



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: IZBRANA POGlavJA IZ EkOLOGIJE MORJA
Course title: SELECTED TOPICS IN MARINE ECOLOGY

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Doktorski študij Ekološke znanosti, 3. stopnja		1. ali 2.; 1st or 2nd	1. 2. ali 3. ; 1st, 2nd or 3rd
Doctoral Study Ecological Sciences, 3rd degree			

Vrsta predmeta / Course type

Izbirni/Elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Lab. vaje Laboratory work	Terenske vaje Field work	Samost. delo Individ. work	ECTS
5				5	140	5

Nosilec predmeta / Lecturer:

Lovrenc LIPEJ

Jeziki / Predavanja / Lectures: slovenski / slovene
Languages: Vaje / Tutorial: slovenski / slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Poznavanje organizmov in ekologije na ravni univerzitetnega programa

Prerequisites:

Knowledge of organisms and ecology at graduate level.

Vsebina:

Izbrana poglavja se nanašajo na aktualne vsebine iz ekologije morja.

1. abiotiski in biotski dejavniki, ki vplivajo na raznolikost življenj v morju
2. bioinvazija in tropikalizacija Sredozemskega morja
3. prostorska heterogenost in morska biodiverziteteta
4. biokonstrukcija in bioerozija v morskem

Content (Syllabus outline):

Selected chapters are dealing with actual topics of marine ecology.

1. Impact of abiotic and biotic factors on the marine biodiversity
2. bioinvasion & tropicalisation of the Mediterranean sea
3. spatial heterogeneity and marine biodiversity
4. biocostruction & bioerosion in marine

okolju

5. koralni grebeni in umetni podvodni grebeni
6. bentoška bionomija Jadranskega morja s posebnim poudarkom na ogroženih biocenozah

environment

5. coral reefs and artificial reefs
6. benthic bionomy of the Adriatic Sea with special regard to the endangered biocoenoses

Temeljni literatura in viri / Readings:

LIPEJ, L., TURK, R., MAKOVEC, T. 2006. *Ogrožene vrste in habitatni tipi v slovenskem morju = Endangered species and habitat types in the Slovenian sea*. Ljubljana: Zavod RS za varstvo narave, 264 str.

NYBAKKEN, J. W. 1997. *Marine Biology: An Ecological Approach*. 4th Edition. Addison-Wesley Educational Publ. Inc., 481 pp.

PERES, J-M., GAMULIN BRIDA, H. 1973. *Biološka oceanografija*. Bentos. BENTOSKA bionomija Jadranskog mora. Školska knjiga, Zagreb, 493 str.

Cilji in kompetence:

- podrobno seznaniti slušatelje z abiotскими in biotskimi dejavniki, ki narekujejo razporeditev živih organizmov v obrežnem pasu
- podrobno seznaniti slušatelje z vplivom historičnih in recentnih dogajanj na biodiverzitetu v morju (Isepska selitev, tropikalizacija, masovna izumiranja, mesinska kriza, epizodični pojavi)
- podrobno seznaniti slušatelje z osnovami morske biogeografije s posebnim poudarkom na bentoško bionomijo Jadranskega in Sredozemskega morja
- podrobno seznaniti slušatelje z ekološkimi procesi biokonstrukcije in bioerozije
- podrobno seznaniti študente s sodobnimi pristopi in tehnikami raziskovanja morske ekologije

Objectives and competences:

- to give advanced overview of the ecological (abiotic & biotic) factors which are structuring the zonation of living organisms in littoral stage
- to explain in detail the historical and recent events in marine realm from the aspect biodiversity (Lessepsian migration, tropicalisation, global extinctions, episodic events, Messinian crisis)
- to give advanced overview on the marine biogeography with special emphasis to benthic bionomy of the Adriatic and Mediterranean seas
- to explain in detail the ecological processes of bioconstruction and bioerosion
- to present in detail the modern approaches and techniques for the study of marine ecology

Predvideni študijski rezultati:**Znanje in razumevanje:**

- dobro poznavanje zonacije obrežnega morja
- dobro poznavanje ekoloških dejavnikov, ki vplivajo na raznolikost življenja v morju
- dobro razumevanje sodobnih procesov, s katerimi se danes soočata Jadransko in Sredozemsko morje
- dobro poznavanje principov morske biogeografije in bentoške bionomije
- dobro poznavanje procesov, povezanih s klimatskimi in oceanografskimi spremembami

Prenesljive/ključne spretnosti in drugi atributi:

- podrobno prepoznavanje obrežnih pasov,
- dobro razumevanje vpliva ekoloških dejavnikov na procese v morju
- dobro razumevanje globalnih oceanografskih in podnebnih sprememb in njihov vpliv na živi svet morja
- dobro poznavanje sodobnih vzorčevalnih pristopov in tehnik

Intended learning outcomes:**Knowledge and understanding:**

- advanced knowledge of zonation of the the coastal sea
- advanced knowledge of ecological factors, which are having impact on the marine biodiversity
- advanced knowledge of recent processes, which are known to affect the biodiversity of the Adriatic and Mediterranean Seas
- advanced knowledge of principles of marine biogeography and benthic bionomy
- advanced knowledge of global climate and oceanographic changes in amrine realm

Transferable/Key Skills and other attributes:

- advanced recognition of zonation in marine organisms,
- capability to understand the impact of ecological factors on processes in the marine realm,
- capability of advance recognition of global and climate changes and their effects on living marine organisms
- advanced knowledge on modern sampling approaches and techniques

Metode poučevanja in učenja:

- predavanja
- laboratorijske vaje
- terenske vaje

Learning and teaching methods:

- lectures
- laboratory excersises
- field excersises

Načini ocenjevanja:

- seminarska naloga
- ustni izpit

Delež (v %) /

Weight (in %)

Assessment:

	30/70	<ul style="list-style-type: none"> - seminar essay - oral exam
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Reference nosilca / Lecturer's references:

LIPEJ, Lovrenc, ORLANDO-BONACA, Martina, ŠIŠKO, Milijan. Coastal fish diversity in three marine protected areas and one unprotected area in the Gulf of Trieste (Northern Adriatic). *Mar. ecol. (Berl.)*, Dec. 2003, letn. 24, št. 4, str. 259-273.

LIPEJ, Lovrenc, DE MADDALENA, Alessandro (avtor, ilustrator), SOLDI, Alen. *Sharks of the Adriatic sea*, (Knjižnica Annales Majora). Koper: Univerza na Primorskem, Znanstveno-raziskovalno središče: Zgodovinsko društvo za južno Primorsko, 2004. 253 str.

LIPEJ, Lovrenc, ORLANDO-BONACA, Martina, MAKOVEC, Tihomir. Raziskovanje biodiverzitete v slovenskem morju. Piran: Morska biološka postaja, Nacionalni inštitut za biologijo, 2004. 136 str.,

LIPEJ, Lovrenc, DULČIĆ, Jakov. The current status of Adriatic fish biodiversity. V: GRIFFITHS, Huw I. (ur.), KRYŠTUFEK, Boris (ur.), REED, Jane M. (ur.). *Balkan biodiversity : pattern and process in the European hotspot*. Dordrecht; London: Kluwer Academic, 2004, str. 291-306

LIPEJ, Lovrenc, TURK, Robert, MAKOVEC, Tihomir. Ogrožene vrste in habitatni tipi v slovenskem morju = Endangered species and habitat types in the Slovenian sea. Ljubljana: Zavod RS za varstvo narave, 2006. 264 str.

HERLER, Juergen, LIPEJ, Lovrenc, MAKOVEC, Tihomir. A simple technique for digital imaging of live and preserved small fish specimens. *Cybium*, ISSN 0399-0974, 2007, letn. 31, št. 1, str. 39-44.

LIPEJ, Lovrenc, DULČIĆ, Jakov. *Checklist of the Adriatic sea fishes*, (Zootaxa, 2589). Auckland: Magnolia Press, 2010. 92 str. ISBN 978-1-86977-575-9.

LIPEJ, Lovrenc, MAVRIČ, Borut, REŠEK, Snežna, CHERIF, Mourad, CAPAPÉ, Christian. Food and feeding habits of the blackspotted smooth-hound, *Mustelus punctulatus* (Elasmobranchii: carcharhiniformes: Triakidae), from the Northern Adriatic. *Acta Ichthyologica et Piscatoria (Internet)*, 2011, vol. 41, no. 3, str. 171-177.

LIPEJ, Lovrenc, MAVRIČ, Borut, PALISKA, Dejan, CAPAPÉ, Christian. Feeding habits of the pelagic stingray *Pteroplatytrygon violacea* (Chondrichthyes: Dasyatidae) in the Adriatic Sea. *Journal of the Marine Biological Association of the United Kingdom*, ISSN 0025-3154, 2013, vol. 93, issue 2, str. 285-290,

MAVRIČ, Borut, URBANIČ, Gorazd, LIPEJ, Lovrenc, SIMBOURA, Nomiki. Influence of sample size on ecological status assessment using marine benthic invertebrate-based indices. *Marine ecology*, ISSN 0173-9565, 2013, vol. 34, issue 1, str. 72-79, doi: [10.1111/j.1439-0485.2012.00526.x](https://doi.org/10.1111/j.1439-0485.2012.00526.x).

KRUŽIĆ, Petar, LIPEJ, Lovrenc, MAVRIČ, Borut, RODIĆ, Petra. Impact of bleaching on the coral *Cladocora caespitosa* in the eastern Adriatic sea. *Marine ecology, Progress series*, ISSN 0171-8630, 2014, vol. 509, str. 193-202, ilustr. <http://www.int-res.com/articles/meps2014/509/m509p193.pdf>, doi: [10.3354/meps10962](https://doi.org/10.3354/meps10962).

BELLO, Giambattista, CAUSSE, Romain, LIPEJ, Lovrenc, DULČIĆ, Jakov. A proposed best practice approach to overcome unverified and unverifiable "first records" in ichthyology. *Cybium*, ISSN 0399-0974, 2014, vol. 38, issue 1, str. 9-14. <http://www.mnhn.fr/sfi/cybium/numeros/2014/38/sommaire381.html>, <http://www.mnhn.fr/sfi/cybium/>.