; 7.1 Introduction; 7.1.1 Surface tension, cohesion and adhesion; 7.1.2 Surfactants; 7.2 Mechanisms for attachment and removal 7.2.1 Attachment of particles to rising bubbles by collision, typically in flotation 7.2.2 Improving colloid and particle removal rates: pretreatment; 7.2.3 Attachment of surface-active substances, typically in protein skimmers; 7.2.4 Particle attachment by nucleation; 7.3 Bubbles; 7.3.1 What is a gas bubble?; 7.3.2 Methods for bubble generation; 7.3.3 Bubble size; 7.3.4 Bubble coalescence; 7.4 Foam; 7.4.1 What is foam?; 7.4.2 Foam stability; 7.4.3 Foam breakers; 7.5 Introduction of bubbles affects the gas concentration in the water; 7.6 Use of bubble columns in aquaculture

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