A comparison of the survival and migration of wild and F1-hatchery-reared brown trout (Salmo trutta) smolts traversing an artificial lake

Supplementing salmonid populations by stocking is a widely-used method to improve catch or to rehabilitate populations. Though, most studies found that survival and fitness of hatchery-reared salmonids is inferior to wild fish. We compared survival, emigration patterns, migration speed and return rates from the sea of wild and 1-year old F1-hatchery-reared brown trout smolts in a Danish lowland stream that contains an artificial lake using passive integrated transponder telemetry in the years 2011–2013 and 2016. The majority of hatchery-reared smolts descended within 72 h after their release, whereas wild fish migration was mainly triggered by increased water discharge. Increased probability of a successful lake passage was found at higher discharge. Within years, the groups differed in lake passage time, but without a significant overall difference. Overall, there was no difference in lake survival (wild: 30%, hatchery-reared: 32%) between the two groups, but survival differed between years. Only a single fish (0.9%) of the hatchery-reared smolts tagged in 2011–2013 returned from the sea compared to 11 (6.4%) wild smolts tagged in that period, which questions the value of supplementary stocking of smolts for conservation purposes.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Technical University of Denmark, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Schwinn, M. (Intern), Baktoft, H. (Intern), Aarestrup, K. (Intern), Koed, A. (Intern)
Pages: 47-55
Publication date: 1 Dec 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Fisheries Research
Volume: 196
ISSN (Print): 0165-7836
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.21 SJR 1.12 SNIP 1.136
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.067 SNIP 1.133 CiteScore 2.01
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.105 SNIP 1.312 CiteScore 2.17
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.037 SNIP 1.173 CiteScore 1.85
Følg den naturlige udvandring af ørred- og laksesmolt fra danske vandløb

General information
State: Published
Organisations: National Institute of Aquatic Resources, Institute Management, Section for Freshwater Fisheries Ecology
Authors: Koed, A. (Intern), Aarestrup, K. (Intern), Baktoft, H. (Intern), Sivebæk, F. (Intern), Geertz-Hansen, P. (Intern)
Publication date: 2017

Publication information
Source/Publisher: Fiskepleje.dk
Pike (Esox lucius L.) on the edge: consistent individual movement patterns in transitional waters of the western Baltic

Pike in the western Baltic Sea live on the edge of their salinity tolerance. Under physiologically challenging conditions, organism may respond by moving to environmentally more benign areas during critical periods, such as during spawning. We hypothesised that pike in a brackish lagoon (8–10 ppt salinity) would perform spawning- and feeding-related movements between areas with different salinity regimes. Twenty-two pike were caught prior to spawning, tagged with acoustic transmitters, and their movements were tracked for 18 months. Pike showed two main patterns of movements that were consistent within individuals across two years. Whereas some individuals stayed in the lagoon year-round, most pike left the lagoon for longer periods after spawning and returned to the lagoon prior to following year’s spawning season. We found no evidence that probability of moving out of the lagoon co-varied with either length or condition factor. Despite the fact that the lagoon’s salinity is close to the reported upper limit for pike egg development, results indicated that all pike spawned in the lagoon. Correspondingly, genetic data showed that all fish belonged to the same reproductive population unit. Movement patterns thus appear to reflect individual variation in home-range and/or resource optimisation following ideal free principles.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Section for Marine Living Resources, Institute Management
Authors: Jacobsen, L. (Intern), Bekkevold, D. (Intern), Berg, S. (Intern), Jepsen, N. (Intern), Koed, A. (Intern), Aarestrup, K. (Intern), Baktoft, H. (Intern), Skov, C. (Intern)
Pages: 143–154
Publication date: 2017
Publication Information
Journal: Hydrobiologia
Shining the light on the loss of rheophilic fish habitat in lowland rivers as a forgotten consequence of barriers and its implications for management

Abstract

1. The majority of rivers around Europe have been modified in one way or another, and no longer have an original, continuous flow from source to outlet. The presence of weirs and dams has altered habitats, thus affecting the wildlife that lives within them. This is especially true for migrating rheophilic fish species, which, in addition to safe passage, depend on gradient and fast-flowing waters for reproductive success and early development.

2. Thus far, research has focused on investigating the impacts of weirs and dams on fish passage, with less attention paid to the loss of habitat entrained by such infrastructure. The loss of rheophilic habitat is particularly important in lowland streams, where gradient is limited, and dams and weirs can be constructed with less effort.

3. Denmark is considered a typical lowland country, where the landscape around streams and rivers has been modified by
agriculture and other human activities for centuries, leaving management practitioners wondering how much change is acceptable to maintain sustainable fish populations and fisheries practices.

4. With examples from Denmark, this paper attempts to conceptualize the loss in habitat as a result of barriers in lowland streams and rivers, and the repercussions that such alterations may have on rheophilic fish populations. Furthermore, the need for management to address habitat loss and its related consequences concurrently with the improvement of fish passage is emphasized.

**General information**

State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management, Limfjord Council
Authors: Birnie-Gauvin, K. (Intern), Aarestrup, K. (Intern), Riiis, T. M. O. (Ekstern), Jepsen, N. (Intern), Koed, A. (Intern)
Publication date: 2017
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Aquatic Conservation : Marine and Freshwater Ecosystems
ISSN (Print): 1052-7613
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.5 SJR 1.099 SNIP 1.018
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.066 SNIP 1.025 CiteScore 1.98
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.983 SNIP 1.196 CiteScore 1.99
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.116 SNIP 1.009 CiteScore 1.95
Scopus rating (2012): SJR 1.055 SNIP 1.134 CiteScore 2.15
Scopus rating (2011): SJR 1.164 SNIP 1.108 CiteScore 1.97
Scopus rating (2010): SJR 0.885 SNIP 0.936
Scopus rating (2009): SJR 0.824 SNIP 0.903
Scopus rating (2008): SJR 1.035 SNIP 1.182
Scopus rating (2007): SJR 0.802 SNIP 0.948
Scopus rating (2006): SJR 0.833 SNIP 0.928
Scopus rating (2005): SJR 0.81 SNIP 0.981
Scopus rating (2004): SJR 0.634 SNIP 1.333
Scopus rating (2003): SJR 0.606 SNIP 0.656
Scopus rating (2002): SJR 0.566 SNIP 0.593
Scopus rating (2001): SJR 0.571 SNIP 0.753
Scopus rating (2000): SJR 0.757 SNIP 0.784
Scopus rating (1999): SJR 0.545 SNIP 0.94

Original language: English
DOIs: 10.1002/aqc.2795

Survival of migrating sea trout (Salmo trutta) smolts during their passage of an artificial lake in a Danish lowland stream

Artificial lake development is often used as a management tool to reduce nutrient runoff to coastal waters. Denmark has restored more than 10 000 ha of wetlands and lakes in the last 14 years as a consequence of ‘Action Plans for the Aquatic Environment’, which aim to meet the demands of the European Union’s Water Framework Directive. Juvenile, seaward migrating salmonids are highly affected by impounded waterbodies, as they are subjected to extraordinary high mortalities due to predation and altered habitat. From 2005 to 2015, survival and migration patterns of wild brown trout (Salmo trutta) smolts were investigated by using radio, acoustic and Passive Integrated Transponder telemetry both before and after the development of an artificial lake in a small Danish lowland stream. In 2005 and 2006, before the lake developed, survival was estimated to be 100% in the river stretch where the lake later developed. In 2007 and in the period between 2009 and 2015, mean yearly survival...
decreased to 26%. Mean time for passing the area increased significantly after the development of the lake from 0.42 to 5.95 days. Generalized additive models were used to model the probability of a successful passage. Water temperature and discharge were key environmental factors affecting survival of the smolts during the passage of the lake. Furthermore, smolt survival was negatively correlated with condition factor. This elevated level of smolt mortality may seriously compromise self-sustaining anadromous salmonid populations when artificial lakes are developed in connection with rivers.
Vådområder kan påvirke de naturlige fiskebestande negativt

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Schwinn, M. (Intern), Nielsen, J. (Intern), Koed, A. (Intern)
Publication date: 2017

Publication Information
Source/Publisher: Fiskepleje.dk
Main Research Area: Technical/natural sciences
Publication: Communication › Internet publication – Annual report year: 2017

De naturlige bestande af ørreder i danske ørredvandløb målt i forhold til ørredindekset DFFVø

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Nielsen, J. (Intern), Koed, A. (Intern), Baktoft, H. (Intern)
Publication date: 2016
Event: Paper presented at Ferskvandssymposiet, København, Denmark.
Main Research Area: Technical/natural sciences
Electronic versions:
Publishers version
Publication: Research › Paper – Annual report year: 2016

Fiskeriologisk vurdering af effekterne på ørredbestandene og havørredfiskeriet ved en forventet vandløbsindsats og etablering af vådområder

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Nielsen, J. (Intern), Koed, A. (Intern)
Number of pages: 49
Publication date: 2016

Publication Information
Publisher: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet
ISBN (Electronic): 978-87-7481-221-0
Original language: Danish

Series: DTU Aqua-rapport
Number: 310-2016
Main Research Area: Technical/natural sciences
Electronic versions:
Publishers version
Links: http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008
Laksebestanden er mangedoblet i Sneum Å

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Jepsen, N. (Intern), Koed, A. (Intern), Sivebæk, F. (Intern)
Publication date: 2016

Laksebestanden i Ribe Å 2014

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Pedersen, S. (Intern), Koed, A. (Intern), Aarestrup, K. (Intern), Jepsen, N. (Intern), Sivebæk, F. (Intern)
Number of pages: 88
Publication date: 2016

Laksen i Storå skal fremover klare sig uden udsætninger

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management, Section for Marine Living Resources
Authors: Sivebæk, F. (Intern), Koed, A. (Intern), Eg Nielsen, E. (Intern), Jepsen, N. (Intern), Aarestrup, K. (Intern)
Publication date: 2016

Miljøindsats i ørredvandløb kan fordoble lystfiskernes fangst af wilde havørreder

General information
Phenotypic variation in metabolism and morphology correlating with animal swimming activity in the wild: relevance for the OCLTT (oxygen- and capacity-limitation of thermal tolerance), allocation and performance models

Ongoing climate change is affecting animal physiology in many parts of the world. Using metabolism, the oxygen- and capacity-limitation of thermal tolerance (OCLTT) hypothesis provides a tool to predict the responses of ectothermic animals to variation in temperature, oxygen availability and pH in the aquatic environment. The hypothesis remains controversial, however, and has been questioned in several studies. A positive relationship between aerobic metabolic scope and animal activity would be consistent with the OCLTT but has rarely been tested. Moreover, the performance model and the allocation model predict positive and negative relationships, respectively, between standard metabolic rate and activity. Finally, animal activity could be affected by individual morphology because of covariation with cost of transport. Therefore, we hypothesized that individual variation in activity is correlated with variation in metabolism and morphology. To test this prediction, we captured 23 wild European perch (Perca fluviatilis) in a lake, tagged them with telemetry transmitters, measured standard and maximal metabolic rates, aerobic metabolic scope and fineness ratio and returned the fish to the lake to quantify individual in situ activity levels. Metabolic rates were measured using intermittent flow respirometry, whereas the activity assay involved high-resolution telemetry providing positions every 30 s over 12 days. We found no correlation between individual metabolic traits and activity, whereas individual fineness ratio correlated with activity. Independent of body length, and consistent with physics theory, slender fish maintained faster mean and maximal swimming speeds, but this variation did not result in a larger area (in square metres) explored per 24 h. Testing assumptions and predictions of recent conceptual models, our study indicates that individual metabolism is not a strong determinant of animal activity, in contrast to individual morphology, which is correlated with in situ activity patterns.
Samfunds- og sektørekonomisk analyse af vandmiljøindsatsen i Landdistriktsprogrammet (LDP) og Fiskeriprogrammet (EHFF)

General information
State: Published
Organisations: National Institute of Aquatic Resources, Institute Management, Section for Freshwater Fisheries Ecology, Section for Ecosystem based Marine Management, Aarhus University, University of Copenhagen
Authors: Hasler, B. (Ekstern), Dubgaard, A. (Forskerdatabase), Eberhardt, J. M. (Ekstern), Koed, A. (Intern), Martinsen, L. (Forskerdatabase), Nielsen, J. (Intern), Støttrup, J. G. (Intern), Wisz, M. (Intern)
Number of pages: 104
Publication date: 2016

Publication information
Publisher: Aarhus Universitet, DCE – Nationalt Center for Miljø og Energi
ISBN (Print): 978-87-7156-244-6
Original language: Danish
Series: Videnskabelig rapport fra DCE - Nationalt Center for Miljø og Energi
Number: 214
Main Research Area: Technical/natural sciences
Electronic versions:
Publishers version
Links:
Publication: Research › Report – Annual report year: 2016

Stor fremgang for Storåens laksebestand

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Jepsen, N. (Intern), Koed, A. (Intern), Sivebæk, F. (Intern)
Publication date: 2016

Publication information
Source/Publisher: Fiskepleje.dk
Main Research Area: Technical/natural sciences
Links:
http://www.fiskepleje.dk/Nyheder/2016/02/Storaa-laksebestand-2015?id=a6f97a29-5cbb-4a18-a53b-8819e5bb9d9b%44utm_source=newsletter&utm_media=mail&utm_campaign=2016_01_28_Nyhedsbrev
Publication: Communication › Internet publication – Annual report year: 2016

Udbytte af udsatte ½- og 1-års laks (Salmo salar) i Skjern Å

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management, Aarhus University
Authors: Larsen, M. H. (Ekstern), Hingst, B. O. (Intern), Aarestrup, K. (Intern), Holdensgaard, G. (Ekstern), Thomassen, S. T. (Ekstern), Larsen, S. (Ekstern), Koed, A. (Intern)
Number of pages: 22
Publication date: 2016

Publication information
Publisher: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet
Original language: Danish
Series: DTU Aqua-rapport
Number: 316-2016
Main Research Area: Technical/natural sciences
Electronic versions:
Undersøgelse af laksebestanden i Skjern Å og Omme Å

General information
State: Published
Organisations: National Institute of Aquatic Resources, Institute Management
Authors: Koed, A. (Intern)
Publication date: 2016

Publication information
Source/Publisher: Fiskepleje.dk
Main Research Area: Technical/natural sciences
Links:
http://www.fiskepleje.dk/Nyheder/2016/04/Smoltudvandring-2016?id=c29e7ea2-d839-4708-80b6-d98d3264832c&utm_source=newsletter&utm_media=mail&utm_campaign=13-04-20016-Nyhedsbrev
Publication: Communication › Internet publication – Annual report year: 2016

Hvad kan du gøre for laksen?

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Section for Marine Living Resources, Institute Management
Authors: Sivebæk, F. (Intern), Eg Nielsen, E. (Intern), Koed, A. (Intern)
Publication date: 2015

Publication information
Source/Publisher: Fiskepleje.dk
Main Research Area: Technical/natural sciences
Links:
http://www.fiskepleje.dk/Nyheder/2015/01/Laksekvoter-2015-laksebestande-udvikling
Publication: Communication › Internet publication – Annual report year: 2015

Laksekvoter for fiskesæsonen 2015

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Section for Marine Living Resources, Institute Management
Authors: Sivebæk, F. (Intern), Eg Nielsen, E. (Intern), Koed, A. (Intern)
Publication date: 2015

Publication information
Source/Publisher: Fiskepleje.dk
Main Research Area: Technical/natural sciences
Links:
http://www.fiskepleje.dk/Nyheder/2015/01/Laksekvoter-2015
Publication: Communication › Internet publication – Annual report year: 2015

Phenotypic variation in metabolism and morphology correlating with fish movements in the wild: a study combining respirometry and telemtry

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management, University of Porto
Authors: Svendsen, J. C. (Intern), Baktoft, H. (Intern), Skov, C. (Intern), Aarestrup, K. (Intern), Koed, A. (Intern), Jacobsen, L. (Intern)
Survival and progression rates of anadromous brown trout kelts Salmo trutta during downstream migration in freshwater and at sea

The marine migration of post-spawning anadromous fish remains poorly understood. The present study examined survival and progression rates of anadromous brown trout Salmo trutta L. after spawning (kelts) during downriver, fjord, and sea migration. Kelts (n = 49) were captured in the Danish River Gudenaa, tagged with acoustic transmitters and subsequently recorded by automatic receivers. Kelts spent on average 25 d moving down the 45 km river and through the brackish fjord. The fish entered the Kattegat Sea between 14 April and 30 May. Eighteen of the 49 kelts disappeared in the river and fjord during outward migration, likely due to mortality. Survival was not significantly related to gill Na+/K+-ATPase activity, suggesting that physiological adaptation to saltwater may be less critical for adults compared to juveniles (smolts). Of the 31 fish that entered the Kattegat Sea, 45% survived and returned to the fjord. The duration of the entire marine migration, from leaving to entering the river, was on average 163 d. The fish returned from the Kattegat Sea to the fjord between 22 July and 21 October. Upon return, the fish spent 1–90 d passing through Randers Fjord, with most individuals completing the reach within 4 d, suggesting that the kelts spent limited time foraging after returning to the fjord. The total survival during the entire marine migration, including the fjord, was a minimum of 29%. Our study provides data that are important for management of anadromous brown trout, and the high survival highlights that kelts may represent a valuable resource for both population reproduction and recreational fisheries.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Aarestrup, K. (Intern), Baktoft, H. (Intern), Thorstad, E. (Ekstern), Svendsen, J. C. (Intern), Höjesjö, J. (Ekstern), Koed, A. (Intern)
Pages: 185-195
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: Marine Ecology Progress Series
Volume: 535
ISSN (Print): 1616-1599
Ratings:
Web of Science (2017): Indexed yes
Scopus rating (2016): CiteScore 2.4
Web of Science (2016): Indexed yes
Scopus rating (2015): CiteScore 2.56
Web of Science (2015): Indexed yes
Scopus rating (2014): CiteScore 2.75
Web of Science (2014): Indexed yes
Scopus rating (2013): CiteScore 2.79
ISI indexed (2013): ISI indexed no
Web of Science (2013): Indexed yes
Scopus rating (2012): CiteScore 2.9
ISI indexed (2012): ISI indexed no
Web of Science (2012): Indexed yes
Scopus rating (2011): CiteScore 2.85
ISI indexed (2011): ISI indexed no
Web of Science (2011): Indexed yes
Web of Science (2010): Indexed yes
Web of Science (2009): Indexed yes
Web of Science (2008): Indexed yes
Web of Science (2007): Indexed yes
Web of Science (2006): Indexed yes
Web of Science (2005): Indexed yes
The marine life of sea trout (Salmo trutta): Aspects of their migratory behaviour and survival

During my PhD research project I have studied the marine migratory behaviour and survival of wild sea trout (Salmo trutta L.) juveniles when moving from freshwater to saltwater (i.e. smolts/post-smolts) in two different fjord systems. These studies are focused on the initial marine stage of post-smolts as well as on the fish returning to freshwater after the marine stage. The results of my experiments increase the current knowledge of specific behavioural traits that sea trout displays during their marine life. Additionally, it provides new information on the early and late marine survival which is needed for comprehensive management of sea trout populations in the area. The principal method used was telemetry (acoustic and PIT-telemetry) which enable studying migratory patterns of fish in the fjord (i.e. acoustic telemetry) and detecting the transitions from the marine to the riverine environments and vice versa (PIT-telemetry). On basis of the results, it is suggested that partial migration in sea trout not only occurs in freshwater but also in saltwater. Further, this research project shows that different developmental stages of trout juveniles can display different behaviours and also have differential survival in saltwater and that straying into other streams can be high in sea trout. Overall, this research expands the knowledge of sea trout ecology at sea where information is very limited and underlines the high polymorphic and ecologically variable nature of the species.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Del Villar, D. (Intern), Aarestrup, K. (Intern), Koed, A. (Intern)
Number of pages: 126
Publication date: 2015

Comparison of the riverine and early marine migration behaviour and survival of wild and hatchery-reared sea trout Salmo trutta smolts

The seaward migration of wild (n = 61) and hatchery-reared (n = 46) sea trout smolts was investigated in the Danish River Gudenaa and Randers Fjord (17.3 and 28.6 km stretch, respectively) using acoustic telemetry. Their riverine and early marine migration was monitored by deploying automatic listening stations (ALS) at four locations in the river and fjord. Migration speeds were approximately three to eleven times faster in the river than in the early marine environment. Hatchery-reared smolts migrated faster than wild smolts, but the difference was small, especially compared to the large differences in migration speeds among habitats. There was no difference in the diurnal activity pattern between wild and
hatchery-reared smolts. Both the riverine and early marine migration activity was primarily nocturnal, although some individuals were also recorded by the ALSs during daytime. The survival of the wild smolts was 1.8 and 2.9 times higher than that of the hatchery-reared smolts in the two study years, respectively, from release in the river to the outermost marine ALS site, 46 km from the release site. Overall, survival from release to the outermost ALS site was 79% for wild and 39% for hatchery-reared smolts. Since the lower survival of the hatchery-reared compared to the wild smolts could not be explained by differences in migration speeds or diurnal migration patterns, behavioural differences on a smaller scale than those recorded in the present study may explain the difference in survival.
Cormorant predation on PIT-tagged lake fish

The present study use data from recovered PIT (Passive Integrated Transponder) tags to explore species-and size-specific annual predation rates by cormorants on three common lacustrine fishes (size range 120-367 mm) in a European lake; roach (Rutilus rutilus), common bream (Abramis brama) and perch (Perca fluviatilis). In addition, we quantify the level of age/size truncation that cormorant predation could introduce in a population of perch, an important fish for recreational angling as well as for trophic interactions and ecosystem function in European lakes. Based on three years of PIT tagging of fish in Lake Viborg and subsequent recoveries of PIT tags from nearby cormorant roosting and breeding sites, we show that cormorants are major predators of roach, bream and perch within the size groups we investigated and for all species larger individuals had higher predation rates. Perch appear to be the most vulnerable of the three species and based on a comparison with mortality estimates from lakes without significant avian predation, this study suggest that predation from cormorants can induce age/size truncation in Lake Viborg, leaving very few larger perch in the lake. This truncation reduces the likelihood of anglers catching a large perch and may also influence lower trophic levels in the lake and thus turbidity as large piscivorous perch often play an important structuring role in lake ecosystem functioning.

Electronic versions:

Publishers version

DOIs:
10.4081/jlimnol.2014.715

Source: FindIt
Source-ID: 260733898

Publication: Research - peer-review › Journal article – Annual report year: 2014

Dansk fiskeindeks for vandløb (DFFV)

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management, Aarhus University
Authors: Kristensen, E. A. (Ekstern), Jepsen, N. (Intern), Nielsen, J. (Intern), Pedersen, S. (Intern), Koed, A. (Intern)
Number of pages: 58
Publication date: 2014

Publication information
Place of publication: Aarhus
Publisher: Aarhus Universitet, DCE – Nationalt Center for Miljø og Energi
ISBN (Print): 978-87-7156-064-0
Original language: Danish

Series: Videnskabelig rapport fra DCE - Nationalt Center for Miljø og Energi
Number: 95
Main Research Area: Technical/natural sciences
Links:
http://dce2.au.dk/pub/SR95.pdf
Publication: Research › Report – Annual report year: 2014

De fedeste ørredsmolt vandrer længst

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Boel, M. (Intern), Koed, A. (Intern)
Publication date: 2014
Den lokaløkonomiske værdi af laksefiskeriet i Skjern Å

**General information**

**State:** Published  
**Organisations:** National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management, COWI A/S  
**Authors:** Jordal-Jørgensen, J. (Ekstern), Rønnest, A. K. (Ekstern), Ladenburg, J. (Ekstern), Aarestrup, K. (Intern), Skov, C. (Intern), Koed, A. (Intern)  
**Number of pages:** 51  
**Publication date:** 2014

**Publication information**

**Place of publication:** Charlottenlund  
**Publisher:** Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet  
**ISBN (Print):** 978-87-7481-198-5  
**Original language:** Danish  
**Series:** DTU Aqua Report  
**Number:** 287-2014  
**ISSN:** 1395-8216  
**Main Research Area:** Technical/natural sciences  
**Electronic versions:**  
**Publishers version**  
**Links:**  
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008  
**Publication:** Research › Report – Annual report year: 2014

Egå Engsø - tab af havørredsmolt i en Vandmiljøplan II-sø  

**General information**

**State:** Published  
**Organisations:** National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology  
**Authors:** Kristensen, M. (Intern), Koed, A. (Intern), Mikkelsen, J. S. (Intern)  
**Number of pages:** 58  
**Publication date:** 2014

**Publication information**

**Publisher:** Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet  
**ISBN (Electronic):** 978-87-7481-182-4  
**Original language:** Danish  
**Series:** DTU Aqua-rapport  
**Number:** 276-2014  
**ISSN:** 1395-8216  
**Main Research Area:** Technical/natural sciences  
**Electronic versions:**  
276-2014_Egaa-Engsoe-tab-af-havorredsmolt-i-en-vandmiljoenplanII-soe v2  
**Links:**  
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008  
**Publication:** Commissioned › Report – Annual report year: 2014

Færre laks i Skjern Å i sæsonen 2013  

**General information**

**State:** Published  
**Organisations:** National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Fish surgery – A dirty business? Comments to a letter submitted by D. Mulcahy and C.A. Harms

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, National Veterinary Institute, Section for Virology, Institute Management, Carleton University
Authors: Jepsen, N. (Intern), Boutrup, T. S. (Intern), Midwood, J. D. (Ekstern), Koed, A. (Intern)
Pages: 6-8
Publication date: 2014
Main Research Area: Technical/natural sciences

Publication information
Journal: Fisheries Research
Volume: 156
Issue number: 16
ISSN (Print): 0165-7836
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.21 SJR 1.12 SNIP 1.136
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.067 SNIP 1.133 CiteScore 2.01
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.105 SNIP 1.312 CiteScore 2.17
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.037 SNIP 1.173 CiteScore 1.85
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.93 SNIP 1.177 CiteScore 1.78
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.154 SNIP 1.135 CiteScore 1.7
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.041 SNIP 1.1
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.985 SNIP 1.065
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.938 SNIP 1.142
Marine migrations in anadromous brown trout (Salmo trutta). Fjord residency as a possible alternative in the continuum of migration to the open sea

Partial migration is a common phenomenon in many fish species. Trout (Salmo trutta) is a partially migratory species where some part of the population migrates to the marine environment, while another remains in freshwater. In the years 2008 and 2009, a total of 159 wild sea trout smolts were tagged with acoustic and PIT-tags in the river Villesstrup (Denmark) to study the initial postsmolt marine behaviour within a fjord system. We found that the strategies of the sea
migrants vary: some stay in the fjord, while others migrate to the sea, suggesting that partial migration occurs even in the marine environments. Overall, a total of 53% of the tagged smolts migrated from the fjord to the sea, and 47% stayed (or potentially died) in the fjord. The ratios of fjord-resident versus seamigrating postsmolts were consistent at the study times, and no differences between the early and late migration periods of the smolts were observed. The individual’s size or body condition at the time of tagging did not affect survival or the migratory decisions in the fjord. High overall initial survival (74%) was found 30 days after the fjord entry. We suggest that within a continuum of migration to sea, there is a migratory decision point when sea trout postsmolts encounter a fjord system. At this point, postsmolts will assess the possibility of migration versus the alternative of fjord residency.

**General information**
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Del Villar, D. (Intern), Aarestrup, K. (Intern), Skov, C. (Intern), Koed, A. (Intern)
Pages: 594-603
Publication date: 2014
Main Research Area: Technical/natural sciences

**Publication information**
Journal: Ecology of Freshwater Fish
Volume: 23
Issue number: 4
ISSN (Print): 0906-6691
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.66 SJR 0.804 SNIP 0.885
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.022 SNIP 1.192 CiteScore 1.92
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.866 SNIP 0.994 CiteScore 1.58
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.971 SNIP 1.072 CiteScore 1.77
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.061 SNIP 1.247 CiteScore 2.05
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.979 SNIP 0.887 CiteScore 1.65
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.812 SNIP 0.968
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.817 SNIP 1.006
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.932 SNIP 0.985
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.791 SNIP 0.883
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.875 SNIP 1.183
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.659 SNIP 0.92
Rovfisk på menuen

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Skov, C. (Intern), Jepsen, N. (Intern), Baktoft, H. (Intern), Koed, A. (Intern)
Pages: 14-15
Publication date: 2014
Main Research Area: Technical/natural sciences

Publication information
Journal: Sportsfiskeren
Issue number: 1
ISSN (Print): 0038-8211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Links:
http://sportsfiskeren.dk/sites/default/files/Skarv%201b[smallpdf.com].pdf

Publication: Research - peer-review › Journal article – Annual report year: 2013

Rovfisk på menuen

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
Authors: Skov, C. (Intern), Jepsen, N. (Intern), Baktoft, H. (Intern), Koed, A. (Intern)
Pages: 14
Publication date: 2014
Main Research Area: Technical/natural sciences

Publication information
Journal: Fritidsfiskeren
Volume: 34
Issue number: 2
ISSN (Print): 0906-7752
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no

Publication: Communication › Journal article – Annual report year: 2014
**Skader skarven søerne**

*General information*
- **State:** Published
- **Organisations:** National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
- **Authors:** Skov, C. (Intern), Jepsen, N. (Intern), Baktoft, H. (Intern), Koed, A. (Intern)
- **Pages:** 16-17
- **Publication date:** 2014
- **Main Research Area:** Technical/natural sciences

*Publication information*
- **Journal:** Sportsfiskeren
- **Issue number:** 1
- **ISSN (Print):** 0038-8211
- **Ratings:**
  - ISI indexed (2013): ISI indexed no
  - ISI indexed (2012): ISI indexed no
  - ISI indexed (2011): ISI indexed no
- **Original language:** Danish

*Links:*

**Skarv og fiskehejre æder mange ørreder i Hald Sø**

*General information*
- **State:** Published
- **Organisations:** National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
- **Authors:** Boel, M. (Intern), Koed, A. (Intern)
- **Publication date:** 2014

*Publication information*
- **Source/Publisher:** Fiskepleje.dk
- **Main Research Area:** Technical/natural sciences

*Links:*
- [http://www.fiskepleje.dk/Nyheder/2014/02/2014_02_04_Skarv-i-haldsoe](http://www.fiskepleje.dk/Nyheder/2014/02/2014_02_04_Skarv-i-haldsoe)

**Skarvprædation på søfisk: Et indblik fra Viborg Søerne**

*General information*
- **State:** Published
- **Organisations:** National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management
- **Authors:** Skov, C. (Intern), Jepsen, N. (Intern), Baktoft, H. (Intern), Pedersen, S. (Intern), Koed, A. (Intern)
- **Pages:** 34-38
- **Publication date:** 2014
- **Main Research Area:** Technical/natural sciences

*Publication information*
- **Journal:** Vand & Jord
- **Volume:** 21
- **Issue number:** Marts
- **ISSN (Print):** 0908-7761
- **Ratings:**
  - ISI indexed (2013): ISI indexed no
  - ISI indexed (2012): ISI indexed no
  - ISI indexed (2011): ISI indexed no
- **Original language:** Danish

*Publication: Communication › Journal article – Annual report year: 2014*
The physiological basis of the migration continuum in brown trout (Salmo trutta)

Partial migration is common in many animal taxa; however, the physiological variation underpinning migration strategies remains poorly understood. Among salmonid fishes, brown trout (Salmo trutta) is one of the species that exhibits the most complex variation in sympatric migration strategies, expressed as a migration continuum, ranging from residency to anadromy. In looking at brown trout, our objective with this study was to test the hypothesis that variation in migration strategies is underpinned by physiological variation. Prior to migration, physiological samples were taken from fish in the stream and then released at the capture site. Using telemetry, we subsequently classified fish as resident, short-distance migrants (potamodromous), or long-distance migrants (potentially anadromous). Our results revealed that fish belonging to the resident strategy differed from those exhibiting any of the two migratory strategies. Gill Na,K-ATPase activity, condition factor, and indicators of nutritional status suggested that trout from the two migratory strategies were smoltified and energetically depleted before leaving the stream, compared to those in the resident strategy. The trout belonging to the two migratory strategies were generally similar; however, lower triacylglycerides levels in the short-distance migrants indicated that they were more lipid depleted prior to migration compared with the long-distance migrants. In the context of migration cost, we suggest that additional lipid depletion makes migrants more inclined to terminate migration at the first given feeding opportunity, whereas individuals that are less lipid depleted will migrate farther. Collectively, our data suggest that the energetic state of individual fish provides a possible mechanism underpinning the migration continuum in brown trout.

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Institute Management, Aarhus University, University of Southern Denmark, University of Porto
Authors: Boel, M. (Intern), Aarestrup, K. (Intern), Baktoft, H. (Intern), Larsen, T. (Intern), Madsen, S. S. (Ekstern), Malte, H. (Ekstern), Skov, C. (Intern), Svendsen, J. C. (Intern), Koed, A. (Intern)
Pages: 334-345
Publication date: 2014
Main Research Area: Technical/natural sciences

Publication information
Journal: Physiological and Biochemical Zoology
Volume: 87
Issue number: 2
ISSN (Print): 1522-2152
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.885 SNIP 0.749 CiteScore 1.93
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.175 SNIP 0.893 CiteScore 2.16
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.246 SNIP 0.889 CiteScore 2.26
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 0.999 SNIP 0.785 CiteScore 2.08
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 1.019 SNIP 0.875 CiteScore 2.22
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.26 SNIP 1.05 CiteScore 2.38
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 1.174 SNIP 0.944
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.167 SNIP 0.952
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.211 SNIP 1.082
Does the level of asepsis impact the success of surgically implanting tags in Atlantic salmon?

It is generally recommended that a high level of asepsis be maintained during surgical implantation of electronic tags into fish. However, documentation of a positive effect of asepsis in fish surgery is lacking. To compare the effects of surgical implantation performed under different sanitary conditions, 100 hatchery salmon smolts (Salmo salar) were surgically implanted with tags with and without trailing antenna and were kept in a hatchery facility. After 34 days, the surviving smolts were euthanized and survival, growth and healing were compared between fish tagged under aseptic conditions and fish tagged without regard to aseptic technique. The results demonstrated that there was no detectable difference in survival, growth and healing between the treatments. Thus, this study could not provide evidence supporting the general recommendation of achieving a high level of asepsis during fish surgery.
Effects of angling and manual handling on pike behaviour investigated by high-resolution positional telemetry

Human disturbances such as angling and manual handling may have long-term effects on the behaviour of pike, Esox lucius L., an ecologically important species. Using continuous high-resolution positional telemetry, this study compared the swimming activity of handled and unhandled pike in a small lake. Pike pre-equipped with acoustic transmitters were angled and exposed to a handling protocol including measurements of length and mass. Pike not recaptured constituted an unhandled control group. Results demonstrated that the handling protocol caused temperature-dependent changes in pike activity, with higher temperatures leading to lower activity of the recaptured pike. The effects, however, were transitory and not detectable after 48-h post-release. These findings indicate that pike are relatively resilient to handling and quickly resume pre-handling activity.

General information

State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Department of Applied Mathematics and Computer Science, Centre for Ocean Life, Fisheries and Oceans Canada
Pages: 518-525
Publication date: 2013
Main Research Area: Technical/natural sciences

Publication information

Journal: Fisheries Management and Ecology
Volume: 20
Issue number: 6
ISSN (Print): 0969-997X
Ratings:
BFI (2017): BFI-level 1
Manual til elektrofiskeri: Vejledning til elektrofiskeri ved bestandsanalyser og opfiskning af moderfisk

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Geertz-Hansen, P. (Intern), Koed, A. (Intern), Sivebæk, F. (Intern)
Number of pages: 50
Publication date: 2013
Marine survival in wild sea trout (Salmo trutta) post-smolts. Why little fish matter!

**General information**
- State: Published
- Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
- Authors: Del Villar, D. (Intern), Aarestrup, K. (Intern), Baktoft, H. (Intern), Larsen, M. H. (Intern), Koed, A. (Intern)
- Publication date: 2013
- Event: Abstract from International Conference on Fish Telemetry (ICFT), Grahamstown, South Africa.

Opgang af laks i Skjern Å i 2011

**General information**
- State: Published
- Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
- Authors: Jepsen, N. (Intern), Koed, A. (Intern)
- Publication date: 2013

Skjern Å naturprojektets betydning for laksen

**General information**
- State: Published
- Organisations: National Institute of Aquatic Resources, Institute Management
- Authors: Koed, A. (Intern)
- Pages: 103-107
- Publication date: 2013
Smolttabet i Årslev Engsø: En sammenligning af den nydannede engsø i 2004 og den etablerede engsø i 2011

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Boel, M. (Intern), Koed, A. (Intern)
Number of pages: 37
Publication date: 2013

Publication information
Place of publication: Charlottenlund
Publisher: DTU Aqua, Institut for Akvatiske Ressourcer
ISBN (Print): 978-87-7481-165-7
Original language: Danish
Series: DTU Aqua-rapport
Number: 260-2013
Main Research Area: Technical/natural sciences
Electronic versions:
260_2013_smolttabet_i_aarslev_engsoe.pdf
Links:
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008
Publication: Research › Report – Annual report year: 2013

Smolttabet i Årslev Engsø
Aspects of lentic fish behaviour studied with high resolution positional telemetry

General information
State: Published
Organisations: National Institute of Aquatic Resources
Authors: Baktoft, H. (Intern), Skov, C. (Intern), Svendsen, J. C. (Intern), Berg, S. (Intern), Aarestrup, K. (Intern), Koed, A. (Intern), Jacobsen, L. (Intern)
Number of pages: 118
Publication date: 2012

Publication information
Place of publication: Kgs. Lyngby
Publisher: Technical University of Denmark (DTU)
Original language: English
Main Research Area: Technical/natural sciences
Electronic versions:
120529_PhD_dissertation_Baktoft..PDF
Publication: Research › Ph.D. thesis – Annual report year: 2012

Decline of the North Sea houting: protective measures for an endangered anadromous fish

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Jepsen, N. (Intern), Deacon, M. (Ekstern), Koed, A. (Intern)
Pages: 77-84
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: Endangered Species Research
Volume: 16
ISSN (Print): 1863-5407
Ratings:
Web of Science (2017): Indexed Yes
Scopus rating (2016): CiteScore 1.95 SJR 0.78 SNIP 0.771
Web of Science (2016): Indexed yes
Scopus rating (2015): SJR 0.873 SNIP 0.829 CiteScore 1.83
Web of Science (2015): Indexed yes
Scopus rating (2014): SJR 1.157 SNIP 1.307 CiteScore 2.24
Scopus rating (2013): SJR 1.339 SNIP 1.169 CiteScore 2.49
ISI indexed (2013): ISI indexed no
Web of Science (2013): Indexed yes
Scopus rating (2012): SJR 1.143 SNIP 1.108 CiteScore 2.26
ISI indexed (2012): ISI indexed no
Web of Science (2012): Indexed yes
Scopus rating (2011): SJR 1.526 SNIP 1.282 CiteScore 2.46
ISI indexed (2011): ISI indexed no
Scopus rating (2010): SJR 1.134 SNIP 0.987
Scopus rating (2009): SJR 0.844 SNIP 0.926
Original language: English
Electronic versions:
n016p077.pdf
DOIs:
10.3354/esr00386
Publication: Research - peer-review › Journal article – Annual report year: 2012

Life history types and strategies: Case studies on brown trout (Salmo trutta) and alewives (Alosa pseudoharengus), involving physiological differences and interspecific interactions
This thesis consisted of the following manuscripts:
MS IBoel, M., Aarestrup, K., Baktoft, H., Larsen, T., H. Madsen, Malte, Skov, C., S.S., Svendsen, J.C. and Koed, A. The
physiological basis of partial migration in the brown trout (Salmo trutta) (manuscript)

MS II Boel, M., Brodersen, J., Koed, A and Post, D.M. Life history differences in alewives (Alosa pseudoharengus) alter the ontogenetic trajectory of juvenile largemouth (Micropterus salmoides) (manuscript)

MS III Boel, M. & Koed, A. Habitat specific avian predation on brown trout (Salmo trutta) (manuscript)

MS IV Boel, M., Aarestrup, K., Koed, A., Baktoft, H. and Skov, C.. Field based evaluation of the effect of 23 mm passive integrated transponder (PIT) tags on the length-mass relationship in wild juvenile brown trout (Salmo trutta) (submitted manuscript: Fisheries Management and Ecology)

The thesis was focused on the life history strategies and types in migratory freshwater fish, using brown trout and alewife as study organisms. Firstly, we investigated underlying mechanisms of resident and migratory life history strategies of salmonids, using indicators for nutritional status, stress, tissue damage and smoltification. Secondly, avian predation pressure on the groups with different life history strategies was explored in their respective habitats. Thirdly, we demonstrated that the life history type of alewives, through regulation of zooplankton availability, influence the ontogeny of concurrent largemouth bass. Finally, a field study approach was used to evaluate the effect of PIT tagging on body condition of brown trout.

Within a salmonid population several life history strategies can be found, each of which involves variations in migration and residency. Migratory life history strategies are often viewed as an adaptive behaviour to optimise the overall lifetime fitness when resources and predation risk varies between habitats. In salmonids, some individuals migrate to seawater (anadromous), others migrate to freshwater habitats such as lakes (potamodromous), while a others may stay behind in the streams and become residents. In MS I, the physiological status of potamodromous and anadromous fish was examined and it was found that these strategies were generally very similar. It was indicated that both potamodromous and anadromous fish were smoltified and in lower nutritional status relative to resident fish. Moreover, it was found that lipid reserves were lower in the potamodromous trout compared with anadromous trout. Lower lipid reserves in potamodromous trout might provide a mechanistic explanation to why this group cease migration at an earlier point compared with anadromous conspecifics.

The lake dwelling trout population in Lake Hald has undergone a rapid decline in recent years. This has coincided with the arrival of cormorants to the area. It is well known that predation may cause substantial losses in fish populations. However quantitative information on the impact of avian predators is relative scarce. In MS III the minimum predation from cormorants and herons was estimated over a three year period on the brown trout population of of Lake Hald. The magnitude of the predation pressure from both bird species were very similar and when summed up, the avian predation accounted for an average minimum of 37.2 % of the annual brown trout mortality in the lake and 10.1 % in the tributaries. This result illustrates that avian predation in the lake can be quite substantial and potentially plays an important role in the population dynamics of brown trout. Cormorants alone were responsible 21.2% in the lake and the arrival of these birds to the area are likely to have an important role in the decline in the lake dwelling trout population in Lake Hald. Further it illustrates that individual predation risk is life history specific, i.e. potamodromous brown trout face higher risk of avian predation than resident individuals. However, the total mortality of the resident trout might be underestimated, i.e. the losses in the tributaries estimated by electrofishing surveys were substantially higher than the avian predation suggested, indicating additional predation losses from ex. mink and otter.

Alewives are specialist planktivore fish that profoundly structure the abundance and size of their zooplankton prey. This can influence the ontogenetic development of concurrent juvenile piscivorous fish, e.g. largemouth bass. The structuring effect of alewives varies according to the life history type, i.e. whether they are landlocked or anadromous. Lakes with landlocked alewife have small-bodied zooplankton year-round; lakes with anadromous alewife have zooplankton communities that cycles between large-bodied zooplankton in the winter and spring and small-bodied zooplankton in the summer months; whereas lakes with no alewives have large-bodied zooplankton year-round. In MS II, we show that this influences the ontogeny of largemouth bass. The ontogenetic development of largemouth bass was compared between lakes with landlocked, anadromous and no alewives. In lakes with alewives young-of-the-year largemouth bass had slower growth and slower transition to feeding at higher trophic position, compared with lakes without alewives. Thus, the alewife presence delayed the transition to piscivory in largemouth bass. Moreover, we found that this slowdown of both growth and progression in trophic level was stronger in lakes with landlocked alewives relative to lakes with anadromous alewives. This shows that the life history type of alewives has significant influence the ontogeny of concurrent largemouth bass through regulation of zooplankton availability.

In MS IV the effect of surgically implanted 23 mm PIT tags on juvenile brown trout was evaluated in a field study. The effect of carrying a PIT tag under natural conditions was evaluated during four time periods ranging from 97-328 days. The length to body mass relationship was compared between tagged and concurrently captured untagged trout of comparable sizes. We found no effect of tagging on the length to body mass relationship. This suggests that tagged and untagged fish had managed equally well in the period leading up to the concurrent capture.

**General information**

State: Published

Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology

Authors: Boel, M. (Intern), Koed, A. (Intern)

Number of pages: 133

Publication date: 2012

**Publication information**

Publisher: Technical University of Denmark, National Institute of Aquatic Resources

Original language: English
Loss of European silver eel passing a hydropower station

The aim of this study was to assess escapement success of silver eels, Anguilla anguilla (L.), in a lowland river while passing a reservoir and a hydropower station. It was hypothesized that passage success would be lowest at the hydropower station and that survival and migration speed would be highest in the free-flowing river section upstream the reservoir. Forty-five female silver eels 56–86 cm in length were tagged with acoustic transmitters and released in November 2006. Their migration was monitored via automatic listening stations (ALS) in various sections of the river, covering a total migration distance of 64 km. Survival and progression rate of downstream migration was highest in the upstream river section and significantly lower in the reservoir. The eels apparently had trouble finding their way past the turbines and spent between 1.5 and 35 h in the forebay. The results show that within the study period, only 23% of the tagged eels reached the tidal limit, mainly due to difficulties in passing the hydropower dam. With such high loss-rates, the escapement goals set in the management plan cannot be achieved.
Seasonal and diel effects on the activity of northern pike studied by high-resolution positional telemetry

Temperate lakes can be ice covered for several months each year, yet little is known about the behaviour and activity of the fish during the cold season. As northern pike represents the top of the food web in many northern temperate lakes and may structure the ecosystem both directly and indirectly, a detailed understanding of the behaviour of this species during winter is important. We continuously monitored the activity of adult northern pike (Esox lucius) in a small temperate lake from late summer to winter for two consecutive years using an automatic acoustic positional telemetry system. Four subsample periods representing different temperature regimes from each year were chosen for further investigation. The results revealed that pike activity was similar between seasons. In all periods, a distinct diel pattern, showing increased activity during day as compared to night, was evident. Our findings indicate that the fish component of temperate lentic ecosystems can be more active during the cold season than previously assumed. This may have implications for the structuring effect of pike on the lower trophic levels.
Can metabolic properties explain variation in individual behaviour?

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Section for Ocean Ecology and Climate
Publication date: 2011
Event: Abstract from 1st International Conference on Fish Telemetry, Sapporo, Japan.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 281697
Publication: Research › Conference abstract for conference – Annual report year: 2011

Can metabolic properties explain variation in individual behaviour? Attempting to link physiology and morphology with field behavior

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Section for Ocean Ecology and Climate
Publication date: 2011
Event: Abstract from 1st International Conference on Fish Telemetry, Sapporo, Japan.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 279001
Publication: Research › Conference abstract for conference – Annual report year: 2011
Dispersal, growth and diet of stocked and wild northern pike fry in a shallow natural lake, with implications for management of stocking programs

Increasing evidence suggests that stocking northern pike Esox lucius has had limited success, especially when age-0 fish are stocked into water bodies where the recruitment of northern pike already occurs. To better understand the ecology of wild and stocked fry, we investigated the dispersal, growth, and food composition of advanced pike fry (~30 mm) stocked at a high density at a common release site in a shallow natural lake that contained wild young-of-the-year (age-0) pike. The stocked pike fry colonized the entire lake shoreline within just a few days. Dispersal was inversely related to size at stocking, suggesting that smaller fish were displaced by competitively superior larger individuals. While the stocked pike were initially larger than the wild age-0 pike, suboptimal growth was evident among the stocked pike and they were smaller than the wild ones at the end of the growing season. Stomach analyses revealed that the stocked pike ingested less diverse prey items and had higher fractions of empty stomachs throughout the study period. Overall, the fraction of stocked pike in samples rapidly declined over the season, which may have been caused by differential survival or immigration into or emigration out of the study system. Our study adds to the existing literature suggesting that the stocking of age-0 northern pike into waters with naturally reproducing pike populations will result in limited success. We propose two potentially complementary explanations for the apparent low fitness of stocked individuals in competition with wild conspecifics: (1) genetic-based local maladaptation among the stocked fish and (2) carryover effects from the hatchery. The latter may be less likely because the fry stocked were the offspring of wild fish and only spent a few weeks in the hatchery.
Linking individual behaviour and migration success in Salmo salar smolts approaching a water withdrawal site: implications for management

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Section for Population Ecology and Genetics
Authors: Svendsen, J. C. (Intern), Aarestrup, K. (Intern), Malte, H. (Ekstern), Thygesen, U. H. (Intern), Baktoft, H. (Intern), Koed, A. (Intern), Deacon, M. G. (Ekstern), Cubitt, K. F. (Ekstern), McKinley, R. S. (Ekstern)
Pages: 201-209
Publication date: 2011
Main Research Area: Technical/natural sciences

Publication information
Journal: Aquatic Living Resources
Volume: 24
Issue number: 2
ISSN (Print): 0990-7440
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.41 SJR 0.59 SNIP 0.743
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.747 SNIP 0.848 CiteScore 1.39
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.641 SNIP 0.905 CiteScore 1.25
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.547 SNIP 0.68 CiteScore 1.15
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.554 SNIP 0.618 CiteScore 1.19
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.628 SNIP 0.697 CiteScore 1.17
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.589 SNIP 0.545
European eel and aquaculture

General information
State: Published
Organisations: Institute Management, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology, Section for Public Sector Consultancy, Section for Aquaculture, Section for Population Ecology and Genetics
Number of pages: 19
Publication date: 2010

Publication information
Place of publication: Charlottenlund
Publisher: DTU Aqua. Institut for Akvatiske Ressourcer
ISBN (Print): 978-87-7481-127-5
Original language: English

Series: DTU Aqua-rapport
Number: 229-2010
ISSN: 1395-8216
Main Research Area: Technical/natural sciences
Electronic versions:
229-2010_European-Eel-and-Aquaculture.pdf
Links:
Source: orbit
Source-ID: 270913
Publication: Research - peer-review › Journal article – Annual report year: 2011

Opgang og gydning af laks i Skjern Å-systemet 2008/2009

General information
Survival and progression rates of large European silver eel Anguilla anguilla in late freshwater and early marine phases

The population of European silver eel Anguilla anguilla has declined tremendously in the last decades. The cause of this decline is unknown, and it is necessary to investigate the migratory behaviour and survival rates of silver eels during the reproductive migration in order to understand if the decline is related to factors acting during that migration. We estimated survival and progression rates of European silver eel migrating in the lower part of the River Gudenaa and during the first phase of the marine migration in the Randers Fjord in Denmark. Fifty migrating silver eel (total body length: 56 to 84 cm) were captured, and each was equipped with an acoustic transmitter. Their migration was subsequently monitored using an array of automatic listening stations, and progression rate and mortality in the river, inner part of the fjord and outer part of the fjord were estimated. Survival was high in fresh water. However, 60% of eels were lost in the inner and outer fjord, supporting the hypothesis that mortality is large in the early phase of the marine migration and that fishing may be a major cause of mortality of silver eels. There was no indication that the slowest-migrating individuals were more prone to fishing mortality than the faster-migrating individuals. Progression rate increased as the eels proceeded downriver and out of the
fjord. The migration was predominantly nocturnal, both in the river and fjord. Based on the available evidence, a considerable increase in eel survival in the river–fjord system will be needed in order to fulfil the goals in the European Union recovery plan for eels.

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Aarestrup, K. (Intern), Thorstad, E. B. (Ekstern), Koed, A. (Intern), Svendsen, J. C. (Intern), Jepsen, N. (Intern), Pedersen, M. I. (Intern), Økland, F. (Ekstern)
Pages: 263-270
Publication date: 2010
Main Research Area: Technical/natural sciences

Publication information
Journal: Aquatic Biology
Volume: 9
Issue number: 3
ISSN (Print): 1864-7782
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.847 SNIP 0.895 CiteScore 1.82
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.767 SNIP 0.713 CiteScore 1.41
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.681 SNIP 0.678 CiteScore 1.44
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.641 SNIP 0.618 CiteScore 1.34
ISI indexed (2013): ISI indexed no
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.814 SNIP 0.813 CiteScore 1.7
ISI indexed (2012): ISI indexed no
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.844 SNIP 0.848 CiteScore 1.79
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.899 SNIP 0.666
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.631 SNIP 0.483
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.461 SNIP 0.54
Original language: English
DOIs:
10.3354/ab00260
Links:
http://www.int-res.com/abstracts/ab/v9/n3/p263-270/
Source: orbit
Source-ID: 263933
Publication: Research - peer-review › Journal article – Annual report year: 2010

Forvaltningsplan for skarv i Danmark

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Sørensen, H. L. (Ekstern), Bregnballe, T. (Ekstern), Koed, A. (Intern)
Number of pages: 44
Publication date: 2009

Publication information
Publisher: Skov- og Naturstyrelsen
Original language: Danish
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 278329
Publication: Research › Report – Annual report year: 2009

Gædder i brakvand - bestandsophjælpning ved udsætning

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Jacobsen, L. (Intern), Skov, C. (Intern), Berg, S. (Intern), Koed, A. (Intern), Larsen, P. F. (Intern)
Pages: 32-39
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Fisk og Hav
Issue number: 62
ISSN (Print): 0105-9211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Links:
Source: orbit
Source-ID: 242899
Publication: Research › Journal article – Annual report year: 2009

New insights in pike behaviour using 2D/3D telemetry

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Mathematical Statistics, Department of Informatics and Mathematical Modeling
Publication date: 2009
Event: Abstract from 8th Conference on Fish Telemetry held in Europe; Umeå, Sweden; September 14-18
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 252533
Publication: Research › Conference abstract for conference – Annual report year: 2009

Status for laksen i Danmark

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Aarestrup, K. (Intern)
Pages: 4-16
Publication date: 2009
Main Research Area: Technical/natural sciences
Effects of tag and suture type on survival and growth of brown trout with surgically implanted telemetry tags in the wild
To test the effects of surgical implants with or without external antennae, 188 wild brown trout Salmo trutta, 150 - 290 mm, were tagged and released in a small river in May 2005. After 5 months, 103 of the fish were recaptured and examined. Thus, information on the relative survival, growth and general condition of each fish was obtained. The relative survival did not differ between the three groups (control, antennae and no antennae), but the specific growth of the two tagged groups were lower than that of the control fish. The tag:body-mass ratio had a significant negative effect on specific growth. A relative high occurrence of tag expulsion was observed in both treatment groups (23%). The probability to expel a tag was correlated with the tag:body-mass ratio. Finally, the relative survival, growth, expulsion rate and general condition were compared between fish tagged with different types of suture material (absorbable v. non-absorbable). The results show only minor differences, but absorbable suture provided better wound healing and fewer expulsions. (c) 2008 The Authors Journal compilation (c) 2008 The Fisheries Society of the British Isles.
Interpopulation differences in expression of candidate genes for salinity tolerance in winter migrating anadromous brown trout (Salmo trutta L.)

Background: Winter migration of immature brown trout (Salmo trutta) into freshwater rivers has been hypothesized to result from physiologically stressful combinations of high salinity and low temperature in the sea. Results: We sampled brown trout from two Danish populations entering different saline conditions and quantified expression of the hsp70 and Na/K-ATPases alpha 1b genes following acclimation to freshwater and full-strength seawater at 2 degrees C and 10 degrees C. An interaction effect of low temperature and high salinity on expression of both hsp70 and Na/K-ATPase alpha 1b was found in trout from the river entering high saline conditions, while a temperature independent up-regulation of both genes in full-strength seawater was found for trout entering marine conditions with lower salinities. Conclusion: Overall our results support the hypothesis that physiologically stressful conditions in the sea drive sea-run brown trout into freshwater rivers in winter. However, our results also demonstrate intra-specific differences in expression of important stress and osmoregulative genes most likely reflecting adaptive differences between trout populations on a regional scale, thus strongly suggesting local adaptations driven by the local marine environment.
Økosystemmodel for Ringkøbing Fjord: Skarvbestandens påvirkning af fiskebestandene

General information
State: Published
Organisations: Section for Aquaculture, National Institute of Aquatic Resources, Section for Coastal Ecology, Section for Freshwater Fisheries Ecology, Section for Management Systems
Authors: Dalsgaard, A. J. T. (Intern), Christensen, V. (Ekstern), Nicolajsen, H. (Intern), Koed, A. (Intern), Støttrup, J. (Intern), Grooss, J. (Ekstern), Bregnballe, T. (Ekstern), Sørensen, H. (Ekstern), Christensen, J. (Ekstern), Nielsen, R. (Ekstern)
Number of pages: 71
Publication date: 2008

Publication information
Place of publication: Hirtshals
Publisher: Danmarks Fiskeriundersøgelser
ISBN (Print): 87-74-81055-1
Original language: Danish
Series: DTU Aqua-rapport
Number: 178-08
Main Research Area: Technical/natural sciences
Electronic versions:
178-08_elektronisk_samlet.pdf
Links:
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008
Source: orbit
Source-ID: 225222
Publication: Research › Report – Annual report year: 2008

Sandart

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Berg, S. (Intern), Koed, A. (Intern)
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: www.fiskepleje.dk
Original language: Danish
Links:
http://www.fiskepleje.dk/fiskebiologi/sandart.aspx
Source: orbit
Source-ID: 239809
Publication: Research › Journal article – Annual report year: 2008

Smoltudvandring fra Storå 2007 samt smoltdødelighed under udvandringen gennem Feisted Kog og Nissum Fjord

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Baktoft, H. (Intern), Koed, A. (Intern)
Number of pages: 25
Publication date: 2008

Publication information
Publisher: Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet
Original language: Danish
Series: DTU Aqua-rapport
Number: 186-08
Main Research Area: Technical/natural sciences
Electronic versions:
Søørreder i Hald Sø skal nu undersøges

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Skov, C. (Intern)
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: www.fiskepleje.dk
Original language: Danish
Links: http://www.dfu.min.dk/fiskepleje/haldsoe.htm
Source: orbit
Source-ID: 226273
Publication: Research › Journal article – Annual report year: 2008

Survival and behaviour of European silver eel in late freshwater and early marine phase during spring migration

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Aarestrup, K. (Intern), Thorstad, E. (Ekstern), Koed, A. (Intern), Jepsen, N. (Intern), Svendsen, J. C. (Intern), Pedersen, M. I. (Intern), Skov, C. (Intern), Økland, F. (Ekstern)
Pages: 435-440
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: Fisheries Management and Ecology
Volume: 15
Issue number: 5-6
ISSN (Print): 0969-997X
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.85 SJR 0.843 SNIP 0.88
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.988 SNIP 1.159 CiteScore 1.91
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.913 SNIP 0.995 CiteScore 1.85
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.737 SNIP 0.807 CiteScore 1.36
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.636 SNIP 0.868 CiteScore 1.32
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Swimming performance of wild and F1-hatchery-reared Atlantic salmon (Salmo salar) and brown trout (Salmo trutta) smolts

General information
State: Published
Organisations: Section for Aquaculture, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Pedersen, L. (Intern), Koed, A. (Intern), Malte, H. (Ekstern)
Pages: 425-431
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication Information
Journal: Ecology of Freshwater Fish
Volume: 17
ISSN (Print): 0906-6691
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.66 SJR 0.804 SNIP 0.885
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.022 SNIP 1.192 CiteScore 1.92
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Temporal clumping of prey and coexistence of unequal interferers: experiments on social forager groups of brown trout feeding on invertebrate drift

Environmental fluctuations have been proposed to enhance the coexistence of competing phenotypes. Evaluations are here presented on the effects of prey density and short-term temporal clumping of prey availability on the relative foraging success of unequal interferers in social forager groups of juvenile brown trout Salmo trutta feeding on drifting invertebrate prey (frozen chironomids). Groups of three trout with established linear dominance hierarchies (dominant, intermediate and subordinate) were subjected to three different total numbers of prey, combined with three different levels of temporal clumping of prey arrival, resulting in nine treatment combinations. Higher total number of prey increased the consumption for all dominance ranks, while higher temporal clumping decreased the consumption for the dominant individuals and increased the consumption for the subordinate individuals. The proportion of prey eaten was smaller at high prey numbers. Similarly, there was a trend that increased temporal clumping also decreased the proportion of prey eaten. We conclude that density and temporal clumping of prey contribute to the coexistence of unequal interferers, and that there is a potential positive feedback between prey behaviour and phenotypic coexistence through decreased per capita predation.
risk for prey that drift synchronously in high densities.
Udsætning af geddeyngel som bestandsophjælpeing i danske brakvandsområder – effektvurdering og perspektivering

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Jacobsen, L. (Intern), Skov, C. (Intern), Berg, S. (Intern), Koed, A. (Intern), Larsen, P. F. (Intern)
Number of pages: 54
Publication date: 2008

Publication information
Place of publication: Silkeborg
Publisher: DTU Aqua. Institut for Akvatiske Ressourcer
ISBN (Print): 87-74-81086-5
Original language: Danish

Series: DTU Aqua-rapport
Number: 196-08
Main Research Area: Technical/natural sciences
Electronic versions:
196_08_elektronisk_samlet.pdf
Links:
http://www.aqua.dtu.dk/Publikationer/Forskningsrapporter/Forskningsrapporter_siden_2008
Source: orbit
Source-ID: 229082
Publication: Research › Report – Annual report year: 2008

Evidence for non-random spatial positioning of migrating smolts (Salmonidae) in a small lowland stream

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Svendsen, J. C. (Intern), Eskesen, A. (Ekstern), Aarestrup, K. (Intern), Koed, A. (Intern), Jordan, A. (Ekstern)
Pages: 1147-1158
Publication date: 2007
Main Research Area: Technical/natural sciences

Publication information
Journal: Freshwater Biology
Volume: 52
Issue number: 6
ISSN (Print): 0046-5070
Ratings:
BFI (2017): BFI-level 2
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.36 SJR 1.568 SNIP 1.41
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 1.537 SNIP 1.371 CiteScore 2.95
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 1.487 SNIP 1.473 CiteScore 3.03
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.045 SNIP 1.9 CiteScore 4.02
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.075 SNIP 1.755 CiteScore 3.76
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 1.927 SNIP 1.628 CiteScore 3.33
Gedden - en trussel for ørredstamme i Århus Å: Fiskehejren er også en fugl efter fisk - tagrør er måske eneste redning

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Pages: 10-11
Publication date: 2007
Main Research Area: Technical/natural sciences

Publication information
Journal: Ferskvandsfiskeribladet
Volume: 105
Issue number: april/maj
ISSN (Print): 0015-0223
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 227590
Publication: Research - peer-review › Journal article – Annual report year: 2007

Overwintering of sea trout (Salmo trutta) in freshwater: escaping salt and low temperature or an alternate life strategy?

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Thomsen, D. (Ekstern), Koed, A. (Intern), Nielsen, C. (Ekstern), Madsen, S. (Ekstern)
Pages: 793-802
Short-term salinity tolerance of northern pike, *Esox lucius*, fry, related to temperature and size

The short-term tolerances of northern pike, *Esox lucius* L., fry reared in a freshwater hatchery, to salinity were examined in the laboratory. Survival of two size groups of pike fry (mean length 21 +/- 2 mm SD and 37 +/- 4 mm SD) was examined over 72- to 96-h periods at 9-14 ppt salinity in combination with temperatures of 10, 14 and 18 degrees C. A parametric survival model found a significant correlation between survival of pike fry and temperature and salinity, respectively. L(C)50 values after 72 h were between 11.2 and 12.2 ppt, being lowest at 10 degrees C. Pike fry did not survive more than 13 ppt. Mortality at 12 ppt was significantly faster at 18 degrees C than 10 or 14 degrees C. Moreover, mortality was higher and faster for large than for small pike fry at 12 ppt and 14 degrees C. These results imply that pike raised in fresh water can survive stocking into brackish waters below 11 ppt at least for a short time.
Annual movement of adult pike (Esox lucius L.) in a lowland river

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Balleby, K. (Ekstern), Mejlhede, P. (Ekstern), Aarestrup, K. (Intern)
Pages: 191-199
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Ecology of Freshwater Fish
Volume: 15
Issue number: 2
ISSN (Print): 0906-6691
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.66 SJR 0.804 SNIP 0.885
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.022 SNIP 1.192 CiteScore 1.92
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.866 SNIP 0.994 CiteScore 1.58
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.971 SNIP 1.072 CiteScore 1.77
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.061 SNIP 1.247 CiteScore 2.05
Causes of mortality of Atlantic salmon (Salmo salar) and brown trout (Salmo trutta) smolts in a restored river and its estuary

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Baktoft, H. (Intern), Bak, B. D. (Ekstern)
Pages: 69-78
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: River Research and Applications
Volume: 22
Issue number: 1
ISSN (Print): 1535-1459
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.787 SNIP 1.186 CiteScore 2.07
Evaluation of three telemetry transmitter attachment methods for female silver-phase American eels (Anguilla rostrata Lesueur)

Declines in juvenile American eel (Anguilla rostrata Lesueur) abundance have led to concern about the impacts of anthropogenic structures on eel migration patterns. Telemetry provides an insightful tool for examining the movements of eels around these structures. Although there have been a number of studies investigating movements of Anguillid eels, using a variety of transmitter attachment techniques, there are few published evaluations of the effects of various tag attachment procedures. Hence, the effects of three telemetry attachment procedures were evaluated for female silver phase American eels. Short-term effects were examined by comparing the swimming performance of control eels and surgical shams with the swimming capacity of eels tagged externally, internally, and gastrically 24-hours following surgeries. Adaptive effects were investigated using a second swim trial 8 to 10 weeks following surgical procedures. Adaptive effects were investigated using a second swim trial 8 to 10 weeks following surgical procedures. Additionally, 12-week transmitter retention rates were calculated for each attachment method. Critical swimming velocity was not significantly different between treatments (P > 0.05), but did decrease significantly between trials (P = 0.012), suggesting that the swimming capacity of silver-phase American eels is not affected by the presence of telemetry transmitters or the method of transmitter attachment, even though swim performance decreases. However, transmitter retention rates varied considerably after the 12-week experimental period. Three gastric tags were regurgitated for a 12-week retention rate of 72.7%. No surgically implanted transmitters were shed, while 11 out of 12 externally affixed transmitters were lost, resulting in a retention rate of only 9.1%. These results suggest that surgically implanting
transmitters is the preferred method of affixing telemetry transmitters to American eels especially for long-term telemetry studies.

**General information**

State: Published

Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources

Authors: Cottrill, R. (Ekstern), Økland, F. (Ekstern), Aarestrup, K. (Intern), Jepsen, N. (Intern), Koed, A. (Intern), Hunter, K. (Ekstern), Butterworth, K. (Ekstern), McKinley, R. (Ekstern)

Pages: 502-511

Publication date: 2006

Main Research Area: Technical/natural sciences

**Publication information**

Journal: Journal of Great Lakes Research

Volume: 32

Issue number: 3

ISSN (Print): 0380-1330

Ratings:

BFI (2017): BFI-level 1

Web of Science (2017): Indexed Yes

BFI (2016): BFI-level 1

Scopus rating (2016): SJR 0.89 SNIP 0.888 CiteScore 2.02

BFI (2015): BFI-level 1

Scopus rating (2015): SJR 0.966 SNIP 0.946 CiteScore 2.01

BFI (2014): BFI-level 1

Scopus rating (2014): SJR 0.858 SNIP 0.957 CiteScore 1.7

BFI (2013): BFI-level 1

Scopus rating (2013): SJR 0.989 SNIP 0.938 CiteScore 1.91

ISI indexed (2013): ISI indexed yes

BFI (2012): BFI-level 1

Scopus rating (2012): SJR 1.072 SNIP 1.199 CiteScore 2.23

ISI indexed (2012): ISI indexed yes

BFI (2011): BFI-level 1

Scopus rating (2011): SJR 0.87 SNIP 0.829 CiteScore 1.45

ISI indexed (2011): ISI indexed yes

BFI (2010): BFI-level 1

Scopus rating (2010): SJR 0.886 SNIP 0.998

BFI (2009): BFI-level 1

Scopus rating (2009): SJR 0.778 SNIP 0.808

BFI (2008): BFI-level 1

Scopus rating (2008): SJR 0.821 SNIP 0.844

Scopus rating (2007): SJR 0.641 SNIP 0.785

Scopus rating (2006): SJR 0.611 SNIP 0.683

Web of Science (2006): Indexed yes

Scopus rating (2005): SJR 0.562 SNIP 0.711

Scopus rating (2004): SJR 0.888 SNIP 1.016

Scopus rating (2003): SJR 0.826 SNIP 1.184

Scopus rating (2002): SJR 1.159 SNIP 0.955

Scopus rating (2001): SJR 0.82 SNIP 0.721

Scopus rating (2000): SJR 0.661 SNIP 0.691

Scopus rating (1999): SJR 0.691 SNIP 0.525

Original language: English

DOIs:


Source: orbit

Source-ID: 225153

Publication: Research - peer-review › Journal article – Annual report year: 2006
Fiskeri efter grønlændere reducerer størrelsen af den fremtidige gydebestand

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Sivebæk, F. (Intern), Koed, A. (Intern), Thomsen, D. (Ekstern)
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: www.fiskepleje.dk
Original language: Danish
Links:
http://dmz-web04/fiskepleje/groenlaenleremindstemaal.htm
Source: orbit
Source-ID: 227373
Publication: Research › Journal article – Annual report year: 2006

Gedder indtager hurtigt nyskabte søer

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Skov, C. (Intern), Koed, A. (Intern), Falck-Rasmussen, K. (Ekstern), Sivebæk, F. (Intern)
Pages: 8
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Sportsfiskeren
Volume: 81
Issue number: 2
ISSN (Print): 0038-8211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 227433
Publication: Research › Journal article – Annual report year: 2006

Grønlændernes vintervandring

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Thomsen, S. (Ekstern), Nielsen, C. (Ekstern), Koed, A. (Intern), Madsen, S. (Ekstern)
Pages: 3-6
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Miljø og vandpleje
Volume: 2
Original language: Danish
Source: orbit
Source-ID: 227661
Publication: Research › Journal article – Annual report year: 2006
Højt udbytte af udsatte ½-års laks i Skjern Å

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: www.fiskepleje.dk
Original language: Danish
Links:
http://www.dfu.min.dk/fiskepleje/smoltudtraekfraskjernaa.htm
Source: orbit
Source-ID: 226253
Publication: Research › Journal article – Annual report year: 2006

Højt udbytte af udsatte 1/2-års laks i Skjern Å: Godt og vel 50 pct. af udsatte smolt forsvinder - skarven er mistænkt

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Pages: 16
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Ferskvandsfiskeribladet
Volume: 104
Issue number: Aug/sept.
ISSN (Print): 0015-0223
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 226254
Publication: Research › Journal article – Annual report year: 2006

Migration patterns of brackish water pikes in South Denmark

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Jacobsen, L. (Intern), Skov, C. (Intern), Berg, S. (Intern), Koed, A. (Intern)
Publication date: 2006
Event: Abstract from Pike Symposium at the American Fisheries Society annual meeting, Lake Placid, USA.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 277778
Publication: Research › Conference abstract for conference – Annual report year: 2006

Nedstrøms vandring og opstemninger

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Aarestrup, K. (Intern), Koed, A. (Intern), Møller Olesen, T. (Ekstern)
Pages: 54-62
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Fisk og Hav
Issue number: 60
ISSN (Print): 0105-9211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Links:
http://www.aqua.dtu.dk/Publikationer/Fisk-og-hav.aspx
Source: orbit
Source-ID: 224664
Publication: Research › Journal article – Annual report year: 2006

Opstemninger - forarmelse af vandløbene

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Aarestrup, K. (Intern), Koed, A. (Intern), Møller Olesen, T. (Ekstern)
Pages: 38-44
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Fisk og Hav
Issue number: 60
ISSN (Print): 0105-9211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Links:
http://www.aqua.dtu.dk/Publikationer/Fisk-og-hav.aspx
Source: orbit
Source-ID: 224666
Publication: Research › Journal article – Annual report year: 2006

Opstrøms vandring og opstemninger

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Aarestrup, K. (Intern), Koed, A. (Intern), Møller Olesen, T. (Ekstern)
Pages: 44-54
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Fisk og Hav
Issue number: 60
ISSN (Print): 0105-9211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Preface to the Silkeborg conference issue

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Jacobsen, L. (Intern), Koed, A. (Intern), Aarestrup, K. (Intern), Skov, C. (Intern), Jepsen, N. (Intern), Berg, S. (Intern)
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Ecology of Freshwater Fish
Volume: 15
Issue number: 2
ISSN (Print): 0906-6691
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.66 SJR 0.804 SNIP 0.885
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.022 SNIP 1.192 CiteScore 1.92
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.866 SNIP 0.994 CiteScore 1.58
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.971 SNIP 1.072 CiteScore 1.77
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.061 SNIP 1.247 CiteScore 2.05
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.979 SNIP 0.887 CiteScore 1.65
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.812 SNIP 0.968
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.817 SNIP 1.006
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.932 SNIP 0.985
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.791 SNIP 0.883
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.875 SNIP 1.183
Web of Science (2006): Indexed yes
Undersøgelse af smoltudtrækket fra Skjern Å samt smoltdødelighed ved passage af Ringkøbing Fjord

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Number of pages: 31
Publication date: 2006

Publication information
Place of publication: Silkeborg
Publisher: Danmarks Fiskeriundersøgelser
ISBN (Print): 87-7481-005-7
Original language: Danish
Series: DFU-rapport
Number: 160-06
Main Research Area: Technical/natural sciences
Electronic versions:
160-06 Smoltudtræk Skjern Å_e.pdf
Links:
Source: orbit
Source-ID: 226277
Publication: Research › Report – Annual report year: 2006

Migration patterns of brackish water pikes in South Denmark

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Jacobsen, L. (Intern), Skov, C. (Intern), Berg, S. (Intern), Koed, A. (Intern)
Publication date: 2005
Event: Abstract from Telemetry Conference to be held in Europe, Sesimbra, Portugal
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 279379
Publication: Research › Conference abstract for conference – Annual report year: 2005

Movement and mortality of stocked brown trout in a stream
The movement and mortality of stocked brown trout Salmo trutta were investigated using radio telemetry. Four brown trout left the study area whereas the remaining fish were stationary. After 5 weeks, 13 out of 50 tagged brown trout were still alive in the stream. Surviving fish had a significantly lower mean movement per day than fish, which later either died or disappeared. This difference in behaviour was most pronounced 2 to 8 days after release. Predation by the otter Lutra
lutra was probably the main cause of the observed mortality. (c) 2005 The Fisheries Society of the British Isles

**General information**

State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Aarestrup, K. (Intern), Jepsen, N. (Intern), Koed, A. (Intern), Pedersen, S. (Intern)
Pages: 721-728
Publication date: 2005
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Journal of Fish Biology
Volume: 66
Issue number: 3
ISSN (Print): 0022-1112
Ratings:

BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.57 SJR 0.741 SNIP 0.882
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.951 SNIP 0.935 CiteScore 1.64
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.944 SNIP 0.934 CiteScore 1.76
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.049 SNIP 1.118 CiteScore 1.98
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.93 SNIP 1.035 CiteScore 1.88
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.895 SNIP 0.946 CiteScore 1.66
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.774 SNIP 0.834
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.773 SNIP 0.891
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.883 SNIP 0.968
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.996 SNIP 1.06
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.897 SNIP 1.051
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.827 SNIP 0.898
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.945 SNIP 1.148
Web of Science (2004): Indexed yes
Myndighedssamarbejdet om fiskeriet i Ringkøbing og Nissum fjorde

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Number of pages: 66
Publication date: 2005

Publication information
Place of publication: Silkeborg
Publisher: Danmarks Fiskeriundersøgelser
ISBN (Print): 87-90968-88-3
Original language: Danish
Series: DFU-rapport
Number: 153-05
Main Research Area: Technical/natural sciences
Electronic versions:
153-05 Myndighedssamarbejde Ringkøbing Nissum fjorde_elek.pdf
Links:
Source: orbit
Source-ID: 224843
Publication: Research › Report – Annual report year: 2005

Ny undersøgelse af "grønlændernes" vandring og adfærd

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 2005
Main Research Area: Technical/natural sciences

Publication information
Journal: http://www.fiskepleje.dk
Original language: Danish
Links:
http://www.fiskepleje.dk/
Source: orbit
Source-ID: 226259
Publication: Research › Journal article – Annual report year: 2005
The angle of attack of the body of common bream while swimming at different speeds in a flume tank

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Svendsen, J. C. (Intern), Koed, A. (Intern), Lucas, M. (Ekstern)
Pages: 572-577
Publication date: 2005
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Fish Biology
Volume: 66
Issue number: 2
ISSN (Print): 0022-1112
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.57 SJR 0.741 SNIP 0.882
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.951 SNIP 0.935 CiteScore 1.64
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.944 SNIP 0.934 CiteScore 1.76
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.049 SNIP 1.118 CiteScore 1.98
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.93 SNIP 1.035 CiteScore 1.88
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.895 SNIP 0.946 CiteScore 1.66
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Undersøgelse af umodne havørreders (grønlændere) optræk i ferskvand om vinteren

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Søndergård Thomsen, D. (Ekstern)
Number of pages: 53
Publication date: 2005

Publication Information
Place of publication: Silkeborg
Publisher: Danmarks Fiskeriundersøgelser
ISBN (Print): 87-90968-90-5
Original language: Danish

Series: DFU-rapport
Number: 154-05
Main Research Area: Technical/natural sciences

Electronic versions:
154-05_undersøgelse_af_umodne_havørreders_optræk_i_ferskvand.pdf

Links:

Source: orbit
Source-ID: 226278
Publication: Research › Report – Annual report year: 2005
Using electromyogram telemetry to study the spawning migration of sea lamprey (Petromyzon marinus L.)

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Almeida, P. (Ekstern), Quintella, B. (Ekstern), Koed, A. (Intern), Andrade, N. (Ekstern), Spedicato, M. (ed.) (Ekstern), Lembo, G. (ed.) (Ekstern), Marmulla, G. (ed.) (Ekstern)
Pages: 3-11
Publication date: 2005

Host publication information
Title of host publication: Proceedings of the 5th conference on fish telemetry held in Europe
Volume: Human impact, fishery management and aquaculture
Main Research Area: Technical/natural sciences
Conference: 5th Conference on Fish Telemetry, Ustica, Italy, 09/06/2003 - 09/06/2003
Source: orbit
Source-ID: 228637
Publication: Research - peer-review › Article in proceedings – Annual report year: 2005

Behavioural patterns of sea lampreys' spawning migration through difficult passage areas, studied by electromyogram telemetry

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Quintella, B. (Ekstern), Andrade, N. (Ekstern), Koed, A. (Intern), Almeida, P. (Ekstern)
Pages: 961-972
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Fish Biology
Volume: 65
ISSN (Print): 0022-1112
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.57 SJR 0.741 SNIP 0.882
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.951 SNIP 0.935 CiteScore 1.64
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.944 SNIP 0.934 CiteScore 1.76
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.049 SNIP 1.118 CiteScore 1.98
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.93 SNIP 1.035 CiteScore 1.88
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.895 SNIP 0.946 CiteScore 1.66
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Factors influencing the spawning migration of female anadromous brown trout

Radio telemetry was employed to study movements of adult female anadromous brown trout Salmo trutta (sea trout) during upstream spawning migration and following spawning in a stream with tributaries. Sea trout were monitored by manual tracking and by automatic listening stations. The latter suggested that initiation of upstream migration was positively correlated with stream discharge. Individual sea trout performed repeated upstream migration ‘initiations’ (visits) to areas where they were detected by the automatic listening stations. The first and subsequent upstream migration ‘initiations’ occurred under conditions of similar water temperature and stream discharge. Manual tracking indicated that in the pre-spawning state, the distance migrated over 3 days was positively correlated with stream discharge and water temperature, whereas in the post-spawning state, the total distance migrated was not correlated with any of these two environmental variables. (C) 2004 The Fisheries Society of the British Isles.

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Svendsen, J. C. (Intern), Koed, A. (Intern), Aarestrup, K. (Intern)
Pages: 528-540
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Fish Biology
Volume: 64
Issue number: 2
ISSN (Print): 0022-1112
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
Habitat use of 0+year pike in experimental ponds in relation to cannibalism, zooplankton, water transparency and habitat complexity

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Skov, C. (Intern), Koed, A. (Intern)
Pages: 448-459
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Fish Biology
Volume: 64
Issue number: 2
ISSN (Print): 0022-1112
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.57 SJR 0.741 SNIP 0.882
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.951 SNIP 0.935 CiteScore 1.64
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.944 SNIP 0.934 CiteScore 1.76
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.049 SNIP 1.118 CiteScore 1.98
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.93 SNIP 1.035 CiteScore 1.88
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.895 SNIP 0.946 CiteScore 1.66
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.774 SNIP 0.834
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.773 SNIP 0.891
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.883 SNIP 0.968
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.996 SNIP 1.06
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.897 SNIP 1.051
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.827 SNIP 0.898
Web of Science (2005): Indexed yes
National forvaltningsplan for laks

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Section for Population Ecology and Genetics, Skov- og Naturstyrelsen
Authors: Simonsen, P. (Ekstern), Kjellerup, L. (Ekstern), Koed, A. (Intern), Eg Nielsen, E. (Intern)
Number of pages: 63
Publication date: 2004

Publication information
Publisher: Miljøministeriet, Skov- og Naturstyrelsen
ISBN (Print): 87-72-79589-1
Original language: Danish
Main Research Area: Technical/natural sciences
Links:

Bibliographical note
Denne forvaltningsplan er blevet udarbejdet med fiskerifagligt bidrag fra Danmarks Fiskeriundersøgelser ved Anders Koed og Einar Eg Nielsen
Source: orbit
Source-ID: 227440
Publication: Research - peer-review › Journal article – Annual report year: 2004

Skjerns Å's lampretter: Statusrapport fra naturovervågningen efter restaureringen af Skjern Å

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Ørskov Olsen, N. (Ekstern), Koed, A. (Intern)
Number of pages: 17
Publication date: 2004

Publication information
Place of publication: Silkeborg
Publisher: Danmarks Fiskeriundersøgelser
ISBN (Print): 87-90968-61-1
Original language: Danish
Series: DFU-rapport
Number: 134-04
Main Research Area: Technical/natural sciences
Electronic versions:
134-04_skjern_ås_lampretter.pdf
Projekt "Våde enge"

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Institute Management
Authors: Koed, A. (Intern), Rasmussen, G. (Intern), Berg, S. (Intern)
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: http://www.fiskepleje.dk
Original language: Danish
Links:
http://130.226.135.19/fiskepleje/vaadeenge2.htm
Source: orbit
Source-ID: 226263
Publication: Research › Journal article – Annual report year: 2003

Projekt "Våde enge"

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Rasmussen, G. (Intern), Berg, S. (Intern)
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Ferskvandsfiskeribladet
Volume: 101
Issue number: 11
ISSN (Print): 0015-0223
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 278330
Publication: Communication › Journal article – Annual report year: 2003

Rovfisk og smolt

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: http://www.fiskepleje.dk
Original language: Danish
Links:
http://130.226.135.19/fiskepleje/rovfisk%20smolt.htm
Survival of migrating sea trout (Salmo trutta) and Atlantic salmon (Salmo salar) smolts negotiating weirs in small Danish rivers

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Aarestrup, K. (Intern), Koed, A. (Intern)
Pages: 169-176
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Ecology of Freshwater Fish
Volume: 12
Issue number: 3
ISSN (Print): 0906-6691
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.66 SJR 0.804 SNIP 0.885
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.022 SNIP 1.192 CiteScore 1.92
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.866 SNIP 0.994 CiteScore 1.58
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.971 SNIP 1.072 CiteScore 1.77
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.061 SNIP 1.247 CiteScore 2.05
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.979 SNIP 0.887 CiteScore 1.65
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.812 SNIP 0.968
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.817 SNIP 1.006
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.932 SNIP 0.985
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.791 SNIP 0.883
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.875 SNIP 1.183
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.659 SNIP 0.92
Web of Science (2005): Indexed yes
Vandmiljøplan II - anbefalinger i relation til laks og ørred

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Institute Management
Authors: Koed, A. (Intern), Rasmusssen, G. (Intern), Berg, S. (Intern)
Pages: 243-247
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Ferskvandsfiskeribladet
Volume: 101
Issue number: 11
ISSN (Print): 0015-0223
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 226279
Publication: Research › Journal article – Annual report year: 2003

Fiskebiologi

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Sivebæk, F. (Intern), Skov, C. (Intern), Pedersen, M. I. (Intern), Jacobsen, L. (Intern), Koed, A. (Intern), Berg, S. (Intern)
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: www.fiskepleje.dk
Original language: Danish
Source: orbit
Source-ID: 227370
Publication: Research › Journal article – Annual report year: 2002

Gedden stortrives i Hestholm Sø

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Migratory behaviour of adult pikeperch (Stizostedion lucioperca) in a lowland river

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Balleby, K. (Ekstern), Mejlhede, P. (Ekstern)
Pages: 175-184
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: Hydrobiologia
Volume: 483
Issue number: 1-3
ISSN (Print): 0018-8158
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.27
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.16
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.22
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.02
ISI indexed (2013): ISI indexed yes
Net ground speed of downstream migrating radio-tagged Atlantic salmon (Salmo salar L.) and brown trout (Salmo trutta L.) smolts in relation to environmental factors

The downstream migration of Atlantic salmon (Salmo salar L.) and sea trout smolt (S. trutta L.) was investigated using radio telemetry in the spring of 1999 and 2000. Forty wild sea trout smolts, 20 F1 sea trout smolts, 20 hatchery salmon smolts and 20 salmon smolts from river stockings were radio tagged and released in the Danish River Lilleaa. The downstream migration of the different groups of fish was monitored by manual tracking and by three automatic listening stations. The downstream migration of radio tagged smolts of both species occurred concurrently with their untagged counterparts. The diel migration pattern of the radio tagged smolts was predominantly nocturnal in both species. Wild sea trout smolt migrated significantly faster than both the F1 trout and the introduced salmon. There was no correlation between net ground speed, gill Na+, K+-ATPase activity or fish length in any of the different groups. The migration speed of wild sea trout smolts was positively correlated with water discharge in both years. In F1 sea trout smolts, migration speed was positively correlated with temperature in 1999. The migration speed of salmon smolts did not correlate to any of the investigated parameters
Oversvømmede enge og lavvandede søer

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: www.fiskepleje.dk
Original language: Danish
Links:
http://www.dfu.min.dk/fiskepleje/vaadeenge.htm
Source: orbit
Source-ID: 226262
Publication: Research › Journal article – Annual report year: 2002

Rekordstort laksesmoltudtræk fra Skjern Å i 2002

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Baktoft, H. (Intern)
Pages: 2-3
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: Nyhedsbrev for myndighedssamarbejdet om fiskeriet i Ringkøbing og Nissum fjorde
Surgical implantation of telemetry transmitters in fish: how much have we learned?

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Jepsen, N. (Intern), Koed, A. (Intern), Thorstad, E. (Ekstern), Baras, E. (Ekstern)
Pages: 239-248
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: Hydrobiologia
Volume: 483
ISSN (Print): 0018-8158
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 2.27
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 2.16
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 2.22
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 2.02
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 2.13
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Sygdomme hos laks

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: http://www.fiskepleje.dk
Original language: Danish
Links:
http://www.dfu.min.dk/fiskepleje/fiskesygdomme.htm
Source: orbit
Source-ID: 226272
Publication: Research › Journal article – Annual report year: 2002

Udsætninger af fremmede laks

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: www.fiskepleje.dk
Original language: Danish
Links:
http://www.dfu.min.dk/fiskepleje/fremmede%20laks.htm
Source: orbit
Source-ID: 226276
Publication: Research › Journal article – Annual report year: 2002

Behavior of pike (Esox lucius L.) >50 cm in a turbid reservoir and in a clearwater lake

General information
State: Published
Organisations: National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Jepsen, N. (Intern), Beck, S. (Ekstern), Skov, C. (Intern), Koed, A. (Intern)
Fred laksen i Varde Å

General information
State: Published
Organisations: Section for Population Ecology and Genetics, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Eg Nielsen, E. (Intern), Koed, A. (Intern)
Pages: 6-10
Publication date: 2001
Main Research Area: Technical/natural sciences

Publication information
Journal: Ferskvandsfiskeribladet
Volume: 99
Issue number: 1
ISSN (Print): 0015-0223
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 226010
Publication: Research › Journal article – Annual report year: 2001

Længe leve fisken

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Ebert, K. (Ekstern)
Pages: 52-55
Publication date: 2001
Main Research Area: Technical/natural sciences

Publication information
Journal: Sportsfiskeren
Volume: 76
Issue number: 7
ISSN (Print): 0038-8211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 226827
Publication: Research › Journal article – Annual report year: 2001

Long-term effect of radio-tagging on the swimming performance of pikeperch

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Thorstad, E. (Ekstern)
Pages: 1753-1756
Publication date: 2001
Main Research Area: Technical/natural sciences
The effects of meal size, body size and temperature on gastric evacuation in pikeperch
Prey size had no effect on the gastric evacuation rate of pikeperch Stizostedion lucioperca. The gastric evacuation was adequately described applying an exponent of 0.5 in the power model. Applying length instead of weight of pikeperch in the gastric evacuation model resulted in a change of estimated parameters, in accordance with the weight-length relationship of pikeperch. (C) 2001 The Fisheries Society of the British Isles.
Unge havørreder går til ved Tangeværket

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 2001
Annual movement and migration of adult pikeperch in a lowland river

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Mejlhede, P. (Ekstern), Balleby, K. (Ekstern), Aarestrup, K. (Intern)
Pages: 1266-1279
Publication date: 2000
Main Research Area: Technical/natural sciences
En nål i en høstak - genetiske undersøgelser af danske laksebestande

General information
State: Published
Organisations: Section for Population Ecology and Genetics, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Eg Nielsen, E. (Intern), Koed, A. (Intern)
Pages: 9-13
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication information
Journal: Miljø- og vandpleje
Volume: 25
ISSN (Print): 1397-5951
Original language: Danish
Source: orbit
Source-ID: 226823
Publication: Research › Journal article – Annual report year: 2000

Laksefisk i vandløbene - produktion og fremtidsperspektiver

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Aarestrup, K. (Intern), Koed, A. (Intern)
Pages: 13-15
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication information
Journal: Miljø og vandpleje
Volume: 26
ISSN (Print): 1397-5951
Original language: Danish
Source: orbit
Source-ID: 224661
Publication: Research › Journal article – Annual report year: 2000
Radio-transmitted electromyogram signals as indicators of swimming speed in lake trout and brown trout

Swimming speed and average electromyogram (EMG) pulse intervals were highly correlated in individual lake trout Salvelinus namaycush ($r^2=0.52-0.89$) and brown trout Salmo trutta ($r^2=0.45-0.96$). High correlations were found also for pooled data in both lake trout ($r^2=0.90$) and brown trout of the Ema stock ($r^2=0.96$) and Laerdal stock ($r^2=0.96$). The linear relationship between swimming speed and average EMG pulse intervals differed significantly among lake trout and the brown trout stocks. This successful calibration of EMGs to swimming speed opens the possibility of recording swimming speed of free swimming lake trout and brown trout in situ. EMGs can also be calibrated to oxygen consumption to record energy expenditure. (C) 2000 The Fisheries Society of the British Isles

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Thorstad, E. (Ekstern), Økland, F. (Ekstern), Koed, A. (Intern), McKinley, R. (Ekstern)
Pages: 547-561
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication Information
Journal: Journal of Fish Biology
Volume: 57
Issue number: 3
ISSN (Print): 0022-1112
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.57 SJR 0.741 SNIP 0.882
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.951 SNIP 0.935 CiteScore 1.64
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.944 SNIP 0.934 CiteScore 1.76
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.049 SNIP 1.118 CiteScore 1.98
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.93 SNIP 1.035 CiteScore 1.88
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.895 SNIP 0.946 CiteScore 1.66
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.774 SNIP 0.834
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.773 SNIP 0.891
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.883 SNIP 0.968
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.996 SNIP 1.06
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.897 SNIP 1.051
Red laksen i Varde Å

General information
State: Published
Organisations: Section for Population Ecology and Genetics, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Eg Nielsen, E. (Intern), Koed, A. (Intern)
Pages: 267-270
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication information
Journal: Ferskvandsfiskeribladet
Volume: 98
ISSN (Print): 0015-0223
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 226845
Publication: Research › Journal article – Annual report year: 2000

River dwelling piscivorous pikeperch Stizostedion lucioperca (L) : some biological characteristics and their ecological consequences

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 2000

Publication information
Publisher: Københavns Universitet
Original language: English
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 226265
Publication: Research › Ph.D. thesis – Annual report year: 2000
Smoltpassage forbi dambrug

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Aarestrup, K. (Intern), Koed, A. (Intern), Nielsen, C. (Ekstern)
Pages: 9-12
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication information
Journal: Miljø og vandpleje
Volume: 26
Original language: Danish
Source: orbit
Source-ID: 224671
Publication: Research › Journal article – Annual report year: 2000

The movements of pikeperch (Stizostedion lucioperca (L.)) in a regulated lowland river

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 2000

Host publication information
Title of host publication: Proceedings of the Third Conference on Fish Telemetry in Europe
ISBN (Print): 0-907545-13-0
Main Research Area: Technical/natural sciences
Conference: 3rd Conference on Fish Telemetry in Europe, Norwich, United Kingdom, 20/06/1999 - 20/06/1999
Source: orbit
Source-ID: 278355
Publication: Research › Article in proceedings – Annual report year: 1999

Causes of mortality of stocked hatchery reared brown trout (Salmo trutta L.) in a small Danish river

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 1999
Event: Abstract from 3rd Conference on Fish Telemetry in Europe, Norwich, United Kingdom.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 278353
Publication: Research › Conference abstract for conference – Annual report year: 1999

Danmarks Fiskeriundersøgelser ønsker bedre dialog

General information
State: Published
Organisations: Section for Population Ecology and Genetics, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Eg Nielsen, E. (Intern), Koed, A. (Intern)
Pages: 42
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Sportsfiskeren
Volume: 74
Det ved vi om laksen netop nu

General information
State: Published
Organisations: Section for Population Ecology and Genetics, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Eg Nielsen, E. (Intern), Koed, A. (Intern)
Pages: 34
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Sportsfiskeren
Volume: 74
Issue number: 3
ISSN (Print): 0038-8211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 226819
Publication: Research › Journal article – Annual report year: 1999

Fem år med laksehandlingsplanen

General information
State: Published
Organisations: Section for Population Ecology and Genetics, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Eg Nielsen, E. (Intern), Koed, A. (Intern)
Pages: 35
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Sportsfiskeren
Volume: 74
Issue number: 3
ISSN (Print): 0038-8211
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 226826
Publication: Research › Journal article – Annual report year: 1999
Otter guards in river fyke-net fisheries: effects on catches of eels and salmonids

The effects of otter guards on the fishing efficiency of eel fyke-nets were investigated in two Danish rivers. The otter guards were made of 75-mm mesh netting and were placed across the fyke entrance. The fishing efficiency was measured as catch-per-unit effort and hauling time. Guard nets were mounted in half the fyke-nets, while the other half served as controls. After every haul, the fyke-nets with guard nets were returned to controls and vice versa. For legal-sized eels and salmonids, the guard-net significantly (P < 0.05) reduced the catches, causing a 30% reduction of the eel catch and a 53-55% reduction of the salmonid catch. The use of otter guards significantly increased the hauling time. The average time used for hauling a guarded fyke-net was increased by 15-25% for both upstream- and downstream-oriented fyke-nets, respectively. Blockages caused by water-borne debris appear to be the main cause of problems.

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Dieperink, C. (Ekstern)
Pages: 63-69
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Fisheries Management and Ecology
Volume: 6
Issue number: 1
ISSN (Print): 0969-997X
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed Yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.85 SJR 0.843 SNIP 0.88
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.988 SNIP 1.159 CiteScore 1.91
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.913 SNIP 0.995 CiteScore 1.85
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.737 SNIP 0.807 CiteScore 1.36
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.636 SNIP 0.868 CiteScore 1.32
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.844 SNIP 0.932 CiteScore 1.29
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.847 SNIP 0.808
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.796 SNIP 0.936
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.823 SNIP 0.87
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.813 SNIP 1.255
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.863 SNIP 1.05
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.76 SNIP 0.939
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.418 SNIP 0.674
Radio-transmitted electromyogram signals as indicators of swimming speed in brown trout and lake trout

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 1999
Event: Abstract from 3rd Conference on Fish Telemetry in Europe, Norwich, United Kingdom.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 278351
Publication: Research › Conference abstract for conference – Annual report year: 1999

Status for laksehandlingsplan

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Section for Population Ecology and Genetics
Authors: Koed, A. (Intern), Aarestrup, K. (Intern), Eg Nielsen, E. (Intern), Glüsing, H. (Ekstern)
Number of pages: 46
Publication date: 1999

Publication information
Place of publication: Silkeborg
Publisher: Danmarks Fiskeriundersøgelser
ISBN (Print): 87-88047-55-5
Original language: Danish

Series: DFU-rapport
Number: 66-99
Main Research Area: Technical/natural sciences
Electronic versions:
66-99_status_for_laksehandlingsplanen.pdf
Source: orbit
Source-ID: 226269
Publication: Research › Report – Annual report year: 1999

The movements of pikeperch in a shallow reservoir
The movements of 12 female (62-74 cm) and eight male pikeperch (55-64 cm) radiotagged in early March 1997 in the shallow and turbid Bygholm Reservoir, peaked during the summer, but all fish were also active during the winter. Females moved more than males and their activity was correlated with water temperature. Rate of movement was correlated positively with body size for both male and female pikeperch. During the breeding season (April-May) males became stationary for 14-47 days. Spawning sites, inferred from movements of males, were at depths of 2.0-2.5 m on hard substrata, mainly gravel in areas with many submerged trees and shrubs. Males tended to use the same spawning site the next year. Diel activity pattern varied seasonally but activity was highest from 1800 to 2400 hours. (C) 1999 The Fisheries Society of the British Isles.
General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Jepsen, N. (Intern), Koed, A. (Intern), Økland, F. (Ekstern)
Pages: 1083-1093
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Journal of Fish Biology
Volume: 54
Issue number: 5
ISSN (Print): 0022-1112
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.57 SJR 0.741 SNIP 0.882
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.951 SNIP 0.935 CiteScore 1.64
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.944 SNIP 0.934 CiteScore 1.76
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.049 SNIP 1.118 CiteScore 1.98
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.93 SNIP 1.035 CiteScore 1.88
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.895 SNIP 0.946 CiteScore 1.66
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.774 SNIP 0.834
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.773 SNIP 0.891
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 2
Scopus rating (2008): SJR 0.883 SNIP 0.968
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 0.996 SNIP 1.06
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.897 SNIP 1.051
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 0.827 SNIP 0.898
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 0.945 SNIP 1.148
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 0.937 SNIP 1.096
Web of Science (2003): Indexed yes
Fiskelinæssige forhold i Tange sø og Gudenå

General information
State: Published
Organisations: Institute Management, National Institute of Aquatic Resources, Section for Freshwater Fisheries Ecology
Authors: Rasmussen, G. (Intern), Koed, A. (Intern), Aarestrup, K. (Intern)
Pages: 225-237
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Journal: Ferskvandsfiskeribladet
Volume: 96
ISSN (Print): 0015-0223
Ratings:
ISI indexed (2013): ISI indexed no
ISI indexed (2012): ISI indexed no
ISI indexed (2011): ISI indexed no
Original language: Danish
Source: orbit
Source-ID: 227188
Publication: Research › Journal article – Annual report year: 1999

Causes of mortality of stocked hatchery reared brown trout in a Danish stream

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 1997
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 278348
Publication: Research › Conference abstract for conference – Annual report year: 1997

Havørredbestandene i Odense Å og Stavids Å systemerne i relation til Fynsværket

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Institute Management
Authors: Koed, A. (Intern), Rasmussen, G. (Intern), Rasmussen, E. (Ekstern)
Number of pages: 116
Publication date: 1997

Publication information
Place of publication: Silkeborg
Publisher: Danmarks Fiskerundersøgelser
ISBN (Print): 87-88047-10-5
Original language: Danish
Havørredfiskeriet i Odense Fjord 1995, herunder fiskeriet i Odense Gl. Kanal og den nedre del af Odense Å

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Rasmussen, E. (Ekstern), Koed, A. (Intern)
Number of pages: 40
Publication date: 1997

Homing of sea-trout (Salmo trutta L.) from River Odense and River Stavids released into Odense Fjord

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 1997
Event: Abstract from 2nd Conference on Fish Telemetry in Europe, La Rochelle, France.
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 278346
Publication: Research › Conference abstract for conference – Annual report year: 1997

Undersøgelser ved Fynsværke

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Publication date: 1997
Event: Abstract from Dansk Amtsvandingenærforening’s fagmøde ”Fisk i Vandløb”,
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 278349
Publication: Research › Conference abstract for conference – Annual report year: 1997

Status over bundgarnsfiskeriet i Danmark 1994

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern), Pedersen, M. I. (Intern)
Publication date: 1996

Publication information
Place of publication: Silkeborg
Publisher: Danmarks Fiskeriundersøgelser
Original language: Danish
Series: DFU-rapport
Number: 9-96
Main Research Area: Technical/natural sciences
Electronic versions:
9_96_status_over_bundgarnsfiskeriet_i_danmark_1994.pdf
Source: orbit
Source-ID: 226270
Publication: Research › Report – Annual report year: 1996

Tangetrappen 1994-95

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources, Institute Management
Authors: Koed, A. (Intern), Rasmussen, G. (Intern), Holdensgaard, G. (Ekstern), Pedersen, C. (Ekstern)
Number of pages: 44
Publication date: 1996

Publication information
Place of publication: Silkeborg
Publisher: Danmarks Fiskeriundersøgelser
Original language: Danish
Series: DFU-rapport
Number: 8-96
Main Research Area: Technical/natural sciences
Electronic versions:
8_96_tangetrappen_1994_95.pdf
Source: orbit
Source-ID: 226274
Publication: Research › Report – Annual report year: 1996

Betydningen af 75 mm stopnet i ruser for fangsten af ål og laksefisk i Varde Å og Ribe Å 1995

General information
State: Published
Organisations: Section for Freshwater Fisheries Ecology, National Institute of Aquatic Resources
Authors: Koed, A. (Intern)
Number of pages: 12
Publication date: 1995

Publication information
Place of publication: Silkeborg
Publisher: DFU
Original language: Danish
Series: Intern rapport / Danmarks Fiskeriundersøgelser
Main Research Area: Technical/natural sciences
Source: orbit
Source-ID: 278325
Publication: Research › Report – Annual report year: 1995

En teoretisk vurdering af gennemførelsen af Skjern Å-projektets effekt på udtrækket af ørred og laksesmolt fra Skjern Å's hovedløb. Tillægsrapport til "Status over fiskebestanden i Skjern Å's hovedløb med hovedvægt på ørred- og laksesmoludtrækket fra Skjern Å"
Predation on migrating sea-trout smolt (Salmo trutta L.) by pike (Esox lucius L.) and zander (Stizostedion lucioperch (L.)) in a danish lake

Status over fiskebestanden i Skjern Ås hovedløb med hovedvægt på ørred- og laksesmoltudtrækket fra Skjern Å

Projects:

Ecology of Atlantic Salmon
National Institute of Aquatic Resources
Period: 01/08/2017 → 31/07/2020
Number of participants: 4
Phd Student:
Flávio, Hugo de Moura (Intern)
Supervisor:
Jepsen, Niels (Intern)
Koed, Anders (Intern)
Main Supervisor:
Aarestrup, Kim (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Investigating the effects of barriers on fish in European streams and rivers
National Institute of Aquatic Resources
Period: 15/12/2016 → 14/12/2019
Number of participants: 4
Phd Student:
Birnie-Gauvin, Kim (Ekstern)
Supervisor:
Jepsen, Niels (Intern)
Koed, Anders (Intern)
Main Supervisor:
Aarestrup, Kim (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Anden EU-finansiering
Project: PhD

Investigating the effects of barriers on fish in European streams and rivers
National Institute of Aquatic Resources
Period: 15/12/2016 → 14/12/2019
Number of participants: 4
Phd Student:
Birnie-Gauvin, Kim (Intern)
Supervisor:
Jepsen, Niels (Intern)
Koed, Anders (Intern)
Main Supervisor:
Aarestrup, Kim (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Anden EU-finansiering
Strengthening the Danish populations of Atlantic salmon – Increasing populations, genetic resources and recreational fishing (39340)

In the beginning of the 1980’ies indigenous Danish salmon populations were close to extinction due to habitat degradation and stocking with non-native strains. Conservation efforts, led to a resurge of the populations in western Jutland. However, following the initial increases, Danish salmon populations have stagnated in recent years. Whether this is a response to limiting local factors or a correlated response across population (e.g. to climate change), is unknown. A profitable recreational fishery has developed on the Danish salmon. If the productivity of Danish salmon populations can be improved, this fishery and the related economical gain have the potential to increase correspondingly.

Atlantic salmon has a highly complex and specialized life cycle where the weakest link(s) determines the productivity of the salmon population. Accordingly, there is a need for a multifaceted research project. The main objectives of this project will be reached through six work packages aiming to: 1. Identify key local and global bottlenecks production of salmon across four life-stages, 2. Determine genetic characteristics (‘quality’) of local populations and identify how measures of ‘quality’ should be implemented into stocking programmes and 3. Communicate and implement insights on optimal management and exploitation to stakeholders.

The overarching aim of the project is to provide research based knowledge that can be directly implemented into a self-sustainable management framework that maximizes salmon population sizes, and hereby vastly increases local income from a recreational fishery with a high economic potential.

This project is coordinated by Danish Center for Wild Salmon.

The project is funded by Innovation Fund Denmark.

Section for Freshwater Fisheries Ecology
National Institute of Aquatic Resources

Danish Center for Wild Salmon
Period: 01/01/2016 → 31/12/2019
Number of participants: 5
Research areas: Freshwater Fisheries and Ecology & Population Genetics
Project participant:
Mena, Belén Jiménez (Intern)
Project Manager, academic:
Koed, Anders (Intern)
Eg Nielsen, Einar (Intern)
Bekkevold, Dorte (Intern)
Aarestrup, Kim (Intern)

Effects of the newly established lake on migrating juvenile salmonids (smolts)

National Institute of Aquatic Resources
Period: 01/03/2015 → 28/02/2018
Number of participants: 3
PhD Student:
Schwinn, Michael (Intern)
Supervisor:
Baktoft, Henrik (Intern)
Main Supervisor:
Koed, Anders (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Samfinansieret - Andet
Project: PhD

Salmon Management Plan revision (38944)

The Atlantic salmon is one of a number of species afforded special protection, along with their habitats, under the EU Habitats and Species Directive (Council Directive 92/43/EEC). This Directive provides for the creation of a network of protected sites across the EU known as ‘Natura 2000’, and includes Special Areas of Conservation (SACs) designated for
salmon. In Denmark salmon is under the responsibility of the Ministry of the Environment (ME). ME has engaged DTU Aqua to update and revise the latest Danish Management Plan of Salmon (2004).

The project is coordinated by the Ministry of Environment.

National Institute of Aquatic Resources
Section for Freshwater Fisheries Ecology

Danish Ministry of the Environment
Period: 01/10/2012 → 31/01/2013
Number of participants: 3
Research area: Freshwater Fisheries and Ecology
Project participant:
Sivebæk, Finn (Intern)
Eg Nielsen, Einar (Intern)
Project Manager, academic:
Koed, Anders (Intern)

Stresses coping Styles’ effect on fitness and life history choice in wild salmonids

National Institute of Aquatic Resources
Period: 01/12/2011 → 02/09/2015
Number of participants: 7
Phd Student:
Larsen, Martin Hage (Intern)
Supervisor:
Höglund, Erik (Intern)
Skov, Christian (Intern)
Main Supervisor:
Aarestrup, Kim (Intern)
Examiner:
Koed, Anders (Intern)
Lucas, Martyn (Ekstern)
Thorstad, Eva (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Marine Survival of Sea Trout

National Institute of Aquatic Resources
Period: 15/12/2010 → 27/08/2014
Number of participants: 6
Phd Student:
Del Villar, Diego (Intern)
Supervisor:
Koed, Anders (Intern)
Main Supervisor:
Aarestrup, Kim (Intern)
Examiner:
Jepsen, Niels (Intern)
Højesjø, Johan (Ekstern)
Lucas, Martyn (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut, samfinansiering
Project: PhD
Scaling of individual trout behaviour and life history to population dynamics

National Institute of Aquatic Resources
Period: 01/01/2009 → 25/04/2012
Number of participants: 7
Phd Student:
Boel, Mikkel (Intern)
Supervisor:
Aarestrup, Kim (Intern)
Skov, Christian (Intern)
Main Supervisor:
Koed, Anders (Intern)
Examiner:
Jacobsen, Lene (Intern)
Moore, Andrew (Ekstern)
Thorstad, Eva Bonsak (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU) Samf.
Project: PhD

Behaviour of lake-dwelling fish

National Institute of Aquatic Resources
Period: 01/12/2008 → 19/09/2012
Number of participants: 10
Phd Student:
Baktoft, Henrik (Intern)
Supervisor:
Aarestrup, Kim (Intern)
Berg, Søren (Intern)
Koed, Anders (Intern)
Skov, Christian (Intern)
Svendsen, Jon Christian (Intern)
Main Supervisor:
Jacobsen, Lene (Intern)
Examiner:
Rasmussen, Gorm (Intern)
Cooke, Steven J. (Ekstern)
Lucas, Martyn Charles (Ekstern)

Financing sources
Source: Internal funding (public)
Name of research programme: 1/3 FUU, 1/3 inst 1/3 Andet
Project: PhD

Behavior and recruitment biology of lake trout with special emphasis on the effect of cormorant predation on smolt survival (38271)
The scope of this study is to investigate the movement behavior in brown trout, Salmo trutta. Movements between Lake Hald and its two major tributaries and outlet are monitored by the use of passive telemetry. Juvenile and adult trout, caught in the tributaries, have been tagged with passive integrated transponder (PIT) tags and subsequently their passages at automated listening stations have been registered. The trout population is per definition landlocked, as barriers allow only for out-migration and prohibit the return of anadromous individuals. The movements in this semi-closed system allowed surveillance of general migration patterns and identification of within-population variations in life history strategies (stream resident, lake resident and migratory). A number of trout have been caught, sampled and released and use in retrospective evaluation of physiology. Measured variables from blood and gill samples were used to identify physiological differences that had discriminatory power between the three identified life history strategies. Additionally, the movements of lake resident spawners will also be looked upon in this study.
The trout population has been in decline for the last decade. This coincides with the establishment and growth of a cormorant colony on the lake shore. Furthermore, a heron colony close by has likewise grown in this period. Hence, trout which reside in tributaries and lake are subjected to predation from nearby cormorant and gray heron. The accumulation of PIT tags has been monitored with high temporal resolution, revealing the periods of peak predation pressure and the overall annual minimum predation. This, combined with PIT records, will reveal the habitat a trout has been predated in and hereby expose temporal vulnerabilities of lake and tributaries.

The project is coordinated by DTU Aqua.

National Institute of Aquatic Resources
Section for Freshwater Fisheries Ecology

Danish Ministry of the Environment
Period: 01/01/2008 → 31/03/2013
Number of participants: 2
Research area: Freshwater Fisheries and Ecology
Project participant:
Boel, Mikkel (Intern)
Project Manager, academic:
Koed, Anders (Intern)

Effects of new-developed lowland lakes on salmonid populations (38265)

Development of artificial lakes is a management tool to reduce nutrient runoff to coastal waters. Denmark has restored more than 10,000 ha of wetlands and lakes in the last 14 years in consequence of “Action Plans for the Aquatic Environment”, that aim to meet the demands of the European Union’s Water Framework Directive. Juvenile, seaward migrating salmonids (smolts) are highly affected by impounded waterbodies, as they are subjected to extraordinary high mortalities due to predation and altered habitat. Pike and birds have been demonstrated to be major predators on brown trout and salmon smolt in rivers and reservoirs. Migration delay of smolts in lakes may cause desmoltification. The objective of this project is to evaluate the effect of lake development on the salmonid smolt run in restored rivers and wetlands. This knowledge is important not only from a scientific perspective, but also in relation to DTU Aqua’s ongoing recommendations and advice given to counties and Ministry of Foods, Agriculture and Fisheries of Denmark on restoration projects.

The project is coordinated by DTU Aqua.

The project is funded by the Danish Rod and Net Fishing License Funds.

National Institute of Aquatic Resources
Section for Freshwater Fisheries Ecology

Council of Aarhus
Period: 01/01/2008 → 31/12/2016
Number of participants: 2
Research area: Freshwater Fisheries and Ecology
Project participant:
Schwinn, Michael (Intern)
Project Manager, academic:
Koed, Anders (Intern)

Evaluation of the National Salmon Management Plan (38257)

A National Management Plan (MP) for the (endangered) remaining Danish populations of Atlantic salmon was issued in 2004. The plan includes stocking, fishing regulations and massive habitat/connectivity improvements, but no monitoring plan to evaluate the effect and assess the current status of the populations/runs in the 4 rivers covered by the MP.

This project will seek to close the information gap and provide basic information on the salmon runs to enable proper management decisions. Every year monitoring will be carried out in one or two of the 4 rivers covered by the MP, so each river will be surveyed every 2 or 3 years.

Number of spawners

Intensive electrofishing from boat is carried out just after the season closure (October) in the main river and in some tributaries, where all salmon are measured (TL, sex) and PIT tagged. In November during the regular electrofishing for broodstock, the proportion of tagged individuals gives a measure of the sampling efficiency and provides basis for an estimation of population size. The composition in terms of size, sex and origin (stocked fish are fin-clipped) can also be estimated.
Spawning areas
In each of the 4 rivers the most important/preferred spawning areas were identified using radiotelemetry. Both present and potential spawning and rearing habitat will be assessed by standard monitoring and electro-fishing for juveniles in order to judge the present production in relation to the potential production. Naturally spawned fry will be genetically analyzed to assess the number of families present on each spawning area (redd). The presence of several families indicate a well-functioning and well-visited spawning area, whereas few or single families indicate lack of spawners.
Annual reports from the project are used for adaptive management measures like quota setting, season and stocking.

The project is coordinated by DTU Aqua.
This is funded by the Danish Rod and Net Fishing Licence Funds.

National Institute of Aquatic Resources
Section for Freshwater Fisheries Ecology
Danish Center for Wild Salmon
Period: 01/01/2008 → …
Number of participants: 4
Research areas: Freshwater Fisheries and Ecology & Population Genetics
Project participant:
Koed, Anders (Intern)
Christensen, Hans-Jørn Aggerholm (Intern)
Holm, Michael (Intern)
Project Manager, academic:
Jepsen, Niels (Intern)
Project